Associations of psychological distress, sleep, and self-esteem among Kosovar adolescents

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ABSTRACT
Mental health among children and adolescents is considered a global public health challenge worldwide. The purpose of this paper was to examine the correlates of psychological distress among adolescents living in Kosovo. A sample of 200 adolescents (M = 10.8; SD = .44) were assessed using a variety of measures, including psychological distress, sleep behaviors, and self-esteem. The research findings indicate significant correlations between electronic use, bedtime fears/worries and insomnia, and higher levels of psychological distress among the study sample. The research results show positive correlations between self-esteem and lower levels of psychological distress. An examination of gender differences revealed that females tended to report higher levels of sleep, whereas males reported higher levels of electronic use and psychological distress. The results are discussed within the context of general health, mental health, and wellbeing among Kosovar children.

Introduction
A crucial aspect of overall health for children and adolescents is their mental health, or their ability to successfully perform in terms of their thoughts, feelings, and behaviors. With these abilities, they can perform productive activities, be fulfilled in relationships with others, and have the ability to adapt, change and cope with adversity (Sadock et al., 2009; cited in Kieling et al., 2011). Mental health among adolescents has been considered a global public health challenge in all societies due to the lack of services and shortage of mental health professionals who work with this age group (Patel, Flisher, Hetrick & McGorry, 2007).

There is evidence of an increase in mental health problems among children and adolescents (Schulte-Korne, 2016; cited in Tao et al., 2017), and mental health problems affect 10–20% of children and adolescents worldwide (Kieling et al., 2011). Thus, mental health problems are considered a leading cause of health-related disability in this age group (ibid, pg.2). In addition, worldwide research evidence shows that psychological distress is associated with numerous factors at different levels of social ecology (Pinto et al., 2014), including individual factors (e.g. low self-esteem, depression, anxiety, aggressiveness, sadness, loneliness), family-related factors (e.g. domestic violence, low emotional support, difficulties within family relationships, lack of communication), drug-related factors (e.g. experimentation and drug use), school-related factors (e.g. low performance, drop-out, bulling) and social factors (e.g. experiences
of violence and aggression, sexual abuse, social problems and rules violation, legal problems, poverty) (Pinto et al., 2014).

With regard to individual-level factors associated with mental health, sleep is considered an important factor in the growth, maturation and health of children and adolescents (Cao et al., 2015). A relationship has been found between sleep issues, such as sleep duration, bedtime and bedtime regularity, and the development of depression and anxiety (Wheaton, Perry, Chapman & Croft, 2013). According to several epidemiological studies, short sleep duration or late bedtime is significantly associated with poor mental health, including depression and anxiety among children and adolescents. Furthermore, irregular sleep schedules are associated with poor mental health among the same population (Oshima et al., 2010; Suzuki et al., 2011; Tzichinsky & Shochat, 2011; cited in Wheaton et al., 2013). Poor quality of sleep and shorter sleep duration, according to other research findings, are associated with various other disorders, such as obesity, behavioral problems and decreased cognitive ability (George et al., 2013; Javaheri et al., 2008; Meijer et al., 2010; Morrison et al., 1992; cited in Gunnarsdóttir, 2014).

Furthermore, sleep duration and disturbances have been found to strongly correlate with aggression, hyperactivity, depression, and concentration problems among children and adolescents (Ivanenko, Crabtree, Obrien & Gozal, 2006). The same study indicates that findings from earlier studies in the field demonstrate a strong correlation between major depression and various forms of insomnia among children (Ivanenko et al., 2006).

Poor practices of sleep hygiene and sleep insufficiency, which result in children and adolescents’ inability to have normal, quality nighttime sleep and full daytime alertness, can impair cognitive and behavioral ability (Ofovwe & Ofovwe, 2008; cited in John, 2015), lead to other problems during college years, and affect emotional well-being (Marhefka, 2011; cited in John, 2015).

During recent years, electronics use has been mentioned as one of the strongest indicators of sleep disturbances, sleepiness or poor sleep hygiene (such as sleep delays, sleep duration, sleep patterns, and sleep quality). These disturbances have been found to be associated with psychological symptoms as well (Thomée, Eklöf, Gustafsson, Nilsson & Hagberg, 2004; cited in Tao et al., 2017). Electronics use and exposure has been associated with later bedtimes on weekdays, longer sleep latencies, shorter total sleep times, and later wake up times on weekends (Owens & Adolescent Sleep Working Group, 2014). Furthermore, a correlation among anxiety and insomnia, depression and psychological distress has been found (Jenaro et al., 2007; Yen et al., 2009; Beranuy et al., 2009; cited in Tao et al., 2017). Higher levels of depression and anxiety were found to be more common in a group of adolescents with a delayed sleep phase (Sivertsen, Harvey, Pallesen & Hysing, 2015; cited in Tao et al., 2017).

Self-esteem is considered an important determinant of emotional well-being (Baumeister, Campbell, Krueger & Vohs, 2003; Peterson & Steen, 2002; cited in Fanaj, Melonashi & Shkëmbi, 2015). Research findings demonstrate that poor self-esteem is associated with a broad range of mental disorders, such as depression, suicidal tendencies, eating disorders and anxiety (Mann, Hosman, Schaalma & de Vries, 2004). According to these research findings, the effect of low self-esteem on depression is not significantly influenced by gender (Sowislo & Orth, 2013). Higher self-esteem has been found to be a protective factor against depressive symptoms by decreasing the impact of negative thoughts (Orth, Robins & Meier, 2009).

**Kosovo context**

The prevalence of psychological distress among children and adolescents varies across nations (Kovess-Masfety et al., 2016). However, research shows that there is limited evidence of the mental health status of youth and children from low-developed and developing countries (Patel, Flisher, Nikapota & Malhotra, 2008). Yet, from the existing research findings, conducted among low-income countries, especially within the same age group, children and adolescents from low-income families with parents and caregivers who have a lower level of education and a higher level of unemployment have shown higher rates of mental distress (Lawrence et al., 2015).
Even though 18 years have passed since the war in Kosovo (1998/1999), long-lasting post-war effects on the families of current children and adolescents have been documented. Furthermore, high rates of post-war prevalence of mental disorders among the Kosovar population have been documented (Cardozo, Vergara, Agani & Gotway, 2000; Priebe et al., 2010). The findings from a cross-sectional study that examined lifetime trauma and trauma-related health problems in randomly selected samples of Kosovar school-aged children and their parents (51 triplets) found high rates of PTSD symptoms, anxiety and depression in both generations and strong correlations between children's depressive symptoms and parental posttraumatic stress, anxiety and depression (Schick, Morina, Klaghofer, Schnyder & Müller, 2013). Furthermore, findings from another study conducted found that war-related losses represent a significant risk for adverse mental health and dysfunction in young adulthood (Morina, Lersner and Prigerson, 2011).

With regard to its population composition, Kosovo is considered the youngest country in Europe, with 47.6% of the total population under 25 years old (International Data Base, Population Pyramid Kosovo (2010; cited in Fanaj et al., 2015). However, there is a lack of studies on the prevalence of psychological distress and its interaction with other factors among Kosovar children and adolescents. Research findings from previous studies conducted within this field with the Kosovar population show that emotional and behavioral problems were present among Kosovar children and adolescents (aged 6–18 years old). However, these values are comparable with the same age group in other European countries (Polonia, Lithuania, Romania, Serbia & Croatia; Shahini et al., 2014; cited in Fanaj et al., 2015).

As a developing country, Kosovo is characterized by high rates of poverty and unemployment, low education, social exclusion and gender disparities, which represent major causes of mental health issues (World Bank, 2012). In addition, many studies show that poverty and mental health have a vicious cycle. It is of crucial importance to work on raising awareness and implementing intervention programs in developing countries for better mental health status. This may help low-income countries to develop better living conditions and reduce health costs (Patel, 2007).

The aim of this paper is to understand psychological distress correlates among young people in Kosovo, which is the youngest developing country in Europe and is characterized by a young population and many other changes that post-war countries experience. In this regard, the aim of this study is to add knowledge to the scarce literature on Child and Adolescents' Mental Health Disorders (CADM) in developing countries and to contribute on meeting the priorities of the Millennium Development Goals (MDGs) (Bowman, Matzopoulous, Butchart & Mercy, 2008).

Understanding the mental health status of children in Kosovo will also contribute to broader public health and human development and reduce the burden of Mental Health Disorders in developing countries, which is one of the aims of the Millennium Developmental Goals.

**Methodology**

**Sample and procedure**

The sampling method applied in this study was convenience sampling. Prior to completing the survey, approval from the school principals was obtained. The potential participants were contacted during their regular school classes and were informed of the purpose of the study and the time demands. They were further informed that their responses would remain confidential and that their participation could be revoked at any time. During the same time, consent forms were sent to the parents of the potential participants with all the above written information. The participants were from elementary schools of two different municipalities of Kosovo, Fushë Kosovë and Gjilan. Data were collected during February 2017 within the regular school schedule. The time needed to complete the survey was approximately 30–35 min.

A total of \( N = 200 \) fifth-grade Kosovar elementary school students participated in the current study. Of the sample, \( N = 97 \), or 48.5%) were females and \( N = 103 \), or 51.5%) were males. The participants were 10.8 years old on average (\( SD = .44 \) years). Descriptive statistics of the final sample are outlined in Table 1.
Measuring instruments

A series of validated measures were used to assess various factors that may contribute to psychological distress among adolescents.

Psychological distress

The Kessler Psychological Distress Scale was used to measure psychological distress. The scale comprises 10 questions that ask about distress experiences over the past four weeks. Each item ranges in severity from ‘none of the time’ to ‘all of the time’ on a scale from 1 to 5, with higher scores indicating a higher level of psychological distress (Kessler et al., 2003). Observed reliability for the current sample was in the good range (α = .76).

The children’s report of sleep patterns (CRSP) was used to measure sleep patterns, sleep disturbances, sleepiness and sleep hygiene among the study sample (Meltzer et al., 2013).

Sleep patterns subscale

Items measuring sleep duration used for the current study were part of the sleep patterns subscale. Sleep duration was calculated using the self-reported approximate time of going to sleep and the self-reported approximate time of waking up. Based on this information, the sleep duration time was categorized into very short sleep (≤5 h), short sleep (6–7 h), moderate sleep (8–9 h) and long sleep (≥10 h) (Wheaton et al., 2013). Very short sleep and short sleep were collapsed into a single category due to the small number of children in both groups.

The sleep disturbances scale consisted of seven items that asked about bedtime fears/worries (3 items) and insomnia (4 items). Questions were asked in regard to a typical week. A Likert-type scale ranging from 1 (never) to 5 (always) was used. Higher frequency indicated greater sleep disturbances (Meltzer et al., 2012). For each of the above scales, further ranking information is presented below (see Table 2). Observed reliability for the current sample subscales resulted in (α = .71) for the bedtime fears and worries scale and (α = .63) for the insomnia scale.

Sleep hygiene index

For the current analysis, questions in the sleep hygiene index measuring electronics use at sleep onset were used. This subscale consisted of 3 items and asked questions about electronic use at the time of sleep onset (watching television, listening to music or having the lights on in the room). Each item was ranked from 1 (never) to 5 (always). The scale ranged from 3 to 15, with higher scores indicating frequent use of electronics and poorer sleep hygiene (Meltzer et al., 2012). Observed reliability for this scale for the current sample was in the good range (α = .65).

Table 1. Baseline characteristics of study participants (N = 200).

|                | n   | %    |
|----------------|-----|------|
| Age            | 10.8±.44 |      |
| Gender         |     |      |
| Female         | 97  | 48.5 |
| Male           | 103 | 51.5 |
| Family income  |     |      |
| Very much worse off or worse off | 13 | 6.5 |
| Similar to most families | 117 | 58.8 |
| Better off or much better off | 69 | 34.7 |
| Grade (5th)    | 200 | 100.0|

†Mean ± standard deviation.

‡Frequencies not summing to 200 or percentages not equal to 100 reflect missing data.
Self-esteem was assessed using the Rosenberg Self-Esteem Scale (Rosenberg, 1965), which is a 10-item self-report scale that measures an individual’s global sense of self-worth. Items are asked on a 7-point Likert-type scale, with higher scores indicating higher self-esteem. The Albanian version of the Rosenberg Self-Esteem Scale was adapted by Arënliu (2014), and the internal consistency coefficient for the Albanian version of this scale was reported to be ($\alpha = .70$).

Analysis

Frequencies, percentages, mean values and respective standard deviations were used to describe the categorical and scale variables. Hierarchical logistic regression analysis was used to assess the association of psychological distress with the independent variables. Following suggestions for scoring for the Kessler Psychological Distress Scale (K10), given by Kessler, Andrews and Colpe et al. (2002), for the purpose of this analysis, the psychological distress scale was recoded into two categories: 10-25 was coded as 0, and greater than 25 was coded as 1. In the first step, the demographic variables were included in the analysis, such as age, gender, and family income, whereas in the second step, variables were related to sleep duration, the electronic use at sleep onset scale, the bedtime fears/worries scale, the insomnia scale and the self-esteem scale. All analyses were conducted using the Social Package for Social Sciences (SPSS) software, v.22.

Results

More than half ($n = 98, 51.5\%$) of the participants were boys. With regard to family income, one-third of the total sample ($n = 69, 34.7\%$) was financially better off or much better off compared to other families (see Table 1).

With regard to sleep duration, the average sleep duration was 10.49 h. Only 45 (22.6\%) participants from the total sample reported sleeping 8 or 9 h (moderate sleep), whereas the majority of the participants ($n = 146, 73.4\%$) were long sleepers ($\geq 10$ h), and 8 (4\%) were very short and short sleepers ($\leq 5$ h & 6–7 h). Further baseline characteristics of the study participants are shown below (see Table 2).

Table 3 shows the correlation coefficients of the psychological distress scale with other independent scales used in this study. The correlations of the psychological distress scale with electronic use at deep sleep onset, bedtime fears/worries, and the insomnia scale were negative and significant, whereas the correlation with the self-esteem scale was positive and significant (the correlation with sleep duration was also positive but had only borderline significance). Psychological distress was associated more
strongly with the insomnia scale (r = .358), the bedtime fears/worries scale (r = .318), and the self-esteem scale (r = −.297).

A series of one-way analyses of variance (ANOVA) tests were conducted to test for gender differences in key linear outcomes (see Table 4). The results indicated that females slept for a significantly greater number of hours each night (M = 10.71, SD = 1.35) compared to males (M = 10.29, SD = 1.59), F (1, 198) = 4.00, p = .047. Conversely, males reported higher levels of electronic use at deep sleep (M = 6.63, SD = 3.27) compared to females (M = 5.63, SD = 2.71), F (1, 198) = 5.54, p = .020. Males also reported higher levels of psychological distress (M = 19.15, SD = 6.60) in comparison to females (M = 17.33 SD = 6.29), F (1, 197) = 3.918, p = .04. There were no significant differences across the remaining outcomes, all ps > .05.

A series of cross-tabulations with Pearson’s chi-square test were conducted to test associations between gender and categorical variables (see Table 5). There were no significant associations across gender, indicating that there were equal representations of gender across all categorical variables.

Finally, hierarchical logistic regression analysis was conducted to determine the association of various individual-level factors, including sleep duration, electronic use at sleep onset scale, bedtime fears/worries scale, insomnia and self-esteem, with psychological distress.

As shown in Table 6, psychological distress was moderately to strongly associated with family income, specifically for the categories of worse family income than others (odds ratio [OR] = 2.10, p < .05, confidence intervals [CI]=.98–4.55), self-esteem (OR = .913, p < .01, CI = .86–.96) and bedtime worries

| Table 3. Spearman’s correlations between psychological distress and key outcomes. |
|-----------------|----------------|-----------------|
|                  | r              |                  |
| Sleep duration  | −.128          |                  |
| Electronic use at sleep onset | .248          | **              |
| Bedtime fears/worries scale | .318          | **              |
| Insomnia scale | .358           |                  |
| Self-esteem scale | −.297         | **              |

*p < .05; **p < .01.

| Table 4. Means and standard deviations of continuous outcomes by gender. |
|-----------------|----------------|-----------------|-----------------|-----------------|
|                  | Female         | Male            |                  |
|                  | M              | SD              | n               | M              | SD              |
| Hours of sleep  | 96             | 10.71           | 1.35            | 103            | 10.29           | 1.59            |
|Electronic use at sleep onset | 97             | 5.63            | 2.71            | 103            | 6.63            | 3.27            |
|Insomnia         | 97             | 7.27            | 2.77            | 103            | 7.89            | 3.62            |
|Bedtime fears    | 97             | 5.28            | 2.40            | 103            | 5.60            | 2.73            |
|Self-esteem      | 97             | 48.19           | 6.23            | 103            | 48.63           | 7.73            |
|Psychological distress | 95            | 17.33           | 6.29            | 103            | 19.15           | 6.60            |

Notes: Means in boldface significantly higher across columns, p < .05.

| Table 5. Frequencies and percentages of categorical outcomes by gender. |
|-----------------|----------------|-----------------|-----------------|-----------------|
|                  | Female         | Male            |                  |
|                  | n              | %               | n               | %               |
|Family income    |                |                 |                  |
|Very much worse off or worse off | 7             | 7.2             | 6               | 5.9             |
|Similar to most other families | 59            | 60.8            | 58              | 56.9            |
|Better off or much better off | 31            | 32.0            | 38              | 37.3            |
|Sleep duration   |                |                 |                  |
|Short sleep (6–7 h) | 3             | 3.1             | 5               | 4.9             |
|Moderate sleep (8–9 h) | 18            | 18.8            | 27              | 26.2            |
|Long sleep (≥10 h) | 75            | 78.1            | 71              | 68.9            |

|                  | χ²             | p               |
|Family income    |                |                 |
|Very much worse off or worse off | .67           | .715            |
|Similar to most other families | .316        | .339            |
|Better off or much better off | .216         | .339            |

|                  | χ²             | p               |
|Family income    |                |                 |
|Very much worse off or worse off | .67           | .715            |
|Similar to most other families | .316        | .339            |
|Better off or much better off | .216         | .339            |
and fears (OR = 1.14, \( p < .05, \) CI = .95–1.31). Other variables showed no significant relationship with psychological distress. The socio-demographic variables included in the first step explained only 6% of variance, whereas the inclusion of sleep-related variables and self-esteem improved the model and accounted for 21% of variance \( (\text{Nagelkerke's } R^2 = .21, \chi^2(8) = 31.40, 1 \ p < .01)\).

**Conclusion/discussion**

In general, the findings from this study in Kosovo replicate most of the findings from other countries worldwide. Consistent with prior research, higher levels of electronic use at sleep time are associated with higher levels of psychological distress (Tao et al., 2017; Wheaton et al., 2013). Sleeping disturbances, bedtime fears and insomnia, similar to prior research findings, were also associated with higher levels of psychological distress (Ivanenko et al., 2006; Jenaro et al., 2007; Yen et al., 2009; Beranuy et al., 2009; cited in Tao et al., 2017). Furthermore, higher self-esteem was related to lower levels of psychological distress, which was consistent with prior research findings conducted within the field. Lower self-esteem has been considered an indicator of increasing levels of psychological distress, whereas higher self-esteem has been considered a protective factor (Mann et al., 2004; Orth et al., 2009).

The examination of gender differences revealed that females tended to report higher levels of sleep, whereas males reported higher levels of electronics use and psychological distress. Building on these results, further research may be needed to examine the potential interactions of gender on sleep behaviors and the subsequent relationships with mental health symptoms.

The overall psychological distress levels of the current sample are also in line with previously conducted studies within Kosovar society, where most of the participants reported mild symptomatology of psychological distress (Shahini et al., 2014; cited in Fanaj et al., 2015; Morina, von Lersner & Prigerson, 2011; Schick et al., 2013). Additionally, the findings from this study, as expected, show that when family income is perceived as worse than other families, this seems to increase the likelihood of experiencing psychological distress among adolescents. Similar results are found in other developing countries worldwide, and it seems that Kosovo is not an exception, showing that socioeconomic status and financial situation represent a burden for mental health (Lund et al., 2010; WHO, 2014). Furthermore, research evidence with adolescents from lower socio-economic status (SES) shows that SES has a moderating effect in the relationship between sleep and psychological distress, with an emphasis on noisy living space and employment shifts (Lichstein, Durrence, Taylor, Bush & Riedel, 2003).

Finally, the findings from this study provide the first evidence that sleep-related issues represent a vital and exciting factor for exploration with regard to their relationship with psychological distress.

| Psychological distress | Step 1 | Step 2 |
|------------------------|--------|--------|
| | Exp (B) SE | Exp (B) SE |
| Age | .58 (.39) | .50 (.44) |
| Gender male | 1.75* (.32) | 1.78 (.35) |
| Family income | 2.83 (.67) | 1.81 (.71) |
| Similar to most of other families | 1.79 (.36) | 2.16* (.39) |
| Worse than most of other families | .98 (.62) | 1.14* (.07) |
| Electronic use at sleep onset | .99 (.06) | .913 (.02)** |
| Bedtime fears and worries | | |
| Insomnia | | |
| Self-esteem | | |
| Sleep duration | | |
| Short/moderate sleep | | |
| Long sleep | | 1.10 (.39) |
| Model \( \chi^2 \) | 8.298* | 31.401*** |
| Nagelkerke’s \( R^2 \) | .059 | .214 |

\* \( p < .05; \) ** \( p < .001. \)
The correlational analysis of this study showed that insomnia, sleep duration, electronics use at the sleep onset and bedtime worries and fear are all correlates of mental distress. These findings provide firm ground for the development of prevention and intervention strategies with regard to sleep habits, sleeping hygiene and sleeping behaviors when working with adolescents.

Limitations/future directions

The main limitation of this study is its observational nature; although relationships can be observed, directionality and causality cannot be assumed. Further research testing interventions aimed at affecting these factors may be helpful in better understanding the causal relations. Building on the results of these studies, we suggest that further investigation is needed to assess appropriate interventions for children in Kosovo who experience psychological distress. Although the results of this study were correlational and observational, observed trends suggest that higher self-esteem serves as a protective factor against psychological distress. Specifically, the findings from this study may serve as a baseline for public health institutions, mental health workers and education systems involved with children and youth development to promote awareness and design intervention programs that address mental health, healthy sleeping behaviors and other associated factors related to psychological distress among Kosovar children and adolescents.

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