DIFFERENCES IN PERCEIVED STRESS AMONG SLOVENIAN YOUTH: AN ANALYSIS OF SOCIODEMOGRAPHIC AND SOCIOECONOMIC PREDICTORS IN THE 2010 AND 2013 NATIONAL YOUTH STUDIES

Ass. Prof. Dr. Andrej Kirbiš
Department of Sociology,
Faculty of Arts,
University of Maribor, Slovenia
andrej.kirbis@um.si

Ass. Prof. Dr. Sara Tement
Department of Psychology,
Faculty of Arts,
University of Maribor, Slovenia
sara.tement@um.si

Abstract: The present study examined the levels of self-perceived stress and its sociodemographic and socioeconomic predictors, using data from two representative studies of Slovenian youth carried out in 2010 and 2013 (young people aged 16–27 years). Self-perceived stress was measured with a standard single item widely used in the literature: "How often would you say you experience stress?". Responses were recorded on a 5-point Likert scale, ranging from "Never or a few times per year" (1) to "Most days per week" (5). In 2013 the largest proportion of youth reported experiencing stress "every month" (30.0 %; compared to 30.5 % in 2010), followed by "never or a few times per year" (29.6 %; 28.5 % in 2010). In 2013 40.2 % of respondents reported experiencing stress weekly or more often, which is a slight decrease compared to 2010 (41.1 %). The differences in mean perceived stress levels between the two years were minimal and insignificant ($p > .05$). Among sociodemographic and socioeconomic predictors entered into the hierarchical regression models, higher levels of perceived stress were associated with being female and having higher personal income in 2010; and with being female, older age and having lower self-assessed family material status in 2013. The regression model explained 4.1 % of variance in perceived stress in 2010, and 5.3 % in 2013. Results indicated that in 2013, compared to 2010, gender differences in perceived stress remained relatively stable, while perceived stress levels became significantly higher among older youth, possibly due to increasingly unfavourable macro-economic conditions in recent years (e.g., global economic crisis, increasing youth unemployment rates at the national and European level, etc.). Implications and future research suggestions are discussed.

Keywords: self-perceived stress, health, health inequalities, mental health, Slovenian youth, social responsibility.

RAZLIKE V SAMOZAZNANEM STRESU MED SLOVENSKO MLADINO: ANALIZA SOCIODEMOGRAFSKIH IN SOCIOEKONOMSKIH PREDIKTORJEV V NACIONALNIH RAZISKAVAH MLADINE V LETIH 2010 IN 2013

Povzetek: V pričujoči študiji smo proučevali stopnje zaznanega stresa ter njegove sociodemografske in socioekonomske prediktorje na podlagi dveh reprezentativnih vzorcev slovenske mladine (podatki iz leta 2010 in 2013; mladi v starosti od 16 do 27 let). Stres smo merili z uveljavljeno postavko »Kako pogosto bi rekli, da občutite stres?«, pri kateri smo odgovore beležili na pet-stopenjski lestvici (1 – nikoli ali nekajkrat letno; 5 – večino dni v tedni). V letu 2013 je največji delež mladine poročal o stresu vsak mesec (30,0 % v primerjavi s 30,5 %

v 2010). Tej skupini je sledila skupina posameznikov, ki stresa niso doživljali nikoli ali zgolj nekajkrat letno (29,6 %; 28,5 % v 2010). Nadalje je v 2013 o stresu poročalo 40,2 % respondentov tedensko ali bolj pogosto, kar je predstavljalo nižji delež v primerjavi z 2010 (41,1%). Razlika v povprečni ravni zaznanega stresa med letoma 2010 in 2013 je bila minimalna in ni bila statistično značilna ($p > 0,05$). Med sociodemografskimi in socioekonomskimi prediktorji, vključenimi v regresijski model, so z višjimi stopnjami stresa bili povezani ženski spol in višji osebni dohodek respondenta v letu 2010; ter ženski spol, višja starost in nižja samoocena materialnega statusa družine v letu 2013. S prediktorji v modelu smo pojasnili 4,1 % odstotkov variance v zaznavi stresa v 2010 in 5,3 % v 2013. Rezultati so prav tako pokazali, da so razlike po spolu med letoma 2010 in 2013 ostale relativno stabilne, medtem ko se je v 2013 zvišala stopnja stresa med starejšo mladino. Možna pojasnila za to lahko najdemo v naraščajoče neugodnih ekonomskih razmerah (npr. ekonomska kriza in višanje stopenj brezposelnosti med mladimi v Sloveniji in v Evropski uniji, ipd.). Avtorji prikažejo implikacije pričujoče študije in podajo usmeritve za prihodnje raziskave.

Ključne besede: stres, zdravje, neenakosti v zdravju, duševno zdravje, slovenska mladina, družbena odgovornost.

1. Introduction

Stress can be regarded as one of the most commonly used words in the modern societies and has become "one of the most pervasive metaphors for personal and collective suffering" (Helman, 2007: 288). In its original model stress represented a generalized response of an organism to environmental demands. Specifically, it is a physiological mechanism that prepares an organism for action. Although there is a bulk of literature of stress theories and perspectives (e.g., Hobfoll, 1989; Aneshensel, 1992; Mahoney, 2009), it can be generally concluded that stress is a state of disequilibrium where the demands of the situation exceed an individual's ability to cope with the stressor. Furthermore, stress is rather a result of a subjective appraisal and cognitive processing rather the result of objective environmental characteristics (e.g., Lazarus & Folkman, 1984). White (2009), for instance, notes that the focus of contemporary research on stress has been on subjectively perceived "stressors" (factors that produce stress) and emphasizes that the development of the concern for the subjective appreciation of stress is important, since people make different senses out of stressful experience. In this regard the focus is not just on the factual existence but also on how, or whether, individuals experience events as stress (White, 2009: 68).

Of course, not all stress is harmful, but high levels of stress can have negative consequences (ibid.). Research on stress has become more prominent and multifaceted in recent years, but broadly, two main tendencies may be discerned: medical and sociological (Elstad, 2006). While the former is mainly interested in using social variables as controls when investigating stressors and stress reactivity, sociological perspective is interested in distributions of stressors and (perceived) stress within social structures. Within sociology of health and social epidemiology stress has often been analyzed within the context of psycho-social perspective on health, which according to Elstad (2006) has three core assumptions: 1) distribution of psychological stress is one of the important factor of health inequalities in modern societies; 2) psychological stress is influenced by social/interpersonal ties and relationships, 3) social relationships are largely influenced by social inequalities (ibid.). Our study empirically tested a part of the first of the three assumptions; specifically, the distribution of perceived stress was examined.

1.1. Studies on stress in Slovenia

While there are relatively few studies examining the area of stress, especially carried out on representative Slovenian samples, the report based on CINDI survey data (Bajt and Jeriček Klanšček, 2012) shows that between 2001 and 2008 the proportion of respondents reporting experiencing stress "daily/frequently" increased from 24.9 % to 27.7 %, indicating that more than one fourth of Slovenians (aged 25–64) experience stress on a daily basis. On the other hand, approximately 8 out of 10 respondents reported coping with everyday stress "easily" or "with some effort". The proportion of those having "great difficulties" dealing with stress or "not being able to deal with stress at all" decreased significantly from 5.0 % in 2001 to 4.2 % in 2008. Interestingly, while self-reported frequency of stress does not differ greatly among respondent with different SES (educational levels and self-assessed social status), the proportion of respondents reporting dealing with stress with "great difficulties" or "not being able to deal

with stress at all" is as much as three times higher among lowest SES group, compared to the highest. Also, being a female and living in urban environment increases the risk of experiencing frequent/daily stress.

In CINDI study respondents were also asked about their perception of the main causes of stress. They rated them as follows: work (66.3 % among men and 55.1 % among women), poor material conditions, family problems, co-workers relations and loneliness. Between 2004 and 2008 there was an increase in experiencing stress at work and having bad relations with co-workers (Bajt and Jeriček Klanšček, 2012). Slovenian Public Opinion Survey (SJM, 2006) asked respondents how stressful the find their work (0 = never, 6 = always). Among those employed, 15 % reported they find their work "always" stressful. Combining all the answers above the middle value 3 (which could be regarded as an answer "sometimes"), indicates that 57 % of respondents chose values 4, 5 or 6, or in other words, the majority of employed Slovenians experience work as stressful more often than "sometimes".

A representative study of Slovenian Youth in 2010 found that the highest proportion of respondents experienced stress "monthly". Gender differences were also detected; "weekly" experience of stress was reported by 47.9 % of women and by 34.9 % of men (Musil, 2011). In a study of 647 grammar school and economics secondary school students from Slovenia, Pušnik (2002) examined their responses to stressful situations and found that more than one half reported experiencing stomach-ache when dealing with stress, 41 % reported loss of appetite and 38 % reported chest pain when experiencing a stressful situation (Pušnik, 2002: 86).

An international study of 11-, 13-, and 15-year old adolescents (HBSC), carried out in developed countries, including in Slovenia, found that almost one sixth of Slovenian adolescents (14.1%) school work puts a heavy burden on them, 34.7 % are "somewhat" burdened by school-work, 42.4 % "only slightly" and 8.7 % are "not burdened" by school-work. Statistically significant differences were found by age groups ($p < 0.001$), with 11-year olds most frequently reporting that their school-work burdens them "a little" or "not at all" (Pucelj, 2011).

1.2. Socioeconomic and sociodemographic predictors of perceived stress

Though it is possible that poorer mental health is responsible for lower SES, Baum and colleagues (1999) argue that SES is more likely to be antecedent to distress. Glasscock and colleagues (2013), for example, found lower parental education and household income to be associated with higher levels of perceived stress amongst Danish adolescents, which is consistent with results of a prospective study of U.S. adults (Lantz et al., 2005), which found 1) a higher prevalence of negative life events and other stressors among those in lowest education and income categories; 2) a count of negative lifetime events was found to be positively associated with mortality; 3) a higher score on financial stress scale predicted severe/moderate functional limitations and poorer self-rated health; and 4) a higher score on a parental stress scale predicted poorer self-rated health (also see Mulder et al., 2011).

Physiological mechanisms and stress hormones with regard to SES were also examined in several studies. Cohen and colleagues (2006), for example, found that lower SES (measured by income and education) was associated higher levels of stress hormones (cortisol, epinephrine and norepinephrine) independent of race, age, gender, and body mass index. A study by Almeida and colleagues (2005) demonstrated SES differences in vulnerability to daily stressors. Specifically, on those days that respondents experienced stressors, less educated individuals reported greater psychological distress and more physical symptoms than their more-educated counterparts. Salivary cortisol as a measure of the activity of a major physiological stress system was found associated with psychosocial burden (e.g. lower socioeconomic status, immigrant family) in a study by Gustafsson (2008). A study by Lupie and colleagues (2001) found children (aged 6 to 10 years) had significantly higher salivary cortisol levels when compared to children from high SES, yet this difference disappeared at the time of transition to high school. The authors interpreted these findings within the context of the equalisation process of class patterning regarding health (see Discussion).

In sum, while it is important to study stress on its own right, perceived stress was previously found to be associated with physical and psychosomatic symptoms, including sleep problems and with psychological symptoms of anxiety and depression (see, among others, Wiklund et al., 2012; for a review of previous sociological work on stress in relation to mental and physical health see, among others, Thoits, 2010).

Although space limitation preclude us from more extensive discussion of gender differences in perceived stress, let us note that previous studies found women reported higher levels of stress in diverse age categories; both in Slovenian (Musil, 2011; Bajt and Jeriček Klanšček, 2012) and other studies (Verbrugge, 1989; Gustafsson, 2008; Wiklund et al., 2012; Glasscock et al., 2013). Such gender differences can be interpreted in the light of greater psychological vulnerability of women and sensitivity to negative life events (e.g., Kessler and McLoad, 1984). Besides SES and gender, the impact of age was also examined in the present study. Although the findings regarding age differences in stress are less consistent and contingent on other variables (e.g. gender, developmental shifts), it can be expected that older youth experience higher levels of stress (Currie et al., 2010), possible due to increased levels of stressful experiences in school and work (ibid.) or due to greater tendency to project and generalize into the future (Rudolph and Hammen, 1998).

1.3. Study aim

The present study examined the levels, sociodemographic and socioeconomic predictors of self-perceived stress using data from two representative national studies of Slovenian youth (data from 2010 and 2013; young people aged 16–27 years). We predicted that perceived stress levels have increased in the period between 2010 and 2013 (H1), especially in the context of increased objective difficulties youth in Slovenia and Europe were faced with in the observed period (see Lavrič, 2014). Next, we predicted that youth from lower SES backgrounds (H2), women (H3) and older youth (H4) would report higher levels of stress. Our final aim was to examine whether predictive power of the model was substantially different in both years.

There are currently no longitudinal studies of self-perceived stress carried out on post-adolescent youth and young adults in Slovenia. Such studies would provide a valuable input and a basis for policies to improve youth's mental health outcomes.

2. Methods

2.1. Data

Slovenian Youth 2010 study was based on a representative random sample of Slovenian youth. The target population were all residents residing in the Republic of Slovenia, who were on July 26th aged between 15 and 29 years (N = 1257; Mage = 22.90; SD = 4.25; 48.3 % women). Field survey was conducted between July 27th and September 24th in the form of face-to-face interviews. The target population of the study was prior stratified into twelve statistical regions and six types of settlements (for details on sampling, data collection, etc., see Lavrič et al., 2011).

Cepyus-FES Slovenian Youth 2013 Study consisted of stratified quota sample. The target population surveyed were Slovenian youth residing in the Republic of Slovenia and who were on May 28th 2013 aged between 16 and 27 years. The sample consisted of 907 respondents (N = 907; Mage = 21.90; SD = 3.25; 48.3% women). The survey was conducted between May 29th and July 20th in the form of a face-to-face interview, as a rule within households (for details on sampling, data collection, etc., Flere and Divjak, 2014).

In both studies questionnaires consisted of two parts: oral and written part. The oral part of the questionnaire was conducted within face-to-face interviews with interviewers reading the questions aloud to interviewees and with interviewers filling out survey responses they received from the respondents. Upon completion of the oral part of the questionnaire the interviewer handed the respondent the written questionnaire and asked him/her to fill out the written questionnaire himself. Written part of the questionnaire consisted of questions that were more personal and intimate in nature.

2.2. Measures

2.2.1. Predictor variables

Socioeconomic status

Socioeconomic status can be defined as "a composite measure that typically incorporates economic status, measured by income; social status, measured by education; and work status, measured by occupation" (Dutton and Levine, 1989: 30; cited in Adler et al., 1994: 15). Education, income and occupation ate therefore regarded as core key indicators of SES (Graham, 2009: 6). Furthermore, these three indicators are interrelated yet not fully overlapping variables and researchers often examine the effect of variety of specific indicators of SES (see Adler et al., 1994). Adler and colleague also note that researchers usually use one or another indicator as the measure of SES (Adler et al., 1994: 15).

Following past studies (see, among other, Mackenbach, 2006; Mackenbach et al., 2008; Willson, 2009; Alvarez-Galvez et al., 2013; for reviews see, among others, Adler et al., 1994; Adler and Ostrove, 1999; Adler and Newman, 2002; Hernandez and Blazer, 2006) we analyzed SES by means of two out of the three commonly used indicators of SES: education (highest respondent's, mother's and father's education) and respondent's income. Among the three indicators of SES, it is argued that education captures the social distribution of a broader spectrum of health determinants (Dahland and van der Wel, 2013).

Education

In Youth 2013 study we measured highest attained respondent's, father's and mother's educations with three identical questions on a 5-point scale: "What is the highest achieved level of your [your father's / your

mother's] education?" (1 = uncompleted primary school, 2 = completed primary education; 3 = completed secondary education; 4 = completed higher non-university education or university education; 5 = completed master or doctorate degree). Responses were recoded to a 3-point scale (1 = primary education or less; 2 = completed secondary education; 3 = completed tertiary education).

In Youth 2010 study we measured respondent's, father's and mother's educations with three identical questions on a 9-point scale: "What is the highest achieved level of your [your father's / your mother's] education?" (1 = uncompleted primary school; 2 = completed primary education; 3 = uncompleted vocational or other secondary education; 4 = completed 2-year, 2.5-year or 3-year vocational secondary education; 5 = completed 4-year secondary education; 6 = uncompleted higher non-university education; 7 = completed 2-year higher non-university education; 8 = completed university education; 9 = completed master or doctorate degree). To ensure comparability with the indicator of education in 2013 study, the education values in 2010 were recoded into 3-point scale (1 = primary education or less (original values 1, 2, 3); 2 = completed secondary education (original values 4, 5, 6); 3 = completed tertiary education (original values 7, 8, 9)).

Income

Respondent's average monthly income was in both years assessed with the following question: "Rate, please, what is your average monthly income? Sum all forms of income (in addition to wages, for example, this included any compensation, grant, allowance, interests, rental income, disability benefits, etc.)". We recoded the income values in into the following categories: 1 = 50 € or less; 2 = 100 € or less; 3 = 150 € or less; 4 = 200 € or less; 5 = 300 € or less; 6 = 400 € or less; 7 = 500 € or less; 8 = 600 € or less; 9 = 800 € or less; 10 = 1000 € or less; 11 = more than 1000 €.

Self-perceived family material status

In both studies respondents also assessed relative family material (economic) status in comparison to perceived Slovenian average with the following question: "How do you rate the material situation of your family according to the Slovenian average"? Original answers were coded differently in both studies. In 2013 the family material status was coded on a 10-point scale (1 = highly below average; 10 = highly above average), while in 2010 the family material status was coded on a 5-point scale (1 = highly below average; 10 = highly above average). To ensure comparability we first recoded 10-point scale in 2013 into 5-point scale, and then recoded both 5-point scales into 3-point scales of family's relative material status (1 = (highly) below average, 2 = average; 3 (highly) above average).

Sociodemographic predictors

Two sociodemographic variables included in our analysis were *age* (measured as year of birth and subsequently recoded into age in years) and *gender* (female = 1, male 2) were measured with standard self-reported items.

2.2.2. Outcome variable

Self-perceived stress

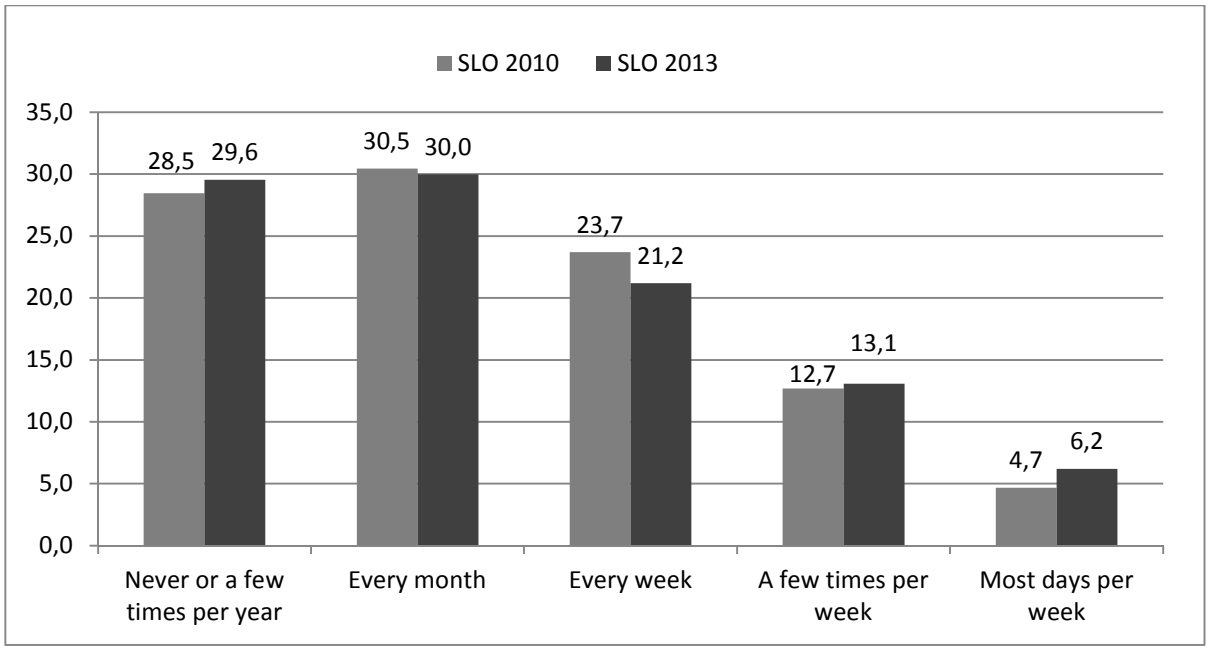
The focus of our study was on subjective perception of stress. Elo and colleagues (2003) found a single-item self-reported stress to be associated with greater emotional exhaustion, poorer mental health, poorer perceived health and poorer diagnosed health. The same authors examined the discriminative power of the stress item and found a coherent picture of differences between the gender and age groups when these were compared with emotional exhaustion scale of the Maslach Burnout Inventory. The differences between genders and age groups were rather small but consistent in relation to both indicators. In their study Elo and colleagues conclude that single-item stress measure shows satisfactory content, criterion, and construct validity for group-level analysis and suggest that the "longer measurement scales used for nonspecific symptoms of psychological stress can be replaced by the stress-symptoms item in monitoring stress at work and in survey research" (Elo et al., 2003: 450). Similar results were reported by Littman and colleagues (2006), who found the single item stress measure to be associated with three multi-item instruments: a 53-item questionnaire on hassles, a 4-item questionnaire on perceived stress, and a 10-item questionnaire on life events. Littman and colleagues also found single-item measure demonstrated good test-retest reliability and concluded that "the single-item measures appeared to do just as well at measuring stress as the longer questionnaires" (Littman et al., 2006: 401). Other studies have also examined associations between single-item stress indicator with other psychosocial outcomes and came to similar conclusions (e.g., Hayward et al., 2012).

In line with abovementioned previous studies, our Slovenian youth 2010 and 2013 survey questionnaires included a single-item on self-perceived stress previously employed, among others, by Elo and colleagues (2003): "How often would you say you experience stress? "Stress" means a situation in which a person feels tense, restless, nervous or anxious and is out focus." The responses in our questionnaire were recorded on a 5-point Likert scale: 1 = "Never or a few times per year"; 2 = "Every month", 3 = "Every week"; 4 = "A few times per week", 5 = "Most days per week".

3. Results

Figure 1 presents self-perceived stress of Slovenian youth in 2010 an 2013. As noted, we predicted that perceived stress levels have increased in the observed 4-years period (H1). Figure 1 indicates that in 2013 the largest percentage of respondents (30 %) reported experiencing stress every month, while the second largest proportion reported experiencing stress "never or a few times per year" (29.6 %). More than one fifth of respondents deal with stress on a weekly basis; more than a tenth of respondents experience stress a few times per week (13.1 %) and 6.2 % experience stress most days of the week. Combined, 40.2 % of Slovenian youth experience stress at least weekly, which is a slight decrease from 2010 (41.1 %). The differences in self-reported stress between both years were minimal and statistically insignificant ($p > .05$). Interestingly, the proportion of those experiencing stress "most days per week" increased somewhat (from 4.7 % to 6.2 %), but at the same time, the proportion of those "never" experiencing stress also minimally increased. In sum, the results do not confirm H1, which stated that perceived stress levels have increased in the observed 4-years period.

Figure 1: Self-perceived stress of Slovenian youth (16–27 years) in 2010 and 2013 (%).



Source: CEPYUS-FES Slovenian 2013 Youth Study (2013) and Slovenian Youth 2010 Study (2010).

Furthermore, we were interested in how much of the variance in self-perceived stress can be explained by sociodemographic and socioeconomic variables and which of these is the best predictor of stress. We expected that youth from lower SES groups (H2) and women (H3) would report higher levels of stress. Finally, we were interested in whether predictive power of the model was substantially different between in years. Table 1 shows hierarchical multiple regression analysis with self-perceived stress as outcome variable and sociodemographic variables as predictor variables for both years.

Hierarchical multiple regression was used to assess the ability of socioeconomic variables to predict perceived levels of stress in 2010 and 2013 study, after controlling for the influence of two sociodemographic variables, gender and age. Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity and homoscedasticity.

Analyzing 2010 survey data, gender and age were entered at Step 1, explaining 2.7 % of the variance in perceived stress. After the entry of five indicators of respondent's and his/her family's socioeconomic status at Step 2, the total variance explained by the model as a whole was 4.1 %, F (7, 901) = 5.45, $p < .05$. Five SES predictors explained an additional 1.3 % of the variance in stress, after controlling for gender and age, R squared change = .01, F change (5, 901) = 2.49, $p < .05$. In the final model, only the two measures were statistically significant, with gender recording a higher beta value (beta = –.17, $p < .001$) than respondent's monthly income (beta = .10, $p < .01$). In sum, female gender and higher respondent's income were the only significant predictors of higher levels of perceived stress in 2010.

Table 1: Hierarchical Multiple Regression Model Estimating Effects of Sociodemographic and Socioeconomic variables on Perceived Stress in 2010 and 2013.

Variables 2010	B	SE B	B	Variables 2013	B	SE B	β
Constant	2.44	0.27		Constant	1.99	0.32	
Gender	-0.35	0.08	-.15***	Gender	-0.33	0.09	-.14***
Age	0.02	0.01	.06	Age	0.04	0.01	.11**
R^2 = .027				R^2 = .029			
F = 12.72***				F = 11.90***			
Constant	2.20	0.36		Constant	2.47	0.41	
Gender	-0.39	0.08	-.17***	Gender	-0.33	0.09	-.14***
Age	0.02	0.02	.06	Age	0.04	0.02	.11*
Respondent's education	-0.12	0.09	-.06	Father's education	-0.04	0.10	-.02
Father's education	-0.07	0.07	-.04	Father's education	-0.04	0.08	-.02
Mother's education	0.11	0.07	.06	Mother's education	0.14	0.08	.07
Perceived family material status	0.12	0.09	.05	Perceived family material status	-0.27	0.06	-.15***
Respondent's monthly income	0.04	0.02	.10**	Respondent's monthly income	0.00	0.02	.01
R^2 = .041				R^2 = .053			
F = 2.49*				F = 6.23***			

Note: *p < .05; **p <. 01; ***p <. 001.
Source: CEPYUS-FES Slovenian 2013 Youth Study (2013) and Slovenian Youth 2010 Study (2010).

Analyzing 2013 data we followed identical procedure. Gender and age were entered at Step 1, explaining 2.9 % of the variance in perceived stress. After the entry of five SES predictors at Step 2, the total variance explained by the model as a whole was 5.3 %, F (7, 787) = 6.23, p < .001. SES predictors explained an additional 2.3 % of the variance in stress, after controlling for gender and age, R squared change = .02, F change (5, 786) = 3.88, p < .01. In the final model, three measures were statistically significant, with perceived family material status recording the highest beta value (beta = –.15, p < .001), followed by gender (beta = –.14, p < .001) and age (beta =.11, p < .05). In sum, lower perceived family material status, female gender and higher were the only significant predictors of higher levels of perceived stress in 2013.

As indicated by Table 1, the regression models in both years explained relatively small and similar amount of variance (4.1 % and 5.3 %). Gender proved to be the only constant predictor in both years with women reporting significant higher perceived stress than men, confirming H3. Interestingly, in 2013 older youth reported significantly higher levels of stress compared to younger youth, while in 2010 there were no age differences. Finally, in 2010 higher respondent's income significantly predicted higher stress levels, but not in 2013, while in 2013 lower perceived family material status predicted higher perceived stress, but not in 2010. These results do not uniformly confirm H2, which predicted that youth from lower SES groups would report higher levels of stress.

4. Discussion and conclusion

The aim of the present study was to examine perceived stress among Slovenian youth in 2010 and 2013. Although not all stress is harmful, high levels of repeated (chronic) stress can have negative health consequences (Thoits,

2010) and a single-item measure of perceived stress was previously found to be associated with poorer diagnosed health, mental health and perceived health (Elo et al., 2003). Despite indices of decreases in objective well-being of Slovenian youth (increasingly unfavourable macro-economic and living conditions, increasing levels of unemployment among Slovenian youth, etc., see Lavrič, 2014) in 2010–2013 period, our data with regard to H1 do not indicate that such unfavourable economic conditions in Slovenia necessarily translate into worse youth's health outcome as measured by self-perceived stress. In fact, youth's perceived stress levels have remained relatively stable from 2010 to 2013. This finding is also consistent with most recent study on Slovenian youth's health-related behaviours, which have somewhat improved in last four years. Kirbiš (2013), for instance, found that the frequency of tobacco use and alcohol use has slightly decreased in 2013 compared to 2010. On the other hand, the negative effect of macro-economic conditions could appear with a certain amount of time lag, as suggested by Tavčar Krajnc and Kirbiš (2014) and which is one of the reasons why perceived stress levels should be monitored in the future studies.

With regard to H2, the impact of SES indicators did not prove to be uniform. Interestingly, none of the three educational predictors proved significant in either of the two years indicating that respondent's and parental education does not impact perceived stress (compare, for example, with Glasscock et al., 2013). On the other hand, higher respondent's income increased the likelihood of higher stress in 2010, which is contrary to our H2 (and to results in 2013), although similar results have been reported in some other studies (e.g., Heslop et al., 2001). A possible explanation for this rather surprising finding could be that individuals with higher income are more likely to be employed or engaged in various kinds of student work where they could be exposed to potential stressful working conditions. Nonetheless, the majority of past research is consistent with the results of 2013 data with the lower SES (in this case lower perceived family's material status) increasing the likelihood of higher perceived stress. Future studies of Slovenian youth should examine in detail other indicators of SES. The 2013 data nevertheless indicates that individual's and his/her family's lower relative (subjective) position in social structure has unfavourable impact on his/her perceived stress levels, consistent with studies on stress and other mental health outcomes (Baum et al., 1999; Lorant et al., 2003; Brunner and Marmot, 2005; Glasscock et al., 2013; Hudson et al., 2013; also see Aneshensel, 2009).

With regard to H3, significantly higher levels of perceived stress were found among women, a finding consistent with other studies from Slovenia (Musil, 2011; Bajt and Jeriček Klanšček, 2012) and from other countries (Wiklund et al., 2012; Glasscock et al., 2013). Several explanations might be provided regarding the gender gap in perceived stress. Higher perceived stress levels among women might indicate that young women, compared to men, experience similar (negative) life-event as more stressful, i.e. that there are gender differences in *risk responsiveness* and that stressful life events especially affect women (see Verbrugge, 1989). On the other hand, the results could also indicate an increased number of stressful life events among young women compared to men. A study of adolescents from northern Sweden, for example, found that high pressure and demands from school were experienced by 63.6 % of girls and 38.5 % of boys (Wiklund et al., 2012). Perceptions of high self-imposed demands and inner pressure were more common among girls, especially regarding school environment (ibid.), which could (in addition to work-environment) also explain higher levels of perceived stress among women in our study. Future studies of Slovenian youth should in more detail examine why women report higher levels of stress, especially with regard to possible factors such as responsibility-taking, multiple demands, feelings of helplessness, low control, social support, etc. Finally, our results partly confirm H4, since older youth did report significantly higher stress than younger youth, but only in 2013. The reason might be the deepening economic crisis and increased pressures on the older youth when entering the unfavourable conditions on the labour market (see Lavrič, 2014), though future studies should more closely examine this speculation.

Turning to determinants of self-perceived stress and the overarching theme of the conference, social responsibility and health, study authors would like emphasize several issues: first, as Mahoney (2009: 55) notes, stress can be viewed as located within the individual, yet "the problem with locating stress *only* in an individual's biology or psyche is that attention is directed away from broader social, political and economic issues" (ibid.). Our results indicate that perceived stress is not equally distributed across Slovenian youth, although sociodemographic and especially socioeconomic predictors explained relatively small amount of variance in perceived stress. As already noted, future studies should examine how *social* factors (social relationships, norms, values, etc.) influence perceived stress among Slovenian youth. Relatively small differences across sociodemographic and socioeconomic groups with regard to perceived stress could also be partially explained by the age structure of our sample and by youth as a particular period in one's life. West (1997), for example, discusses relatively small health differences in the period of youth in the context of the process of *equalisation*, which occurs when "one or more influences associated with age (the school, the peer group or youth culture) cut across those associated with class (the family, home background, and neighbourhood), the net effect of which is to reduce, remove, or even reverse social class differences in a characteristic present in the earlier period of childhood"...which is why the period of "early youth, is characterised by relative equality in health". As already noted, previous studies of Slovenian adults have found

socioeconomic differences in abilities to cope with stressors (Bajt and Jeriček Klanšček, 2012) and future studies should examine at *which points* in (young) adults' lives and *why* do SES group differences become extensive and salient.

Our study has several caveats that should be addressed. First, we longitudinally analyzed only one indicator of subjective health status. In the future, other measures of (subjective) health of Slovenian youth should be examined, including in longitudinal perspective (self-rated health and self-rated mental health, self-reported chronic ill-health, etc.). Secondly, we examined only the impact of some sociodemographic and socioeconomic variables but not also other potentially significant determinants, especially those relating to more refined indicators of one's position in social structure. For example, past research has indicated that unemployment, working conditions, living conditions, housing, as well as perceived control, autonomy and other individual's characteristics (that again are often found to be unequally distributed across social structure) impact different aspects of subjective and mental health, including perceived stress and stressful events (e.g., Dahlgren and Whitehead, 1999; Greiner, 2012). Other social factors might also play a strong role in levels of perceived stress. For example, social support and social networks, parenting styles, satisfaction with family and friends, emotional disturbance, coping styles, and even diet (e.g., fruit and vegetable intake (e.g., White et al., 2013) and consumptions of soft drinks; e.g. Lien et al., 2006) have been found to have an effect on various aspects of mental health problems and psychosocial ill-health (Brunner and Marmot, 2005; also see Dahlgren and Whitehead, 1999). These and other potentially relevant variables should be examined in future studies.

Despite several shortcomings, our study aimed to partially fill the research gap in the literature on perceived stress in postcommunist countries by examining the distribution, sociodemographic and socioeconomic determinants of perceived stress among Slovenian youth. While group differences were found to be relatively small and often insignificant, 1) being a female in both years increased the risk of high self-perceived stress, 2) lower perceived material family's status and higher age increased the risk of higher percived stress in 2013.

With regard to social responsibility, policy makers should aim to develop a detailed prevention strategy and interventions, including school and workplace interventions, targeting at-risk population groups with the goal of favourably impacting their perceived stress and other mental health outcomes (e.g., Dahlgren and Whitehead, 1999; Greiner, 2012; Hartfiel et al., 2012). To address health inequalities across high- and low-level SES groups (including those living in poverty and experiencing stressful family circumstances), a focus of the intervention programs should be on at macro- and meso-level structural conditions that put people at risk of stressors (Thoits, 2010; also see Bajt and Jeriček Klanšček, 2012: 123–125).

References

Adler, N. and Newman, K. (2002). Socioeconomic Disparities In Health: Pathways and Policies. Health Affairs, 21 (2): 60–76.

Adler, N.E. and Ostrove, J.M. (1999). Socioeconomic Status and Health: What We Know and What We Don't. Annals of the New York Academy of Sciences, 896: 3–15.

Adler, N.E., Boyce, T., Chesney, M.A., Cohe, S., Folkman, S., Kahn, R.L. and Syme, S.L. (1994). Socioeconomic Status and Health: The Challenge of the Gradient. American Psychologist, 49: 15–24.

Almeida, D.M., Neupert, S.D., Banks, S.R., Serido, J. (2005). Do Daily Stress Processes Account for Socioeconomic Health Disparities? The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences, 60: S34-S39.

Alvarez-Galvez, J., Rodero-Cosano, M.L., Motrico, E., Salinas-Perez, J.A., Garcia-Alonso, C., Salvador-Carulla, L. (2013). The Impact of Socio-Economic Status on Self-Rated Health: Study of 29 Countries Using European Social Surveys (2002–2008). International Journal of Environmental Research and Public Health, 10 (3): 747–761.

Aneshensel, C. S. (1992). Social Stress: Theory and Research. Annual Review of Sociology, 18: 15–38.

Aneshensel, C. S. (2009). Toward Explaining Mental Health Disparities. Journal of Health and Social Behavior, 50 (4): 377–394.

Bajt M., and Jeriček Klanšček, H. (2012). Stres. In J. Maučec Zakotnik, et al. (Eds.). Zdravje in vedenjski slog prebivalcev Slovenije: trendi v raziskavah CINDI 2001 – 2004 – 2008 (pp. 109–127). Ljubljana: Inštitut za varovanje zdravja Republike Slovenije.

Baum, A., Garofalo, J. P., Yali, A. M. (1999) Socioeconomic Status and Chronic Stress: Does Stress Account for SES Effects on Health? Annals of the New York Academy of Sciences, 896, 131–144.

Brunner, E. and Marmot, M. (2005). Social organization, stress and health. In Marmot, M. and Wilkinson, R.G. (Eds.), Social Determinants of Health (2nd Ed.). Oxford: Oxford University Press.

Currie, C. et al. (2010). Social determinants of health and well-being among young people. Health Behaviour In School-Aged Children (HBSC) Study: International Report From The 2009/2010 Survey. Copenhagen: WHO Regional Office for Europe, 2012 (Health Policy for Children and Adolescents, No. 6). Retrieved from:

http://www.euro.who.int/__data/assets/pdf_file/0003/163857/Social-determinants-of-health-and-well-being-among-young-people.pdf (09.09.2013).
Dahl, E. And van der Wel K. A. (2013). Educational inequalities in health in European welfare states: A social expenditure approach. Social Science & Medicine, 81: 60–69.
Dahlgren, D., and Whitehead, M. (1991). Policies and strategies to promote social equity in health. Background document to WHO – Strategy paper for Europe: Institute for Future Studies.
Doblhammer, G., and Hoffmann, R. (2009). Gender differences in trajectories of health limitations and subsequent mortality. a study based on the german socioeconomic panel 1995 – 2001 with a mortality follow-up 2002 – 2005. Journal of Gerontology: Social Sciences, 10.1093/geronb/gbp051.
Elo A.-L., et al. (2003). A Validity of a single-item measure of stress symptoms. Scandinavian Journal of Work, Environment & Health, 29 (6), 444–451.
Elstad, J. I. (2006). The Psycho-Social Perspective on Social Inequalities in Health. In S. Nettleton and U. Gustafsson (Eds.).The Sociology of Health and Illness reader, 293–303. Cambridge: Polity Press.
Flere, S. and Divjak, M. (2014). The study and its operationalization. In S. Flere and R. Klanjšek (Eds.). Slovenian Youth: Living in times of disillusionment, risk and precarity: First CEPYUS – Friedrich-Ebert-Stiftung (FES) Youth Survey: Research Report, (pp. 18–28). Maribor: Faculty of Arts & Friedrich-Ebert-Stiftung (FES).
Glasscock, D. D. et al. (2013). Can negative life events and coping style help explain socioeconomic differences in perceived stress among adolescents? A cross-sectional study based on the West Jutland cohort study. BMC Public Health, 13: 532.
Graham, H. (2009). Understanding Health Inequalities (2nd Ed.). Berkshire: Open University Press, McGraw-Hill.
Greiner, B. A. (2012). The public health perspective: Useful for occupational health psychologists and health and safety professionals. In J. Houdmont, S. Leka, and R. R. Sinclair (Eds.), Contemporary Occupational Health Psychology: Global Perspectives on Research and Practice, Volume 2, 184–203. West Sussex: John Wiley & Sons.
Gustafsson, P. E. (2008). Psychosocial Stress, Mental Health and Salivary Cortisol in Children and Adolescents. Linköping University Medical Dissertation No. 1084. Division of Child and Adolescent Psychiatry, Department of Clinical and Experimental Medicine, Faculty of Health Sciences, Linköping University, SE-581 85 Linköping, Sweden.
Hartfiel, N., Burton, C., Rycroft-Malone, J., Clarke, G., Havenhand, J., Khalsa, S.B., Edwards, R.T. (2012). Yoga for reducing perceived stress and back pain at work. Occupational Medicine, 62 (8): 606–612.
Hayward R. D., Owen, A.D., Koenig, H. G., Steffens, D. C. and Payne, M. E. (2012). Longitudinal Relationships of Religion with Posttreatment Depression Severity in Older Psychiatric Patients: Evidence of Direct and Indirect Effects. Depression Research and Treatment, Volume 2012, Article ID 745970, 8 pages.
Helman, C. G. (2000). Culture, Health and Illness: An introduction for professionals. London: Butterworth-Heinemann.
Hernandez, L.M. and Blazer, D.G. (Eds.). (2006). Institute of Medicine (US) Committee on Assessing Interactions Among Social, Behavioral, and Genetic Factors in Health. Washington (DC): National Academies Press.
Heslop, P., Davey Smith, G., Carroll, D., MacLeod, J., Hyland, F. and Hart C. (2001). Perceived stress and coronary heart disease risk factors: the contribution of socio-economic position. British Journal of Health Psychology, 6: 167–178.
Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. American Psychologist, 44, 513–524.
Hudson, D. L., Puterman, E., Bibbins-Domingo, K., Matthews, K.A., Adler, N. E. (2013). Race, life course socioeconomic position, racial discrimination, depressive symptoms and self-rated health. Social Science & Medicine 97: 7–14.
Kessler, R. C., and McLeod, J. D. (1984). Sex differences in vulnerability to undesirable life events. American Sociological Review, 49, 620–631.
Lantz, P. M. (2005). Stress, Life Events, and Socioeconomic Disparities in Health: Results from the Americans' Changing Lives Study. Journal of Health and Social Behavior, 46 (3): 274–288.
Lavrič, M. (2014). Employment and mobility. In S. Flere and R. Klanjšek (Eds.). Slovenian Youth 2013: Living in times of disillusionment, risk and precarity. Maribor: CEPYUS; Zagreb: Friedrich-Ebert-Stiftung (FES).
Lazarus, R. S., and Folkman, S. (1984). Stress, appraisal, and coping. New York: Springer.
Lien, L., Lien, N., Heyerdahl, S., Thoresen, M., and Bjertness, E. (2006). Consumption of soft drinks and hyperactivity, mental distress, and conduct problems among adolescents in Oslo, Norway. American Journal of Public Health, 96 (10): 1815–1820.
Littman, A. J., et al., (2006). Reliability and Validity of 2 Single-Item Measures of Psychosocial Stress. Epidemiology, 17 (4), 398–403.
Lorant, V., Deliège, D., Eaton, W., Robert, A., Philippot, P. and Ansseau, M. (2013). 5Socioeconomic Inequalities in Depression: A Meta-Analysis. American Journal of Epidemiology, 157 (2): 98–112.

Lupien, S.J., King, S., Meaney, M.J., Mcewen, B. S. (2001). Can poverty get under your skin? Basal cortisol levels and cognitive function in children from low and high socioeconomic status Development and Psychopathology, 13 (3): 653–676.
Mackenbach J.P., Simon, J.G., Looman, C.W.N., Joung, I.M.A. (2002). Self-assessed health and mortality: Could psychosocial factors explain the association? International Journal Of Epidemiology, 31: 1162–1168.
Mackenbach, J.P. (2006). Health Inequalities: Europe in Profile. An independent, expert report commissioned by the UK Presidency of the EU (February 2006). Accessed through http://www.who.int/social_determinants/resources/european_inequalities.pdf (26.01.2014).
Mackenbach, J.P., et al. (2008). Socioeconomic Inequalities in Health in 22 European Countries. The New England Journal of Medicine, 358: 2468–2481.
Mahoney, C. (2009). Stress: Sham Epidemic or Pathway to Ill Health? A Sociological Analysis of a Contested Concept. Journal of Social and Psychological Sciences, 2 (1): 54–80.
Mulder, B. C. (2011). Stressors and resources mediate the association of socioeconomic position with health behaviours. BMC Public Health, 11: 798 doi:10.1186/1471-2458-11-798
Mulder, B.C., et al. (2011). Stressors and resources mediate the association of socioeconomic position with health behaviours. BMC Public Health 11: 798.
Musil, B. (2011). Health and wellbeing. In M. Lavrič (Ed.). Youth 2010: The social profile of young people in Slovenia, 321–348. Ljubljana: Ministry of Education and Sports, Office for Youth; Maribor: Aristej.
Pucelj, V. (2011). Odnos do šole. In H. Jeriček Klanšček et al. (Eds.). Neenakosti v zdravju in z zdravjem povezanih vedenjih slovenskih mladostnikov, 55–70. Ljubljana: Inštitut za varovanje zdravja v Sloveniji.
Pušnik, T. (2002). Nekateri indikatorji duševnega zdravja dijakov GESŠ. Psihološka obzorja, 11 (1): 79–96.
Rudolph, K. D., and Hammen, C. (1999). Age and Gender as Determinants of Stress Exposure, Generation, and Reactions in Youngsters: A Transactional Perspective. Child Development, 70, 660–677.
SJM (2006/1). Slovensko javno mnenje 2006/1: Evropska družboslovna raziskava. Kurdija, S. et al. Slovensko javno mnenje 2006/1: Evropska družboslovna raziskava [datoteka podatkov]. Slovenija, Ljubljana: Fakulteta za družbene vede, Center za raziskovanje javnega mnenja in množičnih komunikacij [izdelava], 2006. Slovenija, Ljubljana: Univerza v Ljubljani, Arhiv družboslovnih podatkov [distribucija]. Retrieved from: http://www.adp.fdv.uni-lj.si/opisi/sjm061/opis-podatkov/ (24.01.2014).
Tavčar Krajnc, M. and Kirbiš, A. (2014). Zdravje mladih v Sloveniji: analiza empiričnih podatkov iz raziskav Mladina 2010 in Youth 2013 [Health of Slovenian Youth: A Comparative Analysis of 2010 and 2013 National Youth Studies]. Paper presented at Nursing and the conference Public health, University of Primorska, Faculty of Health Sciences, Izola, Slovenia, January 31st, Izola.
The Impact of Socio-Economic Status on Self-Rated Health: Study of 29 Countries Using European Social Surveys (2002–2008).
Thoits P.A. (2010). Stress and Health: Major Findings and Policy Implications. Journal of Health and Social Behavior, 51 (1). S41-S53.
Verbrugge, L. M. (1989). The Twain Meet: Empirical Explanations of Sex Differences in Health and Mortality. Journal of Health and Social Behavior, 30 (3): 282–304.
West, P. (1997). Health inequalities in the early years: is there equalisation in youth?. Social Science & Medicine, 44: 833–858.
White B.A., Horwath, C.C., Conner, T.S. (2013). Many apples a day keep the blues away – Daily experiences of negative and positive affect and food consumption in young adults. British Journal of Health Psychology, 18 (4): 782–798.
White, K. (2009). An Introduction to the Sociology of Health and Illness (2nd Edition). Los Angeles: Sage.
Wiklund, M., Malmgren-Olsson E. B., Öhman, A., Bergström, E., Fjellman-Wiklund, A. (2012). Subjective health complaints in older adolescents are related to perceived stress, anxiety and gender – a cross-sectional school study in Northern Sweden. BMC Public Health, 12: 993.
Willson, A. E. (2009). `Fundamental Causes' of Health Disparities: A Comparative Analysis of Canada and the United States. International Sociology, 24 (1): 93–113.