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Stressful Life Events and Psychosomatic Symptoms Among Students Smokers and Non-smokers

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The objective of this study is to analyze the rate of stressful life events and psychosomatic symptoms among students smokers and non-smokers and examine the predictive contribution of stress and smoking to subjective health status. Methods were conducted on a convenience sample of 200 students from the University of Mostar, with a median age of 21 (inter-quartile range, three). Exposure to stress was determined using the scale of stressful life events, which assesses social alienation, time pressure, academic failure, everyday social conflicts and academic maladjustment. Psychosomatic symptoms were explored by the questionnaire of psychosomatic symptoms, which assesses gastrointestinal, dermatological, musculoskeletal, pseudoneurological, cardiovascular, flu and cold symptoms. Students were divided into a group of smokers and non-smokers. A group of non-smokers consisted of 101 students who had never smoked, while group of smokers consisted of 99 students who smoke at least three cigarettes per day. The significant differences of results in stressful live events between smokers and non-smokers were obtained for the subscales of social alienation, academic failure and everyday social conflicts. Smokers differed from non-smokers in rate of gastrointestinal, musculoskeletal, cardiovascular symptoms and the symptoms of flu and cold. Exposure to stressful life events and smoking were significant predictors of psychosomatic symptoms. The results showed that stressful life events related to academic failure and social relation were important variables in understanding the smoking. Subjective psychological and physical symptoms were most frequently prevalent in smokers compared to non-smokers. Exposure to stressful life events and smoking predicted difficulties in psychological subjective health status.

Keywords: academic failure, psychosomatic symptoms, smoking, social alienation, students

Introduction

Smoking is one of the leading public health problems which cause morbidity and premature mortality. World Health Organization (2009) reported that smoking is responsible for more than five million deaths in the general population. Although the impact of smoking on health and mortality is seen mostly in the middle and older age, there is no doubt that cigarette smoking is a habit gained and settles down in adolescence (Paavola, Vartiainen, & Puska, 1996). Previous studies have shown that about 90% of adults began smoking before 21 (American Lung Association, n.d.).

Students' life brings changes in academic, but also social environment, which can result in stress that manifests itself in increased consumption of harmful substances (alcohol and nicotine products). The

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difficulties of financial nature, as well as the time pressures associated with the organization of free time, exam preparation, etc. (Misra, 2000) are also sources of stress in the student population. Students of the first year of college are especially vulnerable group because of the inherent conflict and frustration that occurs due to new responsibilities, and because of dealing with unfamiliar and new situations (Misra, 2000). In addition, they often do not have social support and successful skills in coping with various stressful situations they face (Allen & Heibert, 1991).

These stressors related to students' lives can have a negative impact on health and are associated with more frequent physical and psychological symptoms (Murberg & Bru, 2007; Torsheim & Wold, 2001). In fact, frequently experiencing stress contributes to the expression of psychosomatic symptoms, especially among youth (DeLongis, Coyne, Dakof, Folkman, & Lazarus, 1982; Greene & Walker, 1997; Poikolainen, Kanerva, & Lonnqist, 1995). Also, studies have shown that, unlike major stressful life events, everyday stressful situations are better predictors of psychological (C. K. Holahan, C. J. Holahan, & Belk, 1984; Wagner, Compas & Howell, 1988) and physical health in adolescents (DeLongis et al., 1982; Zarski, 1984).

Investigation of exposure to stressful life events and the prevalence of psychosomatic symptoms in adolescents are important, because it may help in better understanding whether adolescents are at risk for developing psychological problems such as anxiety and depression, and also at possibility of developing behaviors such as smoking. Furthermore, most researchers examined the specific aspects of stressful life events ignoring the daily sources of psychosocial stress that includes interpersonal issues, such as conflicts with colleagues, professors, lower success than expected, excessive requirements of courses, etc., which are important for health status.

Based on the above, we can expect differences in various stressful life events, such as conflict and frustration, social alienation, academic failure at the time of study among students who smoke and those who do not consume tobacco products. Differences in the prevalence of stressful life events, as well as differences in cigarette consumption, could contribute to differences in the frequency of psychosomatic symptoms, since the stress and smoking have significant impact on health status (Murberg & Bru, 2007; Torsheim & Wold, 2001).

The aims of this study were to investigate, if there are differences in exposure to stressful live events, as well in the psychosomatic symptoms among student smokers and non-smokers, and to examine predictive contribution of stressful life events and smoking to psychosomatic symptoms.

Methods

Participants

The study included 216 students (163 females and 53 males) at the University of Mostar, ranging in age from 19 to 26 years. Results of 16 participants with chronic diseases were excluded from the analysis. For the purpose of this study, participants were divided into groups of smokers (N = 99, 49.50%) and non-smokers (N = 101, 50.50%). Classification of the participants into smokers and non-smokers was performed on the basis of their assessment whether they smoked, and if they smoked, specifying the number of cigarettes that they smoke per day. A group of smokers consisted of students who smoke at least three cigarettes per day. Maximum number of smoked cigarettes was 60. Mean score of smoked cigarettes was 7.79 (SD = 11.13). Smokers and non-smokers did not differ in age (F = 2.62, p > 0.10, df = 1/198) and gender (χ^2 = 0.02, p > 0.05, df = 1). Furthermore, participants were also divided on the basis of age and

year of college on a group of younger students (first and second year of study, from 19 to 21 years, N = 113, 56.50%) and in a group of older students (third and fourth years of study, from 22 to 26 years, N = 87, 43.50%).

Instruments

For the purpose of this study, a questionnaire was constructed with socio-demographic data. Questionnaire included data on student sex, age, year of study, diagnosis of chronic disease and smoking status. When it comes to smoking status, participants were asked if they smoked cigarettes, if they had ever smoked in life, if they did smoke and how long they had been smoking. Participant who smoked needed to say the number of cigarette they smoke per day.

Exposure to stressful events was examined using a scale of stressful life events (inventory of college students' recent life experience), which was constructed for examining the stress on Canadian students (Kohn, Lafreniere, & Gurevich, 1990). Its use in this study was approved by the authors of the questionnaire.

The scale consists of 49 items, and the respondents were asked to rate the extent of their experience with stressful events over the past month in the 4-point scale (from 1 = "Not at all part of my life" to 4 = "Very much part of my life"). Original scale has seven subscales: developmental challenge, time pressure, academic alienation, romantic problems, assorted annoyances, general social mistreatment and friendship problems.

Kohn et al. (1990) noted that in a sample of Canadian, students' reliability of the scale was 0.88 for male students and 0.89 for female students, while the reliability for seven subscale ranges from 0.47 to 0.80.

In this study, we also examined the factor structure of the scale of stressful life events. Common factor analysis with varimax rotation yielded five factors, which were interpreted as social alienation, time pressure, academic failure, everyday social conflicts and academic maladjustment. Alpha coefficients of internal consistency obtained in this study showed an acceptable reliability ranging from 0.70 to 0.80. Alpha coefficient for the whole scale was 0.89.

To examine the frequency of prevalence of subjective physical and psychological symptoms in a sample of students, a questionnaire of psychosomatic symptoms was constructed. The questionnaire consists of 32 items and respondents are asked to rate the frequency of symptom occurrence during the preceding one month using a Likert-type scale from 1 ("Never") to 5 ("Everyday").

Exploratory factor analysis was conducted on all 32 items of questionnaire of psychosomatic symptoms in order to examine the factor structure of the questionnaire using analysis of common factors with varimax rotation. This factor analysis yielded three non-interpretable factors. Therefore, the confirmatory factor analysis was conducted using principal components analysis with varimax rotation, and six factors were extracted, which were interpreted as gastrointestinal symptoms, dermatological symptoms, musculoskeletal symptoms, pseduoneurological symptoms, cardiovascular symptoms and symptoms of flu and cold.

Alpha coefficients of internal consistency obtained in this study showed an acceptable reliability ranging from 0.64 to 0.81. Alpha coefficient for the whole scale is 0. 90.

Data Collection

Data were collected in the summer semester of 2009 during the lectures. Questionnaires were group applied (the study units) and were not limited in time. On average, it lasted for 15 minutes. In the instructions to

the participants, the anonymity of data was emphasized and it was explained how to fill the questionnaire. Each participant first filled out the questionnaire with socio-demographic data, while sequence of filling the scale of stressful life events and questionnaire of psychosomatic symptoms was rotated by the principle of ABBA (A = scale of stressful life events and B = scale of psychosomatic symptoms). Thus, half of participants first filled the scale of stressful life events, and then questionnaire of psychosomatic symptoms, while the other half of participants worked inversely.

Data Analysis

Analysis of the results included testing the difference among smokers and non-smokers in different stressful life events and the psychosomatic symptoms. Also, analysis included the determination of significant variables that differentiate smokers from non-smokers, as well as the significant predictors of psychosomatic symptoms with a model of regression analysis. Statistical analysis was done using statistica 7.0 (StatSoft, Inc., Tulsa, O.K., USA).

Results

To determine the difference in the exposure to stressful life events between smokers and non-smokers, we used one-way analysis of variance. The results of analysis of variance, as well as the mean and standard deviation for each type of stressful life events in smokers and non-smokers are shown in Table 1. It was found that smokers differ from non-smokers on the subscales of social alienation, academic failure and everyday social conflict, where smokers achieved higher scores compared to non-smokers.

Table 1

Mean Scores on the Scale of Stressful Life Events for Non-smokers and Smokers and F Ratios for Each Subscale of Stressful Life Events

Scale of stressful life events	Non-smokers	Smokers	F (p)
	Mean ± standard deviation	Mean ± standard deviation	
Social alienation	12.93 ± 3.38	14.42 ± 3.44	F= 9.58, p = 0.00
Time pressure	18.35 ± 4.72	18.93 ± 4.83	F = 0.74, p = 0.38
Academic failure	16.27 ± 4.35	18.20 ±4.75	F = 9.01, p = 0.00
Everyday social conflicts	21.13 ± 5.25	23.14 ± 5.84	F = 6.58, p = 0.00
Academic maladjustment	8.92 ± 2.90	8.85 ± 2.67	F = 0.03, p = 0.85

Notes. F = F ratio; p = level of significance.

Furthermore, we found only significant effect of age on exposure to stressful life events for the subscale of social alienation (F = 4.83, df = 1/198, p = 0.02). Younger participants more often experience social alienation than older participants. Also, significant effect of age was found in the number of consumed cigarettes (F = 4.15, df = 1/198, p = 0.04). Younger students consumed more cigarettes than older students.

Differences in the prevalence of psychosomatic symptoms among smokers and non-smokers were found to be statistically significant (see Table 2). Smokers achieved higher scores than non-smokers on the subscales of gastrointestinal, musculoskeletal, cardiovascular symptoms, and symptoms of flu and cold. The difference in the prevalence of psychosomatic symptoms between younger and older students were found only for the subscale of cardiovascular symptoms, where younger students achieved higher scores than the older one (F = 4.37, df = 1/198, p = 0.03).

Table 2

Mean Scores on the Questionnaire of Psychosomatic Symptoms for Non-smokers and Smokers and F Ratios for Each Subscale of Psychosomatic Symptoms

Questionnaire of psychosomatic symptoms	Non-smokers	Smokers	F (p)
	Mean ± standard deviation	Mean ± standard deviation	
Gastrointestinal symptoms	12.87 ± 4.48	14.10 ± 4.87	$F = 4.72$ $p = 0.03$
Dermatological symptoms	4.72 ± 2.26	4.91 ± 2.44	$F = 0.31$ $p = 0.57$
Musculoskeletal symptoms	6.10 ± 2.00	7.72 ± 2.53	$F = 6.44$ $p = 0,01$
Pseudoneurological symptoms	8.82 ± 2.80	9.30 ± 3.23	$F = 1.26$ $p = 0.23$
Cardiovascular symptoms	8.57 ± 3.53	9.63 ± 3.74	$F = 4.19$ $p = 0.04$
Symptoms of flu and cold	10.29 ± 3.21	11.31 ± 3.83	$F = 4.13$ $p = 0.04$

Notes. $F = F$ ratio; p = level of significance.

Analysis of the results included conduction of discriminant analysis to determine variables in which smokers and non-smokers mostly differ. Discriminant analysis resulted in extraction of one statistically significant function (see Table 3). In order to accurately determine which subscales defined discriminant function, we considered partial correlation of each subscales with obtained discriminant function. The correlations are shown as structural matrix in Table 4. It is apparent, by looking at the table, that the discriminant function is largely defined with subscales of social alienation and academic failure, while in a lesser extent with other subscales.

Table 3

Results of Discriminant Analysis of Differences in Psychosomatic Symptoms and Stressful Life Events for Non-smokers and Smokers

Discriminant function	Centroids		χ^2	Variance (%)	df	p
	Non-smokers	Smokers				
	-0.35	0.35	22.89	100.00	11	0.01*

Notes. χ^2 = chi square; df = degree of freedom; p = level of significance; $^*p < 0.05$.

Table 4

Structural Matrix of Discriminant Function-Partial Correlation of Each Subscale of Psychosomatic Symptoms and Stressful Live Events With Discriminant Function

	Discriminant function
Social alienation	0.61*
Academic failure	0.60*
Everyday social conflicts	0.51
Musculoskeletal symptoms	0.50
Cardiovascular symptoms	0.41
Gastrointestinal symptoms	0.37
Symptoms of flu and cold	0.30
Pseudoneurological symptoms	0.22
Time pressure	0.17
Dermatological symptoms	0.11
Academic maladjustment	-0.03

Note. * The largest absolute correlation between the each subscale and discriminant function.

Furthermore, analysis of the results included conduction of hierarchical multiple regression analysis after

calculating Pearson correlation coefficients to assess the successive contribution of different variables to the prediction of psychosomatic symptoms scores. Predictive variables included demographic characteristic (such as sex, age and number of consumed cigarettes). Different types of psychosomatic symptoms were used as a criterion variable. Multiple correlation coefficients (R) with statistical significance are shown in Table 5. Predictive variables together explained 22.82% of variance of gastrointestinal symptoms. Four predictive variables that provided a significant contribution to the prediction of psychosomatic symptoms were sex (β = 0.14, $p < 0.01$), number of smoked cigarettes ($\beta = 0.14$, $p < 0.01$), academic failure ($\beta = 0.26$, $p < 0.001$) and everyday social conflict ($\beta = 0.19$, $p < 0.001$). The predictive variables explained 6.70% of variance of dermatological symptoms and significant contributing variable was academic failure ($\beta = 0.15$, $p < 0.01$). Furthermore, the predictive variables together explained 10.43% of variance musculoskeletal symptoms. One variable that provided a significant contribution to prediction of these criterion variables was number of smoked cigarettes ($\beta = 0.15$, $p = 0.16$). For the criterion variable of pseudoneurological symptoms, 29.57% of variance was explained by all predictive variables together. Sex provided significant contribution to the prediction of this criterion variable ($\beta = 0.26$, $p < 0.001$). All predictive variables together explained 26.72% of variance of cardiovascular symptoms as a criterion variable. Three predictive variables that provided a significant contribution to the prediction of cardiovascular symptoms were age ($\beta = 0.15$, $p < 0.001$), number of smoked cigarettes ($\beta = 0.19$, $p < 0.001$) and social alienation ($\beta = 0.22$, $p < 0.001$). For symptoms of flu and cold as criterion variables, the variance explained was 21.08%. Three variables that provided a significant contribution to the prediction of symptoms of flu and cold were number of smoked cigarettes ($\beta = 0.19$, $p < 0.05$), academic failure ($\beta = 0.20$, $p < 0.001$) and everyday social conflict ($\beta = 0.20$, $p < 0.001$).

Table 5

Hierarchy Regression Analysis of Possible Predictors of Psychosomatic Symptoms Based on Summative Scores of Students on Subscales of Questionnaire of Psychosomatic Symptoms ¶

Added group of predictors†	Questionnaire of psychosomatic symptoms											
	Gastrointestinal		Dermatological		Musculoskeletal		Pseudoneurological		Cardiovascular		Symptoms of flu and cold	
	R‡	R^2§	R	R^2	R	R^2	R	R^2	R	R^2	R	R^2
Demographic	0.23	0.05**	0.07	0.00	0.15	0.02	0.30	0.09***	0.29	0.08***	0.21	0.04*
Demographic + stressful life events	0.46	0.21***	0.33	0.11**	0.36	0.13***	0.49	0.24***	0.47	0.22***	0.46	0.21***
Percent of explained variance		22.82		6.70		10.43		29.57		260.72		21.08

Notes. ¶ A new group of predictors was included in each further step of analysis; † Demographic predictors included sex, age and number of smoked cigarettes, and stressful life events predictors include social alienation, time pressure, academic failure, everyday social conflicts and academic maladjustment, ‡ Multiple correlation coefficients; § Percentage of variance explained by the inclusion of a new group of predictors; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

To explore the relationship between smoking and stressful life events, we calculated Pearson correlation coefficients (see Table 6). A significant positive association was found between smoking and social alienation, smoking and academic failure, as well as between smoking and everyday social conflict. Also, we calculated the correlation between smoking and psychosomatic symptoms. We found significant correlation between smoking and gastrointestinal, musculoskeletal, cardiovascular symptoms, as well as between smoking and symptoms of flu and cold (see Table 6). Furthermore, correlation was calculated between stressful life events and psychosomatic symptoms, too. Pearson correlation coefficient was not statistically significant between time

pressure and dermatological symptoms, as well as between time pressure and cardiovascular symptoms. Other correlations were statistically significant at the risk level of 5% (see Table 7).

Table 6

Pearson Correlation Coefficients Between Stressful Life Events and Smoking, as Well as Between Psychosomatic Symptoms and Smoking

	Number of smoked cigarettes per day
Scale of stressful life events	
Social alienation	0.20*
Time pressure	0.03
Academic failure	0.20*
Everyday social conflicts	0.19*
Academic maladjustment	-0.05
Questionnaire of psychosomatic symptoms	
Gastrointestinal symptoms	0.16*
Dermatological symptoms	0.06
Musculoskeletal symptoms	0.16*
Pseudoneurological symptoms	0.13
Cardiovascular symptoms	0.21*
Symptoms of flu and cold	0.20*

Note. $^{*}p < 0.05$.

Table 7

Pearson Correlation Coefficients Between Stressful Life Events and Psychosomatic Symptoms

	Social alienation	Time pressure	Academic failure	Everyday social conflicts	Academic maladjustment
Gastrointestinal symptoms	0.31*	0.19*	0.28*	0.27*	0.32*
Dermatological symptoms	0.13*	0.07	0.19*	0.27*	0.16*
Musculoskeletal symptoms	0.30*	0.24*	0.26*	0.30*	0.29*
Pseudoneurological symptoms	0.27*	0.20*	0.28*	0.28*	0.31*
Cardiovascular symptoms	0.12*	0.02	0.13*	0.23*	0.18*
Symptoms of flu and cold	0.31*	0.19*	0.28*	0.27*	0.32*

Note. $^{*}p < 0.05$.

Discussion

The results of this study showed that there were statistically significant differences between smokers and non-smokers in the subscales social alienation, academic failure and everyday social conflicts. Smokers have achieved higher scores on these subscales than non-smokers. These results indicate that the smokers compared to non-smokers are more socially alienated and have poorer quality of social relationships and social support. The effects of age on the experience of social alienation were also found, as well as in the number of consumed cigarettes. The results are in accordance with findings that students of the first year of college are particularly vulnerable groups of participant because of lack of social support and effective skills in coping with various stressful situations they face (Allen & Heibert, 1991). Strategies of coping with stress, besides for life demands, depend on social support (Williams & McGillicuddy-De Lisi, 2000). Younger participants experienced less social support and therefore resort to ineffective strategies for coping with stress, such as consumption of

cigarettes. Specifically, students of younger years of study may perceive that the consumption of cigarettes makes it easier to perform everyday obligations because of the positive subjective effects of nicotine on minimizing the stress and tension, as well as improving social functioning, so they start with its consumption (Patton et al., 1998).

According to it, the lack of support, especially support of friends, as well as parents are the primary factor of smoking initiation and maintenance of smoking (Kobus, 2003; Simons-Morton, 2002), which is in accordance with the results of our study. However, smoking may represent a way of coping with academic problems. In this sense, smoking is a direct response to social problems and difficulties with academic goals, so students begin to smoke in order to cope with their difficulties. Also, discriminant analysis resulted in the separation of one statistically significant discriminant function that is largely defined with subscales social alienation and academic failure, while to a lesser extent by other subscales. Considering the contents of the subscales, social alienation and academic failure, we can conclude that smokers and non-smokers differ mostly in the quality of social relationships, in other words, in perceived social support, as well as in the difficulties associated with achieving academic goals.

Furthermore, stressors related to students' lives can have negative impact on health, and are associated with more frequent physical and psychological symptoms (Murberg & Bru, 2007; Torsheim & Wold, 2001). The results of our study showed the association between stressful life events and psychosomatic symptoms. An important feature of this study is that it examined how everyday stressful situations, as opposed to major stressful live events, affect smoking and prevalence of psychosomatic symptoms.

We also found significant positive correlation between smoking and gastrointestinal, musculoskeletal, cardiovascular symptoms, as well as symptoms of flu and cold. Also, the analysis of the results showed significant differences in the symptoms between smokers and non-smokers. Hierarchical multiple regression analysis showed that smoking was a significant predictor of these symptoms. According to it, smoking explains an increased risk of gastrointestinal, musculoskeletal, cardiovascular symptoms and symptoms of flu and cold. Consumption of cigarettes increases the secretion of gastric acid and thereby causes numerous digestive disorders (Slovic, 2001). Furthermore, researchers believe that nicotine, by reducing blood flow and causing hypoxia, leads to increased degeneration of muscles, joints and discs or, in other words, to musculoskeletal disorders (Inoue & Harada, 2002). Also, reduction in bone density, which is often observed in smokers as a result of nicotine, leads to a number of musculoskeletal symptoms (Porter & Hanley, 2001). When it comes to cardiovascular symptoms nicotine increases heart rate, blood pressure and narrows blood vessels, so it makes the circulation difficult and causes irregular heartbeat and rapid breathing (Rose, Behm, & Westman, 2001). Due to smoking, body absorbs minerals and vitamin heavier, especially vitamin C, which is an important element in the defense system (Ebesunun, Adetunji, & Umahoin, 2011; Schectman, Byrd, & Gruchow, 1989). Smoking has a negative impact on body cells, lymphocytes, so it compromises immune systems by increasing the tendency of suffering from flu and cold (Geng et al., 1996; Skok, Grailhe & Changeux, 2005).

However, factors that further explain the risk of these symptoms are exposure to stressful events. Occurrence of psychosomatic symptoms is highly sensitive to changes in the functioning of the neuroendocrine system, particularly of the sympathetic, which is responsible for the first reaction of the organism to stress. During the perception of stress, the sympathetic-adrenal-medullary component of the neuroendocrine system begins with the release of epinephrine, norepinephrine and others catecholamine in the blood, which leads to various changes in the body, such as increased glucose in blood, blood pressure, breathing rate and also

increasing blood flow from the skin and digestive organs to the cross-striped muscles.

Stressors of important significance for the prediction of psychosomatic symptoms were shown to be the stressor related to achievement of academic goals and those ones related to the perception of conflicts and disappointment from the social environment. It was found that sex and age are also important in predicting psychosomatic symptoms besides the variables of stress. Sex was found to be a significant predictor of pseudoneurological and gastrointestinal symptoms. The frequency of these symptoms varies among men and women. These symptoms, particularly headache and abdominal pain are more pronounced among women than men, because they are often the result of hormonal changes (Celentano, Linet, & Stewart, 1990; Goldman & Hatch, 2000; Labbe, Murphy, & O'Brien, 1996). In our study, age was a significant predictor of cardiovascular symptoms. Analysis of variance showed difference among younger and older students in the prevalence of cardiovascular symptoms. Younger participants more frequently expressed cardiovascular symptoms, compared to older ones. Furthermore, it was found that social alienation is an important predictor of cardiovascular symptoms, which contributes to the interpretation of these results. Younger participants in this study experienced more social alienation compared with older ones. For the students of first year of study, coming to college is a completely new situation which brings many changes in their lives. Specifically, freshmen have to make new social contacts in order to socially adapt to study. Until they gain new friends and develop a sense of belonging to their new community, students may be more likely to feel lonely (Taylor, Peplau, & Sears, 2000). Indeed, previous studies provide consistent finding about association between the incidence of cardiovascular symptoms and psychosocial factor of social isolation (Blazer, 1982; Holt-Lunstad, Uchino, Smith, Olson-Cerny, & Nealey-Moore, 2003; Levenstein, Smith, & Kaplan, 2001). In such a relationship, smoking has an important influence which can lead to many cardiovascular diseases, because it was found to be significant in predicting these symptoms.

In the future research, it would be important to investigate different types of support from parents, as well as from friends in exposure to stress and subjective health status. Also, it would be important to examine the psychosocial factors associated with smoking among students who must move to a new environment because of college. These students additionally experience stress, because they are leaving the home for the first time and separate from their parents for a longer period of time. In addition, they must become more independent in all aspects of life, which requires them to master many new skills and also creates feeling of pressure, so it could be expected to be reflected in their health and behaviors. Furthermore, it would be important to conduct research with parallel use of subjective and objective measures of stress and health status.

In the end, it is necessary to point out some methodological limitations of our study. Some of them arise from self-appraisals and transversal design of research, and some from the tested sample. Specifically, the sample is by many characteristics relatively homogeneous, making it difficult to generalize the results to the sample of students of other study groups. One of the limitations of this study is related with the use of measure of smokers' status, which involves only two items. Although such measures are used in previous studies, they do not include other content aspects of smoking, which should be taken into account in future research.

Conclusions

The results of this study suggest that stressful life events may be important variables in understanding smoking. Smokers characterize higher scores on a scale of social alienation, academic failure and everyday social conflicts. When it is about assess of the prevalence of psychosomatic symptoms, the results showed

significant differences in the prevalence of these symptoms between smokers and non-smokers. Smokers achieved higher scores than non-smokers in the subscales of gastrointestinal, musculoskeletal, cardiovascular symptoms and symptoms of flu and cold. In addition, smoking and stressful life events were shown to be a significant predictor of psychosomatic symptoms.

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