

*Chapter 1*

**SCHOOL LIFE AND DEPRESSION DEVELOPMENT  
FOLLOWING HIGH SCHOOL TRANSITION: RISK  
ANALYSES FROM THE MONTREAL ADOLESCENT  
DEPRESSION DEVELOPMENT PROJECT (MADDP)**

*Alexandre J.S. Morin<sup>1</sup>*

Group for Interdisciplinary Research in Psychology Applied to Social Systems  
(GIRPASS), Department of Psychology, University of Sherbrooke, Canada  
Michel Janosz, and Serge Larivée, School of Psycho-Education,  
University of Montreal, Canada

**ABSTRACT**

The present study was designed to evaluate the relationship between school life and depression development in adolescents. More precisely, this study sought to determine which specific aspects of school life (in-school psychological characteristics, school-related socialization experiences, perceived school environment) could be considered as risk factors for depression development once students' background characteristics are taken into account. The possibility that these relationships could be moderated by gender and by students' previous levels of depression was also evaluated. These exploratory questions were evaluated with data from the transitional component of the Montreal Adolescent Depression Development Project (MADDP), a one-year follow-up study of 1167 seventh grade students having just experienced high school transition. The results clearly suggested that various aspects of students' school life represent significant predictors of depression development, particularly among girls. One of the main conclusions from this study is that school-based prevention programs are likely to diminish students' risk of developing depression following high school transition.

**Keywords:** *depression, adolescence, risk factors, school life, transition.*

---

<sup>1</sup> Correspondence referring to this chapter should be addressed to Alexandre J.S. Morin, University of Sherbrooke, F.L.S.H., Department of Psychology, 2500 boulevard de l'Université, Sherbrooke, Qc, Canada, J1K 2R1, E-mail: alexandre.morin@usherbrooke.ca.

## INTRODUCTION

Depression, despite its lifelong chronic, recurrent, comorbid, and disabling nature, clearly represents a preeminent challenge for mental health researchers and preventionists (Angold, Costello, and Erkanli, 1999; Lewinsohn and Essau, 2002; Murray and Lopez, 1996). Developing efficient depression prevention programs was therefore identified as a key priority for developmental research by national and international health organizations (Dawson and Tylee, 2001; Mrazek and Haggerty, 1994). Developing such programs requires a precise and integrated understanding of the many risk and protective factors involved (Coie *et al.*, 1993; Mrazek and Haggerty, 1994). Moreover, as depression usually develops during adolescence and shows great continuity across the lifespan, the impact of these factors would have to be studied in child and adolescent populations (Newman, Moffitt, Caspi, Magdol, Silva, and Stanton, 1996).

Children and adolescents spend a significant part of their life at school. It is thus not surprising that studying the relationships between school life and mental health has often been identified as a priority for developmental research (Rutter, 1999; Zaslow and Takanishi, 1993). Schools represent one of youths' central life settings as well as a key socialization area. School life also encompasses many non-academic aspects of youths' social existence, such as the beginning of friendships, romance, and autonomy from parents. Consequently, school life may play a vital part in the fulfillment of youths' basic developmental needs for affiliation, security, autonomy, bonding, and achievement (Eccles, Lord, and Midgley, 1991; Mortimore, 1995).

Depression prevalence rates were found to increase in recent adolescent birth cohorts (Lewinsohn, Rohde, Seeley, and Fisher, 1993), and current hypotheses indirectly suggest that school life may be implicated in this phenomenon. For instance, Eccles (Eccles *et al.*, 1991, 1993) argued that whereas adolescents' basic developmental needs imply autonomy, intimacy, identity formation, and abstract thinking, modern middle schools (versus elementary ones) are often characterized by increased discipline, academic and social competition, social network disruptions, and lower cognitive demands. The resulting mismatch may create an increased risk for the development of psychosocial problems, especially in already vulnerable students (Eccles *et al.*, 1991, 1993; Janosz, Georges, and Parent, 1998). More precisely, adolescents whose school life is characterized by a mismatch between developmental needs and socialization experiences may come to internalize the idea that their needs are unworthy of attention and develop chronic feelings of helplessness, which in turn may lead to depression (Haaga, Dyck, and Ernst, 1991). The fact that depression often develops in early to mid-adolescence, following high school transition (Cyranski, Frank, Young, and Shear, 2000; Nolen-Hoeksema, 2002), provides further support to Eccles *et al.*'s (1991, 1993) hypothesis.

Additionally, Diekstra (1995) and Robins (1995) indicated that the lives of modern adolescents are characterized by an earlier onset of puberty, by lengthier academic training and by the breakdown of traditional sources of social support (e.g., families, community cohesion, churches, etc.). In this context, modern adolescents have to deal earlier with adult bodies and physiological functions without being able to assume adult roles. Diekstra (1995) and Robins (1995) hypothesized that these new challenges represent one potential explanation for the increased rates of depression observed among modern adolescents. In addition to these challenges, schools may themselves contribute to adolescents' exposure to various forms of stressful experiences (e.g., being bullied at school, having a conflictual relationship with one's

teachers, etc.): the relationship between stress exposure and depression is a well-documented phenomenon (Ge, Lorenz, Conger, Elder, and Simons, 1994; Lewinsohn, Allen, Seeley, and Gotlib, 1999). Moreover, due to the breakdown of traditional institutions, modern adolescents often must face alone the identity crisis that may result from these new challenges and stressful experiences (Diekstra; 1995; Robins, 1995). Schools occupy a privileged position to provide modern youths with alternate sources of social support to help them build up an integrated sense of identity. Once again, social support represents a known protective factor against depression development (Kiesner, 2002; Stein, Newcomb, and Bentler, 1996). Unfortunately, as Eccles *et al.* (1991, 1993) indicated, modern schools may not be equipped to deal with these new challenges.

Surprisingly, although many risk and protective factors were studied in relation to depression development in children and adolescents, very few studies attempted to understand the precise role of various dimensions of school life in depression development. This is the objective of the present exploratory study.

## **SCHOOL LIFE AND DEPRESSION DEVELOPMENT**

Schools are highly complex social systems. In schools, multiple sources of influence converge to influence students' development. Accordingly, students' school life quality will be determined by a combination of various factors related to their psychological characteristics, socialization experiences, and by the specific characteristics of their schools (Janosz, Georges *et al.*, 1998). Reaching a complete understanding of school life's effects on depression requires the simultaneous consideration of these multiple sources of influence.

## **PSYCHOLOGICAL CHARACTERISTICS**

Because individuals may choose and modify environments, it is unlikely that students with different psychological characteristics will be exposed to similar school experiences (Mortimore, 1995; Rutter, 1999). Studies should thus attempt to evaluate whether the effects of school life on depression are real or an artifact of students' psychological characteristics (body image, neuroticism, anxiety, self-esteem, behavioral disorders), themselves related to depression (Jaffe *et al.*, 2002; Krueger, 1999; Lewinsohn *et al.*, 1994; Siegel, 2002). However, specific psychological characteristics (school adaptation, achievement, motivation, etc.) are more direct determinants of school life and their effects on depression should be more directly evaluated.

Many studies showed significant negative relations between depression development and various dimensions of students' motivation at school, such as academic self-efficacy, perceived academic competencies, and involvement in school extracurricular activities (Bandura, Pastorelli, Barbaranelli, and Caprara, 1999; Gore, Farrell, and Gordon, 2001; Hilsman and Garber, 1995; Lewinsohn *et al.*, 1994; Mahoney, Schweder, and Stattin, 2002). Nevertheless, studies usually failed to demonstrate a relationship between academic achievement and depression development (Bandura *et al.*, 1999; Cole, Martin, Powers, and Truglio, 1996; Lewinsohn *et al.*, 1994; Reinherz *et al.*, 1993). This last result should be considered cautiously, as Chase-Lansdale, Cherlin, and Kiernan (1995) reported an association

between academic achievement at age 7 and depression development in young adulthood. Fergusson and Woodward (2000) also noted a long-term relation between academic achievement at age 12 and depression at age 18.

For their part, Lewinsohn *et al.* (1994) concluded that students who were dissatisfied with their academic achievement and/or who did not regularly complete their homework presented an increased risk of developing depression. Yet, they obtained no significant relationship between depression and school failures, truancy, and lateness, suggesting that only some facets of school-based motivation and misbehaviors are related to depression. Further studies also reported a relation between depression and bullying, another specific form of school misbehavior (Austin and Joseph, 1996; Kaltiala-Heino, Rimpelä, Marttunen, Rimpelä, and Rantanen, 1999; Kaltiala-Heino, Rimpelä, Rantanen, and Rimpelä, 2000; Nansel *et al.*, 2001).

## SOCIALIZATION EXPERIENCES

Previous studies clearly showed that children's and adolescents' socialization experiences within families and peer groups influenced their risk of developing depression (Ge *et al.*, 1994; Jaffe *et al.*, 2002; Kiesner, 2002; Lewinsohn *et al.*, 1994, 1999; Stein *et al.*, 1996). Moreover, these experiences may also indirectly affect the quality of school life. For instance, parents may choose to send their children to schools that conform to their values and practices. Moreover, youths also tend to reproduce at school the various skills and interactional patterns that they learned with peers and parents (Cicchetti and Rogosch, 2002; Cicchetti and Toth, 1998). It is therefore important to evaluate whether the effects of school life on depression development represent an artifact of students' background socialization experiences or whether these effects are real and specific to school-based socialization experiences. Three kinds of socialization experiences may be more directly involved in the quality of students' school life: parental school-related educative practices, school-based interactions with peers, and interactions with school adults (teachers and other members of the school personnel).

Regarding the role of parental school-related educative practices, Hilsman and Garber (1995) indicated that parental dissatisfaction with children's grades was related to a small increase in children's depressive symptoms in the following days, but not a week later. Conversely, Lewinsohn *et al.* (1994) found no support for a relation between parental dissatisfaction with adolescents' grades and depression in a longer term follow-up study.

Second, some evidence indicates that specific aspects of in-school peer relationships might be associated with depression development. For instance, Gazelle and Ladd (2003) suggested that peer exclusion at kindergarten entry could be particularly predictive of depression development for anxious-solitary children. Other studies noted similar relationships between depression development and peer rejection, conflict and victimization at school (Austin and Joseph, 1996; Brendgen, Vitaro, Bukowski, Doyle, and Markiewicz, 2001; Hodges and Perry, 1999; Jaffe *et al.*, 2002; Kaltiala-Heino *et al.*, 1999, 2000; Kiesner, 2002; Nansel *et al.*, 2001), and affiliation with deviant peers (Cantin, Wanner, Brendgen, and Vitaro, 2002).

Finally, additional studies revealed a relationship between various aspects of students' socialization experiences with school adults and depression. Generally, those revealed that higher levels of teacher support and positive teacher regard were related to lower risk of subsequently developing depression (Kaltiala-Heino *et al.*, 1999; Roeser and Eccles, 1998; Roeser, Eccles, and Sameroff, 1998), although this effect may be more important for girls

(Sim, 2002). Similarly, scholars were able to identify a significant relationship between school and teacher-related stress and depression development (Siddique and D'Arcy, 1984; Turner and Cole, 1994).

## SCHOOL ENVIRONMENT

In themselves, schools are social systems with their own rules and characteristics which are relatively independent from the specific socialization experiences and characteristics of their students (Janosz, Georges *et al.*, 1998). For example, whereas the school experience of a specific student might be characterized by repeated victimization, very few other students may be victimized in the school. Consequently, studying the effects of school life on depression implies that specific school characteristics should also be considered. Three methods have generally been used to evaluate school environment characteristics. First, some scholars relied on students' perceptions of their school environment. This approach is referred to as the evaluation of school *psychological environment* (Roeser and Eccles, 1998; Roeser, Eccles *et al.*, 1998). Second, students' perceptions could also be aggregated at the school level to obtain a less subjective estimate of school characteristics. Third, structural school characteristics could be more directly evaluated through observation and school records (i.e., architectural design, size, curricular diversity, demographic characteristics, state of the buildings, etc.). Both the second and third approaches represent attempts to evaluate more objectively school characteristics (Anderman, 2002). Unfortunately, we are aware of no studies in which aggregated or structural school characteristics effects on depression were directly evaluated.

Some studies reported a significant relationship between the overall quality of school climate and lower levels of depression among students (Garnefski, 2000; Kuperminc, Leadbeater, and Blatt, 2001; Way and Chen, 2000). Other studies, however, failed to replicate this result (Hadley-Ives, Stiffman, Elze, Johnson, and Dore, 2000) or found this effect to be limited to girls (Kuperminc, Leadbeater, Emmons, and Blatt, 1997). Measurement differences could explain this discrepancy, as the school climate scales used in these studies were generally idiosyncratic. Similarly, other studies used combined scales of students' academic motivation, in-school socialization experiences, and school climate perceptions and found that lower scores on these omnibus scales predicted higher levels of depression (Anderman, 2002; Aseltine and Gore, 1993; Eccles, Early, Frasier, Belansky, and McCarthy, 1997; Resnick *et al.*, 1997). In a more detailed cross-sectional analysis of the relationships between school climate and depression, Morin and Janosz (2002) noted a negative relationship between students' levels of depression and several dimensions of school climate quality (e.g., relational, security, educative and justice climate).

Among more specific aspects of school psychological environment, some studies discovered that school-based discrimination and injustice were related to higher levels of depression among students (Resnick *et al.*, 1997; Roeser, Eccles *et al.*, 1998), whereas school practices designed to facilitate proactive social relationships (Kasen, Johnson, and Cohens 1990) and efficient discipline (Eccles *et al.*, 1997) were related to lower levels of depression. However, scholars generally failed to find significant associations between students' levels of depression and their perceptions of their schools' curricular meaningfulness and valorization of learning (Kasen *et al.*, 1990; Roeser, Eccles *et al.*, 1998).

In the only prospective longitudinal study in which students' previous levels of depression were controlled, Roeser and Eccles (1998) verified the relationships between specific aspects of school environment and adolescents' depression development. In this study, no relationship was noted between depression and school facilitation of student autonomy – an aspect of school discipline. The authors also observed that students who perceived their schools as emphasizing learning over achievement presented less risk of developing depression, whereas those who perceived their schools as more competitive places presented a higher risk.

## REMAINING QUESTIONS

From the previous results, at least three limits of current knowledge are apparent. First, the impact of many facets of school life on depression development remains to be evaluated in an integrated, coherent and methodologically sound fashion. Indeed, current studies generally focused on very limited and idiosyncratic aspects of school life and seldom provided controls for students' personal and social background characteristics. Moreover, given that schools are highly complex environments, a complete and precise understanding of school life effects on depression development ideally requires the simultaneous consideration of the multiple facets of school life.

Second, some results pinpoint gender differences regarding school life effects on depression development. Consequently, as these studies are still few, the moderating role of gender should be more thoroughly examined. Given that gender differences in depression emerge during early adolescence, following high school transition (Cyranski *et al.*, 2000; Nolen-Hoeksema, 2002), changes in school life from elementary to middle school may represent potentially important determinants of these differences. Indeed, some hypotheses posit that girls' increased rates of depression might be explained by the fact that they experience more often than boys the simultaneous occurrence of puberty and school-related social changes (Bebbington, 1996). Moreover, Eccles *et al.* (1991, 1993) indicate that middle schools are often characterized by academic and social competitiveness and by social network disruptions. Both of these characteristics are known predictors of depression, particularly amongst females (Bebbington, 1996; Nolen-Hoeksema, 2002).

Finally, although the previously cited studies often provided control for previous levels of depression, these controls were insufficient to disentangle the effects of school life on the *emergence* versus *aggravation* of depressive states. Briefly, controls of previous levels of depression are used to account for the bidirectionality of the relationships between depression and purported risk factors. For example, depression represents a known predictor of school adaptation problems (Kessler, Foster, Saunders, and Stang, 1995). Consequently, to clearly conclude that school adaptation problems predict depression development, one must demonstrate that the effects observed are not due to students' baseline levels of depression. Although doing so allows depression antecedents to be identified more clearly, it remains insufficient for research in which the ultimate goal is to guide preventive efforts. Indeed, depression prevention programs usually target undepressed individuals and strive to help them to remain well (Mrazek and Haggerty, 1994). Prevention programs should therefore be based on risk factors related to the *emergence* of depression rather than on factors related to its *aggravation*. For instance, if a risk factor predicts elevated levels of depression in already depressed individuals and shows no relationship with depression development in previously

well individuals, this factor would be useless for preventionists, although very useful for clinicians. Kessler (1997) therefore urges scientists to systematically verify if the relationships between risk factors and depression development are moderated by subjects' baseline levels of depression.

Depending on how scholars define depression, two approaches can be used to this end. First, in a categorical conception of depression in which one defines depression as a diagnostic entity qualitatively distinct from subclinical symptomatology, a subject is seen as either depressed or non-depressed (APA, 1994). In such a view, scholars can either eliminate already depressed subjects from their analyses (Lewinsohn *et al.*, 1994) or verify interactions between predictors and previous levels of depression defined in a present/absent manner. Resulting interactions can then be decomposed to evaluate if the proposed risk factors differently predict onsets versus recurrences of depression (Lewinsohn *et al.*, 1999). Second, the dimensional view depicts depression as a "normative" phenomenon positioned on a continuum somewhere between a state of complete emotional well-being and of handicapping depression (Akiskal, 2001; Zuckerman, 1999). In such a view, interactions are more complex to interpret. Indeed, a significant interaction may mean that a risk factor exerts more significant effects at the lowest levels of the depressive spectrum or the reverse. However, risk factors may also be more or less potent at the midpoint of the spectrum.

## THE PRESENT STUDY

The present exploratory study will attempt to provide preliminary answers to these remaining questions. More precisely, this study was designed to evaluate the specific nature of the relation between school life and depression development in adolescents. School life was defined in a global manner and encompasses three major dimensions: (a) *in-school psychological characteristics*, such as school motivation (academic self-efficacy, academic involvement, and extracurricular involvement) and school adaptation (school misbehaviors, academic delay, and academic achievement); (b) *school-related socialization experiences* involving parents (parental academic support and pressure), peers (loneliness at school, transitional difficulties, friends' school adaptation, and victimization at school), and school adults (school-related daily hassles, warm and supportive teacher-student relationships, conflictual teacher-students relations, and dissatisfaction with school discipline, academic control, help practices and encouragement); and (c) *students' perceptions of their schools' climates* (inter-students and teacher-student relational, bonding, justice, educational, and security climates), problems (minor violence, major violence, school-related problems), and practices (discipline, consultation, classroom management, extracurricular activities, support, school-family collaboration). More specifically, the present study will verify which specific aspects of school life predict depression development once adolescents' background characteristics are taken into account. Additionally, this study will verify whether: (a) these relationships are different for boys and girls (moderating role of gender), and (b) these aspects are equally relevant to the prediction of depressive symptoms' emergence among well students, aggravation among symptomatic students, and aggravation among clinically depressed students (moderating role of previous levels of depression).

## METHODOLOGY OF THE MADDP

### Sample and Procedure

The Montreal Adolescent Depression Development Project (MADDP) is an ongoing prospective longitudinal study of over 1000 adolescents. All seventh grade students from five Montreal-area high schools (two private and three public) were asked to participate in the project in September 2000, right after high school transition. Parents of the 1553 eligible participants were informed through a letter of the objective of the project and had the option to call the research team if they wished to withdraw their child from the study. The letter was accompanied by a consent form that described the initial transitional project, which comprised three measurement points across the school year: September/October 2000 (two classroom periods, Time 1), January/February 2001 (two classroom periods, Time 2), and May/June 2001 (one classroom period, Time 3). Only 10 parents withdrew their children from the study.

The remaining 1543 students were asked sign a consent form similar to the parental one. Valid answers were provided by 1289 participants to both Time 1 questionnaires, which included most of the control variables: 66 participants refused to participate, 104 participants were absent, and 84 participants failed to provide valid answers to the questionnaires<sup>2</sup>. From these 1289 participants, 1167 (90.54%) provided valid answers to the Inventory to Diagnose Depression-Lifetime Version (IDD-L) administered at Time 3 (May/June 2001): 13 participants opted out of the study, 62 were absent, 41 failed to provide valid answers, and 6 were present but failed to complete the IDD-L. These 1167 subjects represent the sample used in the present analyses. This sample was predominantly of a French-speaking Caucasian background (78.2%) and almost equally split across gender (52.7% males). Of these students, 50.6% attended public schools, 29.5% attended private schools, and 19.9% attended a public school for gifted students. Regarding school curricula, 19.54% of the students followed a regular program, 32.13% an enriched program, 29.31% a program for gifted students, and 19.02% attended a special education program. At Time 1, the mean age of the participants was 12.75 years ( $SD = 0.65$ ).

All eligible students were also offered the option to participate in the five testing sessions. Thus, students from the final sample could be compared with non-participants on most of the variables used in this study. Results from these attrition analyses revealed that non-participants generally differed in that they presented a more problematic profile of psychosocial adaptation on most variables. More precisely, non-participants generally presented lower levels of personal adaptation (lower self-esteem, more behavioral disorders, higher levels of anxiety, etc.), came from more dysfunctional families, had more problems with their peers, and described their in-school socialization experiences and school environments more negatively.

---

<sup>2</sup> More details regarding this last exclusion criterion are available upon request from first author.



## INSTRUMENTS

### Dependent Variable: Depressive Symptoms

Depressive symptoms were evaluated at Time 1 and Time 3 using the French translation (Pariente, Smith, and Guelfi, 1989) of Zimmerman and Coryell's (1987 b) Inventory to Diagnose Depression – Lifetime Version (IDD-L). This instrument was developed to specifically answer the main criticisms generally addressed to self-reported depression severity scales: (a) non-specificity, or the fact that severity scales often include items which are not related to diagnostic criteria; (b) incompleteness, or the fact that severity scales sometimes do not cover the entire range of diagnostic criteria; (c) diagnostic usefulness, or the fact that one can score high on a severity scale without meeting diagnostic criteria<sup>3</sup>; and (d) temporal specificity, or the fact that severity scales draw a time-specific portrait ignoring the possibility of recent remission. To answer the non-specificity and incompleteness criticisms, the authors chose items directly related to depression diagnostic criteria and covering their entire range (APA, 1994). The resulting instrument comprises 22 items scored on a five-point rating scale<sup>4</sup>. To answer the usefulness criticism, the authors developed three alternate scoring procedures for the IDD-L. Thus, a severity score highly similar to that of other self-reported depression scales can be obtained by adding participants' results on the different items (severity scoring). The authors also suggested cut-off scores for each symptom that allow for a more precise form of severity score based on the number of symptoms presented by participants (symptom scoring). Finally, once symptoms are scored, one can simply apply DSM-IV criteria to obtain a categorical diagnostic of depression. Finally, to address the time-specificity question, the IDD-L asks participants to answer by referring to the week of their life in which they felt the most depressed. Validation studies showed that both the present and lifetime versions of the IDD present strong cross-cultural psychometric properties and a very high level of diagnostic sensitivity and specificity (e.g., Ackerson, Dick, Manson, and Baron, 1990; Krause, Philipp, Maier, and Schlegel, 1989; Sakado, Sato, Uehara, Sato, and Kameda, 1996; Zimmerman, and Coryell, 1987 a, 1987 b, 1988). In this study, the alpha for the severity scoring was 0.87 at Time 1 and 0.91 at Time 3, and the KR-20 coefficient for the symptom scoring was 0.79 at Time 1 and 0.84 at Time 3.

In this study, a continuous measure of depression based on the number of symptoms (symptom scoring) presented by each participant was used. However, analyses were replicated using severity scoring, and few differences were observed. Additionally, two modifications were made. First, as this instrument was designed for a previous version of the DSM, three items referring to non-diagnostic symptoms (sexual drive and anxiety) were excluded from the final scoring. The final version thus comprises 19 items. Second, the Time 3 IDD-L was modified to refer to the week in which participants felt the most depressed during school year.

---

<sup>3</sup> For example, six items of the Beck Depression Inventory (Beck, Steer, & Brown, 1993) assess feelings of guilt and worthlessness. Thus, one can score up to 18 only by feeling guilty.

<sup>4</sup> As an example, the item evaluating insomnia is: (0) I was not sleeping less than normal; (1) I occasionally had slight difficulty sleeping; (2) I clearly didn't sleep as well as usual; (3) I slept about half my normal amount of time; (4) I slept less than two hours per night.

## Controlled Variables<sup>5</sup>

The MADDP was designed specifically to study the mechanisms implicated in depression development. Most available variables therefore represented potential risk factors for depression. Among those, every variable which was not used as a predictor and which represented a known predictor of depression development was used as a potential control. It should be noted that controlled variables were measured at Time 1. The source, number of items, sample items, answer choices and internal consistency of the questionnaires are reported in Table 1.

*Demographic information.* Gender and age (at October 1st, 2000) of the participants were obtained from school records.

*Personal background characteristics.* Measures of participants' personal background characteristics included their levels of neuroticism (or emotional instability), anxiety, self-esteem, and body image satisfaction, the frequency with which they exhibited socially deviant behaviors in the past year (behavioral disorders), and their levels of pubertal development. The behavioral disorder scale originally comprised 12 items, 2 of which referred to school misbehaviors. These 2 items were retrieved to be included in another subscale (see below).

*Life event exposure.* Youths' exposures to stressful life events during the past year and to past personal difficulties were evaluated. The generic stressful life events scale included 39 items from which five items had to be excluded for theoretical and methodological considerations.

*Out-of-school socialization experiences.* Measures of participants' out-of-school socialization experiences include parental monitoring, or parental knowledge of adolescents' activities; legitimacy of familial rules, or the perceived legitimacy of parental rules; parental punishment, or the use of punishment practices by parents; familial attachment, or the affective quality of parent-adolescent contacts; familial instability, or the amount of changes experienced within the participants' families; familial daily hassles, or participants' perceptions of their families' stressfulness; and communication with friends, or the degree to which participants feel free to discuss personal matters and problems with their peers.

---

<sup>5</sup> Additional controls were tested (parental education, familial rules, time spent with family members and peers, trust in peers) and did not demonstrate linear relationships with depression.

**Table 1. Description of the measurement instruments used in the present study**

Questionnaires	Authors	Items	Sample item	Answer choices	Consistency <sup>6</sup>
Controls: Personal background characteristics					
Neuroticism	Eysenk and Eysenk, (1963), LeBlanc (1998)	22	“Are your feelings easily hurt ”	Yes/no	0.78
Self-esteem	Rosenberg (1965), Vallières and Vallerand (1990)	10	“I feel that I have a number of good qualities”	1- strongly disagree; 2- disagree; 3- agree; 4- strongly agree.	0.75 to 0.83
Body image	Marsh (1990), Ayotte et al. (2003)	8	“I am good looking”	1- false; 2- mostly false; 3- mostly true; 4- true	0.88 to 0.90
Anxiety	Beck, and Steer (1993), Freeston et al. (1994)	21	“Terrified,” “Difficulty breathing”	0- not at all; 1- mildly; 2- moderately; 3- severely	0.89 to 0.91
Behavioral disorders	LeBlanc (1998)	10	In the last 12 months, did you: “Use hashish or marijuana,” “Refuse to obey your parents”	1- never; 2- one or two times; 3- many times; 4- very often	0.77 to 0.79
Pubertal development	Petersen, Crockett, Richards, and Boxer (1988), Héroux (1997)	7	Generic (3 items): height Girls (2 items): menarche Boys (2 items): voice change	1 to 4 rating scale with body change descriptors.	Girls: 0.70 to 0.73 (0.79 to 0.81) Boys: 0.73 to 0.75 (0.81 to 0.83)
Controls: Life event exposure					
Stressful life events	Newcomb, Huba, and Bentler (1981), Baron, Joubert, and Mercier (1991)	34	In the last 12 months, did the following things happen to you: “I had acne eruptions,” “I fell deeply in love,”	Treated as yes/no	Not applicable (NA)
Past difficulties	MADDP	2	“Were you ever forced to participate in sexual acts without your consent,” “Were you ever hospitalized for more than 20 days because you were very sick or had an accident”	Treated as yes/no	NA
Controls: Out-of school socialization experiences					
Parental monitoring	LeBlanc (1998)	2	“Your parents know where you are when you’re not at home”	1- always; 2- often; 3- from time to time; 4- never	0.95*
Familial rules legitimacy	LeBlanc (1998)	1	“Do your parents create unfair rules?”	1-never; 2- from time to time; 3- many times; 4- often	NA

<sup>6</sup> For most scales, we report the internal consistency coefficients ( $\alpha$ , KR-20) found in this study. However, for the scales included in LeBlanc (1998) SIQ (Social Inventory Questionnaire) and used integrally in this study, we report internal consistency coefficients taken from the SIQ manual (marked by \* Table). Additionally, coefficients of shorter scales were adjusted (in parentheses) to eight equivalent items using the Spearman Brown prophecy formula.

**Table 1. (Continued)**

Questionnaires	Authors	Items	Sample item	Answer choices	Consistency
Parental punishment	LeBlanc (1998)	4	“Do your parents hit you when they want to punish you?”	1- never; 2- from time to time; 3- many times; 4- often	0.82*
Familial attachment	LeBlanc (1998)	10	“Do your parents let you know what they think and how they feel about things”	1- often, 2- many times, 3- from time to time, 4- never	0.83*
Familial instability	MADDP	5	“Did you move within the last year,” “Are your parents still together?”	Treated as yes/no	NA
Familial daily hassles	MADDP	3	Do the following elements stress you: “your parents/ stepparents”	1- not at all; 2- a bit; 3- somewhat; 4- a lot	0.68 to 0.63 (0.82 to 0.85)
Communication with friends	LeBlanc (1998)	4	“Do you discuss the problems you have at home with your best friend”	1- often; 2- sometimes; 3- seldom; 4- never	0.83*
School-related psychological characteristics					
Academic self-efficacy	Skinner (1995), Janosz et al. (2001)	4	“I can get good grades at school when I want to”	1- false; 2- mostly false; 3- mostly true, 4- true	0.60 to 0.81 (0.86 to 0.94)
Academic involvement	Skinner (1995), Janosz et al. (2001)	6	“I study or do my homework everyday”	1- false; 2- mostly false; 3- mostly true, 4- true	0.52 to 0.80 (0.81 to 0.94)
Extracurricular involvement	Skinner (1995), Janosz et al. (2001)	2	“I spent many hours a week in extracurricular activities”	1- false; 2- mostly false; 3- mostly true, 4- true	0.59 to 0.71 (0.85 to 0.91)
School misbehaviors	LeBlanc (1998)	6	“Did you intentionally disturb your class”	1- never; 2- one or two times; 3- many times; 4- often	0.79*
Academic delay	LeBlanc (1998)	1	“Since you began elementary school, did you ever have to repeat a grade?”	1- never; 2- one time; 3- two times; 4- three times; 5- four times	NA
Academic achievement	MADDP	2	“What are your actual grades in French?,” “What are your actual grades in mathematics”	1- Less than 60%; 2- 60 to 69%; 3- 70 to 79%; 4- 80 to 89%; 5- 90% +	NA
Parental school-related educative practices					
Parental support	Janosz et al. (2001)	6	“I can count on my parents when I have school difficulties”	1- false; 2- mostly false; 3- mostly true, 4- true	0.61 to 0.66 (0.68 to 0.72)
Parental pressure	MADDP	4	“When I get low grades, my parents make me feel guilty,”	Idem	0.72 (0.84)

Table 1. (Continued)

Questionnaires	Authors	Items	Sample item	Answer choices	Consistency
In-school peer relationships					
Loneliness at school	Asher, Hymel and Renshaw (1984), Vitaro, Pelletier, Gagnon, and Baron (1995)	5	"I feel lonely at school"	1- not true; 2- a little bit true; 3- somewhat true; 4- very true	0.82 to 0.85 (0.88 to 0.90)
Peer-related daily hassles	MADDP	2	Do the following elements stress you: "My friends," "My classmates"	1- not at all; 2- a bit; 3- somewhat; 4- a lot	0.54 to 0.61 (0.82 to 0.86)
Transitional difficulties	MADDP	2	1) "How easy is it to make new friends at school?" 2) "Are you satisfied with the number of friends you have?"	1) 1- very easy; 2- easy; 3- hard; 4- very hard 2) 1-very satisfied; 2- satisfied; 3- unsatisfied; 4- very unsatisfied	0.57 to 0.61 (0.84 to 0.86)
Friends' school adaptation	Janosz, Rondeau, and Lacroix (1998)	8	"My best friends often talk about dropping out of school"	1- false; 2- mostly false; 3- mostly true, 4- true	0.71 to 0.74
Minor victimization	Janosz (2000)	5	Since the beginning of the school year: "An adult insulted or humiliated you at school"	1- never; 2- one time; 3- two times; 4- three times; 5- four times and more	0.57 (0.68)
Major victimization	Janosz (2000)	6	Since the beginning of the school year: "Students physically attacked you"	1- never; 2- one time; 3- two times; 4- three times; 5- four times and more	0.69 (0.75)
Sexual victimization	Janosz (2000)	3	Since the beginning of the school year: "My boyfriend/girlfriend shook, hit, or squeezed me"	1- never; 2- one time; 3- two times; 4- three times; 5- four times and more	0.70 (0.86)
Socialization experiences involving school adults					
School-related daily hassles	MADDP	6	Do the following elements stress you: "Your teachers," "Homework"	1- not at all; 2- a bit; 3- somewhat; 4- a lot	0.80 (0.84)
Warm and supportive teacher-student relations	Pianta and Steinberg (1992), Larose, Bernier, Soucy, and Duchesne (1999)	6	"I share warm and friendly relationships with my teachers"	1- not at all; 2- not really; 3- neutral; 4- somewhat; 5- very much	0.76 (0.81)
Conflictual teacher-student relations	Pianta and Steinberg (1992), Larose et al. (1999)	7	"Sometimes, I feel that I am unfairly treated by my teachers"	1- not at all; 2- not really; 3- neutral; 4- somewhat; 5- very much	0.85 (0.87)
Dissatisfaction: discipline	MADDP	3	"severity of school rules"	The elements are: not enough (1), enough (0), or too much (1) present	0.69 (0.86)
Dissatisfaction: academic control	MADDP	2	"amount of homework and exams"	The elements are: not enough (1), enough (0), or too much (1) present.	0.57 (0.84)
Dissatisfaction: help	MADDP	3	"availability of help services for personal problems"	Should these elements be more present: yes/no	0.67 (0.84)
Dissatisfaction: encouragement	MADDP	2	"teachers' efforts to be motivating and interesting"	Should these elements be more present : yes/no	0.55 (0.83)

**Table 1. (Continued)**

Questionnaires	Authors	Items	Sample item	Answer choices	Consistency
Perceived school climate					
Relational: inter-student	Janosz (2000)	6	“In this school, students can count on each other”	1- totally agree; 2- agree; 3- disagree; 4- totally disagree	0.76 (0.81)
Relational: teacher-student	Janosz (2000)	7	“In this school, teachers treat students with respect,”	1- totally agree; 2- agree; 3- disagree; 4- totally disagree	0.61 to 0.64 (0.83 to 0.86)
Bonding	Janosz (2000)	5	“Students feel at home in this school”	1- totally agree; 2- agree; 3- disagree; 4- totally disagree	0.78 (0.85)
Justice	Janosz (2000)	4	“The rules of this school are fair”	1- totally agree; 2- agree; 3- disagree; 4- totally disagree	0.75 (0.86)
Educational	Janosz (2000)	5	“What we learn in this school is important”	1- totally agree; 2- agree; 3- disagree; 4- totally disagree	0.75 (0.83)
Security	Janosz (2000)	5	“There are places in this school where students are afraid to go.”	1- totally agree; 2- agree; 3- disagree; 4- totally disagree	0.67 to 0.73 (0.88 to 0.89)
Perceived school problems					
Minor violence	Janosz (2000)	6	Since the beginning of the school year, how often did you observe: “thefts,” “insults,” “vandalism.”	1- never; 2- a few times during the school year; 3- a few times per month; 4- a few times per week; 5- nearly every day	0.79 (0.83)
Major violence	Janosz (2000)	4	Since the beginning of the school year, how often did you observe: “fights,” “attacks of adults by students”	1- never; 2- a few times during the school year; 3- a few times per month; 4- a few times per week; 5- nearly every day	0.67 (0.80)
School-related	Janosz (2000)	5	Since the beginning of the school year, how often did you observe: “cheating,” “truancy,” “classroom disturbance”	1- never; 2- a few times during the school year; 3- a few times per month; 4- a few times per week; 5- nearly every day	0.79 (0.86)

**Table 1. (Continued)**

Questionnaires	Authors	Items	Sample item	Answer choices	Consistency
Perceived school practices					
Disciplinary practices	Janosz (2000)	11	“School rules are easy to understand,” “Teachers apply school rules as prescribed”	1- totally agree; 2- agree; 3- disagree; 4- totally disagree	0.61 to 0.64 (0.83 to 0.86)
Student consultation	Janosz (2000)	2	“Students’ opinions regarding school operations are taken into consideration ”	1- totally agree; 2- agree; 3- disagree; 4- totally disagree	0.64 (0.88)
Classroom management	Janosz (2000)	16	“We seldom see teachers yelling at students,” “Teachers explain why new subject matters are important”	1- totally agree; 2- agree; 3- disagree; 4- totally disagree	0.64 to 0.80 (0.80 to 0.83)
Extracurricular activities	Janosz (2000)	3	“Extracurricular activities are interesting”	1- totally agree; 2- agree; 3- disagree; 4- totally disagree	0.64 (0.83)
Support mechanisms	Janosz (2000)	3	“In this school, the different help services/resources can really help students who encounter academic or personal problems”	1- totally agree; 2- agree; 3- disagree; 4- totally disagree	0.76 (0.89)
School-family collaboration	Janosz (2000)	5	“Parents often participate in school committees or activities”	1- totally agree; 2- agree; 3- disagree; 4- totally disagree	0.71 (0.80)

---

## Predictors

All the predictors used in the present study were measured at Time 2. Three dimensions of school life were tested as potential predictors of depression development: students' school-related psychological characteristics, school-based socialization experiences, and perceptions of their school environment. Students' school-based socialization experiences were further divided into three sub-dimensions: parental school-related educative practices, in-school peer relationships, and socialization experiences involving school adults. Finally, students' perceptions of their school environment were also divided into three sub-dimensions: school climate, or the generic atmosphere permeating the school environment; school problems, or aspects of students' behaviors that may negatively affect the overall quality of the school environment; and school practices, or school attempts to regulate and facilitate students' behaviors. These three sub-dimensions were evaluated with Janosz' (2000) SEQ (Socio Educational Questionnaire), a questionnaire validated in a large sample of Quebec adolescents.

*School-related psychological characteristics.* Measures of participants' school-related psychological characteristics included academic self-efficacy, or feelings of academic competency and of personal control; academic involvement, or levels of involvement in academic tasks, attitudes toward school, and academic aspirations; extracurricular involvement, or degree of participation in extracurricular activities; school misbehaviors, or the frequency with which students' exhibit school misbehaviors; academic delay, or the number of times students had to repeat a school year; and academic achievement, or participants' average grades in French (main language) and mathematics. It should be noted that whereas we had access only to students' self-reports of academic achievement at Time 2, the observed correlations between students' Time 2 self-reports and their Time 3 report cards varied between  $r = 0.671$  ( $p = 0.000$ ) and  $r = 0.798$  ( $p = 0.000$ ), which confirms the validity of students' self-reports at Time 2.

*Parental school-related educative practices.* Measures of parental school-related educative practices include parental academic support, or parental provision of academic help and support; and parental pressure, or the students' exposure to parental achievement pressure.

*In-school peer relationships.* Measures of in-school peer relationships include loneliness, or the degree to which students feel lonely at school; peer-related daily hassles, or participants' perceptions of the stressfulness of relationships with classmates; transitional difficulties, or participants' friendship difficulties due to school transition; friends' school adaptation, or participants' perceptions of the degree of school involvement, adjustment and valorization of their peers; and minor, major and sexual victimization, or the frequency with which participants were victims of minor, major or sexual acts of violence at school since the beginning of the year.

*Socialization experiences involving school adults.* Measures of participants' socialization experiences involving school adults include school-related daily hassles, participants' perceptions of the stressfulness of school life; warm and supportive teacher-student relationships, or the degree to which participants' relationships with their teachers are characterized by warmth and support; conflictual teacher-student relationships, or the degree to which participants' relationships with their teachers are characterized by conflict. Four additional subscales assessed students' personal dissatisfaction with their school's disciplinary control practices (rules, punishments, etc.), academic control practices (amount of homework,



exams, etc.), help services (academic/personal), and encouragement practices (offered by teachers).

*Perceived school climate.* Measures of perceived school climate include inter-student relational climate, or the degree to which interactions between students are characterized by warmth, trust, and respect; teacher-student relational climate, or students' respect for their teachers, and teachers' respect, warmth and support toward students; bonding climate, or the general feeling of school belongingness; justice climate, or the degree to which students perceive their school environment as equitable and respectful of individual differences; educational climate, or students' perceptions of how much education is emphasized and valorized within their school; and security climate, or students' perceptions of security within school.

*Perceived school problems.* Measures of perceived school problems include perceived frequency of minor and major violence problems and of school-related problems.

*Perceived school practices.* Measures of perceived school practices include quality of school disciplinary practices, or the implementation quality of school rules, students' knowledge of school rules, and consistent application of school rules; student consultation (regarding school rules and operations); teachers' classroom management practices, or the quality of teachers' pedagogical and behavior management practices; school extracurricular activities (quality and availability); school support mechanisms (to help students with academic or personal problems); and quality of school-family collaboration (information, involvement in decisions, etc.).

## ANALYTICAL STRATEGY

### Missing Data Replacement

To reduce the amount of missing data, two complementary strategies were used. First, variable scores were computed allowing for 25% to 33% of missing values on scale items. Once this strategy was applied, 0% to 14.82% of the participants still had missing values on the variables studied ( $M = 5.40\%$ ;  $SD = 4.19\%$ ), although few of them had recurring patterns of missing data. Missing data were replaced with variable means to which a random number was added according to the variables' means and standard deviation<sup>7</sup>. This procedure allows for the correction of the variance restriction problem inherent in simple mean-replacement strategies (Little and Rubin, 2002). For further precision in the missing data replacement process (Allison, 2001), variable means and standard deviations were calculated separately for 32 subgroups on the basis of gender (male, female), age (11-12.49, 12.5-12.99, 13-13.99, 14+), and school<sup>8</sup>.

---

7 With the SPSS 10.0 function: IF (MISSING (variable)) variable = RV.NORMAL (MEAN,SD).

8 The number of subgroups was 32 instead of 40 (gender \* age \* schools = 2 X 4 X 5 = 40) as nobody from school 5 was over 13 years old and nobody from schools 1-2 was over 14 years old.

## **Choosing the Control Variables**

Statistical controls were identified using a sequential strategy in which the main objective was to maximally reduce the number of variables included in the analyses in order to maximize statistical power and to limit potential multicollinearity and model specificity problems<sup>9</sup>. First, separate linear regressions were conducted to confirm the predictive role of the controls regarding Time 3 depressive symptoms. Second, these analyses were replicated while controlling for Time 1 depressive symptoms. Some predictors thus became non-significant and were excluded from the remaining analyses. Finally, all of the remaining predictors were entered together as a block in a hierarchical multiple regression analysis in which Time 1 depressive symptoms were controlled. This analysis allowed us to retain only the most significant controls.

## **Answering the Research Question**

As the definition of school life used in the present study implied many interrelated predictors, the analytical strategy was again designed to limit the number of variables entered simultaneously in the analyses. The retained sequential strategy allowed us to interpret more clearly the effects of all variables, as well as to limit statistical power, multicollinearity and model specificity problems. Analyses were thus conducted separately to verify the predictive role of the seven dimensions of school life (school-related psychological characteristics, parental school-related educative practices, in-school peer relationships, socialization experiences involving school adults, perceived school climate, perceived school problems, and perceived school practices) evaluated in the present study regarding Time 3 depressive symptoms. First, separate regressions were conducted to evaluate the effects of each predictor on Time 3 depressive symptoms once Time 1 depressive symptoms were taken into account. Second, the remaining significant predictors were entered together as a block in a hierarchical multiple regression analysis in which only Time 1 levels of depressive symptoms were controlled. Once again, non-significant predictors were excluded from subsequent analyses. Third, the remaining significant predictors were entered together as a block in a hierarchical multiple regression analysis in which Time 1 depressive symptoms and background controls were included. Once these analyses were conducted separately for each of the seven sub-dimensions of school life, they were replicated at the dimensional level (school-related psychological characteristics, school-related socialization experiences, and perceived school environment). In these analyses, significant predictors from the preceding analyses were entered together as a block in a hierarchical multiple regression analysis in which Time 1 symptoms and controls were included.

## **Answering Sub-Questions**

In practice, evaluating moderating relationships implies demonstrating that the interaction term composed by the product of both predictors significantly adds to the model over and

---

<sup>9</sup> As a preliminary attempt to limit the number of variables, exploratory factor analyses were conducted on the controls (as well as predictors). The observed groupings were few and inconsistent, confirming the relative independence of the variables.

above the main effects of both variables (Aiken and West, 1991; Jaccard and Turisi, 2003). As interaction terms are obtained through the multiplication of subjects' scores on both variables, which are already included in the model, multicollinearity problems may result from this procedure. To prevent this, all independent variables used in this study were converted to deviation score form by subtracting the variable mean from each individual score (Aiken, and West, 1991; Jaccard and Turisi, 2003). To further limit multicollinearity, interaction effects were tested separately, in independent regressions. In these regressions, the interaction term was entered last, following the main effects of both predictors. In the evaluation of gender-based interactions, students' Time 1 depressive symptoms were controlled<sup>10</sup>.

To achieve maximal clarity in decomposing the significant interactions, the effects of each predictor (P) interacting with gender and/or Time 1 depressive symptoms were tested separately at different levels of the moderators (M) (Aiken and West, 1991; Jaccard and Turisi, 2003). Briefly, in multiple regressions in which two-way interaction terms (M \* P) are entered after the main effects of both the predictor and the moderator (M and P), the *b* coefficient associated with each predictor (P) represents the slope of the Y (depression) on P regression equation when the moderator (M) equals zero. As each variable was centered at the mean, the *b* coefficient associated with P in regressions, including both M and M \* P terms, represents the effect of P on Y at the mean value of M. To obtain an estimate of the effects of P at different values of M, one only has to add or subtract constants to M so that zero represents different values and to compare the relative strength of the resulting *a* (intercept) and *b* coefficients to interpret the interaction. In the decomposition of gender-based interactions, regressions were thus replicated twice to estimate the effect of each predictor in males (males coded 0 and females coded 1) and females (reversed coding: males = 1 and females = 0). In these regressions, only Time 1 levels of depressive symptoms were controlled. For the interactions involving Time 1 depressive symptoms, a similar strategy was employed, but no controls were included. In the decomposition of these interactions, the effects of the predictors were evaluated at three different levels of Time 1 depressive symptoms, following Kessler's (1997) suggestion: (1) asymptomatic (zero reflects the absence of symptoms); (2) symptomatic (one to four symptoms: zero reflects the mid-point, 2.5 symptoms); (3) or clinical (five or more symptoms: zero reflects five symptoms). For the last group, the label "clinical" was preferred to "diagnostic" to account for the fact that full diagnostic criteria were not applied to the delineation of this group.

## The Final Model

The most robust predictors of depression development were finally identified in three separate hierarchical multiple regressions, one for each dimension of school life. In these regressions, four blocks of predictors were entered sequentially: (1) Time 1 depressive symptoms; (2) background controls; (3) significant predictors (main effects) from the preceding analyses; and (4) significant interaction terms from the preceding analyses. The significant predictors from these three separate analyses were then entered together in a final regression to estimate the total contribution of school life to depression development.

---

<sup>10</sup> The analyses in which the interactions were tested and decomposed were replicated three times, adding additional controls (1- Time 1 depression; 2- Time 1 depression and controls; 3- Time 1 depression, controls, and other variables from the sub-dimension). The results did not change.

## RESULTS

### Normality and Multivariate Outliers

Inspection of the skewness and kurtosis of the different variables revealed that few of them showed normal distributions (i.e., most values were over twice their standard errors). Still, this assumption is seldom respected in large samples in which the standard error of skewness and kurtosis tend to be reduced (Tabachnick and Fidell, 1996). Additionally, in large samples, deviation from normality seldom affects the results of multivariate analyses, due to the central limit theorem (Lewis-Beck, 1980). Nevertheless, variables with skewness and/or kurtosis values over 1 were transformed and the analyses were replicated with and without these transformations. With one exception, these replications did not change the results. However, for the loneliness scale, the inverse transformation yielded significantly different results. This scale was thus transformed by inversion before its inclusion in the following analyses. The sign of the  $r$ ,  $b$ ,  $\beta$ , and  $t$  coefficients associated with this variable thus has to be inversed before interpretation. Furthermore, residuals from all analyses produced normal distributions, which clearly indicate that the multivariate normality assumption of multiple regressions was respected even without transforming the other variables. Further inspection of the residual plots also indicated that the homoscedasticity and linearity assumptions of the regressions were respected.

Multivariate outliers were identified by examining bivariate scatterplots of subjects' Cooks' Distances, Leverages, and Mahalanobis'  $D^2$  (Tabachnick and Fidell, 1996). This procedure identified 14 potential multivariate outliers. Additional analyses revealed that these subjects differed from the others by exhibiting a more severe pattern of psychosocial adaptation problems. As more seriously affected students were already lost through the attrition process, we decided to keep the multivariate outliers in the analyses. However, the analyses were first replicated with and without these subjects and the results did not significantly change.



---

## CHOOSING THE CONTROL VARIABLES

Results from the analyses designed to reduce the number of control variables are reported in Table 2. The first set of analyses confirmed that all of the proposed controls represented significant predictors of depression development. It should also be noted that the relationship between Time 1 and Time 3 depressive symptoms was quite strong ( $\beta = 0.460$ ,  $t = 17.698$ ,  $p = 0.000$ ,  $R^2 = 0.211$ ). When the analyses were replicated while controlling for previous levels of depressive symptoms, most of the family-related variables, with the exception of familial instability and daily hassles, became non-significant predictors of depressive symptoms. Most of the other variables, however, remained significant predictors of depressive symptoms, with the exception of exposure to past personal difficulties. It should be noted that although gender became a non-significant predictor of Time 3 depressive symptoms when Time 1 symptoms were controlled, we decided to keep this variable as a control in subsequent analyses due to later testing of gender-based interactions. Finally, when all of the previously identified significant predictors were considered together in a hierarchical multiple regression analysis, only four of the purported control variables still predicted Time 3 depressive symptoms: anxiety, self-esteem, familial daily hassles, and communication with friends. Together, these variables explained 6.5% of Time 3 depressive symptoms' variance. When this analysis was replicated including only significant predictors, the resulting model explained 6% of depressive symptoms' variance.

## CORRELATIONS AMONG PREDICTORS AND CONTROLS

The correlations between the variables used in the present study are reported in Table 3. An analysis of these correlations confirms the adequacy of the selected controls, including Time 1 depressive symptoms, as these variables all shared significant relationships with various aspects of students' school life. These correlations also confirm the interrelated character of the different aspects of students' school life. Indeed, most of the school life variables shared low to moderate correlations with each other. However, these correlations are generally low enough to justify their separate consideration in the analyses. The only exception was found among aspects of students' perceptions of their school environment where 12 of the observed correlations were higher than 0.5 (only three of these correlations were higher than 0.6 and none exceeded 0.7, which would have indicated a potential multicollinearity and redundancy problem). Since such interrelations were already postulated in Janosz, Georges *et al.*'s (1998) theoretical model, since validation analyses of the SEQ confirmed the existence of distinct and interrelated factors, and since different forms of preventive interventions would be needed to act on these different variables, the decision was made to keep them separate in subsequent analyses. The selected strategy ensured that no problems of multicollinearity resulted from this decision.

**Table 3. Zero-order correlations among predictors and controls**

	COMF	ANX	SE	FDH	D	AA	AINV	ASE	EXI	ISB	FAMS	FAMP	TP	LS (I)
ANX	0.125*													
SE	-0.018	-0.259*												
FDH	0.118*	0.248*	-0.243*											
D	-0.030	0.067*	-0.217*	0.095*										
AA	0.105*	-0.026	0.205*	-0.084*	-0.267*									
AINV	0.014	-0.060*	0.237*	-0.171*	-0.241*	0.245*								
ASE	0.009	-0.057	0.254*	-0.103*	-0.209*	0.376*	0.294*							
EXI	-0.015	0.037	0.050	-0.030	-0.023	0.030	0.162*	0.026						
ISB	0.041	0.101*	-0.181*	0.185*	0.339*	-0.308*	-0.428*	-0.257*	-0.052					
FAMS	-0.016	-0.064*	0.177*	-0.158*	-0.149*	0.064*	0.413*	0.184*	0.103*	-0.290*				
FAMP	0.040	0.086*	-0.069*	0.165*	-0.014	-0.080*	-0.081*	-0.110*	0.020	0.058*	-0.188*			
TP	-0.016	0.125*	-0.235*	0.060*	-0.030	-0.032	-0.083*	-0.051	-0.080*	-0.035	-0.070*	0.074*		
LS (I)	0.062*	-0.130*	0.215*	-0.103*	-0.029	0.083*	0.074*	0.063*	0.073*	0.000	0.081*	-0.071*	-0.521*	
PDH	0.069*	0.224*	-0.230*	0.218*	0.072*	-0.041	-0.142*	-0.029	-0.019	0.119*	-0.089*	0.108*	0.295*	-0.378*
FSA	0.061*	-0.059*	0.203*	-0.177*	-0.345*	0.280*	0.467*	0.256*	0.111*	-0.412*	0.321*	-0.095*	-0.036	0.077*
MINV	0.097*	0.208*	-0.167*	0.151*	0.063*	-0.068*	-0.098*	-0.106*	-0.018	0.228*	-0.065*	0.101*	0.164*	-0.204*
MAJV	0.031	0.131*	-0.152*	0.150*	0.144*	-0.073*	-0.132*	-0.170*	0.034	0.345*	-0.143*	0.014	0.024	-0.089*
SEXV	0.052	0.091*	-0.101*	0.129*	0.132*	-0.109*	-0.106*	-0.158*	0.018	0.325*	-0.089*	-0.037	-0.039	0.000
SDH	0.093*	0.301*	-0.267*	0.279*	0.118*	-0.157*	-0.282*	-0.184*	-0.055	0.304*	-0.176*	0.133*	0.144*	-0.165*
TS	0.088*	0.074*	0.047	-0.011	-0.072*	0.167*	0.269*	0.123*	0.147*	-0.140*	0.171*	-0.073*	-0.008	-0.035
TC	0.116*	0.100*	-0.177*	0.189*	0.124*	-0.146*	-0.362*	-0.253*	-0.103*	0.421*	-0.295*	0.204*	0.062*	-0.052
DSH	-0.048	0.095*	-0.144*	0.046	0.124*	-0.127*	-0.064*	-0.133*	0.057	0.115*	-0.106*	0.095*	0.075*	-0.065*
DSE	0.029	0.131*	-0.020	0.050	-0.015	-0.051	-0.071*	-0.062*	0.013	0.080*	-0.040	0.053	0.067*	-0.037
DSAC	0.103*	0.074*	-0.033	0.055	-0.051	-0.009	-0.164*	-0.100*	-0.084*	0.108*	-0.114*	0.027	0.063*	-0.009
DSDC	0.076*	0.063*	-0.069*	0.089*	0.070*	-0.126*	-0.256*	-0.152*	-0.073*	0.248*	-0.144*	0.108*	-0.018	0.017
BC	0.012	-0.093*	0.171*	-0.105*	-0.108*	0.169*	0.345*	0.173*	0.130*	-0.304*	0.203*	-0.077*	-0.131*	0.140*
BSRC	0.057	-0.138*	0.257*	-0.118*	-0.231*	0.135*	0.263*	0.173*	0.115*	-0.264*	0.206*	-0.057	-0.250*	0.277*
TSRC	-0.033	-0.129*	0.162*	-0.082*	-0.177*	0.132*	0.321*	0.163*	0.100*	-0.336*	0.286*	-0.075*	-0.088*	0.073*
EC	0.008	-0.049	0.190*	-0.093*	-0.184*	0.149*	0.407*	0.240*	0.118*	-0.392*	0.289*	-0.057	-0.076*	0.038
JC	-0.035	-0.053	0.133*	-0.101*	-0.144*	0.137*	0.358*	0.224*	0.071*	-0.323*	0.246*	-0.149*	-0.034	0.021
SC	0.028	-0.139*	0.191*	-0.093*	-0.203*	0.191*	0.217*	0.261*	0.057	-0.290*	0.217*	-0.055	-0.067*	0.130*
MINP	0.081*	0.171*	-0.146*	0.148*	0.137*	-0.127*	-0.191*	-0.056	0.001	0.342*	0.114*	0.043	-0.013	-0.050
MAJP	0.036	0.129*	-0.192*	0.154*	0.292*	-0.229*	-0.280*	-0.195*	-0.024	0.484*	-0.226*	0.018	-0.054	0.004
SCOP	0.052	0.137*	-0.164*	0.088*	0.177*	-0.191*	-0.253*	-0.072*	-0.019	0.343*	-0.132*	0.056	0.013	-0.048
SDP	-0.038	-0.083*	0.123*	-0.140*	-0.051	0.026	0.232*	0.142*	0.051	-0.254*	0.254*	-0.098*	-0.090*	0.076*
SSC	-0.027	-0.042	0.025	-0.018	0.093*	-0.031	0.057*	-0.030	0.052	-0.028	0.029	-0.032	-0.081*	0.042
TCMP	-0.038	-0.085*	0.217*	-0.128*	-0.163*	0.152*	0.337*	0.257*	0.065*	-0.337*	0.330*	-0.129*	-0.087*	0.049
EXAC	0.006	-0.057	0.112*	-0.099*	-0.089*	0.052	0.251*	0.131*	0.245*	-0.243*	0.220*	-0.022	-0.084*	0.079*
SHP	0.036	-0.104*	0.140*	-0.074*	-0.062*	0.040	0.192*	0.112*	0.032	-0.179*	0.156*	-0.094*	-0.093*	0.102*
PSC	0.010	-0.107*	0.103*	-0.089*	-0.073*	0.059*	0.208*	0.087*	0.094*	-0.229*	0.234*	-0.068*	-0.081*	0.026
IDD-L1	0.213*	0.388*	-0.225*	0.234*	0.007	0.024	-0.038	-0.001	0.006	0.083*	-0.093*	0.062*	0.155*	-0.166*

Table 3 (continued)

	PDH	FSA	MINV	MAJV	SEXV	SDH	TS	TC	DSH	DSE	DSAC	DSDC
FSA	-0.152*											
MINV	0.220*	-0.089*										
MAJV	0.094*	-0.172*	0.415*									
SEXV	0.075*	-0.146*	0.258*	0.583*								
SDH	0.392*	-0.283*	0.230*	0.103*	0.127*							
TS	0.012	0.257*	0.003	0.057	-0.035	-0.135*						
TC	0.155*	-0.341*	0.208*	0.119*	0.089*	0.416*	-0.264*					
DSH	0.084*	-0.121*	0.069*	0.063*	0.072*	0.146*	-0.031	0.096*				
DSE	0.074*	-0.045	0.042	-0.022	0.028	0.202*	-0.059*	0.192*	0.459*			
DSAC	0.066*	-0.081*	0.086*	0.013	0.029	0.228*	-0.123*	0.225*	0.086*	0.164*		
DSDC	0.048	-0.244*	0.105*	0.056	0.087*	0.196*	-0.247*	0.328*	0.076*	0.115*	0.322*	
BC	-0.170*	0.295*	-0.236*	-0.101*	-0.076*	-0.279*	0.282*	-0.342*	-0.118*	-0.159*	-0.161*	-0.188*
BSRC	-0.254*	0.269*	-0.264*	-0.237*	-0.163*	-0.210*	0.097*	-0.184*	-0.108*	-0.108*	-0.057	-0.04
TSRC	-0.165*	0.283*	-0.220*	-0.150*	-0.129*	-0.262*	0.183*	-0.335*	-0.116*	-0.160*	-0.126*	-0.107*
EC	-0.102*	0.349*	-0.219*	-0.179*	-0.176*	-0.291*	0.205*	-0.382*	-0.148*	-0.170*	-0.159*	-0.174*
JC	-0.060*	0.261*	-0.216*	-0.126*	-0.079*	-0.227*	0.220*	-0.403*	-0.081*	-0.149*	-0.193*	-0.372*
SC	-0.136*	0.268*	-0.231*	-0.225*	-0.182*	-0.201*	-0.044	-0.214*	-0.221*	-0.128*	-0.012	-0.013
MINP	0.156*	-0.177*	0.341*	0.119*	0.052	0.257*	-0.016	0.264*	0.101*	0.085*	0.079*	0.118*
MAJP	0.126*	-0.300*	0.243*	0.306*	0.279*	0.234*	-0.034	0.264*	0.144*	0.036	0.006	0.103*
SCOP	0.157*	-0.219*	0.221*	0.047	0.010	0.246*	-0.054	0.252*	0.116*	0.138*	0.053	0.098*
SDP	-0.102*	0.229*	-0.218*	-0.205*	-0.125*	-0.250*	0.086*	-0.281*	-0.075*	-0.104*	-0.140*	-0.179*
SSC	-0.067*	0.028	-0.153*	0.056	0.048	-0.137*	0.107*	-0.131*	0.061*	-0.067*	-0.084*	-0.114*
TCMP	-0.165*	0.304*	-0.221*	-0.175*	-0.128*	-0.297*	0.227*	-0.452*	-0.173*	-0.234*	-0.184*	-0.201*
EXAC	-0.093*	0.211*	-0.118*	-0.094*	-0.033	-0.173*	0.170*	-0.295*	-0.053	-0.144*	-0.162*	-0.145*
SHP	-0.135*	0.142*	-0.176*	-0.139*	-0.114*	-0.191*	0.066*	-0.225*	-0.147*	-0.164*	-0.101*	-0.137*
PSC	-0.103*	0.205*	-0.144*	-0.075*	-0.041	-0.176*	0.173*	-0.248*	-0.149*	-0.194*	-0.125*	-0.154*
IDD-L1	0.212*	-0.004	0.161*	0.042	0.012	0.265*	0.033	0.142*	0.039	0.077*	0.103*	0.085*



Table 3 (continued)

	BC	BSRC	TSRC	EC	JC	SC	MINP	MAJP	SCOP	SDP	SSC	TCMP	EXAC	SHP	PSC
BSRC	0.493*														
TSRC	0.587*	0.570*													
EC	0.629*	0.449*	0.565*												
JC	0.435*	0.245*	0.422*	0.457*											
SC	0.220*	0.275*	0.310*	0.288*	0.221*										
MINP	-0.367*	-0.198*	-0.364*	-0.323*	-0.250*	-0.330*									
MAJP	-0.275*	-0.241*	-0.351*	-0.354*	-0.262*	-0.411*	0.613*								
SCOP	-0.375*	-0.200*	-0.379*	-0.302*	-0.244*	-0.300*	0.694*	0.533*							
SDP	0.329*	0.313*	0.385*	0.417*	0.416*	0.175*	-0.166*	-0.195*	-0.126*						
SSC	0.259*	0.156*	0.197*	0.186*	0.213*	-0.095*	-0.063*	0.030	-0.105*	0.267*					
TCMP	0.554*	0.383*	0.558*	0.583*	0.514*	0.347*	-0.275*	-0.313*	-0.304*	0.401*	0.214*				
EXAC	0.406*	0.288*	0.352*	0.395*	0.320*	0.179*	-0.164*	-0.141*	-0.139*	0.389*	0.230*	0.412*			
SHP	0.393*	0.319*	0.372*	0.408*	0.343*	0.149*	-0.112*	-0.124*	-0.113*	0.397*	0.240*	0.405*	0.338*		
PSC	0.480*	0.298*	0.404*	0.457*	0.365*	0.119*	-0.208*	-0.178*	-0.217*	0.422*	0.340*	0.439*	0.504*	0.399*	
IDD-L1	-0.086*	-0.094*	-0.064*	-0.033	-0.048	-0.029	0.104*	0.028	0.087*	-0.072*	-0.060*	-0.078*	-0.054	-0.064*	-0.062*

*Legend.* \* Correlation is significant at the 0.05 level (2-tailed); *COMF*: Communication with friends; *ANX*: anxiety; *SE*: Self-esteem; *FDH*: Familial daily hassles; *D*: Academic delay; *AA*: Academic achievement; *AINV*: Academic involvement; *ASE*: Academic self-efficacy; *EXI*: Extracurricular involvement; *ISB*: School misbehaviors; *FAMS*: Parental academic support; *FAMP*: Parental academic pressure; *TP*: Transitional difficulties; *LS (I)*: Loneliness at school (inversed); *PDH*: peer-related daily hassles; *FSA*: Friends' school adaptation; *MINV*: Minor victimization; *MAJV*: Major victimization; *SEXV*: sexual or romantic victimization; *SDH*: School-related daily hassles; *TS*: Warm and supportive teacher-student relationships; *TC*: Conflictual teacher-student relationships; *DSH*: dissatisfaction with school help mechanisms; *DSE*: dissatisfaction with school encouragement mechanisms; *DSAC*: dissatisfaction with school academic control; *DSDC*: dissatisfaction with school disciplinary control; *BC*: Bonding climate; *BSRC*: Inter-student relational climate; *TSRC*: teacher-student relational climate; *EC*: Educational climate; *JC*: Justice Climate; *SC*: Security climate; *MINP*: Perceived frequency of minor violence problems; *MAJP*: Perceived frequency of major violence problems; *SCOP*: Perceived frequency of school-related problems; *SDP*: School disciplinary practices; *SSC*: Student consultation practices; *TCMP*: Teachers' classroom management practices; *EXAC*: Extracurricular activities' quality and availability; *SHP*: School help practices; *PSC*: School-family collaboration mechanisms; *IDD-L1*: Time 1 depressive symptoms.

---

## RELATIONSHIPS BETWEEN SCHOOL LIFE AND DEPRESSION

### School-Related Psychological Characteristics

**Main effects.** Results from the regressions evaluating the effects of school-related psychological characteristics on Time 3 depressive symptoms are reported in Table 4. Results from the first set of regression analyses indicated that most of the variables studied did predict Time 3 depressive symptoms, even when previous levels of depressive symptoms were taken into account. In fact, only participants' levels of extracurricular involvement were found to be unrelated to depression development. These results indicate that students who exhibit higher levels of school misbehaviors or academic delays tend to present higher levels of depressive symptoms at Time 3, whereas students with higher levels of academic achievement, involvement, and self-efficacy tend to present lower levels of depressive symptoms at Time 3. However, when these variables were considered simultaneously in the analyses, only academic self-efficacy and school misbehaviors remained significant predictors of Time 3 depressive symptoms. Furthermore, when controls were partialled out in the analyses, only participants' levels of school misbehaviors still predicted Time 3 depressive symptoms.

**Moderating role of gender.** Among all the gender-based interactions evaluated, only the school misbehaviors ( $\beta = 0.083$ ;  $t = 2.519$ ;  $p = 0.012$ ) and academic involvement ( $\beta = -0.078$ ;  $t = -2.167$ ;  $p = 0.030$ ) interactions appeared significant. The decomposition of these interactions indicates that participants' levels of school misbehaviors represent a more potent predictor of depression development for girls ( $a = 1.978$ ;  $b = 0.226$ ;  $p = 0.000$ ) than for boys ( $a = 1.658$ ;  $b = 0.111$ ;  $p = 0.000$ ), while academic involvement predicted Time 3 depressive symptoms among girls only (girls:  $a = 1.954$ ;  $b = -0.733$ ;  $p = 0.000$ ; boys:  $a = 1.678$ ;  $b = -0.252$ ;  $p = 0.099$ ).

**Moderating role of Time 1 depressive symptoms.** Among the depression-based interactions, only the effects of participants' levels of extracurricular involvement were moderated by Time 1 depressive symptoms ( $\beta = -0.090$ ;  $t = -3.471$ ;  $p = 0.001$ ). Decomposing this interaction revealed that participants' levels of extracurricular involvement did not predict depressive symptom development among asymptomatic ( $a = 0.527$ ;  $b = 0.141$ ;  $p = 0.161$ ) and symptomatic ( $a = 1.613$ ;  $b = -0.082$ ;  $p = 0.216$ ) participants but were negatively related to Time 3 depressive symptoms among previously clinical students ( $a = 2.698$ ;  $b = -0.305$ ;  $p = 0.000$ ).

**Final model for the dimension.** When students' levels of school misbehaviors were entered alone, following controls, in a regression analysis to predict Time 3 depression symptoms, they explained 1.6% of depressive symptoms variance. Adding the significant interaction (i.e., gender \* school misbehaviors, gender \* academic involvement, and depression \* extracurricular involvement) to this regression explained an additional 1% of Time 3 depressive symptoms variance. However, among the interactions, only the Time 1 depressive symptoms by extracurricular involvement interaction remained significant ( $\beta = -0.074$ ;  $t = -2.978$ ;  $p = 0.003$ ).

**Table 4. Relationships between school-related psychological characteristics and Time 3 depressive symptoms**

	Univariate effects, depression control			Multivariate effects, depression control			Multivariate effects, all controls			Final model for the dimension, all controls		
	Beta	t	p	Beta	t	p	Beta	t	p	Beta	t	p
<i>School-related psychological characteristics</i>												
Academic delay	0.073	2.807	0.005	0.010	0.352	0.725						
Academic achievement	-0.057	-2.199	0.028	0.020	0.709	0.479						
Academic involvement	-0.105	-4.053	0.000	-0.028	-0.956	0.339						
Academic self-efficacy	-0.101	-3.916	0.000	-0.061	-2.162	0.031	-0.029	-1.091	0.276			
Extracurricular involvement	-0.050	-1.909	0.056									
School misbehaviors	0.170	6.621	0.000	0.145	4.837	0.000	0.124	4.706	0.000	0.130	5.047	0.000
R <sup>2</sup> change			NA			0.033			0.016			0.016

---

## School-Related Socialization Experiences

Results from the regression analyses evaluating the effects of student's school-related socialization experiences on Time 3 depressive symptoms are reported in Table 5.

*Main effects of parental school-related educative practices.* Results from the first set of regressions indicate that parental academic support and pressure both predicted Time 3 symptoms, even when previous levels of depressive symptoms were taken into account. More precisely, students exposed to a higher level of parental academic pressure and to a lower level of parental academic support tended to present more symptoms at Time 3. However, when both variables were entered together in the analyses, only parental academic pressure remained a significant predictor of depressive symptoms. Finally, following the inclusion of additional controls, the effects of parental academic pressure on depression also became non-significant.

*Main effects of in-school peer relationships.* In the first set of analyses, most aspects of in-school peer relationships predicted Time 3 depressive symptoms. More precisely, the results indicated that students exposed to higher levels of transitional problems, loneliness at school, peer-related daily hassles, and minor, major, and sexual victimization tended to present more symptoms at Time 3, while students whose friends presented higher levels of adaptation to school exhibited less symptoms. In the next set of regressions, the simultaneous consideration of these variables in the analysis resulted in the disappearance of two of these effects: transitional problems and major victimization became non-significant predictors of Time 3 symptoms. Finally, only two variables still predicted Time 3 depressive symptoms following the inclusion of background controls in the analyses: loneliness at school and minor victimization.

*Main effects of socialization experiences involving school adults.* Among the varied dimensions of participants' socialization experiences involving school adults, only two were found to significantly predict Time 3 depressive symptoms: school-related daily hassles and conflictual relationships with teachers. Students who perceived their school experiences as more stressful and who had more conflictual relationships with their teachers tended to develop higher levels of depressive symptoms. Furthermore, these relations were unaffected by the simultaneous consideration of both variables and by the inclusion of background controls in the analysis.

*Moderating role of gender.* The evaluation of gender-based interactions revealed that the effects of four aspects of students' school-related socialization experiences on Time 3 levels of depressive symptoms were moderated by gender: minor victimization ( $\beta = 0.132$ ;  $t = 4.052$ ;  $p = 0.000$ ), school-related daily hassles ( $\beta = 0.133$ ;  $t = 4.011$ ;  $p = 0.000$ ), conflictual relationships with teachers ( $\beta = 0.092$ ;  $t = 2.704$ ;  $p = 0.007$ ), and dissatisfaction with school disciplinary control ( $\beta = 0.110$ ;  $t = 3.218$ ;  $p = 0.001$ ). Additionally, the interaction between gender and major victimization was also found to be marginally significant ( $\beta = 0.055$ ;  $t = 1.775$ ;  $p = 0.076$ ). The decomposition of these interactions revealed that the first three variables, as well as major victimization, represented more potent predictors of depressive symptoms in girls (minor victimization:  $a = 1.990$ ;  $b = 0.257$ ;  $p = 0.000$ ; major victimization:  $a = 1.962$ ;  $b = 0.216$ ;  $p = 0.000$ ; daily hassles:  $a = 1.909$ ;  $b = 1.212$ ;  $p = 0.000$ ; conflicts with teachers:  $a = 1.950$ ;  $b = 0.592$ ;  $p = 0.000$ ) than in boys (minor victimization:  $a = 1.663$ ;  $b = 0.084$ ;  $p = 0.002$ ; major victimization:  $a = 1.673$ ;  $b = 0.087$ ;  $p = 0.025$ ; daily hassles:  $a = 1.683$ ;  $b = 0.395$ ;  $p = 0.003$ ; conflicts with teachers:  $a = 1.675$ ;  $b = 0.228$ ;  $p = 0.011$ ),

**Table 5. Relationships between school-related socialization experiences and Time 3 depressive symptoms**

	Univariate effects, depression control			Multivariate, depression control			Multivariate effects, all controls			Final model for the dimension, all controls		
	Beta	t	p	Beta	t	p	Beta	t	p	Beta	t	p
<i>Parental school-related educative practices</i>												
Parental academic support	-0.059	-2.253	0.024	-0.049	-1.838	0.066						
Parental academic pressure	0.064	2.452	0.014	0.055	2.077	0.038	0.034	1.321	0.187			
R <sup>2</sup> change			NA			0.006			0.001			
<i>In-school peer relationships</i>												
Transitional difficulties	0.089	3.380	0.001	0.015	0.502	0.615						
Loneliness at school (inv.)	0.107	4.073	0.000	-0.064	-2.063	0.039	-0.073	-2.653	0.008	-0.084	-3.235	0.001
Peer-related daily hassles	0.151	5.770	0.000	0.086	3.040	0.002	0.049	1.763	0.078			
Friends' school adaptation	-0.098	-3.779	0.000	-0.063	-2.417	0.016	-0.044	-1.684	0.092			
Minor victimization	0.176	6.800	0.000	0.134	4.672	0.000	0.109	4.010	0.000	0.106	4.010	0.000
Major victimization	0.090	3.470	0.001	-0.026	-0.797	0.425						
Sexual victimization	0.098	3.807	0.000	0.065	2.083	0.037	0.033	1.283	0.200			
R <sup>2</sup> change			NA			0.055			0.029			
<i>Socialization experiences involving school adults</i>												
School-related daily hassles	0.183	6.905	0.000	0.148	5.170	0.000	0.093	3.168	0.002	0.074	2.542	0.011
Teacher support	-0.006	-0.222	0.824									
Conflicts with teachers	0.141	5.449	0.000	0.084	3.011	0.003	0.066	2.384	0.017	0.059	2.116	0.035
Dissatisfaction: help	0.019	0.721	0.471									
Dissatisfaction: encouragement	0.027	1.017	0.309									
Dissatisfaction: academic control	0.008	0.305	0.760									
Dissatisfaction: discipline	0.028	1.060	0.289									
R <sup>2</sup> change			NA			0.037			0.015			0.034

---

while students' dissatisfaction with school disciplinary control predicted Time 3 depressive symptoms only among girls (girls:  $a = 1.905$ ;  $b = 0.684$ ;  $p = 0.002$ ; boys:  $a = 1.700$ ;  $b = -0.228$ ;  $p = 0.219$ ).

*Moderating role of Time 1 depressive symptoms.* Time 1 depressive symptoms were found to moderate the impact of several variables on depression development: transitional difficulties ( $\beta = 0.065$ ;  $t = 2.494$ ;  $p = 0.013$ ), minor victimization ( $\beta = 0.062$ ;  $t = 2.393$ ;  $p = 0.017$ ), major victimization ( $\beta = -0.084$ ;  $t = -3.236$ ;  $p = 0.001$ ), conflictual relationships with teachers ( $\beta = 0.069$ ;  $t = 2.672$ ;  $p = 0.008$ ), and dissatisfaction with school encouragement practices ( $\beta = 0.059$ ;  $t = 2.273$ ;  $p = 0.023$ ). Additionally, the interaction between Time 1 depressive symptoms and sexual victimization was also found to be marginally significant ( $\beta = -0.048$ ;  $t = -1.839$ ;  $p = 0.066$ ). The decomposition of these interactions revealed that experiencing transitional difficulties and conflictual relationships with teachers predicted Time 3 depressive symptoms only among previously symptomatic (transitional difficulties:  $a = 1.595$ ;  $b = 0.242$ ;  $p = 0.013$ ; conflict:  $a = 1.599$ ;  $b = 0.317$ ;  $p = 0.000$ ) and clinically depressed (transitional difficulties:  $a = 2.641$ ;  $b = 0.466$ ;  $p = 0.000$ ; conflict:  $a = 2.626$ ;  $b = 0.487$ ;  $p = 0.000$ ) participants rather than among previously asymptomatic students (transitional difficulties:  $a = 0.548$ ;  $b = 0.017$ ;  $p = 0.910$ ; conflict:  $a = 0.571$ ;  $b = 0.146$ ;  $p = 0.172$ ). Similarly, exposure to minor victimization became more strongly associated with Time 3 depressive symptoms as participants' Time 1 symptoms increased (asymptomatic:  $a = 0.592$ ;  $b = 0.080$ ;  $p = 0.020$ ; symptomatic:  $a = 1.602$ ;  $b = 0.128$ ;  $p = 0.000$ ; clinical:  $a = 2.611$ ;  $b = 0.176$ ;  $p = 0.000$ ) and students' levels of dissatisfaction with school encouragement practices only appeared to predict depressive symptoms among previously clinically depressed adolescents (asymptomatic:  $a = 0.513$ ;  $b = -0.253$ ;  $p = 0.311$ ; symptomatic:  $a = 1.600$ ;  $b = 0.116$ ;  $p = 0.484$ ; clinical:  $a = 2.688$ ;  $b = 0.488$ ;  $p = 0.025$ ). Finally, the effects of major (asymptomatic:  $a = 0.535$ ;  $b = 0.247$ ;  $p = 0.000$ ; symptomatic:  $a = 1.620$ ;  $b = 0.142$ ;  $p = 0.000$ ; clinical:  $a = 2.704$ ;  $b = 0.037$ ;  $p = 0.350$ ) and sexual (asymptomatic:  $a = 0.528$ ;  $b = 0.356$ ;  $p = 0.000$ ; symptomatic:  $a = 1.613$ ;  $b = 0.236$ ;  $p = 0.000$ ; clinical:  $a = 2.698$ ;  $b = 0.116$ ;  $p = 0.162$ ) victimization on Time 3 depressive symptoms were limited to previously asymptomatic and symptomatic students, while they were non-significant among previously asymptomatic youths.

*Final model for the dimension.* Four variables related to students' school-related socialization experiences were found to significantly and positively predict Time 3 depressive symptoms: loneliness at school, minor victimization, school-related daily hassles and conflictual relationships with teachers. When these four variables were entered together in a multiple regression, following controls, all remained significant predictors of depression development and explained 3.4% of Time 3 depressive symptom variance. Adding the significant interaction terms from the school-related socialization experience dimension to this regression explained an additional 3.1% of Time 3 depressive symptom variance. Among these interactions, six remained significant predictors of Time 3 depressive symptoms in this final model. Three of these interactions involved gender: minor victimization ( $\beta = 0.076$ ;  $t = 2.143$ ;  $p = 0.032$ ), school-related daily hassles ( $\beta = 0.075$ ;  $t = 2.064$ ;  $p = 0.039$ ), and dissatisfaction with school disciplinary control ( $\beta = 0.069$ ;  $t = 2.012$ ;  $p = 0.044$ ). The other three interactions involved Time 1 levels of depressive symptoms: minor victimization ( $\beta = 0.074$ ;  $t = 2.628$ ;  $p = 0.009$ ), major victimization ( $\beta = -0.086$ ;  $t = -2.890$ ;  $p = 0.004$ ), and conflictual relationships with teachers ( $\beta = 0.071$ ;  $t = 2.700$ ;  $p = 0.007$ ).

## Perceived School Environment

Results from the regression analyses evaluating the effects of student's perceptions of their school environments on Time 3 depressive symptoms are reported in Table 6.

*Main effects of perceived school climate.* In the first set of regressions, the six aspects of students' school climate perceptions were found to share significant negative relationships with Time 3 symptoms. The simultaneous consideration of these variables in the analysis resulted in the disappearance of four of these effects. Indeed, only students' perceptions of school justice and security climates remained significant predictors of depression development. The inclusion of background controls in the analysis did not change these results.

*Main effects of perceived school problems.* In the first set of regressions, students' perceptions of the frequency of minor violence, major violence and school-related problems at school were found to share a positive relationship with Time 3 symptoms. When these dimensions were considered together in the analyses, only participants' perceptions of the frequency of minor violence problems remained a significant predictor of their later levels of depression. This relationship remained unaffected by the inclusion of additional controls.

*Main effects of perceived school practices.* When they were considered alone in analyses in which Time 1 depressive symptoms were controlled, the six aspects of students' perceptions of school practices negatively predicted their Time 3 symptoms. The simultaneous inclusion of these variables in the analyses considerably reduced the number of significant effects. Indeed, only students' perceptions of school disciplinary practices and teachers' classroom management practices still predicted Time 3 symptoms. Moreover, the effects of school disciplinary practices became only marginally significant following the inclusion of additional controls.

*Moderating role of gender.* The evaluation of gender-based interactions revealed that the effects of four aspects of students' perceptions of their school environment were significantly moderated by gender: security climate ( $\beta = -0.085$ ;  $t = -2.482$ ;  $p = 0.013$ ), minor violence problems ( $\beta = 0.127$ ;  $t = 3.584$ ;  $p = 0.000$ ), major violence problems ( $\beta = 0.097$ ;  $t = 2.843$ ;  $p = 0.005$ ), and school-related problems ( $\beta = 0.109$ ;  $t = 3.070$ ;  $p = 0.002$ ). The decomposition of these interactions indicated that these four variables predicted Time 3 depressive symptoms only, or mostly, among girls (security climate:  $a = 1.955$ ;  $b = -0.632$ ;  $p = 0.000$ ; minor violence:  $a = 1.922$ ;  $b = 0.114$ ;  $p = 0.000$ ; major violence:  $a = 1.936$ ;  $b = 0.176$ ;  $p = 0.000$ ; school-related:  $a = 1.890$ ;  $b = 0.091$ ;  $p = 0.000$ ) rather than boys (security climate:  $a = 1.678$ ;  $b = -0.221$ ;  $p = 0.041$ ; minor violence:  $a = 1.690$ ;  $b = 0.024$ ;  $p = 0.178$ ; major violence:  $a = 1.691$ ;  $b = 0.032$ ;  $p = 0.340$ ; school-related:  $a = 1.698$ ;  $b = 0.011$ ;  $p = 0.535$ ).

*Moderating role of Time 1 depressive symptoms.* The evaluation of Time 1 depressive-symptom-based interactions revealed that the effects of several aspects of students' perceptions of their school environment on Time 3 depressive symptoms were moderated by their previous levels of depression: bonding climate ( $\beta = -0.091$ ;  $t = -3.535$ ;  $p = 0.000$ ), inter-student relational climate ( $\beta = -0.063$ ;  $t = -2.426$ ;  $p = 0.015$ ), justice climate ( $\beta = -0.087$ ;  $t = -3.362$ ;  $p = 0.001$ ), minor violence problem frequency ( $\beta = 0.059$ ;  $t = 2.275$ ;  $p = 0.023$ ), school disciplinary practices ( $\beta = -0.069$ ;  $t = -2.691$ ;  $p = 0.007$ ), student consultation practices ( $\beta = -0.062$ ;  $t = -2.382$ ;  $p = 0.017$ ), teachers' classroom management practices ( $\beta = -0.070$ ;  $t = -2.719$ ;  $p = 0.007$ ), extracurricular activity quality and availability ( $\beta = -0.062$ ;  $t = -2.376$ ;  $p = 0.018$ ), and school-family collaboration mechanisms ( $\beta = -0.079$ ;  $t = -3.035$ ;  $p = 0.002$ ).

**Table 6. Relationships between perceived school environment and depression development**

	Univariate effects with depression control			Multivariate effects (sub-dimensions), depression control			Multivariate effects (sub-dimensions), all controls			Final model for the dimension, all controls		
	Beta	t	p	Beta	t	p	Beta	t	p	Beta	t	p
<i>Perceived school climate</i>												
Bonding	-0.097	-3.726	0.000	-0.021	-0.582	0.561						
Relational (inter-student)	-0.102	-3.930	0.000	-0.050	-1.526	0.127						
Relational (teacher-student)	-0.100	-3.865	0.000	-0.004	-0.104	0.917						
Educational	-0.093	-3.575	0.000	0.004	0.104	0.917						
Justice	-0.115	-4.471	0.000	-0.076	-2.527	0.012	-0.074	-2.870	0.004	-0.039	-1.282	0.200
Security	-0.118	-4.584	0.000	-0.083	-3.025	0.003	-0.068	-2.579	0.010	-0.044	-1.588	0.113
R <sup>2</sup> change			NA			0.026			0.012			
<i>Perceived frequency of school problems</i>												
Minor violence	0.133	5.145	0.000	0.119	3.033	0.002	0.090	3.503	0.000	0.057	2.103	0.036
Major violence	0.092	3.538	0.000	0.015	0.463	0.643						
School-related	0.097	3.748	0.000	0.007	0.198	0.843						
R <sup>2</sup> change			NA			0.018			0.008			
<i>Perceived quality of school practices</i>												
Disciplinary practices	-0.110	-4.232	0.000	-0.064	-2.091	0.037	-0.053	-1.931	0.054	-0.040	-1.401	0.162
Student consultation	-0.056	-2.167	0.030	-0.020	-0.721	0.471						
Classroom management	-0.127	-4.931	0.000	-0.096	-3.098	0.002	-0.065	-2.343	0.019	-0.023	-0.737	0.461
Extracurricular activities	-0.060	-2.314	0.021	0.010	0.326	0.744						
Support mechanisms	-0.096	-3.700	0.000	-0.040	-1.329	0.184						
School-family collaboration	-0.063	-2.425	0.015	0.023	0.700	0.484						
R <sup>2</sup> change			NA			0.022			0.010			0.016



---

The decomposition of these interactions revealed that the effects of three of these variables were related to Time 3 depressive symptoms only, or mostly, among students who were clinically depressed at Time 1: student consultation practices (asymptomatic:  $a = 0.534$ ;  $b = 0.036$ ;  $p = 0.711$ ; symptomatic:  $a = 1.605$ ;  $b = -0.119$ ;  $p = 0.070$ ; clinical:  $a = 2.676$ ;  $b = -0.273$ ;  $p = 0.001$ ), extracurricular activity quality and availability (asymptomatic:  $a = 0.530$ ;  $b = 0.043$ ;  $p = 0.743$ ; symptomatic:  $a = 1.605$ ;  $b = -0.156$ ;  $p = 0.074$ ; clinical:  $a = 2.681$ ;  $b = -0.355$ ;  $p = 0.001$ ), and school-family collaboration mechanisms (asymptomatic:  $a = 0.539$ ;  $b = 0.096$ ;  $p = 0.506$ ; symptomatic:  $a = 1.609$ ;  $b = -0.187$ ;  $p = 0.053$ ; clinical:  $a = 2.668$ ;  $b = -0.471$ ;  $p = 0.000$ ). Similarly, the predictive effects of six other variables were limited to symptomatic and clinically depressed students at Time 1: bonding climate (asymptomatic:  $a = 0.548$ ;  $b = 0.029$ ;  $p = 0.828$ ; symptomatic:  $a = 1.603$ ;  $b = -0.285$ ;  $p = 0.000$ ; clinical:  $a = 2.649$ ;  $b = -0.598$ ;  $p = 0.000$ ), inter-student relational climate (asymptomatic:  $a = 0.552$ ;  $b = -0.123$ ;  $p = 0.430$ ; symptomatic:  $a = 1.603$ ;  $b = -0.367$ ;  $p = 0.000$ ; clinical:  $a = 2.655$ ;  $b = -0.611$ ;  $p = 0.000$ ), justice climate (asymptomatic:  $a = 0.548$ ;  $b = -0.050$ ;  $p = 0.687$ ; symptomatic:  $a = 1.606$ ;  $b = -0.316$ ;  $p = 0.000$ ; clinical:  $a = 2.665$ ;  $b = -0.582$ ;  $p = 0.000$ ), minor violence problem frequency (asymptomatic:  $a = 0.557$ ;  $b = 0.032$ ;  $p = 0.104$ ; symptomatic:  $a = 1.604$ ;  $b = 0.060$ ;  $p = 0.000$ ; clinical:  $a = 2.650$ ;  $b = 0.088$ ;  $p = 0.000$ ), school disciplinary practices (asymptomatic:  $a = 0.540$ ;  $b = -0.149$ ;  $p = 0.468$ ; symptomatic:  $a = 1.603$ ;  $b = -0.509$ ;  $p = 0.000$ ; clinical:  $a = 2.667$ ;  $b = -0.868$ ;  $p = 0.000$ ), and teachers' classroom management practices (asymptomatic:  $a = 0.551$ ;  $b = -0.196$ ;  $p = 0.245$ ; symptomatic:  $a = 1.604$ ;  $b = -0.488$ ;  $p = 0.000$ ; clinical:  $a = 2.657$ ;  $b = -0.781$ ;  $p = 0.000$ ).

*Final model for the dimension.* Five variables related to students' perceptions of their school environment significantly predicted Time 3 depressive symptoms: justice and security climates, perceived frequency of minor violence problems, disciplinary practices, and teachers' classroom management practices. When these five variables were entered together in a multiple regression analysis, following controls, they explained a total of 1.6% in Time 3 depressive symptom variance. However, only perceived frequency of minor violence problems remained a significant predictor of depression development. When this regression was replicated including only this variable and background controls, perceived frequency of minor violence problems explained only 0.8% of the variance in Time 3 depressive symptoms. Adding the significant interaction terms from the perceived school environment dimension to this regression explained an additional 2.6% of Time 3 symptoms variance, although no interaction remained significant.

## CONTRIBUTION OF SCHOOL LIFE TO DEPRESSION DEVELOPMENT

A final regression analysis was conducted to estimate the total contribution of school life to depression development. When all significant predictors from the previous analyses (final models from each of the three dimensions) were entered together following controls, they explained a total of 4.1% of Time 3 depressive symptom variance. In this regression, Time 1 depressive symptoms and background controls explained 21.2% and 6.0% respectively of Time 3 depressive symptom variance. Among the predictors, four remained significant predictors of Time 3 symptoms: school misbehaviors ( $\beta = 0.091$ ;  $t = 3.199$ ;  $p = 0.001$ ), loneliness at school (inversed:  $\beta = -0.093$ ;  $t = -3.579$ ;  $p = 0.000$ ), minor victimization ( $\beta = 0.089$ ;  $t = 3.260$ ;  $p = 0.001$ ), and school-related hassles ( $\beta = 0.060$ ;  $t = 2.061$ ;  $p = 0.040$ ). The

effect of the other two variables – conflictual relationships with teachers ( $\beta = 0.027$ ;  $t = 0.919$ ;  $p = 0.358$ ) and perceived frequency of minor violence problems ( $\beta = 0.021$ ;  $t = 0.756$ ;  $p = 0.450$ ) – became non-significant. When this regression was replicated including only these four predictors and background controls, they were found to explain 4% of the Time 3 depressive symptom variance. Adding the significant interaction terms from the preceding analyses to this regression explained an additional 3.4% of Time 3 depressive symptom variance. The final model thus explained a grand total of 34.6% of Time 3 depressive symptom variance. Among the interactions, six remained significant predictors of Time 3 depressive symptoms. Two of those involved gender: school-related daily hassles ( $\beta = 0.069$ ;  $t = 2.070$ ;  $p = 0.039$ ) and minor victimization ( $\beta = 0.066$ ;  $t = 2.078$ ;  $p = 0.044$ ). The other four interactions involved Time 1 symptoms: extracurricular involvement ( $\beta = -0.061$ ;  $t = -2.508$ ;  $p = 0.012$ ), minor victimization ( $\beta = 0.080$ ;  $t = 3.013$ ;  $p = 0.003$ ); major victimization ( $\beta = -0.093$ ;  $t = -3.569$ ;  $p = 0.000$ ), and conflictual relationships with teachers ( $\beta = 0.056$ ;  $t = 2.236$ ;  $p = 0.026$ ). Only the previous levels of depression \* dissatisfaction with school disciplinary control interaction became non-significant ( $\beta = 0.058$ ;  $t = 1.763$ ;  $p = 0.078$ ).

## DISCUSSION OF THE RESULTS

### Relationships between School Life and Depression

The main objective of this study was to evaluate the relationship between school life and depression development. A summary of the results is presented in Table 7. Perhaps the most important of these results is that the majority of the school life characteristics evaluated did represent significant predictors of depression development among high school students when their effects were considered separately. The fact that many of these factors became non-significant predictors of depression development when they were considered simultaneously does not mean that they should not be targeted in preventive interventions. Indeed, this study suggests that improving various aspects of students' school-related psychological characteristics, in-school socialization experiences and perceptions of their school environment would likely reduce their risk of developing depression following high school transition. However, the simultaneous consideration of multiple aspects of students' school life in the prediction of depression development clearly indicated that some of these variables may be more potent predictors of depression than others. This result may be due to the interrelated character of the multiple facets of school life. For instance, whereas most aspects of students' perceptions of school climate individually predicted their later levels of depression, their simultaneous consideration in the analyses left only justice and security climates as significant predictors of depression development. A parsimonious interpretation of this result could be that the effects of the other aspects of school climate (inter-student and teacher-student relational climates, bonding climate, and educational climate) on students' levels of depression only represented an artifact of their relationships with justice and security climates. Again, this result does not mean that improving, for example, school bonding climates would not help to prevent depression since such an improvement would likely result in the simultaneous enhancement of school justice and security climates. However, more systematic evaluations of

the relationships between school life characteristics would be needed to test the plausibility of this hypothesis.

Alternatively, the fact that most aspects of school life appear to be worthy targets for preventive interventions does not mean that they also provide worthy explanations for depression development. Indeed, in the preceding example, most aspects of students' perceptions of school climates were described as potential targets for prevention programs due to their intertwined character. Nevertheless, only justice and security climates represent potential "causes" of depression development as the results suggest that, no matter how problematic other aspects of school climate may be viewed by students, these perceptions may not increase students' risk of developing depression if they perceive their schools' justice and security climates positively.

Another important result from this study is the fact that the inclusion of students' personal and social background characteristics as controls in the analyses only minimally affected the observed relationships. Indeed, the effects of only five of the predictors became non-significant once these variables were controlled in the analyses: the relationships between depression and students' levels of academic self-efficacy, parental academic pressure, perceived stressfulness of students' relationships with friends and classmates, sexual/romantic victimization, and friends' school adaptation may thus represent an artifact of students' background characteristics. More precisely, students' background characteristics may influence their exposure to these specific in-school factors as well as their risk of developing depression, and thus explain the observed statistical associations. However, a far more important implication of this finding is that school life effects on depression development may be relatively independent from the effects of students' lives outside of school. Youths' lives in and out of school should therefore be seen as complementary targets for preventive interventions. The present results clearly suggest that neither form of intervention is likely to be sufficient to prevent depression.

Among all the school life characteristics evaluated, few may be seen as exerting a determining impact on depression development: (a) school misbehaviors, (b) loneliness at school, (c) minor victimization, (d) conflictual relationships with teachers, (e) perceived stressfulness of school life, (f) justice climate, (g) security climate, (h) school disciplinary practices, (i) classroom management practices; and (j) nor violence problems frequency. Furthermore, in a more integrated predictive model, it appears that the main effects of school life on depression development may only result from the action of four variables: school misbehaviors, loneliness at school, minor victimization, and perceived stressfulness of students' school lives. The disappearance of the other effects should not be surprising since it is highly plausible that these remaining variables act as complete mediators of the relationships between the other variables and depression. For instance, security climates, disciplinary practices, classroom management practices, and minor violence problems frequency all refer to school violence or to school efforts to reduce violence. In this context, it is possible that these variables all converge to augment students' risk of being victimized, and that victimization represents the proximal determinant of depression development involved in their effects. It should be noted that these results lend strong support to the recent societal and scientific claims that school violence prevention programs should be seen as a key priority for modern societies (Gottfredson, 2000).

**Table 7. A summary of the results**

	Main effects					Gender-based variations				Depression-based variations				
	U_CD	M_CD	M_AC	FMD	FM	M	F	FMD	FM	A	S	C	FMD	FM
<i>School-related psychological characteristics</i>														
Academic delay	↑	---	---	---	---									
Academic achievement	↓	---	---	---	---									
Academic involvement	↓	---	---	---	---	---	↓	---	---					
Academic self-efficacy	↓	↓	---	---	---									
Extracurricular involvement	---	---	---	---	---					---	---	↓	↓	↓
School misbehaviors	↑	↑	↑	↑	↑	↑	↑↑	---	---					
<i>School-related socialization experiences : Parental school-related educative practices</i>														
Parental academic support	↓	---	---	---	---									
Parental academic pressure	↑	↑	---	---	---									
<i>School-related socialization experiences : In-school peer relationships</i>														
Transitional difficulties	↑	---	---	---	---					---	↑	↑↑	---	---
Loneliness at school	↑	↑	↑	↑	↑									
Peer-related daily hassles	↑	↑	---	---	---									
Friends' school adaptation	↓	↓	---	---	---									
Minor victimization	↑	↑	↑	↑	↑	↑	↑↑	↑	↑	↑	↑↑	↑↑↑	↑	↑
Major victimization	↑	---	---	---	---	↑	↑↑	---	---	↑↑	↑	---	↑	↑
Sexual victimization	↑	↑	---	---	---					↑↑	↑	---	---	---
<i>School-related socialization experiences : Socialization experiences involving school adults</i>														
School-related hassles	↑	↑	↑	↑	↑	↑	↑↑	↑	↑					
Teacher support	---	---	---	---	---									
Conflicts with teachers	↑	↑	↑	↑	---	↑	↑↑	---	---	---	↑	↑↑	↑	↑
Dissatisfaction: help	---	---	---	---	---									
Dissatisfaction: encour.	---	---	---	---	---					---	---	↑	---	---
Dissatisfaction: acad. control	---	---	---	---	---									
Dissatisfaction: discipline	---	---	---	---	---	---	↑	↑	↑					
<i>Perceived school environment: Perceived school climate</i>														
Bonding	↓	---	---	---	---					---	↓	↓↓	---	---
Relational (students)	↓	---	---	---	---					---	↓	↓↓	---	---
Relational (teachers-students)	↓	---	---	---	---									
Educational	↓	---	---	---	---									
Justice	↓	↓	↓	---	---					---	↓	↓↓	---	---
Security	↓	↓	↓	---	---	↓	↓↓	---	---					

**Table 7. (Continued)**

	Main effects				Gender-based variations					Depression-based variations				
	U_CD	M_CD	M_AC	FMD	FM	M	F	FMD	FM	A	S	C	FMD	FM
Perceived school environment: Perceived frequency of school problems														
Minor violence	↑	↑	↑	↑	---	---	↑	---	---	---	↑	↑↑	---	---
Major violence	↑	---	---	---	---	---	↑	---	---	---	---	---	---	---
School-related	↑	---	---	---	---	---	↑	---	---	---	---	---	---	---
Perceived school environment: Perceived quality of school practices														
Disciplinary practices	↓	↑	↑	---	---	---	---	---	---	---	↓	↓↓	---	---
Students' involvement	↓	---	---	---	---	---	---	---	---	---	↓	↓	---	---
Classroom management	↓	↑	↑	---	---	---	---	---	---	---	↓	↓↓	---	---
Extracurricular activities	↓	---	---	---	---	---	---	---	---	---	↓	↓	---	---
School support	↓	---	---	---	---	---	---	---	---	---	---	---	---	---
Parental implication	↓	---	---	---	---	---	---	---	---	---	↓	↓	---	---

*Legend.* *U\_CD*: univariate (U) effect of the variable on Time 3 level of depression while controlling (C) for previous levels of depression (D); *M\_CD*: effect of the variable on Time 3 level of depression in a multivariate analysis including all predictors from the dimensions and controlling (C) for previous levels of depression (D); *M\_AC*: effect of the variable on Time 3 level of depression in a multivariate analysis including all predictors from the dimensions including all (A) controls (C); *FMD*: effect of the variable in the final (F) model (M) for the dimension (D); *FM*: effect of the variable in the final (F) model (M); *M*: effect of the variable among males; *F*: effect of the variable among females; *A*: effect of the variable among asymptomatic subjects at Time 1; *S*: effect of the variable among symptomatic subjects at Time 1; *C*: effect of the variable among clinically depressed subjects at Time 1; ↑: positive significant relationship (higher levels of the predictor are associated with higher levels of depression); ↓: negative significant relationship (lower levels of the predictor are associated with higher levels of depression); ↓ or ↑: marginally significant effect; ↑, ↑↑ and ↑↑↑ (or reversed): comparative importance of the effects; ---: non significant effect.

---

Accordingly, students' negative perceptions of their schools' justice climate and exposure to conflict with teachers may both represent potential contributors to students' perceptions of their schools as stressful places, which may in turn mediate their effects on depression.

Some of these results are highly consistent with those from previous studies. For instance, previous studies also generally failed to find significant relationships between depression development and academic achievement (Bandura *et al.*, 1999; Cole *et al.*, 1996; Lewinsohn *et al.*, 1994; Reinherz *et al.*, 1993), parental school-related educative practices (Hilsman, and Garber, 1995; Lewinsohn *et al.*, 1994), and educative climate (Kasen *et al.*, 1990; Roeser and Eccles, 1998; Roeser, Eccles *et al.*, 1998). Previous studies similarly found that students exhibiting school misbehaviors (Austin, and Joseph, 1996; Kaltiala-Heino *et al.*, 1999, 2000; Lewinsohn *et al.*, 1994; Nansel *et al.*, 2001), bullied and/or lonely students (Austin and Joseph, 1996; Hodges and Perry, 1999; Kaltiala-Heino *et al.*, 1999, 2000; Kiesner, 2002; Reinherz *et al.*, 1993; Stein *et al.*, 1996), students feeling more stressed by their school environment (Siddique and D'Arcy, 1984; Turner and Cole, 1994), students with more negative perceptions of their school justice climate (Resnick *et al.*, 1997; Roeser, Eccles *et al.*, 1998), and students negatively evaluating the disciplinary and classroom management practices used in their schools (Eccles *et al.*, 1997; Roeser and Eccles, 1998) presented a higher risk of developing depression.

In some cases, our results appear inconsistent with those found in previous studies. For instance, levels of academic self-efficacy (Bandura *et al.*, 1999; Hilsman and Garber, 1995; Lewinsohn *et al.*, 1994), extracurricular involvement (Gore *et al.*, 2001; Mahoney *et al.*, 2002), stressful peer relationships (Brendgen *et al.*, 2001; Jaffe *et al.*, 2002), affiliation with deviant peers (Cantin *et al.*, 2002) and supportive teacher-student relationships (Roeser and Eccles, 1998; Sim, 2002) were generally found to predict depression development in previous studies. However, it should be noted that this study represents, to our knowledge, the first attempt to systematically evaluate the impact of the different facets of school life in a single study while providing adequate controls for background personal, familial, and friendship characteristics. Since it is well known that personal and familial characteristics exert an impact on individual's exposure to specific environmental characteristics and on the choice of specific school environments and peer groups, it is highly possible that some of the previously found effects of school life dimensions were in reality only an artifact of the lack of control of all relevant variables in the analyses (Mortimore, 1995; Rutter, 1999). Moreover, due to the intertwined character of school life characteristics, it is also possible that some of the effects found in previous studies reflect their general failure to simultaneously consider the full reality of school life. The analytical strategy used in this study allowed us to partially confirm these hypotheses. Indeed, whereas most of the aspects of school life studied were found to predict depression development when they were considered alone in the analyses, many of these effects disappeared altogether when other aspects of school life or background controls were entered in the analyses.

#### *Moderating Role of Gender: Differentiated Impact of School Life on Boys and Girls*

The fact that, beginning in early adolescence, girls present higher rates of depression than boys is a well-documented phenomenon in developmental research (Nolen-Hoeksema, 2002). At the theoretical level, a plausible explanation for this result invokes the fact that, due to their earlier pubertal maturation, girls tend to enter adolescence in a state of biopsychosocial dysregulation (Cyranowski *et al.*, 2000). Puberty represents a highly challenging experience for adolescents and may become even more challenging when it simultaneously occurs with

other developmental transitions. Due to their earlier pubertal maturation, girls often tend to simultaneously experience pubertal changes and high school transition (Bebbington, 1996). They may therefore be more severely affected than boys by any form of school-related stress and benefit more from school-based support mechanisms. In the present study, we sought to evaluate whether school life did indeed represent a more significant predictor of girls', rather than boys', depression development. Interestingly, many results appear to support this hypothesis. For instance, many school life characteristics were found to predict depression development among girls only: low levels of academic involvement, dissatisfaction with school disciplinary control mechanisms, and the perceived frequency of various forms of school problems (minor violence, major violence, and school-related problems). Other factors, such as school misbehaviors, minor and major victimization, perceived school life stressfulness, conflictual relations with teachers, and security climate perceptions appeared to represent stronger predictors of depression development among girls than among boys. Although it remains to be evaluated, this differential impact may potentially explain the gender differences in depression prevalence rates.

*Moderating Role of Previous Depressive Symptoms: Prevention or Intervention Targets?*

Following Kessler's (1997) suggestion, the present study also sought to determine whether school life exerted a differential impact on the emergence or aggravation of depressive symptoms. Again, strong evidence was found in favor of such a differentiated impact. Indeed, many aspects of school life were found to represent stronger predictors of depression among previously symptomatic and clinically depressed students rather than among previously asymptomatic students: extracurricular involvement, transitional difficulties, minor victimization, conflictual relationships with teachers, dissatisfaction with school-based encouragement practices, bonding, relational (inter-student) and justice climates, and perceptions of the frequency of minor violence problems and of the quality of school disciplinary practices, student consultation mechanisms, classroom management practices, extracurricular activities, and school-family collaboration mechanisms. These results suggest that these aspects of school life would be worthy targets for school-based treatment programs. Conversely, students' exposure to major and sexual victimization appeared as stronger predictors of depressive symptoms among previously asymptomatic and symptomatic students, rather than clinically depressed ones. Both of these dimensions would appear to be worthy targets for school-based prevention. Interestingly, these results also sustain a dimensional view of depression.

## **TOTAL CONTRIBUTION OF SCHOOL LIFE TO DEPRESSION DEVELOPMENT**

In the final model, the most significant predictors of depression development, which were entered together after background controls, were found to explain a grand total of 7.4% of depressive symptom variance (previous levels of depressive symptoms explained 21.2% and background controls explained 6.0%). Three conclusions could be reached from this result. First, compared with the results from other studies, this percentage is quite low. For instance, Resnick *et al.* (1997) found that 13.1% to 17.6% of the variance in students' levels of depression could be explained by school-level factors. As their study was based on a cross-sectional design, these results are hard to compare with the present ones. However, Roeser and

Eccles' (1998) study lends support to Resnick *et al.*'s (1997) results. Indeed, these authors found that school life still explained 14% of depression levels once minimal controls (including previous levels of depression) were included in the analysis. Two reasons may explain this apparent discrepancy with the present results: Roeser and Eccles' (1998) study included only a very limited number of controls in the analyses and was based on a longer term follow-up of students. As we showed in this study, adding controls to the analyses diminished the predictive power of some variables. Moreover, it is also possible that, due to the longer follow-up used in their study, Roeser and Eccles (1998) were able to detect effects which were still unstable in the present study due to the recent school transition. The fact that another one-year follow-up study, in which additional controls were considered, found that school life explained only 3% of the variance in depressive symptoms, lends support to this interpretation (Kuperminc, Leadbeater and Blatt, 2001).

Second, school life was found to contribute as much as students' personal, familial and peer-related background characteristics to depression development. Regardless of the strength of this contribution, this result lends support to the design of school-based prevention programs.

Third, significant interaction terms explained as much variance in depression (3.4%) as the main effects of school life characteristics (4%). This result strongly suggests that school life effects differ according to students' characteristics and thus lends support to the need to rely more often on person-centered analyses in developmental research (Von Eye and Bergman, 2003).

### **A NOTE ON CONTROLLED VARIABLES**

Many of the control variables evaluated represented non-significant predictors of depression development following their simultaneous inclusion in the analyses. Moreover, while the percentage of variance in depressive symptoms explained by previous levels of depression (21.2%) is consistent with what is known about depression stability and continuity (e.g., Kessler, 2002; Lewinsohn and Essau, 2002), background controls were found to explain only 6% of depressive symptom variance. In other studies, individual and familial characteristics were generally found to explain at least twice as much variance (e.g., Chase-Lansdale *et al.*, 1995; Ge, Best, Conger, and Simons, 1996). Many reasons may explain these results. First, many of the variables that became non-significant represented familial characteristics that could already have been present before the onset of the study or were based on retrospective evaluations (past difficulties, stressful life events, and behavioral disorders). Accordingly, if these variables really represented significant predictors of depression, their predictive power could have been offset by the inclusion of Time 1 levels of depressive symptoms in the analyses, which may have themselves been influenced by these variables.

Second, a high level of intercorrelations was observed between Time 1 levels of neuroticism, anxiety, self-esteem and body image satisfaction ( $r = - 0.132$  to  $0.502$ ). This observation, which suggests that these variables may represent overlapping constructs, could explain the disappearance of the effects of neuroticism and body image satisfaction in the multivariate analyses. Previous results strongly support this hypothesis. Indeed, in an article combining a meta-analysis and three studies based on seven samples, Judge, Erez, Bono, and



Thoresen (2002) found that self-esteem, neuroticism, locus of control and generalized self-efficacy were best represented as a single higher-order construct.

Third, the disappearance of the effects of age and pubertal development could be explained by a range restriction artifact. Indeed, the present study was based on a sample of seventh graders having just experienced high school transition. Consequently, most students were of similar age and pubertal development status. Fourth, it is also possible that the low predictive power of the control variables regarding depression development reflects the fact that school transition is associated with so many social transitions that it provides a window of opportunity for students to develop in ways that are increasingly independent from their own personal, familial, and friendship backgrounds (Rutter *et al.*, 1997). Only further studies will be able to provide clear answers to this question.

Fifth, the apparent absence of gender differences in rates of depression may seem harder to explain, given the well-documented character of these differences (Nolen-Hoeksema, 2002). However, the fact that the gender effect disappeared following the inclusion of Time 1 levels of depression in the analyses suggests that these differences could have already been present at the beginning of our study. Additional analyses in which age and gender were used to predict Time 1 depressive symptoms support this hypothesis ( $\beta = 0.163$ ,  $t = 5.591$ ,  $p = 0.000$ ).

As the main objective of this study was not to evaluate the role of background characteristics in depression development, we did not seek further answers to these questions. The analytical strategy used here was designed to evaluate the contribution of school life to depression development and not to obtain an evaluation of the impact of background characteristics, which were only seen as variables to be controlled in the most parsimonious manner. Alternate strategies may yield different results.

## LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

Although promising, the results from the present study are plagued by at least four important limitations which should be addressed in future studies. First, we did not conduct mediation analyses, which could have helped to clarify the causal relationships implicated in the present results. For instance, whereas we found a relationship between the perceived quality of classroom management practices and depression development, the reason for this effect remains unclear. Indeed, classroom management practices could diminish the prevalence of conflictual teacher-student relationships or the frequency of students' school misbehaviors, which were both found to significantly predict depression development. However, the present analytical strategy did not allow us to distinguish whether the non-significant variables identified in this study really exerted no impact on depression development or whether their effects were completely mediated by other variables. For example, it remains possible that students exposed to higher levels of parental academic support and to lower levels of parental academic pressure would exhibit lower levels of school misbehaviors which in turn predict depression development.

Second, while the present study tried to identify risk factors for adolescent depression development, no attempt was made to evaluate protective factors or other forms of moderating relationships. Thus, although we know that some factors do not predict depression development, we did not evaluate the possibilities that these factors could protect at-risk students from developing depression or amplify their already elevated risk level. Indeed,

previous studies focusing on outcomes other than depression repeatedly found that school-related variables could play a protective role on at-risk students (e.g., Fallu and Janosz, 2003).

Third, the present design did not allow us to evaluate the impact of aggregated and structural characteristics of students' school environments. Ideally, analyzing the impact of aggregated or structural school characteristics on students' development would require the use of multilevel statistical analysis (hierarchical linear modeling) to disentangle the effects of individuals' characteristics on depression development from the effect of generic characteristics of their school environment (Bryk and Raudenbush, 1992). The MADDP did not include a sufficient number of schools to conduct this kind of analysis with sufficient statistical power. However, some previous results indicate that this bias may be smaller than it appears. Indeed, Roeger, Allison, Martin, Dadds, and Keeves (2001) found that almost none of the variance in students' levels of depression (0.87%) could be explained by school-level factors.

Fourth, the research design used in the present study seriously limits the generalizability of the findings. Firstly, this part of the MADDP is based on a short term follow-up of young students following high school transition, a period of known developmental instability. Thus, whether the present results can be generalized to the following grades remains unknown and should be evaluated in further studies. Hopefully, the design of the MADDP would allow us to answer this question as more years of data collection become available. Secondly, the present sample is far from representative of the North American population. Indeed, our desire to maximize the organizational differences between the schools selected for the present study led us to over-sample gifted or academically talented students. Moreover, many of the most problematic students were lost through the attrition process. Fortunately, all subjects had the option to complete, on an in-and-out basis, each of our questionnaires. Consequently, although they were not used in the present analyses, some subjects did complete at least some of the questionnaires, including the last one. Complementary analyses in which pairwise case deletion procedures were used revealed that attrition did not induce systematic biases in the results.

## CONCLUSION

Notwithstanding these limitations, the present study clearly illustrates the need to move beyond single variable designs and ritualistic hypothesis testing (Richters, 1997) in depression development research to better accommodate the full richness and complexity of human development. If the present results were to be replicated in designs built to answer the present limitations, they would strongly suggest that prevention and treatment programs for adolescent depression would do well to simultaneously consider background individual and familial risk factors in conjunction with factors directly related to adolescents' lives at school. Among these factors, school violence and loneliness appear to represent particularly valuable targets for such programs, although more global organizational development programs may also indirectly influence depression development through complex mediating relationships involving, among other factors, school violence and loneliness. Additionally, the fact that school life appears to exert a stronger impact on girls, who also tend to present higher levels of depression than boys, suggests that schools may not be that adapted to girls after all and that similar factors may affect boys' development of conduct disorders and girls' levels of

depressive symptoms. Consequently, programs designed to better students' school lives may potentially directly influence depression (girls) and delinquency (boys) and indirectly affect depression development through their impact on school levels of delinquency.

## ACKNOWLEDGMENTS

This study was made possible by a grant from the Social Sciences and Humanities Research Council of Canada (SSHRC: second author). The authors wish to thank Frank Vitaro, Mara Rosemarie Brendgen, Isabelle Madore, Jocelyn Morin, Jean Phaneuf, Julien Morizot, and Jean-Sébastien Fallu for invaluable support during chapter preparation, Michel Fournier for his help with the missing data replacement strategy, and every student, school personnel and research assistant involved in the MADDP.

## REFERENCES

- Ackerson, L.M., Dick, R.W., Manson, S.M., and Baron, A.E. (1990). Properties of the Inventory to Diagnose Depression in American Indian adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, 29, 601-607.
- Aiken, L., and West, S. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Akiskal, H.S. (2001). Dysthymia and cyclothymia in psychiatric practice a century after Kraepelin. *Journal of Affective Disorders*, 62, 17-31.
- Allison, P.D. (2001). *Missing data*. Thousand Oaks, CA: Sage.
- American Psychiatric Association (1994). *Diagnostic and Statistical Manual of Mental Disorders*, 4<sup>th</sup> edition (DSM-IV). Washington, DC: Author.
- Anderman, E.M. (2002). School effects on psychological outcomes during adolescence. *Journal of Educational Psychology*, 94, 795-809.
- Angold, A., Costello, E.J., and Erkanli, A. (1999). Comorbidity. *Journal of Child Psychology and Psychiatry*, 40, 57-87.
- Aseltine, R.H. Jr., and Gore, S. (1993). Mental health and social adaptation following the transition from high school. *Journal of Research on Adolescence*, 3, 247-270.
- Asher, S.R., Hymel, S., and Renshaw, P.D. (1984). Loneliness in children. *Child Development*, 55, 1456-1464.
- Austin, S., and Joseph, S. (1996). Assessment of bully/victim problems in 8 to 11 year-olds. *British Journal of Educational Psychology*, 66, 447-456.
- Ayotte, V., Saucier, J.F., Bowen, F., Laurendeau, M.C., Fournier, M., and Blais, J.G. (2003). Teaching multiethnic urban adolescents how to enhance their competencies: Effects of a middle school primary prevention program on adaptation. *The Journal of Primary Prevention*, 23, 7-24.
- Bandura, A., Pastorelli, C., Barbaranelli, C., and Caprara, G.V. (1999). Self-efficacy pathways to childhood depression. *Journal of Personality and Social Psychology*, 76, 258-269.
- Baron, P., Joubert, N., and Mercier, P. (1991). Situations stressantes et symptomatologie dépressive chez les adolescents. *Revue Européenne de Psychologie Appliquée*, 41, 173-179.

- Bebbington, P.E. (1996). The origins of sex differences in depressive disorder: Bridging the gap. *International Review of Psychiatry*, 8, 295-332.
- Beck, A.T., and Steer, R.A. (1993). *Beck Anxiety Inventory manual*. New York, NY: The Psychological Corporation.
- Beck, A.T., Steer, R.A., and Brown, G.K. (1996). *Manual for the BDI-II*. San Antonio, TX: Psychological Corporation.
- Brendgen, M., Vitaro, F., Bukowski, W.M., Doyle, A.B., and Markiewicz, D. (2001). Developmental profiles of peer social preference over the course of elementary school: Associations with trajectories of externalizing and externalizing behavior. *Developmental Psychology*, 37, 308-320.
- Bryk, A.S., and Raudenbush, S.W. (1992). *Hierarchical Linear Models: Applications and data analysis methods*. Newbury Park, CA: Sage.
- Cantin, S., Wanner, B., Brendgen, M., and Boivin, M. (august 2002). *Links between friends' characteristics and children's depressive mood: When misery seeks company*. Paper presented at the 2002 biennial meeting of the ISSBD, Ottawa, Canada.
- Chase-Lansdale, P.L., Cherlin, A.J., and Kiernan, K.E. (1995). The long-term effects of parental divorce on the mental health of young adults: A developmental perspective. *Child Development*, 66, 1614-1634.
- Cicchetti, D., and Rogosch, F.A. (2002). A developmental psychopathology perspective on adolescence. *Journal of Consulting and Clinical Psychology*, 70, 6-20.
- Cicchetti, D., and Toth, S.L. (1998). The development of depression in children and adolescents. *American Psychologist*, 53, 221-241.
- Coie, J. D., Watt, N. F., West, S. G., Hawkins, J. D., Asarnow, J. R., Markman, H. J., Ramey, S. L., Shure, M. B., and Long, B. (1993). The science of prevention: A conceptual framework and some directions for a national research program. *American Psychologist*, 48, 1013-1022.
- Cole, D.A., Martin, J.M., Powers, B., and Truglio, R. (1996). Modeling causal relations between academic and social competence and depression: A multitrait-multimethod longitudinal study of children. *Journal of Abnormal Psychology*, 105, 258-270.
- Cyranowski, J.M., Frank, E., Young, E., and Shear, M.K. (2000). Adolescent onset of the gender difference in lifetime rates of major depression: A theoretical model. *Archives of General Psychiatry*, 57, 21-27.
- Dawson, A., and Tylee, A. (2001). *Depression: Social and economic timebomb*. London, U.K.: World Health Organization.
- Diekstra, R.F.W. (1995). Depression and suicidal behaviors in adolescence: Sociocultural and time trends. In M. Rutter (Ed.), *Psychosocial disturbances in young people: Challenges for prevention* (pp. 212-243). New York, NY: Cambridge University Press.
- Eccles, J.S., Early, D., Frasier, K., Belansky, E., and McCarthy, K. (1997). The relation of connection, regulation, and support for autonomy to adolescents' functioning. *Journal of Adolescent Research*, 12, 263-286.
- Eccles, J.S., Midgley, C., Wigfield, A., Buchanan, C.M., Reuman, D., Flanagan, C., and Mac Iver, D. (1993). Development during adolescence: The impact stage-environment fit on young adolescents' experiences in schools and in families. *American Psychologist*, 48, 90-101.
- Eccles, J.S., Lord, S., and Midgley, C. (1991). What are we doing to early adolescents? *American Journal of Education*, August, 521-542.

- Eysenck, H. J., and Eysenck, S. B. G. (1968). *Manual for the Eysenck Personality Inventory*. San Diego, CA: Educational and Industrial Testing Service.
- Fallu, J.-S., and Janosz, M. (2003). La qualité des relations élèves-enseignants à l'adolescence: Un facteur de protection de l'échec scolaire. *Revue de Psychoéducation*, 32, 7-29.
- Fergusson, D.M., and Woodward, L.J. (2000). Educational, psychosocial, and sexual outcomes of girls with conduct problems in early adolescence. *Journal of Child Psychology and Psychiatry*, 41, 779-792.
- Freeston, M.H., Ladouceur, R., Thibodeau, N., Gagnon, F., and Rhéaume, J. (1994). L'inventaire d'anxiété de Beck: Propriétés psychométriques d'une traduction française. *L'Encéphale*, 20, 47-55.
- Garnefski, N. (2000). Age differences in depressive symptoms, antisocial behavior and negative perceptions of family, school, and peers among adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, 39, 1175-1181.
- Gazelle, H., and Ladd, G.W. (2003). Anxious solitude and peer exclusion: A diathesis stress model of internalizing trajectories in childhood. *Child Development*, 74, 257-278.
- Ge, X., Best, K.M., Conger, R.D., and Simons, R.L. (1996). Parenting behaviors and the occurrence and co-occurrence of adolescent depressive symptoms and conduct problems. *Developmental Psychology*, 32, 717-731.
- Ge, X., Lorenz, F.O., Conger, R.D., Elder, G.H. Jr., and Simons, R.L. (1994). Trajectories of stressful life events and depressive symptoms during adolescence. *Developmental Psychology*, 30, 467-483.
- Gore, S., Farrell, F., and Gordon, J. (2001). Sports involvement as protection against depressed mood. *Journal of Research on Adolescence*, 11, 119-130.
- Gottfredson, D.C. (2000). *Schools and delinquency*. Cambridge: Cambridge University Press.
- Haaga, D.A.F., Dyck, M.J., and Ernst, D. (1991). Empirical status of cognitive theory of depression. *Psychological Bulletin*, 110, 215-236.
- Hadley-Ives, E., Stiffman, A.R., Elze, D., Johnson, S.D., and Dore, P. (2000). Measuring neighborhood and school environments: Perceptual and aggregated approaches. *Journal of Human Behavior in the Social Environment*, 3, 1-28.
- Héroux, G. (1997). Corrélat des habiletés visuo-spatiales chez les filles et les garçons de 9, 12 et 15 ans: Regard sur les jeux de l'enfance. Unpublished doctoral thesis, Montreal: University of Montreal.
- Hilsman, R., and Garber, J. (1995). A test of the cognitive diathesis-stress model of depression in children: Academic stressors, attributional style, perceived competence, and control. *Journal of Personality and Social Psychology*, 69, 370-380.
- Hodges, E.V.E., and Perry, D.G. (1999). Personal and interpersonal antecedents and consequences of victimization by peers. *Journal of Personality and Social Psychology*, 76, 677-685.
- Jaccard, J., and Turisi, R. (2003). *Interaction effects in multiple regression*, second edition. Thousand Oaks, CA: Sage.
- Jaffe, S.R., Moffitt, T.E., Caspi, A., Fombonne, E., Poulton, R., and Martin, J. (2002). Differences in early childhood risk factors for juvenile-onset and adult-onset depression. *Archives of General Psychiatry*, 59, 215-222.
- Janosz, M. (November 2000). The Montreal School Environment Project: The theoretical model and the validity of the School Socioeducational Environment Questionnaire. Poster presented at the Annual meeting of the American Society of Criminology, San Francisco.

- Janosz, M., Deniger, M.-A., Roy, G., Lacroix, M., Fallu, J.S., Langevin, L., and Le Blanc, M. (2001). *Évaluation de programmes de prévention du décrochage scolaire pour adolescents de milieux défavorisés*. Research report no 98-DS-001 (FCAR). University of Montreal.
- Janosz, M., Georges, P., and Parent, S. (1998). L'environnement éducatif à l'école secondaire: Un modèle théorique pour guider l'évaluation du milieu. *Revue Canadienne de Psychoéducation*, 27, 285-306.
- Janosz, M., Rondeau, N., and Lacroix, M. (1998, may). *Le passage à l'acte chez le décrocheur: Modèle et instrumentation*. Paper presented at the 66<sup>th</sup> annual meeting of the ACFAS, Laval, Canada.
- Judge, T.A., Erez, A., Bono, J.E., and Thoresen, C.J. (2002). Are measures of self-esteem, neuroticism, locus of control, and generalized self-efficacy indicators of a common core construct? *Journal of Personality and Social Psychology*, 83, 693-710.
- Kaltiala-Heino, R., Rimpelä, M., Marttunen, M., Rimpelä, A., and Rantanen, P. (1999). Bullying, depression, and suicidal ideation in Finnish adolescents: School survey. *British Medical Journal*, 319, 348-351.
- Kaltiala-Heino, R., Rimpelä, M., Rantanen, P., and Rimpelä, A. (2000). Bullying at school—an indicator of adolescents at risk for mental disorders. *Journal of Adolescence*, 23, 661-674.
- Kasen, S., Johnson, J., and Cohen, P. (1990). The impact of school emotional climate on student psychopathology. *Journal of Abnormal Child Psychology*, 18, 165-177.
- Kessler, R.C. (2002). Epidemiology of depression. In I.H. Gotlib, and C.L. Hammen (Eds.), *Handbook of depression* (pp. 23-42). London, U.K.: Guilford.
- Kessler, R.C., Foster, C.L., Saunders, W.B., and Stang, P.E. (1995). Social consequences of psychiatric disorders, I: Educational attainment. *American Journal of Psychiatry*, 152, 1026-1032.
- Kiesner, J. (2002). Depressive symptoms in early adolescence: Their relations with classroom problem behavior and peer status. *Journal of Research on Adolescence*, 12, 463-478.
- Krause, J., Philipp, M., Maier, W., and Schlegel, S. (1989). A German validation study of the Inventory to Diagnose Depression. *Psychopathology*, 22, 57-64.
- Krueger, R.F. (1999). Personality traits in late adolescence predict mental disorders in early adulthood: A prospective-epidemiological study. *Journal of Personality*, 67, 39-65.
- Kuperminc, G.P., Leadbeater, B.J., and Blatt, S.J. (1997). School climate and individual differences in vulnerability to psychopathology among middle school students. *Journal of School Psychology*, 39, 141-159.
- Kuperminc, G.P., Leadbeater, B.J., Emmons, C., and Blatt, S.J. (1997). Perceived school climate and difficulties in the social adjustment of middle school students. *Applied Developmental Science*, 1, 76-88.
- Larose, S., Bernier, A., Soucy, N., and Duchesne, S. (1999). Attachment style dimensions, network orientation, and the process of seeking help from college teachers. *Journal of Social and Personal Relationships*, 16, 227-249.
- LeBlanc, M. (1998). MASPAQ: Manuel sur des mesures de l'adaptation sociale et personnelle pour les adolescents québécois, 3<sup>ème</sup> édition. Montreal: School of psychoeducation and GRAD, University of Montreal.
- Lewinsohn, P.M., Allen, N.B., Seeley, J.R., and Gotlib, I.H. (1999). First onset versus recurrence of depression: Differential processes of psychosocial risk. *Journal of Abnormal Psychology*, 108, 483-489.

- Lewinsohn, P.M., and Essau, C.A. (2002). Depression in adolescents. In I.H. Gotlib, and C.L. Hammen (Eds.), *Handbook of depression* (pp. 541-559). London, U.K.: Guilford.
- Lewinsohn, P.M., Roberts, R.E., Seeley, J.R., Rohde, P., Gotlib, I.H., and Hops, H. (1994). Adolescent psychopathology: II. Psychosocial risk factors for depression. *Journal of Abnormal Psychology, 103*, 302-315.
- Lewinsohn, P.M., Rohde, P., Seeley, J.R., and Fisher, S. A. (1993). Age-cohort changes in the lifetime occurrence of depression and other mental disorders. *Journal of Abnormal Psychology, 102*, 110-120.
- Lewis-Beck, M.S. (1980). *Applied regression: An introduction*. Newbury Park, CA: Sage.
- Little, R.J.A., and Rubin, D.B. (2002). *Statistical analysis with missing data, 2nd Edition*. New-Jersey: John Wiley and Sons.
- Mahoney, J.L., Schweder, A.E., and Stattin, H. (2002). Structured after-school activities as a moderator of depressed mood for adolescents with detached relations to their parents. *Journal of Community Psychology, 30*, 69-86.
- Marsh, H.W. (1990). Self-Description Questionnaire-II (SDQ-II): Manual and research monograph. New York, NY: The Psychological Corporation.
- Morin, A.J.S., and Janosz, M. (August 2002). School climate and depression in adolescence: A cross-sectional analysis. Poster presented at the biennial meeting of the ISSBD, Ottawa.
- Mortimore, P. (1995). The positive effects of schooling. In M. Rutter (Ed.), *Psychosocial disturbances in young people: Challenges for prevention* (pp. 333-363). New York, NY: Cambridge University Press.
- Mrazek, P.J., and Haggerty, R.J. (1994). Reducing risks for mental disorders: Frontiers for preventive intervention research. Washington: National Academy Press.
- Murray, C.J.L., and Lopez, A.D. (1996). Evidence-based health policy – lessons from the Global Burden of Disease Study. *Science, 274*, 740-743.
- Nansel, T.R., Overpeck, M., Pilla, R.S., Ruan, W.J., Simons-Morton, B., and Scheidt, P. (2001). Bullying behaviors among US youth: Prevalence and association with psychosocial adjustment. *Journal of the American Medical Association, 285*, 2094-2100.
- Newcomb, M. D., Huba, G. J., and Bentler, P. M. (1981). A multidimensional assessment of stressful life events among adolescents: Derivation and correlates. *Journal of Health and Social Behavior, 22*, 400-415.
- Newman, D.L., Moffitt, T.E., Caspi, A., Magdol, L., Silva, P.A., and Stanton, W.R. (1996). Psychiatric disorder in a birth cohort of young adults: Prevalence, comorbidity, clinical significance, and new cases incidence from ages 11 to 21. *Journal of Consulting and Clinical Psychology, 64*, 552-562.
- Nolen-Hoeksema, S. (2002). Gender differences in depression. In I.H. Gotlib, and C.L. Hammen (Eds.), *Handbook of depression* (pp. 492-509). London, U.K.: Guilford.
- Pariante, P., Smith, M., and Guelfi, J.D. (1989). Un questionnaire pour le diagnostic d'épisode dépressif majeur: L'inventaire pour le diagnostic de la dépression (IDD). Présentation de la version française. *Psychiatrie et Psychobiologie, 4*, 375-385.
- Petersen, A.C., Crockett, L., Richards, M., and Boxer, A. (1988). A self-report measure of pubertal status: Reliability, validity, and initial norms. *Journal of Youth and Adolescence, 17*, 117-133.
- Pianta, R.C., and Steinberg, M. (1992). Teacher-child relationships and the process of adjusting to school. *New Directions for Child Development, 57*, 61-80.

- Reinherz, H.Z., Giaconia, R.M., Pakiz, B., Silverman, A.B., Frost, A.K., and Lefkowitz, E.S. (1993). Psychosocial risks for major depression in late adolescence: A longitudinal community study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 32, 1155-1163.
- Resnick, M.D., Bearman, P.S., Blum, R.W., Bauman, K.E., Harris, K.M., Jones, J., Tabor, J., Beuhring, T., Sieving, R.E., Shew, M., Ireland, M., Bearinger, L.H., and Udry, J.R. (1997). Protecting adolescents from harm: Findings from the longitudinal study on adolescent health. *Journal of the American Medical Association*, 278, 823-832.
- Richters, J.E. (1997). The Hubble hypothesis and the developmentalist's dilemma. *Development and Psychopathology*, 9, 193-229.
- Robins, L.N. (1995). Sociocultural trends affecting the prevalence of adolescent problems. In M. Rutter (Ed.), *Psychosocial disturbances in young people: Challenges for prevention* (pp. 367-384). New York, NY: Cambridge University Press.
- Roeger, L., Allison, S., Martin, G., Dadds, V., and Keeves, J. (2001). Adolescent depressive symptomatology: Improve schools or help students. *Australian Journal of Psychology*, 53, 134-139.
- Roeser, R.W., and Eccles, J.S. (1998). Adolescents' perceptions of middle school: Relation to longitudinal changes in academic and psychological adjustment. *Journal of Research on Adolescence*, 8, 123-158.
- Roeser, R.W., Eccles, J.S., and Sameroff, A.J. (1998). Academic and emotional functioning in early adolescence: Longitudinal relations, patterns, and prediction by experience in middle school. *Development and Psychopathology*, 10, 321-352.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Rutter, M. (1999). Psychosocial adversity and child psychopathology. *British Journal of Psychiatry*, 174, 480-493.
- Rutter, M., Dunn, J., Plomin, R., Simonoff, E., Pickles, A., Maughan, B., Ormel, J., Meyer, J., and Eaves, L. (1997). Integrating nature and nurture: Implications of person-environment correlations and interactions for developmental psychology. *Development and Psychopathology*, 9, 335-364.
- Sakado, K., Sato, T., Uehara, T., Sato, S., and Kameda, K. (1996). Discriminant validity of the inventory to diagnose depression, lifetime version. *Acta Psychiatrica Scandinavica*, 93, 257-260.
- Siddique, C.M., and D'Arcy, C. (1984). Adolescence, stress, and psychological well-being. *Journal of Youth and Adolescence*, 13, 459-473.
- Siegel, J.M. (2002). Body image change and adolescent depressive symptoms. *Journal of Adolescent Research*, 17, 27-41.
- Sim, H.-O. (August 2002). Gender differences in the cross-lag relations between family, friends, and teachers social support and maladjustment. Paper presented at the 2002 biennial meeting of the ISSBD, Ottawa, Canada.
- Skinner, E.A. (1995). *Perceived control, motivation, and coping*. Thousands Oaks: Sage.
- Stein, J.A., Newcomb, M.D., and Bentler, P.M. (1996). Initiation and maintenance of tobacco smoking: Changing personality correlates in adolescence and young adulthood. *Journal of Applied Social Psychology*, 26, 160-187.
- Tabachnick, B.G., and Fidell, L.S. (1996). *Using multivariate statistics, third edition*. New York, NY: HarperCollins.



- 
- Turner, J.E.Jr., and Cole, D.A. (1994). Developmental differences in cognitive diatheses for child depression. *Journal of Abnormal Child Psychology*, 22, 15-32.
- Vallières, E. F. and Vallerand, R.J. (1990). Traduction et validation canadienne-française de l'Échelle d'Estime de Soi de Rosenberg. *International Journal of Psychology*, 25, 305-316.
- Vitaro, F., Pelletier, D., Gagnon, C., and Baron, P. (1995). Correlates of depressive symptoms in early adolescence. *Journal of Emotional and Behavioral Disorders*, 3, 241-251.
- VonEye, A., and Bergman, L.R. (2003). Research strategies in developmental psychopathology: Dimensional identity and the person-oriented approach. *Development and Psychopathology*, 15, 553-580.
- Way, N., and Chen, L. (2000). Close and general friendships among African American, Latino, and Asian American adolescents from low-income families. *Journal of Adolescent Research*, 15, 274-301.
- Zaslow, M.J., and Takanishi, R. (1993). Priorities for research on adolescent development. *American Psychologist*, 48, 185-192.
- Zimmerman, M., and Coryell, W. (1987 a). The inventory to diagnose depression, lifetime version. *Acta Psychiatrica Scandinavica*, 75, 495-499.
- Zimmerman, M., and Coryell, W. (1987 b). The inventory to diagnose depression: A self-report scale to diagnose depression. *Journal of Consulting and Clinical Psychology*, 55, 55-59.
- Zimmerman, M., and Coryell, W. (1988). The validity of a self-report questionnaire for diagnosing major depressive disorder. *Archives of General Psychiatry*, 45, 738-740.
- Zuckerman, M. (1999). *Vulnerability to psychopathology: A biosocial model*. Washington: American Psychological Association.