
Depressive Symptoms and Academic Performance in College: Do Personal Goals Play a Role? Symptômes dépressifs et rendement scolaire au cégep : Les objectifs personnels jouent-ils un rôle?

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ABSTRACT

This study investigates the association between depressive symptoms and academic performance at the college level in Québec by examining personal goals as mediating variables. The sample consisted of 249 female and 148 male students at a Québec college. The *Beck Depression Inventory* (2nd ed.; Beck et al., 1996), an adaptation of the *Personal Project Analysis* (Little & Gee, 2007), and the R score (a standardized score used by Québec colleges) were used as measures. Regression analyses fail to support the existence of a direct link between more depressive symptoms and a lower R score. That said, analyses show an indirect association between both variables that is explained by a more negative appraisal of academic and career goals. Supports designed to help college students—who are in a period of identity exploration (Arnett, 2015)—develop a more positive appraisal of academic and career goals may protect such students from depression while fostering their academic success.

RÉSUMÉ

Cette étude vérifie l'association entre les symptômes dépressifs et le rendement scolaire au niveau collégial en considérant les buts personnels comme variable médiatrice. L'échantillon comprenait 249 femmes et 148 hommes qui poursuivaient leurs études dans un cégep québécois. L'inventaire de dépression de Beck, 2^e édition (Beck et coll., 1996), une adaptation de la grille d'analyse des projets personnels (Little & Gee, 2007), et la cote R (une méthode d'évaluation normalisée employée par les cégeps québécois) ont été utilisés à titre d'instruments de mesure. Des modèles de régression ont permis de démontrer une association indirecte entre la présence d'un niveau plus élevé de symptômes dépressifs et un rendement scolaire plus faible, expliquée par une perception plus négative des buts liés à l'école et à la carrière.

According to a study by the American College Health Association (2019), 51.6% of Canadian post-secondary students reported having had over the preceding year depressive symptoms significant enough to interfere with their daily activities. Data from that study also revealed that 19% of Canadian post-secondary students had reported having been diagnosed with depression. The implications of depression during college studies are significant, including higher absenteeism, lower academic productivity and interest in academic activities, and a greater risk of dropping out (Heiligenstein et al., 1996; Wintre & Bowers, 2007). But when the relationship between depressive symptoms and academic results is investigated, findings are inconsistent. While some authors have demonstrated that the presence of more depressive symptoms was associated with poorer academic results, others have been unable to find such a relationship. Furthermore, the mechanism presumably linking depressive symptoms to academic performance remains insufficiently studied. Nonetheless, such an investigation is necessary for establishing responses that are effective in alleviating the adverse impact of depression on the academic progress of post-secondary students. Students' personal goals constitute a possible explanation, since several studies have demonstrated an association between depressive symptoms and personal goals (Nurmi et al., 2009; Street, 2002) or between personal goals and post-secondary academic results (Richardson et al., 2012). In that context, this study investigated the mediating role of personal goals in the relationship between depressive symptomatology and academic performance among post-secondary students.

Depression and Academic Performance During Post-Secondary Studies

When an individual exhibits five of the nine symptoms of depression described in the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5; American Psychiatric Association [APA], 2013) and these symptoms are present every day for a 2-week period, a diagnosis of "major depressive disorder" may be made. Moreover, the presence of a constellation of symptoms such as sadness, loss of interest, insomnia, and loss of appetite may be associated with difficulties in functioning (Wesselhoeft et al., 2013), even though it does not necessarily meet the full criteria of "major depressive disorder." Canadian epidemiological data suggest that the annual prevalence of depression is higher among 15- to 25-year-olds than among people in other age groups (Patten et al., 2006; Patten et al., 2015). According to Arnett (2015), individuals of this age group, known as emerging adulthood, may have certain vulnerabilities due to their developmental phase. These emerging adults differ from adolescents and adults with their marked optimism and more elaborate exploration of career identity. Such traits result from the advent of new possibilities, accompanied by the recent independence from parental supervision that they have achieved. Such characteristics may also make these young people more susceptible to internalized problems such as depression. For example, this exploration of identity may, in certain young

adults, underscore their problems finding a satisfactory career. Furthermore, the optimism bias—or an individual's belief that they are less likely to experience an adverse event than someone else (Martin-Krumm, 2012)—may lead certain emerging adults to experience difficulties coping with their first major setbacks.

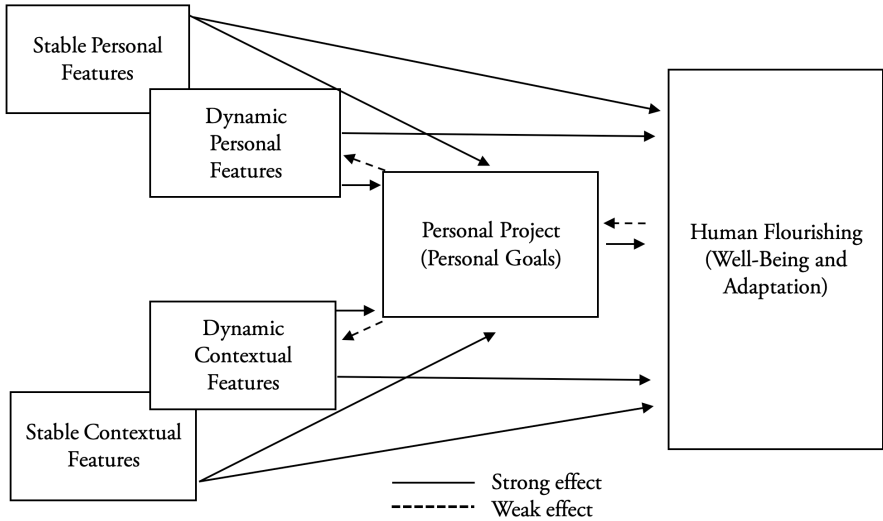
Since a college student's performance is an indicator of successful adaptation to their institution (Larose & Roy, 1992), several researchers have studied the relationship between depressive symptoms and academic results. The contemporary scientific literature does not seem to have reached a consensus on the topic, however. Multiple studies have noted that the presence of major depressive symptoms is associated with poorer performance (Ahmed & Julius, 2015; Andrews & Wilding, 2004; Beauchamp et al., 2007; Bryan et al., 2014; DeRoma et al., 2009; Eisenberg et al., 2009; Garcia, 2016; Hamaideh & Hamdan-Mansour, 2014; Hysenbegasi et al., 2005; Khanam & Bukhari, 2015), whereas other studies fail to support such a finding (Antaramian, 2015; Brackney & Karabenick, 1995; Leenars & Lester, 2006; Svanum & Zody, 2001; Trockel et al., 2000; Turner et al., 2012; Wintre & Bowers, 2007). The use of continuous measurements of depressive symptomatology seems to distinguish studies supporting a significant link from those failing to sustain such a conclusion. All studies finding significant associations employed the latest editions of valid and reliable scales, such as the second edition of the *Beck Depression Inventory*. By contrast, the validity of depressive symptomatology measurements varied in studies whose findings failed to support a conclusive link.

Furthermore, it seems that few studies considered mediating factors that could explain the relationship between post-secondary depressive symptoms and academic performance. For example, DeRoma et al. (2009) proposed (without measuring the phenomenon) that depressive symptoms could have an adverse impact on academic performance by lowering expectations of academic success and consequently lowering students' motivation to learn.

Personal Goals: A Cornerstone of the Relationship Between Depression and Academic Performance?

Considered a motivator, a personal goal is “a cognitive image of an ideal stored in memory for comparison to an actual state; a representation of the future that influences the present; a desire; a source of motivation, an incentive to action” (Cochran & Tesser, 1996, p. 100). According to Little's socioecological model of personal goals (Little et al., 2007), personal goals are influenced by an individual's personal characteristics and environment. These characteristics and this environment may be relatively stable (e.g., gender, personality traits, socio-economic status) or dynamic (e.g., psychological states, developmental transitions, academic transitions). In other words, they may fluctuate over time. Personal goals, in turn, would have an impact on development and adaptation (see Figure 1).

Figure 1
Little's Socioecological Model (Little et al., 2007; Little & Balsari-Palsule, 2021)



Personal goals are multi-dimensional and may be studied from different perspectives. Some studies have focused particularly on personal goal content, which is hypothesized to reflect an individual's actual situation, including developmental tasks and special environmental requirements. For example, empirical studies support the finding that traditionally aged college students, who are in the emerging adult phase of development, primarily list goals associated with education, work, friendships, intimate relationships, personal development, and leisure pursuits (Lecci et al., 1994; Salmela-Aro & Nurmi, 1997). In terms of well-being and personal goal content, Heckhausen et al. (2013) have shown that students who list educational goals at the start of their transition to post-secondary studies report greater satisfaction with life than those who list a career goal. That said, this difference was no longer present at the end of those students' academic careers, with both types of goal associated with a similar level of well-being.

Researchers also investigated how individuals appraise their personal goals, hypothesized to reflect individual personal traits (Salmela-Aro & Nurmi, 1996). Depression seems to be associated with more stressful personal goals, less conviction that they can be achieved, less understanding of how to achieve them, less perceived progress in their achievement, and less importance given to them (Nurmi et al., 2009). Similarly, Street (2002) has reported that students with depressive symptoms are less likely to believe in their ability to achieve their goals. In parallel, some studies have considered how personal goals influence performance among post-secondary students. The sense of self-efficacy related to academic goals is believed to be associated with better academic performance

(Feldman & Kubota, 2015; Gore, 2006; Lane & Lane, 2001; Lent et al., 1984; Richardson et al., 2012; Wood & Locke, 1987), a result also observed specifically among 1st-year college students (Chemers et al., 2001). Furthermore, the act of pursuing such goals autonomously—that is, deliberately and as a result of individuals adopting them personally rather than having them imposed by someone else (Laguardia & Ryan, 2000)—is also presumably linked to better academic performance (Conti, 2000; Lee et al., 2003; Sheldon & Houser-Marko, 2001). Many other factors have been associated with better academic performance, such as greater perceived progression toward academic goals during the term (Sheldon & Houser-Marko, 2001), having defined goals (Lese & Robbins, 1994), being more committed to these goals (Lese & Robbins, 1994), and believing it is possible to achieve these academic goals (Feldman & Kubota, 2015). In contrast, Salmela-Aro and Nurmi (1997) suggest that a negative appraisal of academic goals assessed according to different parameters would be associated directly with the number of courses passed rather than with academic performance. In a general population of university students, Nurmi et al. (2009) demonstrated that academic goals (e.g., passing a Spanish class) were perceived as more stressful and difficult to achieve than family goals (e.g., getting married). Moreover, individuals seemed to feel they had less control over achieving their academic goals than they did over achieving their family goals (Nurmi et al., 2009).

In short, studies pertaining to the relationship between depressive symptomatology and post-secondary academic performance have yielded inconsistent findings. While some methodological factors can partly explain these differences, the relationship between depression and performance may also be more complex than a simple direct association. Furthermore, very few studies have tried to explain the mechanisms by which depressive symptoms could be linked to poorer performance. Personal goals, studied to date in terms of measuring their content as well as their appraisal, were previously associated with depression and with academic success. To our knowledge, no study has examined the possibility that this variable may help explain the relationship between depression and post-secondary academic performance.

Study Hypotheses and Objectives

This study examined the mediating role that personal goals play in the relationship between depressive symptoms and post-secondary academic performance. First, it was hypothesized that there is a significant direct relationship between a higher level of depressive symptoms and lower academic performance. Then, drawing on Little's socioecological model of goals (Little et al., 2007), this study postulated that an individual's appraisal of their personal goals plays a mediating role in this relationship; consequently, it was hypothesized that there is an indirect link between depressive symptomatology and post-secondary academic

performance. Intra-personal, interpersonal, and occupational goals were examined separately.

Methodology

Participants

The sample consisted of 397 Québec college students ($M_{\text{age}} = 18.63$; Std. D. = 2.46), of whom 62.7% were women (a proportion similar to that of all Québec colleges and Canadian post-secondary establishments; Fédération des cégeps, 2015; American College Health Association, 2019). All participants were in the emerging adulthood stage of development (i.e., no more than 29 years old); of these, 31.7% were enrolled in a university preparatory program, 58.4% in a technical program, and 9.6% in the Tremplin DEC program, which assists students who do not have the prerequisites to enter their program of choice and provides guidance to students who want to go to college but have not yet decided on a program. Moreover, 57.7% of the participants were registered in college for the first time; 67.5% of them reported that their mother had completed post-secondary studies; 83.6% of them lived with their parents; and 74.1% of them said they worked for an average of 15.24 hours per week (Std. D. = 6.34) while pursuing their college studies.

Measurements

Socio-demographic variables. Socio-demographic data such as age, gender, environment, parental education, academic program, and hours of paid employment were obtained using a self-report questionnaire. This questionnaire was also used to determine whether the participants, all of whom were registered in the 1st year of a college program, had attended college prior to the year in which the study was undertaken.

Depressive symptoms. The validated French-language edition of the *Beck Depression Inventory*, second edition (BDI-II; Beck et al., 1996; Beck et al., 1998), was used to measure depressive symptoms. This self-report questionnaire is widely used (Fried, 2017) and consists of 21 items corresponding to different symptoms of depression such as loss of interest or pleasure in activities. Each item consists of four statements ranging in intensity from 0 to 3. Participants were asked to circle those statements best describing their situation over the preceding 2 weeks. Total scores could range from 0 to 63, where a score of 20 or higher represents moderate to severe depressive symptoms. The French translation of the *Beck Depression Inventory*, first edition (Bourque & Beaudette, 1982), revealed excellent psychometric properties among French-speaking university students. The questionnaire has previously demonstrated satisfactory internal consistency, with Cronbach's alpha above 0.90 (Bouvard & Cottraux, 2002). The questionnaire also displayed good temporal stability ($r = 0.62$, $p < 0.001$),

as measured by a test-retest conducted 4 months later (Bourque & Beaudette, 1982). In a population of college students between 17 and 39 years of age, BDI-II's English-language edition demonstrated good internal consistency as well as good concurrent validity (Storch et al., 2004). To date, even though the French translation of the BDI-II is widely used, its psychometric qualities remain to be published. To address this shortfall, internal consistency was calculated for this specific sample. The result ($\alpha = 0.90$) was similar to previous results reported for the second edition of the English-language questionnaire.

Academic performance. Academic performance in Québec colleges is measured by the R score. Such a performance score takes into account a student's ranking within their group as well as that group's relative strength with respect to others. The R score typically ranges from 15 to 40, where a higher grade means better performance (Collège de Bois-de-Boulogne, 2013). Notably, this grade is used by Québec universities in selecting applications for limited-enrolment programs. Participants' R scores were obtained directly from their academic records.

Personal goals. A translated and adapted version of *Personal Project Analysis* (PPA; Little & Gee, 2007; Salmela-Aro & Nurmi, 1996) was administered in order to take into account different aspects of personal goals. This measurement is used to analyze goal content followed by the individual's appraisal of such content. The PPA includes items addressing goal content and items addressing perception of goals.

Goal content. Participants were asked to indicate a primary personal goal pertaining to any aspect of their lives. This goal was classified within a set of categories, so its content could be analyzed. In line with Arnett's (2015) model of emerging adulthood, the categories were developed to reflect the principal developmental tasks experienced by members of the target group and informed by categories used in previous studies, applying the same measurement to a similar group (Cantor et al., 1987; Cantor et al., 1991; Salmela-Aro et al., 2007; Salmela-Aro & Nurmi, 1997). Three goal categories were defined: interpersonal (intimate, friend, and family relationships), intra-personal (development of independence, leisure, and personal development), and occupational (education, work, and career). The very few goals that did not correspond with any category were placed in the "others" category. Interrater reliability, calculated by two independent raters who coded 260 goals, yields almost perfect agreement (McHugh, 2012) when these categories were used ($\kappa = 0.93$, $p < 0.001$). A categorical variable (0 = no goal; 1 = interpersonal goal; 2 = intra-personal goal; 3 = occupational goal; 4 = other goal) was created to facilitate data analysis.

Perception of goals. Participants were then asked to assess the goal they had named on a 4-point Likert appraisal scale ("not at all," "a little," "a lot," and "very much"). This appraisal scale included 10 dimensions: (1) competence perceived in achieving the goal, (2) commitment to the goal, (3) identity representativeness of the goal, (4) support perceived for the goal achievement, (5) challenge

represented by the goal, (6) probability of success, (7) clarity of steps to achieve the goal, (8) difficulty associated with goal achievement, (9) autonomy perceived in goal achievement, and (10) perceived progression in goal achievement. These appraisal dimensions were presented in question form (e.g., “Do you have a clear idea of what you need to do to carry out this project?”). The 10 appraisal dimensions were selected based on the requirements of the study, in line with recommendations made by the authors of the original questionnaire (Little et al., 2007). Consequently, the choice of appraisal dimensions was based on contemporary research literature linking personal goals, depression, and academic performance. Since the questionnaire used in this study consisted of an adaptation of an existing questionnaire, its internal consistency was reviewed. Based on the results of this review, the item assessing perception of difficulty was eliminated, and doing so produced an internal consistency on the scale of $\alpha = 0.70$. The nine remaining appraisal dimensions were added to create a goal appraisal scale ranging from 9 to 36, where 36 represented the most positive appraisal of the goal.

Procedure and Ethical Considerations

All 1st-year students from a regional college filled out the questionnaires in class at the start of the fall 2014 term, supervised by research assistants who explained the study’s purpose. Written consent to participate was obtained from the participants at this stage. Students who did not want to participate in the study were asked to do personal work in class during the time it took remaining students to complete the questionnaire. Students’ R scores were obtained from their academic records 2 months after the end of the academic year. This study received the ethical approval of the ethics committee on research involving humans at the Université du Québec à Montréal.

Data Analysis

Pearson and Spearman’s correlations were conducted between principal variables (depressive symptoms, R score, and appraisal of the personal goal) and socio-demographic variables. A second set of correlation analyses was performed, this time taking into account the type (content) of goal indicated by each student. In view of these preliminary analyses, a mediation model was produced through multiple regressions, using variables meeting the mediation criteria (Hayes, 2013). According to Hayes, a mediation model can be verified if the mediating variable is associated with the independent and dependent variables. Socio-demographic variables significantly related to the R score were included as control variables. All of the statistical analyses were conducted using IBM SPSS Statistics (version 24; IBM, n.d.) and Hayes’ PROCESS macro, version 3.3 (2013). The power analysis, with $\alpha = .05$ and a power level of .80 and performed with GPower version 3.1 software (Faul et al., 2009), suggested a minimum sample size of 63 subjects.

Table 1
Means and Standard Deviations of the Study Variables

Variable	Men <i>N</i> = 148		Women <i>N</i> = 249		Total
	<i>M</i> (Std. D.)	<i>n</i>	<i>M</i> (Std. D.)	<i>n</i>	<i>M</i> (Std. D.)
Depressive symptoms	9.06 (7.89)		11.06 (8.52)		10.31 (8.33)
R score	22.15 (4.99)		22.92 (4.95)		22.64 (4.97)
Appraisal					
All kinds of goals	31.98 (4.36)	140	30.02 (3.99)	244	32.26 (4.50)
No goal		8		5	
Interpersonal goal	28.33 (7.37)	3	32.2 (5.44)	15	31.56 (5.74)
Intra-personal goal	31.39 (4.42)	57	31.98 (5.43)	52	31.67 (4.91)
Occupational goal	32.74 (4.07)	76	32.58 (4.25)	176	32.62 (4.19)
Other goal	28.83 (4.20)	4		1	29.07 (3.68)

Results

Preliminary Analyses

Table 1 lists the means and standard deviations for all study variables as well as the number of participants per designated goal. Since the depression scores and the goal appraisal scores were not distributed normally, transformed variables (square root function for depressive symptoms and logarithmic function for the appraisal variable) were used for inferential analyses (Daumas, 1982). Furthermore, participant ages were not distributed normally. Consequently, this variable was recoded into three categories: participants who were 16 to 17 years old (46%), participants who were 18 to 21 years old (40.8%), and participants who were 22 years old or older (12.6%) at the time of the study.

Preliminary results revealed that 12.85% of the participants exhibited moderate to severe depression (BDI-II score of 20 or higher); of these, 72.55% were female. Furthermore, women reported more depressive symptoms than men ($t[395] = -2.71, p = 0.007$). However, there were no significant differences between men and women in terms of R scores ($t[395] = -1.49, p = 0.14$) or goal appraisals ($t[377] = -1.17, p = 0.24$). With respect to personal goals, only 3.3% of those sampled mentioned none. The goals named most frequently were occupational and intra-personal. In addition, goals cited by men and women were different ($\chi^2[4] = 26.42, p < 0.001$, Cramer's $V = 0.26$). In other words, women were more

likely than men to list an occupational goal, whereas men were more inclined than their female peers to name an intra-personal goal.

Depressive Symptoms, Academic Performance, and Personal Goals

Correlation analyses fail to confirm the presence of a significant direct association between depressive symptoms and academic performance, even when the type of goal was considered and when correlation analyses were performed separately for women ($r = -0.05, p = 0.48$) and men ($r = 0.02, p = 0.78$).

However, the conditions for performing mediation according to Hayes's (2013) criteria were met when an analysis was conducted specifically for participants who had an occupational goal ($n = 251$). In other words, for these students, depressive symptoms (X) are associated with the appraisal of an occupational goal (M), and the appraisal of an occupational goal is associated with the R score (Y). Socio-demographic variables that were associated significantly with the R score (hours of paid employment, age, 1st-year student; see Table 2) were added as control variables. Moreover, ANOVA and post-hoc test results show that students in university preparatory programs had higher R scores than those of fellow students in technical and Tremplin DEC programs ($F[2, 395] = 19.6, p < 0.001$; $M_{\text{university prep}} = 24.74$; $M_{\text{technical}} = 21.9$; $M_{\text{Tremplin DEC}} = 20.33$). The academic programs of participants were therefore included and statistically controlled in the mediation model (see Figure 2).

The mediation model results indicate that depressive symptoms alone cannot predict the R score (c). Inclusion of the occupational goal's appraisal, however, yielded a significant model ($F[6, 244] = 2.58, p = 0.02, R^2 = 0.06$), although the effect of depression (c') remains non-significant. Nonetheless, the analysis revealed an indirect significant effect (ab), as confirmed by the entirely sub-zero, 95% confidence interval ($[-0.14; -0.02]$) generated by the bootstrapping procedure. This indirect effect indicates a trend among students with more severe symptoms of depression to have a more negative appraisal of their occupational goals, subsequently resulting in a lower R score.

Discussion

The BDI-II scores revealed that 12.84% of 1st-year students participating in this study exhibited moderate to severe depressive symptoms. This proportion is comparable to that observed by other researchers working with Québec college students (Villatte et al., 2015) and with those in the United States (Whisman & Richardson, 2015). Students with such levels of depression may show a marked decline in interest in some aspect of academic activity as well as an increase in difficulty with concentration (APA, 2013), both of which could have an impact on their academic performance. However, in contrast with the findings of some prior studies (Ahmed & Julius, 2015; Andrews & Wilding, 2004; Bryan et al.,

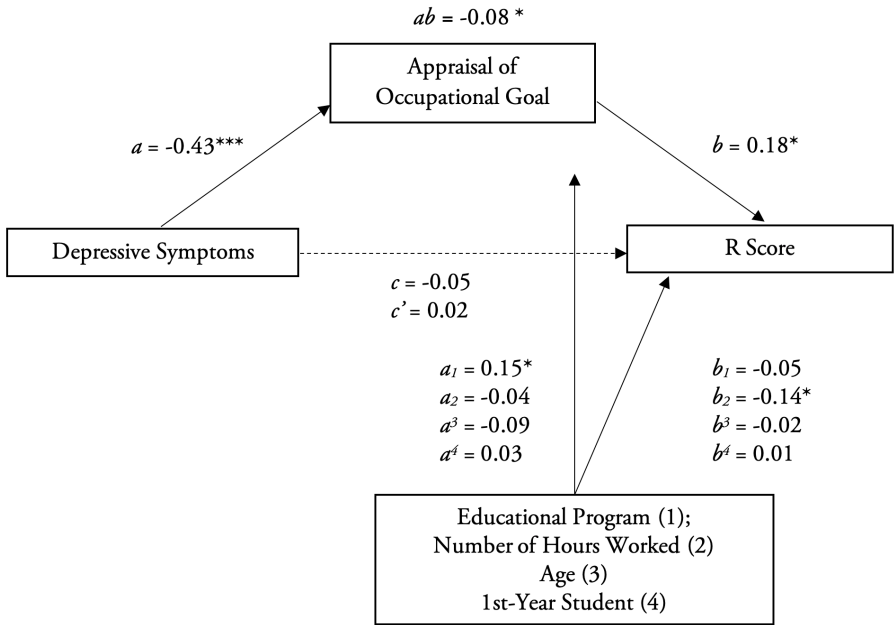
Table 2
Correlations Between Variables

	1	2	3	4	5	6	7	8	9	10	11	
1. Depressive symptoms	1	-0.39**	-0.22	-0.37***	-0.41***	-0.01	-0.03	0.14**	0.09	0.03	-0.10	
2. Appraisal of any kind of goal		1	-	-	-	0.07	-0.03	0.06	-0.04	-0.10	0.02	
3. Appraisal of interpersonal goal			1	-	-	-0.06	0.19	0.28	0.10	-0.48*	-0.03	
4. Appraisal of intra-personal goal				1	-	-0.10	0.01	-0.12	-0.17	-0.004	-0.04	
5. Appraisal of occupational goal					1	-0.16*	-0.04	-0.02	0.05	-0.12	-0.08	
6. R score						1	-0.20**	0.08	0.12*	-0.01	0.02	
7. Hours of paid employment							1	0.03	-0.25**	0.03	-0.08	
8. Gender (0 = Male; 1 = Female)								1	-0.12*	0.02	-0.11*	
9. Academic status (0 = 1st-year student; 1 = not 1st-year student)									1	-0.23**	0.15**	
10. Environment (0 = not living with parents; 1 = living with parents)										1	-0.20**	
11. Mother's educational level (0 = no post-secondary studies; 1 = completed post-secondary studies)											1	
12. Age												1

Note. The top of the table reports Pearson correlations and the bottom of the table reports Spearman correlations.

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Figure 2
Mediation Model



* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

2014; DeRoma et al., 2009; Eisenberg et al., 2009; Garcia, 2016; Hamaideh & Hamdan-Mansour, 2014; Hysenbegasi et al., 2005; Khanam & Bukhari, 2015), this study does not support the existence of a direct linear association between depressive symptoms and academic performance, despite the use of a validated measurement of depression. This lack of a direct link does, however, echo the findings of several other researchers (Antaramian, 2015; Leenars & Lester, 2006; Svanum & Zody, 2001; Trockel et al., 2000; Turner et al., 2012; Wintre & Bowers, 2007). In fact, the results obtained are quite similar to those of Wintre and Bowers, who also found, in a sample of Canadian students, an absence of correlation between depressive symptoms measures at the start of the academic year and GPA (grade point average) at the end of the same academic year.

The moments at which depressive symptoms are measured could yield heterogeneous results in different studies. It is possible that the longer the time span between the measurement of depression and of performance, the greater the likelihood that students' depressive symptoms have changed. Vredenburg et al. (1988) reported that 74% of students with major depressive symptoms were still highly symptomatic 3 months later. More recently, however, Andrews

and Wilding (2004) found that 29% of students who did not exhibit depressive symptoms at the start of the year developed such an issue midway through their post-secondary studies. At the same time, symptoms declined during the academic year for 36% of students who had showed an elevated level of depressive symptoms at the start of that period. Because the beginning of post-secondary studies constitutes a period of greater stress for some students and a new epoch of possibility for others, it would be useful in future studies to assess depressive symptoms multiple times in the course of the year to observe the impact on longer-term performance of the emergence, stability, or return of depressive symptoms. In this respect, Hysenbegasi et al. (2005) demonstrated empirically that a diagnosis of depression was associated with a lower GPA but that treatment for depression helped reduce its impact on academic performance. This supports the value of offering treatment to reduce or prevent depressive symptoms among college students. In Québec, the *Zenstudies* program, subtitled *Making a Healthy Transition to Higher Education*, seeks to achieve these goals and focuses particularly on personal goals and occupational choices. Based on Christner and Mennuti's (2009) multi-level model of college mental health services (2009), *Zenstudies* consists of three levels (Marcotte et al., 2021a, 2021b, 2021c, 2021d, 2021e, 2021f). The first level concerns the overall college population and focuses on the development of knowledge with respect to the transition to college, the transition to young adulthood, and mental health. The second level consists of a selective-targeted prevention that is designed for students who have already exhibited certain symptoms and who want to develop tools to cope better with these symptoms. The third level is the indicated-targeted prevention and consists of 90-minute meetings held with groups of five to 10 students exhibiting significant symptoms of depression or anxiety.

Nonetheless, the lack of a direct linear relationship between depressive symptoms at the start of the year and cumulative 1st-year academic performance suggests a more complex relationship between the two variables. DeRoma et al. (2009) and Turner et al. (2012) found that certain depressed students achieved good results. To date, the characteristics distinguishing depressed students who succeeded from those with academic problems seem to have received little attention. These authors have proposed a hypothesis pertaining to a cognitive aspect of depression that focuses on perfectionist cognitions. Interestingly, some studies have concluded that aspects of perfectionism were associated with greater emotional distress (Egan et al., 2011) and with better academic results (Leenaars & Lester, 2006). Thus, it is possible that perfectionist tendencies and the desire to achieve high standards may lead to both academic excellence and depressive symptoms.

This study revealed an indirect impact of depressive symptoms on academic performance due to a more negative appraisal of occupational goals pertaining specifically to school and career. Consequently, students experiencing symptoms

of depression may have less clarity about their academic and career goals. They may also feel that they have less support or that they have less ability to achieve their goals, which could affect their academic performance. With respect to this topic, the cognitive theory of depression (Beck et al., 1979) suggests that, due to a dysfunctional belief system, depressed individuals have a negative image of themselves, the world, and their future. Our study suggests that a negative appraisal of personal goals among depressed students is quite compatible with the cognitive theory of depression. The negative appraisal of their personal goals may fit into a more generalized negative perception pertaining to the world, the future, and their sense of self-worth. In this regard, some studies demonstrated that depressed individuals perceive their goals as being more stressful and they are less inclined to think that they are able to achieve them (Nurmi et al., 2009; Street, 2002).

However, among the three types of goals examined, only the occupational ones were supported as mediators of the relationship between depression and academic performance. Once again, it is no surprise that students who report more depressive symptoms tend to perceive their occupational goals more negatively. This is because such goals pertain to the cognitive triad described by Beck: they are based on self-projection (self-perception) into the future by virtue of students imagining the possibility of working in a particular field (perception of the future). This process also requires an assessment of how the current environment (college) can help individuals achieve their ideals (perception of the world). Moreover, Larose and Roy (1992) propose that a student's academic integration, measured partly in terms of academic performance, depends to an extent on their perception of their academic and cognitive skills. The results of this study support such a perspective, whereby a more negative appraisal of academic and career goals, including feeling less competent to achieve said goals, yields poorer academic performance. It is possible that interpersonal goals failed to appear as mediators because of the research context. In fact, Little's definition of personal goals (Little et al., 2007) suggests that individuals pay them selective attention. Since the students were surveyed at school, this process may have underscored academic and career goals. The content of such goals would presumably reflect an individual's current developmental tasks or environmental context.

This study sought to determine how different types of goal appraisal are linked to academic performance. In view of the particular developmental period in which young adults are situated, it was useful to consider the impact of the appraisal of goals pertaining to leisure, personal development and independence (for example, "improving my physical fitness," "getting an apartment"), and academic performance. While it is conceivable that a positive appraisal of intra-personal goals could contribute to academic performance positively—for example, by fostering positive self-image and healthy identity development (Arnett, 2015)—it is also possible that this process contributes adversely to academic performance

due to factors such as excessive time spent by a student on such goals. Various studies have also focused on the implications of how college students distribute their time among studies, work, and leisure (Landry et al., 2016; Lowe & Gayle, 2007). Nonetheless, the results of the present study do not support an association between the perception of intra-personal goals and performance and likewise fail to confirm their mediating role. This suggests that goals that are closely linked to academics and career seem to be of particular importance to academic performance. It should be noted, however, that our study showed that a more negative appraisal of intra-personal goals was linked to the presence of depressive symptoms. This association reflects frequently identified symptoms of depression (such as reduced interest in activities and a sense of diminished worth) that are among the nine criteria of major depressive disorder (APA, 2013). It also seems coherent that more depressed young adults may see themselves as being less competent and less supported, which in turn may lead them to be less optimistic about their potential for personal development and independence. This is considered to be one of the central tasks of emerging adulthood (Arnett, 2015), and it refers to such abilities as making decisions and being financially independent of parents (Arnett, 2015). Furthermore, the results failed to confirm a link between depressive symptomatology and the perception of goals pertaining to social (family, intimate, and friendly) relationships. However, this failure to obtain significant results could be due to the limited number of participants who had identified such a goal. The fact that this study was conducted in an academic setting may have made interpersonal goals less significant for the college students who participated in it (Little & Balsari-Palsule, 2021).

Contributions and Limitations

This study makes a unique contribution to research on post-secondary students' mental health by examining goals as explanatory variables in the relationship between depression and academic performance. Furthermore, it takes into account the multiple factors that make up personal goals. In this regard, assessing the selected goal serves not only to assess a student's appraisal of their goals but also to determine the areas in which these goals lie—a new contribution compared to most previous studies. Nonetheless, this study also included certain limitations. In particular, the correlational design that was used cannot establish causality between depression and goal appraisal. The hypotheses were based on theoretical (rather than temporal) postulates (Little et al., 2007). This study proposed that depressive symptoms have an impact on academic performance due to a more negative appraisal of occupational goals, but it is also possible that a more negative appraisal of occupational goals yields greater depressive symptoms.

In addition, the results were obtained from a sample of students enrolled in a Québec college. While sample characteristics, in terms of age and maternal education, are similar to the national profile of Canadian 1st-year university students,

it differs in terms of their residency (Canadian University Survey Consortium, n.d.). While 83.6% of the participants were still living with their parents, only 43% of 1st-year university students in the rest of Canada do so. This difference could yield different results, particularly in terms of goals associated with the development of personal independence.

Conclusion

This study investigated the association between depressive symptoms and academic performance in college by considering personal goals as mediating variables. A regression model has shown an indirect link between higher depressive symptoms and weaker academic performance, due in part specifically to a more negative appraisal of academic and career goals. In other words, the perception of other types of goals was not associated with the R score. Consequently, professionals working with depressed post-secondary students would benefit from addressing how these young people perceive their career choices. Such efforts could include determining if students feel their career goals are well defined, if they feel capable of achieving their goals, or if they feel they are progressing toward them. Among young people engaged in the fragile exploration of identities, promoting the positive perception of a career could help improve their impressions of themselves, their environment, and their futures, thus limiting the development of depressive symptoms and fostering academic success.

In view of the widespread prevalence of depressive symptoms among post-secondary students, additional research must be pursued to gain a better understanding of the impact of this symptomatology on academic variables and how it influences student progress. It would be particularly important for future studies to target specific dimensions of the appraisal of personal goals, including the perceived capability in meeting a goal and the perceived commitment to it. This more detailed investigation would allow researchers to examine how appraisals change over time and would allow researchers to develop a better understanding of the relationship between students' depressive symptoms, perception of personal goals, and academic performance in college. It might also be useful to determine how different types of goals interact with each other, while considering factors such as a particular student's multiple goals. This approach could determine how the ranking of different goals might explain how students adapt to college while also experiencing a developmental transition.

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