Resilience Factors in College Students at Risk of Depression

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Abstract

The college transition constitutes a vulnerability period for at-risk students. Although several risk factors associated with depression have been identified in the young adult population, very few studies to date have focused on the aspect of resilience during this academic transition. In the present study, a subgroup of resilient students, who did not report depressive symptoms despite experiencing some family risk factors, was compared to a subgroup of depressive students. The results revealed that, among these variables, a low level of dysfunctional attitudes related to dependency and well-defined personal goals can be considered as being higher resiliency variables.

Keywords: college, depression, resilience

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Although more young people are now pursuing studies beyond high school, between 25% and 40% of them do not complete their college program (American College Test [ACT], 2011). A growing number of college students experience mental health problems (Bruffaerts et al., 2017) and that increase is linked to a higher prevalence of consultation requests for counseling services. More than 85% of counseling services' directors have reported an increase in severe psychological problems in college and university students (Daddona, 2011). Moreover, the complexity of these mental health disorders has substantially grown within this population (Daddona, 2011). In counseling with college student populations, it is important to focus interventions on dimensions related to resilience.

Data from the survey of the National College Health Assessment-II revealed that, from a sample of 19,861 college students, 36.7% reported depressive symptoms in the last year that negatively influenced their academic functioning (American College Health Association, 2016). In a systematic review of studies from 1990 to 2010, Ibrahim et al. (2013) reported a prevalence rate of 30.6% for depressive symptoms in the higher education student population. Hattie's meta-analysis (2015) noted that these high rates of reported depression represent the most influential negative factor for school performance in higher education.

The first year of college seems to be especially important because this is often the time when students drop out (Cleary et al., 2011; O'Keeffe, 2013). In a study by Benton and his colleagues (2003), nearly 50% of students who were suffering from a mental disorder reported that the onset of their distress was associated with their entry

into higher education. College transition offers students greater freedom (e.g., course selection and time management), which is experienced as a positive experience. However, this greater freedom also requires a greater capacity for self-control and self-discipline. Arnett (2000, 2015) noted that for emergent adults who have not developed these capacities, either because of a lack of school/family supervision or excessively rigid supervision, it may difficult to adapt to the transition (Schulenberg et al., 2004). Post-secondary studies typically have a heavier workload outside the classroom, more stringent academic requirements, and pressure to make a career choice (Schwartz et al., 2005). Transitional problems may also be compounded by a gap between the personal coping resources and capabilities of the individual and the requirements of a dual transition from high school to college and from adolescence to adulthood.

Mental health problems have serious consequences on the academic pathway of young adults as well as on their life's trajectory. Suicidal behaviors represent the first or second greatest cause of mortality in university students depending on the study, and depression constitutes one of the more frequent reasons for dropping out of school (MacKean, 2011; Wintre & Bowers, 2007). Depressed students present a higher probability of dropping out of school than non-depressed students (Arria et al., 2013; Fortin et al., 2013; Gagné et al., 2011). Depression has been associated with lower probabilities of access to higher education (Meilman et al., 1992), and it has been associated with a higher probability of greater difficulties finding work (Fergusson & Woodward, 2002; Pelkonen et al., 2008). Wintre and Bowers (2007) identified gender, parental support, stress, depression and first-year GPA as direct predictors of persistence during the transition to university. Considering these elements and the fact

that depression constitutes the diagnostic most often applied by mental health professionals who treat students (Platts & Williamson, 2000), it becomes important to identify risk and resilience factors of depression in that population.

Depression Risk Factors Associated With the Transition to Adulthood

As demonstrated in the developmental theory of Arnett (2000), transition to adulthood constitutes a distinct stage of development characterized by instability. The exploration of different life choices and the experimentation with different roles in several contexts (e.g., identity development, romantic relationships, and labor market) may be associated with a high level of stress and depressive symptoms for some young adults. Although they are less well known in young adults than for adolescents, some school-related risk factors for depression have started to be identified in the literature. Unsurprisingly, a low academic performance is associated with the presence of depressive symptoms in post-secondary students, especially in young women (Pelkonen et al., 2008). Depression is also associated with a lower interest in school (Heiligenstein & Guenther, 1996) and a lower persistence for reaching goals (Vredenburg et al., 1988). Low-performing students are less satisfied with themselves and perceive a greater pressure to succeed from their families. They tend to adopt unrealistic expectations toward themselves and others (Marcotte, 2013). They also experience less success in making new friends. Having been the victims or perpetrators of bullying in school during adolescence is also thought to be linked to a higher level of depression in emerging adulthood (Lencl & Matuga, 2010).

Among the personal risk factors associated with depression in young adults are gender (i.e., young women being more at risk than men), low self-esteem (Eisenbarth,

2012), cognitive distortions (Alloy et al., 2006), the presence of a previous depressive episode or anxiety symptoms, and negative life experience (e.g., car accident). As demonstrated by longitudinal studies, people who tend to adopt dysfunctional attitudes, use dichotomous thinking, dramatize negative events, or think that they need to receive others' approval to have a sense of self-worth present a higher risk to become depressed when they face stressful events. Several studies also emphasize that issues such as substance use (Geisner et al., 2012), or Internet overuse (Locatelli et al., 2012) may increase the risk of developing major depressive disorders.

A lack of social support from peers during adolescence represents a depression risk factor during adolescence and emerging adulthood (Gore & Aseltine, 2003). Studies on the association between romantic relationships and depression are still few in number; however, some studies have shown a negative relationship between being in a relationship (or the satisfaction in the relationship) and symptoms of depression (Whitton et al., 2013; Whitton & Kuryluk, 2012). Other social risk factors, such as social exclusion stemming from discrimination, have been associated with depression in emerging adulthood (Grant et al., 2013).

Finally, family-related risk factors remain one of the most predictive factors of depression in young people. Many studies support the presence of a depressed parent as being one of the principal depression risk factors in emerging adulthood (Klein et al., 2013; Marmorstein et al., 2012). Furthermore, several aspects of family functioning, such as low emotional support, low encouragement of autonomy, the presence of violence, and marital conflicts, have also been associated with the presence of depressive symptoms in young adults (Fletcher, 2009; Wickrama et al., 2009).

Depressive symptoms are influenced by factors related to several dimensions of living. Although several personal, social, family and school factors have been associated with depressive symptoms in emergent adults, few studies have compared these factors to identify which factors differentiate these subgroups.

Resilience Factors in Young Adults at Risk of Depression

Although several risk factors associated with depression have been identified in the young adult population, very few studies to date have focused on protective factors or resilience in the population of young adults during this academic transition. The construct of resilience is defined and operationalized in different ways. Pargas et al. (2010) claimed that resilience is a process that is generally not static and therefore changes in response to situational circumstances and life stages. However, some factors, such as intelligence, were identified as resilience factors that remain stable across adolescence and the beginning of adulthood. Intellectual capacity allows young people to establish distance from the depressogenic cognitions of their parents (Pargas et al., 2010). Arnett (2015) noted that two protective factors are important during emerging adulthood: cognitive abilities (e.g., general intelligence, planfulness, and self-control), and having one healthy relationship (e.g., having one person who expresses caring about them).

Masten and her colleagues (2004) summarized the results of studies on resilience during transition to adulthood and suggested that students who assessed their high school experience more positively and expressed higher expectations for their educational success in the future adapted better during the transition to adulthood. However, although cognitive resources, socioeconomic status, and the quality of relationships with parents were frequently identified as resilience factors in identified

studies, Masten and her collegues did not report resilience factors that were specific to depression. Lazarus and Folkman (1984) described resilience as including strength, flexibility, a capacity for mastery, and a resumption of normal functioning after excessive stress that challenges coping skills. Robinson et al. (2014) identified resilience as including a sense of self-mastery and self-efficacy, an easy temperament, and a positive relationship with an adult. Werner and Smith (1982) suggested that personality traits such as adaptability, orientation toward success, and good self-esteem are also resilience factors. Again, these resilience factors were identified in relation to a variety of stressors but were not identified specifically in relation to depressive symptoms.

Although there are few studies related to resilience factors specific to depression, a few longitudinal studies have explored whether the presence of depression risk factors, such as family problems, were associated with depression in young people. Understanding why some individuals do not experience depressive symptoms as a result of living with non-supportive or conflict-oriented families is important to the development of prevention programs. Features of resilience, such as positive thinking, low anxiety levels, and good interpersonal relationships, have been associated with lower levels of depression in young adults despite the presence of depression risk factors such as their own medical histories, mental health disorders in their families, anxious or depressive disorders during childhood and the beginning of adolescence, family violence, and large family size (Carbonell et al., 2002; Benetti & Kambouropoulos, 2006; Ng et al., 2012). In addition, having a positive romantic relationship, for young adults, has been identified as a factor that reduces the risk of depressive symptoms (Nguyen & Fournier, 2007).

Considering the increase of depressive symptoms experienced by young people in the stressful context of the college transition, the identification of resiliency factors for young people at risk for depression is imperative. The aim of the present study is to identify resilience factors within a variety of contexts (e.g., socio-demographic, personal, social, and school-related) in a sample of college students presenting one of the most important risk factors for depression, family difficulties. Although the literature on resilience factors specific to depression in higher education students remains limited, the hypothesis is that: (a) some variables for each of these four dimensions will distinguish between depressed and resilient students; and (b) the presence of a low level of cognitive distortions (which are strongly associated with depressive symptoms), a low level of anxious symptoms (with anxiety and depression being highly comorbid mental disorders), and good interpersonal relationships (reflected by good friend support and romantic relationships) will be identified as the most significant resilience factors that may be addressed in counseling interventions. The results of studies on resilience in young adults also suggest that a good adaptation to college (i.e., measured by school motivation and success, having a vocational project, and a good adjustment to college) should be identified as resilience factors. This article is an extended version of the short version published in Procedia-Social and Behavioral Sciences, (Marcotte et al., 2014) and includes the results of analyses for each of the four contexts.

Method

Over the months of October and November 2012, twenty classes of students enrolled in their first year of college completed the questionnaires over a 35- to 40-minute period. Students from all programs offered at this institution participated in the study. The

participants willing to complete the questionnaires signed a consent form. Students who were absent when the questionnaires were administered were contacted by email and met at the college when it was convenient for them, so as not to lose sight of the young people who could potentially be a population at risk. In all, 393 students participated in the collection of the data. Four questionnaires completed by participants who were 36 or more years old were excluded to limit the heterogeneity of the sample.

Participants

The sample was composed of 389 first-year college students. The mean age was 18.9 years (*SD* = 3.38), and the sample consisted of 59.4% women and 40.6% men. In the sample, 61.7% were newcomers, meaning that they had never studied in a post-secondary institution; 68.8% held jobs during their studies, working an average of 10.59 hours per week (*SD* = 9.28); and 60.9% belonged to a traditional family (two parents living together). Approximately 15% of the students reported that they no longer lived with their parents.

Instruments

Several measures linked to personal, family, academic, and social dimensions of the young adults' functioning were administered.

Depressive Symptoms

The Beck Depression Inventory-2 (BDI-2) is a self-reported 21-item questionnaire largely used in research to measure the intensity of depressive symptoms (Beck et al., 1996). The items are based on the diagnostic criteria of DSM-IV, and, for each of them, the respondent chooses from four statements the one that best describes his/her situation. The total score ranges from 0 to 63 and is obtained by the sum of the scores on each of the 21 items. Four levels of depressive symptoms can be identified, as set by

Beck et al. (1996): absence of depressive symptoms (total score between 0 and 11), mild level (score between 12 and 19), moderate level (score between 20 and 27), or severe level (score of 28 and above). In the current sample, internal consistency was assessed as good (Cronbach's Alpha = .889).

Socio-Demographic Characteristics

The gender, age, program of study, school status (full-time or part-time studies), and number of hours per week spent working were obtained by a self-descriptive questionnaire. Several questions regarding family characteristics were also included (e.g., blended or traditional family, student's residence with parents or out of the family, mother and father's financial income and level of education, as well as the relationship status (involved with another or single) of the students).

Family Functioning

The Family Environment Scale (FES, Moos & Moos, 1981) includes 45 items separated into five subscales: cohesion, expressiveness, conflict, organization, and control. The reliability of this questionnaire is adequate (alphas varying between 0.68 and 0.78), and several tests have been used to demonstrate concurrent validation (Moos & Moos, 1981). In the present study, only three items were retained related to the conflict dimension, along with two items from the cohesion dimension. The participants were asked to position themselves with regard to these dimensions on a 5-point Likert scale. Moreover, within the cohesion dimension, we added a third item from the National Longitudinal Survey of Children and Youth (Statistics Canada, 2008): *In our family, we very often eat meals together* (Cronbach's Alpha respectively of .704 and .749).

The two subscales, warmth and autonomy support, of the Perceptions of Parents Scales (PPS) (Robbins, 1994) for college and university students, were used to measure the warmth and encouragement of autonomy perceived by the student from his/her father and mother on two distinct 15-item subscales. A 7-point Likert scale from 1 (*not true at all*) to 7 (*completely true*) was used (e.g., “My father (or my mother) clearly conveys her love for me”, “Tries to tell me how to run my life”). Cronbach’s Alpha ranged from 0.88 for the autonomy support subscale (mother and father) to 0.90 (mother) and to 0.89 (father) for the warmth subscale (Niemiec et al., 2006). In the present study, internal consistency has been assessed as good (Cronbach’s Alpha = .859 (mother) and .833 (father)). Finally, based on nine items, the Parental Supervision Questionnaire (PSQ) (Kerr & Stattin, 2000) measured how students evaluated the knowledge their parents possessed with regard to their outings, their friends, and their studies. For each of these items, participants were asked to position themselves on a scale of 1 to 5 (Cronbach’s Alpha = .909).

Social Support

The Perceived Social Support from Friends (PSS-Fr, Procidano & Heller, 1983) was used. This measure evaluates how the need for support, information, and feedback are met by friends. In the present study, an abridged and adapted version of the instrument was used, containing 5 items which could be rated on a 6-point Likert scale (Cronbach’s Alpha = .814). Romantic relationship quality was measured using the Network of Relationships Inventory (Buhmester & Furman, 1987). In the context of this study, the only scales (5-point Likert) retained were those that measured the way in which the participants evaluated their satisfaction, intimacy, and the level of conflict

related to the romantic relationship (Cronbach's alphas = .934, .832 and .865 respectively). One item enabled the definition of the sexual orientation of the participants: “With regard to my attraction and my sexual preferences, I am: always attracted to a girl/always attracted to a boy/more often attracted to a girl/more often attracted to a boy/attracted to a girl as often as I am attracted to a boy” (Otis et al., 1999).

School-Related Measures

The Student Adaptation to College Questionnaire, (SACQ, Baker & Siryk, 1986) originally comprises 67 items and the four subscales measure academic, social and emotional adjustment, and attachment to college for which the participants indicate their degree of agreement on a 9-point Likert scale. In the present study, only 22 items were retained. Due to its unsatisfactory internal coherence (less than .60) on each of the scales, a principal components analysis (PCA) with orthogonal varimax rotation was performed on the sample data, which indicated the presence of four empirically independent factors explaining 54.2% of the total variance. The Kaiser-Meyer-Olkin index (0.771) and Bartlett test of sphericity (<0.001) demonstrated the importance of proceeding with this factor analysis. One of the twenty-two initial items was excluded as it did not exhibit any factor loading greater than .400 (“I’m very involved in college social activities”). The remaining 21 items were divided into the following factors: academic motivation (α = .753), attachment to college (α = .780), academic adjustment (α = .620), and emotional adjustment to college (α = .697). One question measured how the participants considered their academic performance (below average, average, above average).

Personal Characteristics

The French-language version (Freeston et al., 1994) of the Beck Anxiety Inventory (BAI) measured the general somatic symptoms of anxiety experienced by the participants over the preceding week (Beck et al., 1988). This tool comprises 21 items measured on a scale of 0 to 3 (α = .889). Cognitive distortions related to depression were measured using the Dysfunctional Attitudes Scale (Weissman & Beck, (1978). Eight items were retained, including four items for the scale related to dysfunctional thoughts linked to achievement ("People will probably think less of me if I make a mistake") and four items for the scale related to cognitive distortions linked to dependency ("My happiness depends more on other people than it does on me"), for which the participants had to position themselves on a 7-point scale (alpha = .635 for achievement and .641 for dependency). The self-reported Delinquency Questionnaire (LeBlanc, 1994), originally composed of 26 items, was reduced to 5 items in this study to measure (using 4-point Likert scales) the frequency of violent behavior (3 items) and substance abuse (alcohol and drugs, 2 items) over the course of the preceding 12 months. This questionnaire has been validated with a sample of 6604 young people, aged between 10 and 18 years old, and the alpha coefficient was .82. The coherence of personal goals was assessed using the Goal Instability Scale (Robbins et al., 2008), a 10-item questionnaire with a 6-point Likert scale (e.g., "I don't know where I am going") (α= .881). Another 10-item questionnaire, the Vocational Identity Scale (Holland et al., 1980), was administered (e.g., "I am not sure that my present vocational choice is a good one"). For this study, only 6 of these items were retained (α = .869). Finally, information regarding the use of medication for affective disorders and the utilization of

psychological or academic services was obtained by questions included in the demographic questionnaire.

Data Analysis

Two groups of students were identified in the total sample: depressed students, who scored 20 or above on the BDI-2 (13.4%), and non-depressed students, who scored 11 or below on the BDI-2 (59.6%). Within the non-depressed group, 42 participants were considered to be *resilient*; that is, they presented at least three of the following risk factors: a score of two standard deviations above/under the average score of the sample for the three measures of family adjustment (global score of FES, global score on mother/father subscales of the warmth or autonomy of the PPS, and global score of the PSQ) and/or single-parent or stepfamily adjustment. In the first step, the variables permitting a distinction between resilient and depressed students were identified using comparisons of means (in the case of quantitative variables) and chi-squared tests (for nominal or ordinal variables). A Bonferroni correction was applied to consider the high number of analyses. Thresholds of 0.0029 for the chi-squared tests and 0.0028 for the ANOVA were used, with a significance level of 0.05. The application of Bonferroni correction resulted in seven variables that reached the significant level by comparison with twelve in our preceding analysis. Thus, in the second step, the seven variables significantly associated with resilience were entered into a multiple linear regression analysis model, with the status of resiliency as a dependent variable to identify the most predictive factors of resilience, after having verified the absence of multicollinearity using the Variance Inflation Factor (VIF) index and having removed variables with a VIF over 3.

Results

The results of these analyses are presented in Appendix Tables A1 through A4. Table A1 (socio-demographic variables) shows that none of the variables of this category were found to be significant once the Bonferroni correction was applied. Regarding the school-related variables, Table A2 reveals that several variables discriminated the resilient group of students from the depressed group. These students were more motivated. They also developed more attachment to their college, in addition to better emotional adjustment. They also seemed to have adopted a positive perception of their teachers. On the other hand, the depressed students experienced difficulties regarding their motivation toward school, as well as difficulties with two dimensions of college adjustment (attachment, emotional).

Regarding the comparison of the social functioning of resilient and depressed students, the results presented in Table A3 show that, again, once Bonferroni correction was applied, none of these variables were found to be significant. Finally, when personal variables were analyzed, the ones that were associated with resilience included a lower level of anxiety and dysfunctional thoughts, as well as well-defined personal goals (see Table A4).

In a second step of analyses, all of the seven variables significantly associated with resilience in the first step of the analysis were entered into a multiple linear regression analysis model, with the status of resiliency as a dependent variable. The aim of that analysis was to identify the most predictive factors of resilience. The absence of multicollinearity was controlled using the VIF index and having removed variables with a VIF over 3. Table A5 presents the results of this second step of the analyses. Two key

resilience factors were identified in the post-secondary students who were surveyed. In a decreasing order of importance, according to the Beta-value associated with each of these variables, the factor that most strongly predicts resilience is the presence of personal goals (e.g., knowing the values and goals that the individual wishes to pursue). An absence or low level of dysfunctional thoughts related to dependency also play an important part in explaining how some students, despite their vulnerable situations, are able to avoid developing depressive symptoms.

Discussion and Implications for Counseling

In the present study, a large number of variables were grouped in four categories (socio-demographic, personal, social, and academic) and examined in order to identify the most significant factors that distinguished resilience from depressed students. Resilient students were identified as students who did not report depressive symptoms despite the presence of family risk factors. In order to orient counseling with vulnerable populations (e.g., students at-risk of depression) and in the context of restricted resources in mental health counseling, it becomes important to focus interventions on dimensions most related to resilience. A first result that warrants attention is the absence of influence of the parents' educational level on resilience to depression. While some studies found a negative link between the socioeconomic status of the parents and the depression at young adulthood (Park et al., 2013), other studies reported an absence of such a link (Reinherz et al., 1999). In a sense, this result may have one positive aspect since socioeconomic provenance is one dimension that counseling interventions may not change.

On the other hand, variables for which counseling may be efficacious (e.g., school-related and personal factors) appear to be more closely associated with resilience to depression. Regarding personal characteristics, the results support the cognitive therapy of depression (Beck, 1983) that emphasizes the importance of cognitive bias in the etiology of depressive disorders, as well as the comorbidity of them with anxiety disorders. Depressive students tend to use cognitive distortions in their interpretation of stressful events. They tend to use arbitrary inferences, to dramatize situations or think in black and white perceptions. Although several studies have been conducted with adolescents (Marcotte et al., 2006) and adults, still very few studies examined cognitive distortions specifically during college transition. The cognitive model of depression has received good empirical support from many studies for more than three decades. Moreover, results of the longitudinal study conducted by Marcotte et al. (2006) revealed the existence of a link between depressive symptoms and academic performance, and results showed that adolescents who remained depressed throughout the study's three testing points seemed to be the group whose academic performance was most impaired. These results highlight the importance of focusing not only on school variables in the development of resilience factors but also on personal factors as the cognitive style adopted by students. Students who tend to think that they must succeed all the time and in all subjects are more vulnerable to become depressed. This type of cognitive style may be especially dysfunctional in the context of the college transition, when the young emergent adult has not yet acquired many experiences of success that reinforce his feelings of self-competency. The results of the second analysis also supported the importance of cognitive distortions and specified that low-

cognitive bias related to dependency seems to be particularly protective against depressive symptoms. Students who tend to think that they must please everyone to achieve a sense of personal value could be at risk of becoming depressed, particularly when they do not benefit from sufficient support from their family. Cognitive distortions associated with dependency are expressed as a tendency for an individual to think that it is possible to be appreciated by everyone, while also being vulnerable to adopting a negative view of him/herself if this approval is not obtained. As Sally reported during this study when asked if her parent were supportive: "*Yes, too supportive! My mom was never good at school, she works as a cashier in a supermarket, and she doesn't want me to be like her. She puts pressure on me to ensure that I succeed. When I failed a course, I was afraid to tell her. My father has also pushed me since I was in primary school*."

A second aspect that deserves to be highlighted concerns the role of school-related factors in the resilience to depression. Students who demonstrated resilience appeared to be more motivated to succeed. They experienced a higher degree of attachment to their college and adapted better emotionally. That higher attachment to college seems to be closely associated with well-defined personal goals. In the development of emerging adulthood and college transition, personal goals appear to be an important dimension affecting school motivation, as well as depressive symptoms, especially at the beginning of college (Heckhausen et al., 2013). Students who report well-defined goals that they pursue by their own choice present a higher level of emotional, social, and academic adjustment during the first semester of college than students who do not (Conti, 2000). For example in the present study, Patrick expressed:

“My program suits my interests and my personality. That will allow me to become what I want! I am satisfied!” The way in which a student expresses his or her goals also appears to be important. Depressed students tend to formulate their goals with an avoidance (I don’t want to fail in that class) by opposition with an approach formulation (I want to success in this class). They also tend to express more abstract and less specific goals (Dickson & MacLead, 2004), a tendency that makes it more difficult for them to observe tangible progress toward the achievement of goals and, consequently, contributes to depressive symptoms (Street, 2002). These results are consistent with the general resilience characteristics identified by Arnett (2015), which are planfulness and self-control. The emergent adult’s orientation toward a personal goal, such as succeeding in school or something else, gives a sense of having his/her place in society and protects against emotional distress.

Some variables identified in the first step of the data analysis were identified as significant factors, though they did not reach significance once Bonferroni correction was applied. This was the case for gender, residence, school status and social support, as measured by friends and partner support. The importance of social support is a factor that has been identified as a risk factor for depression and a general resilience factor (Whitton et al., 2013). The results of the present study must be interpreted with caution regarding the fact that these variables were initially identified as significant (see endnote, Table A1) but were then excluded when the statistical threshold was increased. It is possible to suggest that social support and support from a romantic partner remain important elements against depressive symptoms in emerging adults experiencing the college transition. The same process could be applied to gender, which

represents one of the most cited risk factors for depression, and some socio-demographic characteristics, such as the educational level of the parents. When resilience is considered instead of risk, as defined by the presence of family difficulties, being a female or a male does not remain such an important factor. However, because they represent general risk or resilience, these factors, which are well established in previous studies, should be studied in the context of their interaction with other variables, such as cognitive distortions and personal goals, to better understand their role in the resilience process. For instance, the fact of no longer residing with one's parents could be a factor that facilitates the process of establishing a distance from the depressogenic cognitions of one's parents, as suggested by Pargas et al. (2010) for good intellectual abilities. Finally, the results obtained on the time spent working a job did not distinguish resilient from depressed students, suggesting that working during the school year does not have a negative impact on resilience.

Limitations

Several limitations of the present study should be noted. For example, the transversal design did not allow observation of the length of the depressive symptoms after the transition, nor did it consider the presence of depressive symptoms before the college transition. A longitudinal design would be necessary to examine the stability of depressive symptoms and would allow the comparison of resilient students with different categories of depressive students (temporary and persistent depressed). Additionally, a longitudinal design would make it possible to examine the sequential or temporal relationship between the variables associated with resilience. Also, in the present study the categories of resilience factors were examined separately. A future extension of this

study could include the exploration of interactive models between personal, school, demographic, and family factors to predict resilience. Finally, in the present study, the perception of the student was the main measure, whereas data obtained from teachers could provide another facet of the students' functioning.

Ethical Approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Conclusion

These results suggest that resilience is closely associated with some individual factors, such as cognitive distortions and personal goals. Students who were not depressed despite lower family functioning, reported a lower level of cognitive bias as the tendency to think that a person must be approved and loved by everyone to achieve a sense of personal value. School-related factors (e.g., school motivation, attachment and emotional adjustment to college), although not identified as central, remain important factors associated with resilience. The identification of these resilience factors will benefit the design of targeted interventions for the counseling process. In addition, the development of prevention programs that include learning healthy ways of thinking about relationships and that help students to develop their personal goals could be an effective means for higher education institutions to promote resilience in students at risk of depression (Marcotte et al., 2018).

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Appendix

Table A1

Comparisons of Resilient and Depressed Students in Socio-Demographic Variables

Variables	Values	Depressed (*N* = 52)	Resilient (*N* =42)	Statistical Test and *p* value
Gender	Male	38,5%	61,5%	$\chi^2(1) = 7{,}663$; $p < .006$; N.S.
	Female	67,3%	32,7%	
School status	New student (1st year)	65,5%	34,5%	$\chi^2(1) = 4{,}441$; $p < .035$; N.S.
	Older student	43,2%	56,8%	
Residence	With parents	92,3%	7,7%	$\chi^2(1) = 7{,}783$; $p < .005$; N.S.
	Out of family	25,0%	75,0%	
School degree of the mother	Primary	44,4%	55,6%	$\chi^2(3) = 1{,}203$; N.S.
	High School	47,5%	52,5%	
	College	59,3%	40,7%	
	University	52,2%	47,8%	
School degree of the father	Primary	50,0%	50,0%	$\chi^2(3) = 0{,}969$; N.S.
	High School	53,8%	46,2%	
	College	60,0%	40,0%	
	University	52,6%	47,4%	
Time (Hours) spent working in a job	None	51,9%	48,1%	$\chi^2(3) = 1{,}058$; N.S.
	Between 1-12h	65,0%	35,0%	
	Between 13-17h	50,0%	50,0%	
	More than 17h	54,5%	45,5%	

Note. For significant results that became non-significant following Bonferroni correction, the p values are indicated

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Table A2

Comparisons of Resilient and Depressed Students on School Related Variables

Variables	Values	Depressed (*N* = 52)	Resilient (*N* = 42)	Statistical Test and *p* value
Academic performance (self-reported)	Above Average Average Below Average	34,8% 56,1% 84,6%	65,2% 43,9% 15,4%	$\chi^2(2) = 8,429$; $p < .015$; N.S.
Time (hours) spent in studying	Below 6h Between 6-9h Above 9h	56,8% 60,0% 28,0%	43,2% 40,0% 72,0%	$\chi^2(3) = 10,231$; $p < .045$; N.S.
Studies program	Technic Pre-university	49,0% 61,4%	51,0% 38,6%	$\chi^2(1) = 1,436$; N.S.
School motivation	*M* = 42,01 *SD* = 8,80	*M* = 48,93 *SD* = 4,05	*F*(1,92) = 22,069	$p < .001$***
Attachment to college	*M* = 32,03 *SD* = 9,25	*M* = 38,33 *SD* = 8,01	*F*(1,92) = 12,101	$p < .001$***
Emotional adjustment to college	*M* = 20,88 *SD* = 7,92	*M* = 30,53 *SD* = 7,41	*F*(1,92) = 36,403	$p < .001$***
Academic adjustment to college	*M* = 27,73 *SD* = 5,27	*M* = 31,14 *SD* = 7,31	*F*(1,92) = 6,887	$p < .010$; N.S.

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Table A3

Comparisons of Resilient and Depressed Students on Social Variables

Variables	Values	Depressed (*N* = 52)	Resilient (*N* = 42)	Statistical Test and *p* value
Romantic relationship	Yes No	46,8% 63,8%	53,2% 36,2%	$\chi^2(1) = 2{,}755$; N.S.
Live with partner	Yes No	38,5% 55,0%	61,5% 45,0%	$\chi^2(1) = 1{,}074$; N.S.
Sexual orientation	Heterosexual Homo/bisexual	51,4% 64,7%	48,6% 35,3%	$\chi^2(1) = 0{,}992$; N.S.
Time spent with the partner (months)	*M* = 14,89 *SD* = 10,60	*M* = 22,99 *SD* = 17,14	*F*(1,92) = 4,353	*p* < .005; N.S.
Conjugal satisfaction	*M* = 5,90 *SD* = 3,54	*M* = 8,43 *SD* = 3,63	*F*(1,92) = 8,977	*p* < .004; N.S.
Absence of conflict in the couple	*M* = 8,31 *SD* = 2,65	*M* = 9,18 *SD* = 2,65	*F*(1,92) = 1,927	N.S.
Intimacy in the couple	*M* = 7,87 *SD* = 3,63	*M* = 9,25 *SD* = 7,87	*F*(1,92) = 2,805	N.S.
Friends support	*M* = 22,48 *SD* = 4,27	*M* = 24,33 *SD* = 4,83	*F*(1,92) = 3,881	*p* < .050; N.S.

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Table A4

Comparisons of Resilient and Depressed Students on Personal Variables

Variables	Values	Depressed (*N* = 52)	Resilient (*N* = 42)	Statistical Test and *p* value
Medication	Yes No	55,6% 56,0%	44,4% 44,0%	$\chi^2(1) = 0{,}001$; N.S.
Psychological services	Yes No	67,4% 45,1%	32,6% 54,9%	$\chi^2(1) = 4{,}712$; $p < .030$; N.S.
Academic services	Yes No	83,3% 51,2%	16,7% 48,8%	$\chi^2(1) = 4{,}368$; $p = .037$; N.S.
Dysfunctional attitudes related to achievement	*M* = 17,06 *SD* = 4,48	*M* = 12,97 *SD* = 5,21	*F*(1,92) = 16,641	$p < .001$***
Dysfunctional attitudes related to dependency	*M* = 18,09 *SD* = 4,43	*M* = 13,33 *SD* = 4,78	*F*(1,92) = 24,970	$p < .001$***
Anxiety	*M* = 21,00 *SD* = 10,26	*M* = 10,38 *SD* = 7,*82*	*F*(1,92) = 30,581	$p < .001$***
Delinquent behaviors	*M* = 2,67 *SD* = 1,88	*M* = 2,30 *SD* = 1,88	*F*(1,92) = 0,866	N.S.
Personal goals	*M* = 28,06 *SD* = 8,88	*M* = 44,07 *SD* = 10,08	*F*(1,92) = 66,899	$p < .001$***
Vocational goals	*M* = 18,03 *SD* = 6,79	*M* = 21,86 *SD* = 5,90	*F*(1,92) = 8,235	$p < .005$; N.S.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table A5

Multiple Linear Regression Analysis of the Variables Most Associated With Resilience

	Standardized Coefficients			95.0% Confidence Intervals for *B*	
Model	**Beta**	***t***	**Sig.**	**Lower threshold**	**Upper threshold**
Academic motivation	-.106	-1.082	.282	-.019	.006
Attachment to college	-.022	-.228	.820	-.011	.009
Emotional adjustment to college	-.163	-1.723	.088	-.019	.001
Dysfunctional attitudes related to achievement	-.005	-.055	.956	-.019	.018
Dysfunctional attitudes related to dependency	.227	2.411	.018	.004	.040
Anxiety	.135	1.418	.160	-.003	.015
Personal goals	-.356	-3.146	.002	-.024	-.005
(Constant)		7.234	.000	1.587	2.790

Note. Characteristics of the model: adjusted R^2 = .505; F = 14,534; p < .0001

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