Anxiety predictors among college students in Kosovo

Mimoza Kamberi, Fatbardha Hoxha, Merita Shala, Mimoza Shahini and Shemsedin Vehapi

ABSTRACT
This cross-sectional study aimed to investigate the prevalence and anxiety predictors among college students in Kosovo. Participants were 676 randomly sampled college students (M = 21.54, SD = 4.44), selected from three universities (two private) in the 2015/2016 academic year. Pearson chi-square, t-Test, ANOVA, linear and multiple regressions were used. The prevalence of anxiety was 33.6%. The symptoms were significantly related to gender (p = .00), study year (p = .00), family income (p = .00), group age (p = .00) and father’s employment (p = .00). Female students, students living in extended family, first-year students, students whose mothers did not work, showed statistically higher levels of anxiety. Anxiety was predicted by gender, study year, previous study academic achievement and family income. Study findings stress the importance of understanding the relationship of psychosocial factors and anxiety, for the purpose of determining the necessary and adequate interventions and programs.

Introduction
A series of studies have already established that mental health problems in student population can be considered a global concern (Eisenberg, Gollust, Golberstein, & Hefner, 2007; Wong, Cheung, Chan, Ma, & Tang, 2006; Zivin, Eisenberg, Gollust, & Golberstein, 2009). Among those mental health problems anxiety disorders can be considered the most prevalent disorder, with a prevalence of more than 20% (Alonso et al., 2004; Kessler, Chiu, Demler, & Walters, 2005; de Graaf, ten Have, van Gool, & van Dorsselaer, 2012). If we refer to the European region, according to Wittchen et al. (2011), mental disorders, including anxiety and depression, are the second largest contributors to the burden of disease.

According to McCarthy, Fouladi, Juncker, and Matheny (2006) and Williams, Galanter, Dermatis, and Schwartz (2008), the most common concerns reported by college students in counseling centers were anxiety, stress and depression. Gallagher (2007), Hunt and Eisenberg (2010) and Pedrelli, Nyer, Yeung, Zulauf, and Wilems (2015) showed in their studies that the prevalence and severity of significant mental health problems are increasing in the college student population. Other studies show that the distribution and the prevalence of mental health problems have shown higher values in the college student population than in the general population (Stallman, 2010; Dyrbye, Thomas, & Shanafelt, 2006).

The incidence of anxiety in college students is relatively high ranging from 13% (Said, Kypri, & Bowman, 2013), 14.3% (Mustafa, Melonashi, Shkembi, Besimi, & Fanaj, 2015), 33.5% (Simić-Vukomanović et al., 2016), 40.2% (Ran et al., 2016), 41% (Wong et al., 2006), 43.9% (Ibrahim & Abdelreheem, 2015), 46%...
There are a number of factors that have been associated with anxiety level in college students (Ozen, Ercan, Irgil, & Sigirli, 2010). A lot of studies (Bayram & Bilgel, 2008; Ran et al., 2016; Bekker & van Mens-Verhulst, 2007) revealed that female students were more likely than male students to score higher on anxiety, regardless of the instrument used. Eisenberg et al. (2007), also found that females were more than twice as likely as males to screen positive for anxiety disorders.

Bayram and Bilgel (2008) indicated higher anxiety scores among first and second-year students. Bouteyre, Maurel, and Bernaud (2007), Wong et al. (2006) also found that first year students tend to demonstrate higher levels of anxiety.

Overweight and obesity have also shown correlation with anxiety symptoms (Erermis et al., 2004; Anderson, Cohen, Naumova, Jacques, & Must, 2007) and the study carried out by Lanza, Echols, and Graham (2012) revealed that overweight and obese females scored higher than their peers. Negative correlation with the high level of anxiety among students was revealed with the education background of the father (Nerdrum, Rustøen, & Rønnestad, 2006).

Researchers looking at the correlation between anxiety and academic performance, suggest that students with high level anxiety achieve low academic performance (Vitasari, Wahab, Othman, Herawan, & Sinnadurai, 2010; Nadeem, Ali, Maqbool, & Zaidi, 2012).

The goals of this study were (a) to investigate the prevalence of anxiety among 676 college students, (b) to explore possible differences and associations between interest variables, and (c) to determine whether demographic and socioeconomic variables are significant predictors of anxiety.

Methods

Participants and procedure

This was a cross-sectional study. There were 676 students attending three Universities (two private) in Kosovo in the academic year 2015/2016. The students (M = 21.54, SD = 7.44), were randomly sampled from every study year of several faculties.

There were significant distribution differences in most of the demographic variables in the study: gender distribution; place of residence; year of study; order of birth; BMI scales; family income; and family type. The sample sociodemographic characteristics are summarized in Table 1.

The students’ participation was completely voluntary and informed consent was obtained. Ethical approval for the research was obtained from the scientific committee of AAB College.

Instruments

A self-administered questionnaire with demographic and socioeconomic variables was used. Demographic variables included: group age (18–21, 22–25, 26–29, 30–33, 34–37, 38+), gender (male, female), place of residence (city, village), year of study, BMI scale (underweight, normal, overweight, obese), previous study’s AA, faculty’s AA and birth order, while the socioeconomic variables included father’s education, mother’s education, father’s employment status, mother’s employment status and family status (nuclear, expanded).

In the present study the examination scores of the students in their previous study and at the moment of the study, were considered as their academic achievement (AA). The Body Mass Index (BMI) was also calculated. The majority of the students (79%) had normal weight, 10.7% were underweight, and 10.3% were overweight or obese.

The Beck Anxiety Inventory (BAI; Beck & Steer, 1993), as one of the most popular screening and outcome research instruments for measuring the construct of anxiety (Bardhoshi, Duncan, & Erford, 2016), was used. The BAI scale consists of 21 items, scored on a scale ranging from 0 to 3. A total score of 0 to 7 is interpreted as ‘minimal’, 8–15 as ‘mild’, 16–25 as ‘moderate’, and 26–63 as ‘severe’ level of anxiety. The
internal consistency, was $\alpha = .873$ (Female = .870; Male = .863). Our results are slightly lower than the coefficient alpha reported by Bardhoshi et al. (2016) $\alpha = .91$, $k = 56$, $n = 25,917$, and by De Ayala et al., (2005) in their reliability generalization study, which determined an internal consistency (coefficient alpha) estimate across 43 articles of .91.

### Data analysis

All analyses were conducted using SPSS Version 21. Cronbach’s $\alpha$ coefficient was used as an index of internal consistency for the BAI. Descriptive statistics for all demographic and socioeconomic variables and anxiety symptoms were calculated. Pearson’s chi-square test was used to discover if there is a relationship between the categorical variables. T-test and analysis of variance (ANOVA) were used to explore differences between groups, while linear and multiple regressions were used to examine the

**Table 1. Sample characteristics.**

|                         | Frequency (N) | Percentage % | Distribution differences |
|-------------------------|---------------|--------------|--------------------------|
| Gender                  |               |              |                          |
| Male                    | 227           | 33.6         | $\chi^2(1, N = 676) = 72.91, p = .00$ |
| Female                  | 449           | 66.4         |                          |
| Place of residence      |               |              |                          |
| Village                 | 201           | 29.7         | $\chi^2(1, N = 674) = 109.77, p = .00$ |
| City                    | 473           | 70.0         |                          |
| Missing                 | 2             | .3           |                          |
| Study year              |               |              |                          |
| I Year                  | 328           | 48.5         | $\chi^2(2, N = 676) = 73.72, p = .000$ |
| II Year                 | 194           | 28.7         |                          |
| III Year                | 154           | 22.8         |                          |
| Birth order             |               |              |                          |
| I                       | 311           | 46.0         | $\chi^2(5, N = 676) = 505.38, p = .00$ |
| II                      | 144           | 21.3         |                          |
| III                     | 88            | 13.0         |                          |
| IV                      | 74            | 10.9         |                          |
| V                       | 48            | 7.1          |                          |
| VI                      | 11            | 1.6          |                          |
| BMI scales              |               |              |                          |
| Underweight             | 72            | 10.7         | $\chi^2(3, N = 676) = 1061.22, p = .00$ |
| Normal                  | 534           | 79.0         |                          |
| Overweight              | 55            | 8.1          |                          |
| Obese                   | 15            | 2.2          |                          |
| Family type             |               |              |                          |
| Nuclear                 | 498           | 73.7         | $\chi^2(1, N = 597) = 266.67, p = .00$ |
| Extended                | 99            | 14.6         |                          |
| Missing                 | 79            | 11.7         |                          |
| Family income           |               |              |                          |
| Less than 200 €         | 30            | 4.4          | $\chi^2(3, N = 676) = 382.40, p = .000$ |
| 201–350 €               | 97            | 14.3         |                          |
| 351–500 €               | 180           | 26.6         |                          |
| Over 501 €              | 369           | 54.6         |                          |
| Father’s education      |               |              |                          |
| Elementary school       | 46            | 6.8          | Not significant          |
| High school             | 225           | 33.3         |                          |
| Faculty                 | 385           | 57.0         |                          |
| More                    | 20            | 3.0          |                          |
| Mother’s education      |               |              |                          |
| Elementary school       | 168           | 24.9         | Not significant          |
| High school             | 296           | 43.8         |                          |
| Faculty                 | 202           | 29.9         |                          |
| More                    | 10            | 1.5          |                          |
| Father’s employment     |               |              |                          |
| Yes                     | 424           | 62.7         | Not significant          |
| No                      | 64            | 9.5          |                          |
| On occasion             | 165           | 24.4         |                          |
| Pensioner               | 23            | 3.4          |                          |
| Mother’s employment     |               |              |                          |
| Yes                     | 225           | 33.3         | Not significant          |
| No                      | 419           | 62.0         |                          |
| On occasion             | 16            | 2.4          |                          |
| Pensioner               | 16            | 2.4          |                          |
| AA                      | $M$           | $SD$         |                          |
| Previous study          | 8.14          | .81          |                          |
| Faculty (till now)      | 7.54          | .98          |                          |
| Age                     |               |              |                          |
| Female                  | 21.14         | 3.95         |                          |
| Male                    | 22.39         | 5.24         |                          |
possible contribution of demographic and socioeconomic variables in students’ anxiety. The level of significance was set at $p < .05$.

**Results**

The table below represents the socioeconomic and demographic characteristics of participants. Most of them were female, living in the city in their nuclear family with an income of over 501 euro, in the first year of study.

The mean BAI score for anxiety symptoms was 13.23 ($SD = 8.15$). There were 41.1% ($N = 278$) of students who showed mild anxiety level, 24.1% ($N = 163$) showed moderate anxiety level, and 9.5% ($N = 64$) who revealed severe anxiety level.

As indicated in Table 2, anxiety symptoms were significantly related to gender ($p = .00$), study year ($p = .00$), family income ($p = .00$), group age ($p = .00$) and father’s employment ($p = .00$). No statistically significant relationship was found between anxiety symptoms and other interest variables in the study.

T-test analyses revealed statistical gender differences $t(674)=5.47$, $p = .000$, with female students showing higher mean ($M = 14.43$, $SD = 8.23$) than male students ($M = 10.87$, $SD = 7.46$). Same results were found for students living in extended family ($M = 15.37$, $SD = 7.83$) versus students living in nucleus family ($M = 13.60$, $SD = 8.10$). The ANOVA did not reveal statistical differences.

Nevertheless, we entered the groups of sociodemographic variables in a linear regression analysis. The first model for the demographic variables indicated that anxiety was significantly predicted by three variables: gender, study year and previous study AA: ($R^2 = .099$, $R^2_{adj} = .091$), $F(6, 645) = 11.72$, $p = .000$. The second model, with the socioeconomic variables, indicated that anxiety was significantly predicted by family income only: ($R^2 = .025$, $R^2_{adj} = .015$), $F(6, 590) = 2.55$, $p = .019$. Regression models are shown in Table 3.

**Discussion**

This study aimed to investigate the prevalence of anxiety among 676 college students, to explore possible differences and associations between interest variables, and to determine whether demographic and socioeconomic variables might serve as a significant predictor of anxiety.

The results indicated that the prevalence of anxiety symptoms in our sample was 33.6%. Compared to the study of Mustafa et al. (2015), a study that compared the level of anxiety of students from Kosovo and Albania, our results are lower. This may have come as a result of the considerable difference in the sample size in research (62 students participated at Mustafa et al.) and the use of different instruments. Another reason may be that in calculating the prevalence we referred to moderate and severe values of anxiety symptoms. These reasons may be valuable also for the difference in anxiety prevalence level of Albanian students (14.3%) and Kosovar students (32.3%).

Our results are similar with some studies (33.5% in Serbia – Simić-Vukomanović et al., 2016; 31.40% in Romania – Tomşă, Ortiz, Sedano, & Jenaro, 2014), but lower compared to other studies (47.1% in Turkey – Bayram & Bilgel, 2008) and much lower compared to 65.5% in FYR Macedonia (Mancevska et al., 2008), or 64.3% in Egypt (Abdel Wahed & Hassan, 2016).

The present study reported statistically significant differences in anxiety symptoms by gender, with a higher prevalence among female student. These results are consistent with studies of Ran et al. (2016), Abdel Wahed and Hassan (2016), Simić-Vukomanović et al. (2016) and Bayram and Bilgel (2008).

The lower anxiety level in males than in females could be due to societal expectations. Males are not expected to admit their weaknesses, therefore are less likely to be sincere on reporting anxiety. Nevertheless, our findings are not in line with the findings of Singh and Jha (2013) and Živčić-Bećirević, Jakovčić, and Juretić (2011), who did not reveal any differences in anxiety prevalence associated with gender.

Relations between material conditions and socio-psychological processes and behavior have been seen as determinants of health and life expectancy (Kunst et al., 1998). The relation between anxiety
Table 2. Association of anxiety symptoms with demographic and socioeconomic variables.

| Anxiety level (%) | Minimal | Mild | Moderate | Severe | Association values |
|-------------------|---------|------|----------|--------|--------------------|
| Gender            | Male    | 37.9 | 38.3     | 17.6   | \(\chi^2(3, N = 676) = 31.97, p = .00\) |
|                   | Female  | 18.9 | 42.5     | 27.4   | 11.1               |
| Place of residence| Village | 23.9 | 42.8     | 25.9   | 7.5                |
|                   | City    | 26.0 | 40.4     | 23.3   | 10.4               |
| Study year        | I Year  | 17.1 | 40.9     | 31.4   | 10.7               |
|                   | II Year | 25.3 | 43.8     | 21.6   | 9.3                |
|                   | III Year| 42.9 | 38.3     | 11.7   | 7.1                |
| Birth order       | I       | 28.9 | 39.9     | 23.5   | 7.7                |
|                   | II      | 20.8 | 42.4     | 20.1   | 16.7               |
|                   | III     | 18.2 | 45.5     | 27.3   | 9.1                |
|                   | IV      | 24.3 | 40.5     | 28.4   | 6.8                |
|                   | V       | 29.2 | 39.6     | 25.0   | 6.3                |
|                   | VI      | 27.3 | 36.4     | 36.4   | 0.0                |
| Group age         | 18–21 years| 21.3 | 43.0     | 25.3   | 10.4               |
|                   | 22–25   | 25.0 | 41.7     | 25.0   | 8.3                |
|                   | 26–29   | 45.5 | 32.7     | 20.0   | 1.8                |
|                   | 30–33   | 85.7 | 14.3     | 0.0    | 0.0                |
| BMI scales        | Underweight | 15.3 | 54.2     | 22.2   | 8.3                |
|                   | Normal  | 27.2 | 38.8     | 24.5   | 9.6                |
|                   | Overweight | 20.0 | 45.5     | 23.6   | 10.9               |
|                   | Obese   | 26.7 | 46.7     | 20.0   | 6.7                |
| Family type       | Nuclear | 22.3 | 42.6     | 25.9   | 9.2                |
|                   | Extended | 15.2 | 41.4     | 28.3   | 15.2               |
| Family income     | Less than 200 € | 13.3 | 26.7     | 46.7   | 13.3               |
|                   | 201 – 350 € | 20.6 | 41.2     | 27.8   | 10.3               |
|                   | 351 – 500 € | 20.6 | 40.6     | 30.0   | 8.9                |
|                   | Over 501 € | 29.8 | 42.5     | 18.4   | 9.2                |
| Father's employment| Yes    | 19.3 | 44.1     | 25.2   | 11.3               |
|                   | No      | 26.6 | 34.4     | 32.8   | 6.3                |
|                   | On occasion | 38.2 | 35.2     | 20.0   | 6.7                |
|                   | Pensioner | 39.1 | 47.8     | 8.7    | 4.3                |
| Mother's employment| Yes   | 31.6 | 41.8     | 18.7   | 8.0                |
|                   | No      | 22.0 | 40.6     | 27.4   | 10.0               |
|                   | On occasion | 18.8 | 37.5     | 25.0   | 18.8               |
|                   | Pensioner | 31.3 | 50.0     | 12.5   | 6.3                |
| Father's education| Elementary school | 15.2 | 50.0     | 19.6   | 15.2               |
|                   | High school | 27.1 | 36.9     | 27.1   | 8.9                |
|                   | Faculty | 24.7 | 43.4     | 22.9   | 9.1                |
|                   | Higher | 40.0 | 25.0     | 25.0   | 10.0               |
| Mother's education| Elementary school | 20.2 | 43.5     | 21.4   | 14.9               |
|                   | High school | 28.7 | 38.9     | 26.4   | 6.1                |
|                   | Faculty | 24.3 | 42.1     | 23.3   | 10.4               |
|                   | Higher | 30.0 | 50.0     | 20.0   | 0.0                |

Table 3. Linear regression analyses predicting anxiety.

| Model 1          | B     | t     | Sig. | 95.0% Confidence interval for B |
|------------------|-------|-------|------|---------------------------------|
|                   |       |       |      | Lower bound | Upper bound |
| Gender            | −3.085 | −4.698 | .000 | −4.374 | −1.796 |
| Study year        | −1.293 | −3.196 | .001 | −2.087 | −0.499 |
| Previous study AA | 1.424 | 3.452 | .001 | .614   | 2.235  |

and social status carries particular importance in countries like Kosovo, because the low social level is accompanied by a high social tension, caused by rapid class differentiation influenced by the black economy. The relation between social class and income may have little meaning in this study, since incomes in Kosovo are so narrow that they make the creation of class groups difficult.
Certainly, incomes serve as markers for class inequality in the national structure of a country by creating a curvilinear link between personal income and health (Wilkinson & Pickett, 2006). This study is unique in its nature, since the socio-economic status determined to be associated with access to material and social assets, including income, wealth and education background (Gallo & Matthews, 2003), has major discrepancies in our sampling.

Our findings are comparable with a number of studies that have analyzed the link between SES and anxiety, that have had mixed conclusions. In their comparison of 6 studies on the relation between anxiety and SES, Gallo and Matthews (2003) found that only 17% of them supported reverse connectedness, while 33% found no connections.

Psycho-social factors related to income are known to be affected by economic stress caused by economic powerlessness. This powerlessness is closely linked to the feeling of worthlessness and helplessness in controlling individual and family life. One assumption is that this might have led to the finding that individuals from larger families have experienced more anxiety than those from nuclear families. This finding could also have been affected by the fact that students who live in larger families may face more financial problems related to covering the study costs, or even the living costs.

Anxiety has been shown for sure to interfere with people’s overall wellbeing. Early detection of mental health problems is very essential for the purpose of determining the necessary interventions and programs. Since, according to the Strategy 2020 by the World Health Organization (World Health Organization, 2013) strengthening mental health promotion programmes is highly relevant, other in depth studies are needed to examine more thoroughly other factors related to anxiety.

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Disclosure statement

No potential conflict of interest was reported by the authors.

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