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Depression and school performance in middle adolescent boys and girls

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Abstract

The study aimed to investigate the associations between different levels of depression with different aspects of school performance. The target population included 2516 7th–9th grade pupils (13–17 years) of whom 90% completed the questionnaire anonymously in the classroom. Of the girls 18.4% and of the boys 11.1% were classified as being depressed (R-Beck Depression Inventory (BDI), the Finnish version of the 13-item BDI). The lower the self-reported grade point average (GPA) or the more the GPA had declined from the previous term, the more commonly the adolescents were depressed. Depression was associated with difficulties in concentration, social relationships, self-reliant school performance and reading and writing as well as perceiving schoolwork as highly loading. The school performance variables had similar associations with depression among both sexes when a wide range of depression was studied but gender

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differences appeared when studying the severe end of the depression scale. Our study indicates that pupils reporting difficulties in academic performance should be screened for depression.

Keywords: Adolescence; School performance; Depression; Cross-sectional

Introduction

Adolescent depression has a significant negative impact on school performance and consequently produces maladaptive outcomes in terms of subsequent education and occupational functioning. Several key symptoms of depression, such as impaired ability to concentrate, loss of interest, poor initiative, psychomotor retardation, low self-esteem, sense of worthlessness as well as social withdrawal may significantly disturb cognitive performance and diminish initiative in learning (Beck, 1967; Hammen, 1998; Kirkcaldy & Siefen, 1998; Kovacs & Goldston, 1991). Depression may impair cognitive functioning because the depressed adolescent concentrates on depressive thoughts and interpretations instead of the actual tasks, or because depression directly blocks cognitive resources, or due to both reasons (Hartlage, Alloy, Vázquez, & Dykman, 1993). The negative reactions of teachers and peers may also cause learning problems via paying attention to the depressed adolescent's behavior and emotional problems instead of learning (Adams, 1992). Failures and negative feedback are likely to further exacerbate the depressive cognitive style typical of depression (Beck, 1967; Birmaher et al., 1996; Kendall & Lochman, 1994) or strengthen depressive thought(s) promoting learned helplessness, passivity and avoidance (Seligman, 1975).

Previous studies have suggested an association between depression and poor school performance measured by grade point average (GPA) or numerical evaluation of success on various courses (Economou & Angelopoulos, 1989; Kaltiala-Heino, Rimpelä, & Rantanen, 1998; Kovacs & Goldston, 1991; Puig-Antich et al., 1993; Reinherz, Frost, & Pakiz, 1991; Slotkin, Forehand, Fauber, McCombs, & Long, 1988). Major depression was associated with poor school performance even long after symptomatic remission in some studies (Kovacs & Goldston, 1991) but not in all (Lewinsohn, Gotlib, & Seeley, 1995). Reinherz et al. (1993) found no association between major depressive illness and academic competence. However, self-reported symptoms of depression have been suggested to associate with impaired academic performance (Reinherz et al., 1991) and decreases in GPA in follow-up (Shahar et al., 2006). Dissatisfaction with grades has also been suggested predictive of subsequent major depressive disorder (Lewinsohn et al., 1994).

GPA can be considered an objective measure of academic achievement in the sense that the GPA is independent of the perceptions of the adolescent, but school performance can also be assessed with subjective measures, such as perceived performance as compared to peers, or perceived difficulties in different skills. The hypothesis then is that perceived inability to fulfill valued standards may give rise to depressive cognitions. Perceived inefficacy to master various skills, to regulate learning and to form and maintain social relationships have all been associated with both concurrent and subsequent depression (Alva & de Los Reyes, 1999; Bandura, Pastorelli, Barbaranelli, & Caprara, 1999; Lewinsohn et al., 1994). Different components of academic

self-perception may, however, contribute differently to depressive feelings (Masi et al., 2001). Depression has also been reported to associate more significantly with subjective measures of academic competence than with actual academic performance (academic grades) both concurrently and in follow-up (Bandura et al., 1999).

Some research has targeted the associations between depression and students' motivational beliefs and attitudes in coping with the responsibilities of school. Underestimation of academic competence and low achievement expectations have been reported to be associated with adolescent depression (Cheung, 1995; Cole, Martin, Peeke, Seroczynski, & Fier, 1999).

Previous research has often focused on only one aspect of school performance, perceived or objective. The issue of whether different areas of subjectively perceived school performance are differently related to depression is also sparsely discussed. As to numerical marks as the indicators of academic achievement, the recent changes in marks have been little considered, even if one might expect that a change in academic achievement could be more relevant for depression than stable marks, be they good or below average. More information is needed about the association of diverse aspects of school performance in relation to depression in adolescence.

The aims of this study were to explore in a non-selected classroom survey sample among 13–17-year olds:

(1) the associations of objective school performance (as measured by GPA and change in GPA) and subjective school performance (perceived loading of schoolwork and difficulties in different areas of schoolwork) with self-reported depression among adolescents;
(2) which school-related variables are most strongly associated with self-reported depression when evaluating both the subjective and objective aspects of school performance together.

We expected to find perceived difficulties in school performance more strongly associated with depression than objective school performance, since there may be two intertwining effects of depression on perceived difficulties. Depression may be associated with perceiving one's performance inferior to that of peers, which in turn may result in hopelessness and less effort and thus actual impairment in performance (which, again may result in perceiving oneself as increasingly inferior).

Materials and methods

Participants

The material of the present study comprises the responses of the 7th–9th grade pupils (ages 13–17 years) attending secondary school in Pori, a Finnish city of approximately 80,000 inhabitants, in spring 2000. Out of a total of 2516 students enrolled in the study schools, all students present at school on the date of the survey ($n = 2329$) participated in the study and completed questionnaires anonymously in the classroom as a part of a larger epidemiological study on adolescent mental health. Due to incomplete data 63 (3%) questionnaires were excluded. Thus, the final analyzable sample totaled 2266 (90% of the target population, 97% of those present at school). The 50.8% of the subjects were girls. The mean age of the respondents was

15 years (s.d. = 0.9), 71.5% were living with both parents and 62.2% reported stable employment of their parents (none unemployed during the past 12 months). Of the subjects' parents 16.5% of fathers and 16.7% of mothers had completed a university degree. The study was approved by the Ethics Committee of Tampere University Hospital.

Measures

Depression

Depression was measured using R-Beck Depression Inventory (BDI) (Raitasalo, 1995), the Finnish modification of the 13-item version of BDI (Beck, 1972). The psychometric properties of the Finnish version have been shown to be good among 14–16-year-old adolescents (Kaltiala-Heino, Rimpelä, Rantanen, & Laippala, 1999). R-BDI comprises 13 statements showing increasing intensity of depressive emotions and cognitions scoring 0–3 each, the theoretical range of the scale thus being 0–39. Overall scores of 0–4 indicate no depression, 5–7 indicate mild, 8–15 indicate moderate and 16 and more indicate severe depression (Beck, 1972; Raitasalo, 1995). In the present study we use three dichotomized outcomes: depression (overall score 8 or more, yes/no), moderate depression (overall score 8–15, yes/no) and severe depression (overall score 16 or more, yes/no).

Objective school performance

Objective school performance comprised of self-reported GPA (theoretical range 4.0–10.0), which was used as a continuous variable, and change in GPA. Change in GPA from previous term was elicited by asking if GPA had changed from end of fall term 1998 to the spring 1999 evaluation. The answering alternatives were: improved 0.5 points or more, minor change (change in either direction is less than 0.5), declined 0.5–1.0 points, declined more than 1.0 point.

Subjective school performance

Subjective school performance comprised of perceived loading of schoolwork and perceived difficulties in different areas of schoolwork.

Perceived loading of schoolwork was assessed by asking: How do you perceive the workload concerning your schoolwork during this school year? The response alternatives were: continuously too high, quite often too high, suitable, quite often too low, continuously too low. Due to low frequencies, the last two response alternatives indicating low loading were combined for the logistic regression analyses. The final classes were thus: continuously too high, quite often too high, suitable, and too low.

Perceived difficulties in schoolwork were elicited by asking: How is your school going? Do you have difficulties in the following areas of schoolwork? Concentrating, paying attention to teaching, teamwork, getting along with peers, getting along with teachers, doing homework, preparing for examinations, finding personal learning strategies, doing activities requiring initiative, doing reading tasks and doing writing tasks. The response alternatives for each area of schoolwork were: 0 = not at all, 1 = not so much, 2 = quite much, 3 = very much.

For further analysis, the 11 items eliciting perceived difficulties in schoolwork were combined to four conceptual sum scales as follows (in parenthesis, range min–max of each scale):

(1) difficulties in concentration (difficulties in concentrating and difficulties in paying attention to teaching) (0–6);
(2) difficulties in social relationships (difficulties in teamwork, difficulties with peers and difficulties in relationships with teachers) (0–9);
(3) difficulties in self-reliant school performance (difficulties doing homework, difficulties preparing for examinations, difficulties finding personal learning strategies and difficulties in activities requiring initiative) (0–12);
(4) difficulties in reading and writing: (difficulties in reading tasks and difficulties in writing tasks) (0–6).

The internal consistency of the sum variables comprising different areas of difficulties in schoolwork was good. The Cronbach's alphas varied between 0.644 (difficulties in social relationships—scale for boys) and 0.782 (difficulties in concentration—scale for boys).

Statistical analysis

Associations between school performance and self-reported depression were first analyzed using the χ^2-test for categorized variables and independent samples *t*-test for the continuous variables (GPA). A binary logistic regression analysis applying enter procedure was then performed to find school performance variables independently associated with depression. The dependent variables were s depression (yes/no), moderate depression (yes/no) and severe depression (yes/no). The independent variables were age (in years) and all the school performance variables: GPA, change in GPA, perceived loading of schoolwork and perceived difficulties in schoolwork. All analyses were conducted separately for both genders. *P*-values smaller than 0.05 were considered as statistically significant (also when the confidence interval in logistic regression included 1 in either end of the interval). Data were analyzed using SPSS for Windows (version 14.0) statistical software.

Results

Univariate associations between school performance and self-reported depression

Of the girls 18.4% (13% reporting moderate, 5% reporting severe symptoms) and of the boys 11.1% (8% reporting moderate, 3% reporting severe symptoms) were classified as being depressed. During the last term the mean GPA was 7.6 among the boys (s.d. = 0.92) and 8.0 among the girls (s.d. = 0.82). The mean GPA was 7.1 (s.d. = 0.91) in depressed and 7.7 (s.d. = 0.92) in non-depressed boys, while the respective figures in girls were 7.6 (s.d. = 0.79) and 8.0 (s.d. = 0.90) ($P<0.001$).

As compared with the adolescents with a minor change in the GPA, the more the GPA had declined, the more common were all severity levels of depression among both sexes, but especially moderate depression in boys was also associated with a change for the better. Among those adolescents who perceived the loading of schoolwork to be continuously or quite often too high, all severity levels of depression were more common compared to those who reported the loading

to be suitable. Among boys all severity levels of depression were associated with perceiving the loading of schoolwork continuously too low, whereas in girls only severe depression was associate with the perception of continuously too low loading. Further, all severity levels of depression were more common among those who had difficulties in concentrating, in paying attention to teaching, in teamwork, with peers, in relationships with teachers, doing homework, preparing for examinations, finding personal learning strategies, in activities requiring initiative, in reading tasks and in writing tasks. The associations between school performance and all severity levels of depression were similar among the girls and the boys in almost all analyses. Among girls moderate depression was not associated with difficulties in team work and severe depression was not significantly associated with difficulties in writing tasks (Table 1).

Multivariate associations between school performance and self-reported depression

The school performance-related correlates of self-reported depression were the same among both sexes in multivariate analysis concerning the widest range of depression (BDI scores 8 or more). Both measures of objective school performance (GPA and a change in GPA) were associated with self-reported depression. The association between a moderate (0.5–1.0 grades) decline in GPA with depression observed in univariate analyses was sustained in the multivariate analysis, while the associations of a major decline in GPA and an improvement of GPA were not. The subjective school performance variables that significantly predicted self-reported depression were high perceived loading of schoolwork and difficulties in social relationships and self-reliant school performance (an increase in perceived difficulties increased the risk for depression) (Table 2).

Indices of objective school performance were not associated with moderate depression among either sex. High GPA and an improvement in GPA were protective of severe depression in boys but not among girls. Perceiving the loading of schoolwork continuously too high was the only subjective measure of school performance associated with severe depression among boys whereas among girls almost all subjective measures were associated with severe depression.

Discussion

The main finding was that aspects of both objectively measured and subjectively perceived poor performance persisted as significantly associated with a wide range of depression in both sexes also when studied simultaneously in a multivariate analysis. In more specific analyses concerning moderate depression only, the indices of objective school performance did not prove significant in either sex. Finally studying the most extreme cases of self-reported depression, gender differences appeared: objective school performance seemed protective for severe depression in boys but not in girls, whereas subjective school performance was much more strongly associated with severe depression in girls than in boys.

In line with the majority of previous studies (Economou & Angelopoulos, 1989; Kaltiala-Heino et al., 1998; Kovacs & Goldston, 1991; Masi et al., 2000; Puig-Antich et al., 1993; Reinherz et al., 1991; Slotkin et al., 1988)—if not all (Lewinsohn et al., 1995; Masi et al., 2001; Reinherz et al., 1991)—we found that self-reported depression was associated with poor academic achievement in

Table 1
Depression (A—moderate to severe, B—moderate, C—severe) by objective and subjective school performance among 13–17-year-old boys and girls

	A depression (R-BDI 8 or more)				B moderate depression (R-BDI 8–15)				C severe depression (R-BDI 16 or more)			
	Boys	χ^2	Girls	χ^2	Boys	χ^2	Girls	χ^2	Boys	χ^2	Girls	χ^2
Objective school performance												
Change in GPA from previous term		<0.001		<0.001				0.011		<0.001		<0.001
Improved 0.5 or more points	14		19		10		12		3		6	
Minor change	7		15		5		11		2		3	
Declined 0.5–1.0 points	18		27		13		19		4		7	
Declined more than 1,0 points	37		39		8		20		26		17	
Subjective school performance												
Perceived loading of school work		<0.001		<0.001		<0.001		<0.001		<0.001		<0.001
Continuously too high	30		42		15		24		13		17	
Quite often too high	15		28		12		18		3		8	
Suitable	5		12		4		10		1		2	
Quite often too low	6		21		6		12		0		5	
Continuously too low	21		14		7		0		14		14	
Difficulties in concentration												
Difficulties in concentrating		<0.001		<0.001		<0.001		<0.001		<0.001		<0.001
Not at all	6		9		4		6		1		2	
Not so much	9		18		6		15		3		3	
Quite much	18		32		14		19		4		12	
Very much	42		63		26		25		16		37	
Difficulties in paying attention to teaching		<0.001		<0.001		<0.001		<0.001		0.001		<0.001
Not at all	5		11		3		9		2		2	
Not so much	11		17		7		14		3		3	
Quite much	22		42		17		21		4		19	
Very much	48		56		32		36		16		19	
Difficulties in social relationships												
Difficulties in team work		<0.001		<0.001		<0.001		0.084		0.001		<0.001
Not at all	7		15		4		11		3		3	
Not so much	13		23		10		15		2		8	
Quite much	22		34		14		22		8		10	
Very much	40		40		21		7		14		27	
Difficulties in getting along with peers		<0.001		<0.001		0.004		<0.001		0.007		<0.001
Not at all	7		13		5		10		2		3	
Not so much	15		28		10		19		5		8	
Quite much	20		43		9		31		8		10	
Very much	21		29		15		14		6		13	

Table 1 (*continued*)

	A depression (R-BDI 8 or more)				B moderate depression (R-BDI 8–15)				C severe depression (R-BDI 16 or more)			
	Boys	χ^2	Girls	χ^2	Boys	χ^2	Girls	χ^2	Boys	χ^2	Girls	χ^2
Difficulties in relationships with teachers		<0.001		<0.001		<0.001		<0.001		<0.001		<0.001
Not at all	6		10		4		8		2		2	
Not so much	10		21		8		15		2		5	
Quite much	15		41		10		27		5		13	
Very much	36		52		22		21		12		24	
Difficulties in self-reliant school performance												
Difficulties doing homework		<0.001		<0.001		<0.001		<0.001		<0.001		<0.001
Not at all	6		10		2		6		3		4	
Not so much	7		16		6		13		1		3	
Quite much	17		33		11		22		4		9	
Very much	31		46		21		24		10		22	
Difficulties preparing for examinations		<0.001		<0.001		<0.001		<0.001		<0.001		<0.001
Not at all	7		10		3		7		2		2	
Not so much	6		13		4		10		1		2	
Quite much	16		29		12		21		4		8	
Very much	38		43		24		21		12		19	
Difficulties finding personal learning strategies		<0.001		<0.001		<0.001		<0.001		0.035		<0.001
Not at all	9		11		5		7		4		2	
Not so much	9		16		6		13		2		2	
Quite much	16		31		10		18		5		13	
Very much	42		60		35		29		7		27	
Difficulties in activities requiring initiative		<0.001		<0.001		<0.001		<0.001		<0.001		<0.001
Not at all	6		12		3		9		2		2	
Not so much	8		18		5		13		2		4	
Quite much	21		30		17		22		3		7	
Very much	40		64		22		27		16		32	
Difficulties in reading and writing												
Difficulties in reading tasks		<0.001		<0.001		<0.001		0.002		0.104		<0.001
Not at all	8		13		5		9		3		3	
Not so much	10		21		7		17		3		4	
Quite much	13		32		10		16		3		15	
Very much	36		28		27		19		9		6	
Difficulties in writing tasks		<0.001		0.001		<0.001		0.001		0.038		0.263
Not at all	7		14		4		9		3		4	
Not so much	10		20		8		15		2		4	
Quite much	18		31		11		23		6		8	
Very much	30		24		22		20		6		0	

terms of low school marks. The lower the GPA, the more common was depression. This is plausible, since depression could either result in lowered performance or be triggered by current failure. The direction of causality may, however, differ between the sexes: baseline grades have been suggested to predict female depression but not male depression in follow-up (Undheim & Sund, 2005). The moderator between the association between depressive symptoms and decrease in GPA may be self-criticism (Shahar et al., 2006). The contemporary society values academic achievement very high, and this may place those less capable to that in a disadvantageous position not only related to career but also regarding mental health.

Perceived too heavy loading of schoolwork as well as perceived difficulties in many areas in the school context were associated with self-reported depression, as reported also in several previous studies (Alva & de Los Reyes, 1999; Bandura et al., 1999; Cole et al., 1999; Lewinsohn et al., 1994; Masi et al., 2000, 2001; Puig-Antich et al., 1993; Seroczynski, Cole, & Maxwell, 1997).

All changes in the GPA were associated with depression in univariate analyses but nearly all associations with different severity levels of depression disappeared when other school-related variables were controlled for. In univariate analyses there was an interesting association of an improvement in GPA and depression showing especially clearly in moderate depression among boys. While an improvement in the GPA per se might be associated with depression because of a possible loss of popularity among peers or overwhelming stress and tiredness resulting from the process of getting to that higher GPA; the association with depression was not strong enough to persist in multivariate analysis.

When objective measures of school performance were controlled for, depression was associated with some, but not all aspects of subjective school performance. Difficulties in concentration were associated only with severe levels of depressive symptoms in girls. Difficulties in reading or writing did not seem to constitute a risk for depression when other school performance variables were controlled for. On the other hand, school achievement in specific skills such as reading has been suggested to be associated with externalizing problems in adolescence (Richards, Symons, & Greene, 1995). Future studies should focus in more detail on associations between aspects of schoolwork and different types of disorders, in order to find entries for intervention for youth with both externalizing and internalizing disorders.

Previous research has seldom investigated simultaneously the associations between objective and subjective school performance and depression. Recently, Undheim and Sund (2005) found in cross-sectional analyses that school stress and class well-being were significantly associated with depressive symptoms in both sexes whereas grades were associated with male depression only in a middle adolescent population. An association between poor relationships with peers and/or teachers has been found with diverse study designs and samples (Masi et al., 2000, 2001; Puig-Antich et al., 1993) but gender differences in these associations have seldom been addressed. According to our findings gender differences in associations with different kinds of indices of school performance may be especially evident concerning severe symptomatology.

Due to the cross-sectional design of this study it remains unknown whether the adolescents' school performance was impaired due to depression, or whether negative life events, such as disappointments in academic performance contributed to their depression (Birmaher et al., 1996; Lewinsohn et al., 1994). There are many potential risk factors and diverse pathways to depression. However, cognitive aspects seem to be of major importance in adolescent depression. From a

Table 2
The risk (OR, 95% confidence interval) for depression (A—moderate to severe, B—moderate, C—severe) among 13–17-year-old boys and girls according to objective and subjective school performance

	A depression (R-BDI 8 or more)				B moderate depression (R-BDI 8–15)				C severe depression (R-BDI 16 or more)			
	Boys		Girls		Boys		Girls		Boys		Girls	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
GPA[a]	0.7	0.5–0.9	0.8	0.6–1.0	0.7	0.5–1.0	0.8	0.6–1.1	0.6	0.4–1.0	0.7	0.2–2.6
Change in GPA from previous term												
Minor change	1.0				1.0		1.0		1.0		1.0	
Improved at least 0.5 points	1.6	0.8–3.0	1.2	0.7–1.9	1.8	0.4–9.5	1.0	0.4–2.8	0.2	0.0–0.6	0.7	0.2–2.6
Declined 0.5–1.0 points	1.9	1.1–3.2	1.6	1.1–2.5	2.7	0.8–14.9	1.0	0.3–3.0	0.3	0.1–1.3	1.2	0.3–5.2
Declined more than 1.0 points	2.6	0.9–7.4	1.1	0.4–2.7	3.1	0.6–15.8	1.6	0.6–4.4	0.4	0.1–1.6	1.2	0.3–4.5
Perceived loading of schoolwork												
Suitable	1.0		1.0		1.0		1.0		1.0		1.0	
Too low	2.1	0.7–5.7	1.4	0.6–3.0	1.6	0.5–5.4	0.9	0.3–2.4	3.0	0.6–15.9	2.1	0.5–8.1
Quite often too high	2.4	1.5–4.4	2.0	1.4–2.9	3.0	1.6–5.6	1.6	1.0–2.4	1.5	0.5–4.6	3.1	1.5–6.4
Continuously too high	4.3	2.3–8.2	2.8	1.2–6.1	2.3	1.1–5.2	1.7	0.7–4.3	7.3	2.5–21.1	5.2	1.6–16.7
Difficulties in concentration[a]	1.0	0.8–1.2	1.1	1.0–1.4	1.0	0.8–1.3	1.0	0.8–1.2	1.1	0.7–1.6	1.5	1.1–2.0
Difficulties in social relationships[a]	1.1	1.0–1.3	1.2	1.1–1.4	1.1	0.9–1.3	1.1	1.0–1.3	1.2	1.0–1.5	1.3	1.1–1.6
Difficulties in self-reliant school performance[a]	1.2	1.1–1.4	1.2	1.1–1.3	1.3	1.2–1.6	1.1	1.0–1.3	0.9	0.8–1.2	1.2	1.0–1.4
Difficulties in reading and writing[a]	1.0	0.8–1.2	0.9	0.8–1.1	1.0	0.8–1.2	1.1	0.9–1.3	0.9	0.7–1.2	0.7	0.5–0.9
Age (years)[a]	0.7	0.5–0.9	1.1	0.8–1.3	0.7	0.5–0.9	1.0	0.8–1.3	0.9	0.6–1.5	1.2	0.8–1.8

[a]Continuous variable.

theoretical point of view, an adolescent's conceptualization of decline in academic performance as a consequence of personal deficiencies seems to contribute to depression via self-blame and negative attributions (Abramson, Alloy, & Metalsky, 1989).

Academic engagement and achievement are likely to be critical to continued patterns of personal adjustment during adolescence, and poor achievement may constitute a risk factor for subsequent depression (Eccles, Lord, & Roeser, 1996; Lewinsohn et al., 1994; Pelkonen, Marttunen, & Aro, 2003) and for low educational level in adulthood (Koivusilta, Rimpelä, & Vikat, 2003). However, the association may be complex, e.g. Cole et al. (1999) reported that depression increased the likelihood of starting to underestimate one's own competence, but underestimating one's own competence did not result in depression during follow-up. Early detection of mental health problems among adolescents with poor academic performance seems to be justified (DeSocio & Hootman, 2004).

Methodological considerations

The present population-based study provides a good opportunity to assess cross-sectionally the relationships between different aspects of school performance and self-reported depression. The sample is large and representative comprising all the secondary school students in an urban and sub-urban region. All shared the same language and ethnic background. The results may not, however, be generalizable directly to populations in rural regions and with different ethnic backgrounds. The questionnaires were completed in classrooms in a controlled and motivated environment; which produced a high response rate of 90%. Although depression is likely to be more prevalent among dropouts, the high response rate enhances the generalizability of the results and it is unlikely that the associations between the phenomena studied would be different among the drop outs.

A validated method of assessing self-reported depression among adolescents (R-BDI) was used. Using self-report, no medical diagnoses of depressive disorders can be generated. To avoid bias due to normal mood changes in adolescence, we set the cut-point to scores indicating at least moderate depression (Kaltiala-Heino et al., 1999). Prevalence of depression in the present sample fell within the range of estimates suggested in previous studies reporting symptoms of self-reported depression (Pelkonen et al., 2003), or depression as measured by standardized diagnostic interviews (Aalto-Setälä, Marttunen, Tuulio-Henriksson, Poikolainen, & Lönnqvist, 2001; Wittchen, Nelson, & Lachner, 1998).

We were interested in the subjects' own experiences regarding difficulties in the school context. Self-report questionnaires offered valuable information on individual experiences in schooling during adolescence. Estimating objectively measurable difficulties in reading, writing, attention or executive functions would require specialized psychological examinations.

Due to the gathering of delicate information our data are anonymous. Hence it was impossible to check the individual GPAs from school records. Self-reported GPA of university students has been suggested sufficiently adequate for research use (Cassady, 2001). Adolescents with little psychological stress or no problem behavior may tend to overestimate their grades (Zimmerman, Caldwell, & Bernat, 2002) and actual academic performance and cognitive skills may also mediate self-reported grade validity (Kuncel, Kuncel, Crede, & Thomas, 2005). Therefore, certain caution is needed in interpreting the associations of depression with GPA.

Conclusions

Depressed young people had impaired abilities to cope with academic responsibilities. This emerges both in external evaluation and in subjective experience. Perceiving difficulties in special areas of school work was associated with moderate symptoms among boys and severe symptoms among girls. The proportion of depressed individuals among adolescents perceiving very much difficulties in different areas of school work was alarmingly high (30–64%). These findings seem to have implications for school and health care professionals in early detection and intervention with depression-prone adolescents. Preventive efforts can be selectively targeted at young people with academic problems. Mental health can be promoted in school settings with support strategies such as enhancing self-esteem and promoting efficient learning strategies. For youth with distressing depressive symptoms appropriate psychiatric assessment and treatment should be offered to promote school performance, and through that, future academic aspirations.

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