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ORIGINAL RESEARCH

Stress and wellbeing among Turkish and German adolescents living in rural and urban areas

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ABSTRACT

Introduction: This study focuses on stress experiences and the psychological wellbeing of adolescents from rural and urban areas of Turkey and Germany. It also analyzes the role of social support, family problem solving and self-construals (independent vs interdependent) for stress and wellbeing in the different subsamples.

Methods: The total sample included 1850 high school students (500 Turkish urban, 771 Turkish rural, 268 German urban, and 311 German rural). The participants filled in questionnaires related to coping, self-construal, stress and wellbeing.

Results: The results indicated that the perception of stress is higher for Turkish adolescents than for German adolescents. Moreover, it was found that adolescents who live in rural parts experience more stress than their urban counterparts of both countries. In line with this, adolescents in rural regions report lower wellbeing than adolescents in urban regions. However, the latter difference between urban and rural regions is only salient for adolescents who live in Turkey. The search for possible factors associated with stress and wellbeing showed that coping variables related to social support and to solving family problems as well as variables related to the interdependent–independent distinction might be relevant as predictors. Most of the predicting variables showed non-moderated associations. There were only few moderations related to nation (Turkey vs Germany), location (urban vs rural) or sex.

Conclusions: The current study leads to a better understanding of stress experiences and wellbeing of adolescents living in rural and urban areas. As a consequence, improving social systems, especially in developing countries, may support youths to cope with stress effectively and to improve their psychological wellbeing.

Key words: adolescents, coping strategies, rural–urban, self-construal, stress, wellbeing.

Introduction

Adolescence is a period with rapid physical (eg sexual maturation) and psychosocial changes (eg searching for autonomy). These changes during adolescence are largely influenced by social and cultural contexts[1]. The aim of the current research is to predict stressful experiences and wellbeing for adolescents living in different cultural surroundings and in different regions (urban and rural areas of Turkey and Germany).

Marotz-Baden and Colvin[2] indicated that stressors might be different in rural and urban environments. Because of geographical differences, differential accessibility of resources and social class differences between rural and urban environments, it is assumed that there are differences with regard to the experience of stress and to coping efforts. However, in industrialized countries the rural–urban differences are probably smaller than in developing countries[3]. Therefore, the smaller economical and social differences between rural and urban regions in developed countries mean that stress and coping efforts are expected to differ less than in developing countries.

According to the transactional stress model, two main coping efforts may be differentiated: problem-focused and emotion-focused coping[4]. The aim of problem-focused coping is to change the problematic situation directly in order to reduce stress levels. Emotion-focused coping relates to the managing the emotional impact of stress in order to reduce the emotional reactions aroused by a stressor[5], which is an indirect way of coping. The availability of efficient coping strategies plays an especially important role in adolescence because during this period many life stressors are experienced for the first time. Successful coping strategies support adolescents in accomplishing a balance between striving for independence and the demands of the family and society[6]. Developing social support, especially, plays an important role for the accomplishment of self-reliance, a sense of trust, and psychological safety[7,8]. The study by Tyerman and Humphrey[9] showed that experienced stress and insufficient social support provided by families might lead to psychological problems in adolescents. Moreover, it was found that solving family problems before the appearance of crises has a buffering effect on stress[10]. As a consequence, receiving social support from the family and trying to solve problems within the family may reduce stress levels. Therefore, it might be expected that both social support and solving family problems are associated with positive contributions to stress management and psychological wellbeing.

Due to the comparison of adolescents from Turkey and Germany in this study, it is also important to mention differences between Western and non-Western cultures in regard to their self-construals. Kitayama and Markus[11] argued that differences in wellbeing might be explained by the self-construals that are prevalent in different cultures. As previous studies have shown, people from non-Western cultures are characterized by interdependent and relational interdependent self-construals. Although both types of interdependence focus on relationships, interdependent self-construals are related to group relationships in general, while relational interdependence focuses on close (family) relations. As a consequence, in the cases of interdependent and relational interdependent self-construal, relationships may be of increased importance for wellbeing. On the other hand, people from Western cultures are typically characterized by an independent self-construal, which means that the self is separated from an interpersonal context[12-14]. In this case, personal goals are more important than social goals and social relations. In line with their personal goals, people with an independent self-construal prefer direct action to change a stressful situation. In contrast, people with an interdependent self-construal emphasize closeness and harmony with others. They often avoid direct action as a coping strategy if this could harm social relationships[15].Therefore, people with an interdependent self-construal often prefer regulating the emotional impact of a stressful situation rather than changing it.

In the current study, it is hypothesized that there will be differences between urban and rural adolescents regarding their stress levels and psychological wellbeing. When the differences between the nations and the rural–urban distinction are considered, it is expected that the experienced stress and wellbeing differences will be more salient in the rural and urban parts of Turkey than in Germany. On the other hand, stress level and wellbeing may be explained by the coping strategies used by the two populations (rural and urban) in Turkey and Germany. More specifically, a positive impact of social support and solving family problems on wellbeing and a buffering effect on stress are expected. Considering the self-construals, it is hypothesized that an independent self-construal is related to a reduced stress level and an increased wellbeing in German adolescents, while a similar effect is expected for an interdependent self-construal in the Turkish population. Thus, a differential effect of the kind of self-construal is expected for Turkish and German adolescents. Because previous studies showed sex differences for many variables related to stress, wellbeing and coping[16,17], sex was included as moderator variable in all analyses reported below.

Methods

Participants and procedure

In total, 1850 adolescents from urban and rural high schools in Turkey and Germany participated in this study. The proportions of female and male participants were 50.7 and 49.3%. The mean age of the participants was M=15.9 years (SD=1.27). As there were significant differences between the samples with regard to age ($F_{(3,1843)}$=40.45, p<0.001, η=0.062), age was included as a control variable in all analyses reported below. Table 1 shows the frequencies of female and male participants for each of the samples. In the current study, rural areas are defined as areas located far from larger cities and towns. They are typically regions with small villages and low populations compared to major cities and towns. Moreover, traditional cultural structures are typically maintained in these areas. The Turkish rural participants were from rural areas in the regions of Corum, Malatya, Gaziantep and Izmir (Odemis). The German rural participants were from areas in the region of Fulda and Gersfeld. The Turkish urban participants were from Istanbul, while the German urban participants were from Bielefeld, which is among the 20 largest German cities, with a population of about 320 000 people.

The sampling was based on a random selection of schools in the respective regions. The participating schools covered a broad range of performance levels and the participants can therefore be seen as a largely representative sample of adolescents in the included age range. The adolescents' participation in the study was on a voluntary basis and required their parents' permission. Appointments were made with the schools to inform them about the study. In total, 14 schools in Turkey (7 rural, 7 urban) and 13 schools in Germany (5 rural, 8 urban) were asked to participate. All contacted schools in Turkey decided to participate, while 9 of the 13 contacted schools in Germany (4 rural, 5 urban) took part in the current research. With the participating schools, further dates were arranged to provide the questionnaires. The design of the study is presented in Figure 1. All questionnaires were completed in the respective classrooms. A research assistant provided participants with standardized instructions such as anonymity and voluntariness of participation. The questionnaires were administered during one school hour (with duration of approximately 45 minutes).

Measures

The questionnaire started by asking participants for basic demographic information (age, sex, place of birth, occupation of the parents, number of siblings etc). The questionnaire continued with the questions related to perceived stress, coping, wellbeing and self-construal. The questionnaire was provided either in Turkish or in German. If translations to the Turkish or German language were necessary, the Brislin translation method[18] was used. In this case, the items were translated from English to German and subsequently translated back to English or from English to Turkish and back to English.

Table 1: Frequencies of male and female participants for each sample

Sample		Male			Female			Total	
	N	Mean age (years)	SD	*N*	Mean age (years)	SD	*N*	Mean age (years)	SD
Turkish									
Urban	228	16.0	1.5	272	16.0	1.0	500	16.0	1.2
Rural	402	16.3	1.2	369	16.1	1.2	771	16.2	1.2
German									
Urban	127	15.8	1.3	141	15.7	0.9	268	15.7	1.1
Rural	155	15.3	1.2	156	15.3	1.3	311	15.3	1.3

SD, standard deviation.

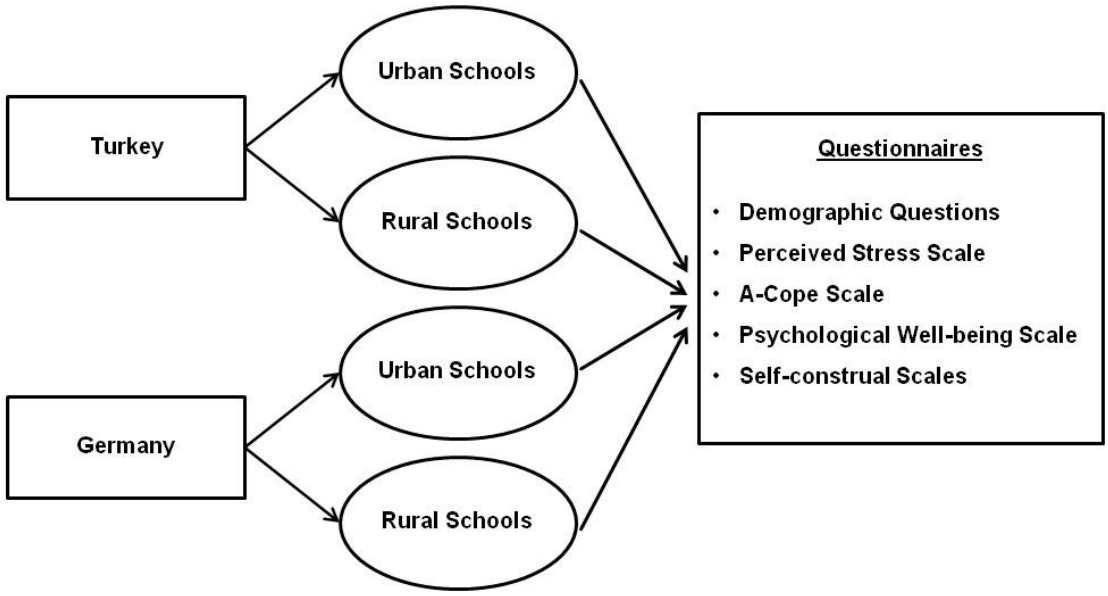

Figure 1: Flow chart of the study design and procedure.

Perceived Stress Scale: The Perceived Stress Scale (PSS) is a 10-item questionnaire that assesses stress-related feelings and thoughts of participants within the last month. It was developed by Cohen et al[19]. It includes four positively stated items (eg 'In the last month, how often have you felt that things were going your way?') and six negatively stated items (eg 'In the last month, how often have you felt that you were unable to control the important things in your life?'). The items were rated on a 5-point Likert scale (1 is never, 5 is very often). The negatively stated items were recoded to be able to calculate a mean score across the items. The instrument is available in many languages and has previously been used in Turkish and German[20,21]. In the current study, the Cronbach's α was found to be 0.80.

A-Cope Scale: The A-Cope (Adolescent Coping Orientation for Problem Experiences) Scale is a 54-item questionnaire developed by Patterson et al[6]. It was developed for 11–18-year-old adolescents to analyze their use of coping strategies during stressful situations. The items of the A-Cope

are rated using a 5-point Likert scale (1 is never, 5 is most of the time). The scale includes 12 subscales: (1) ventilating feelings, (2) seeking diversions, (3) developing self-reliance, (4) developing social support, (5) solving family problems, (6) avoiding problems, (7) seeking spiritual support, (8) investing in close friends, (9) seeking professional support, (10) engaging in demanding activities, (11) being humorous, and (12) relaxing. The current study focuses on developing social support (eg talk to a friend about how you feel) and solving family problems (eg try to reason with parents and talk things out, compromise). Mean scores were calculated across the items belonging to these subscales. Cronbach's α for social support was 0.57 and for solving family problems was 0.74.

Well-being Scale: The Well-being Scale is an 84-item questionnaire developed by Ryff[22]. The scale includes six dimensions each consisting of 14 items (autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance). The current study focuses on the subscales of positive relationships (eg 'Most people see me as loving and affectionate'), autonomy (eg 'Being happy with myself is more important to me than having others approve of me'), purpose in life (eg 'I enjoy making plans for the future and working to make them a reality'), and self-acceptance (eg 'In general, I feel confident and positive about myself'). The other two subscales, which are environmental mastery (eg 'I generally do a good job of taking care of my personal finances and affairs') and personal growth (eg 'There is truth to the saying you can't teach an old dog new tricks'), are more likely to be appropriate for older participants. A total wellbeing score was constructed as a mean score of all included wellbeing items with recodings of negative items. A German translation of the scale was provided by Risch and colleagues[23]. In the current study, Cronbach's α for the total wellbeing score was 0.91.

Self-construal Scales: (a) Independent–Interdependent Self-construal Scale (SCS): The SCS is a 24-item questionnaire developed by Singelis[24] (German translation by Hanover et al[25]). It consists of two main subscales, each with 12 items (independent self-construal 'I am the same person at home that I am at school' and interdependent self-construal 'I will sacrifice my self-interest for the benefit of the group I am in'). It was rated using a 5-point Likert scale (1 is strongly disagree, 5 is strongly agree). The Turkish translation was based on the method described above. Mean scale scores were calculated across the items of the two subscales. In the current study, Cronbach's α was 0.45 for independence and 0.68 for interdependence.

Self-construal Scales: (b) Relational–Interdependent Self-construal (RISC) Scale: The RISC Scale is an 11-item questionnaire developed by Cross and colleagues[13,14]. The RISC Scale aims to assess the importance of close personal relationships for one's self-definition. In the current study, both Turkish and German translations of the scale were used[26,27]. Item examples are: 'Overall, my close relationships have very little to do with how I feel about myself' and 'My close relationships are unimportant to my sense of what kind of person I am'. It was rated by using a 5-point Likert scale (1 is strongly disagree, 5 is strongly agree). Again, mean scale scores were calculated across the items. In the current study, Cronbach's α was 0.75.

Statistical analyses

The analysis of differences between the nations (Turkey vs Germany), the locations (urban vs rural) and the sexes is based on multivariate analysis of variance (Statistical Package for the Social Sciences v20 (SPSS Inc; www.spss.com)). Regression analyses are applied for the prediction of the reported stress level and wellbeing by the coping and independence–interdependence scales. Separate analyses were calculated for the reported stress level and wellbeing as criteria. The predictor variables were related to coping (social support and solving family problems) and independence–interdependence. Nation (Turkey vs Germany), location (urban vs rural) and sex were included as moderator variables. This means that the interaction terms defined as predictor variable x moderator variable were included additionally (two-way and higher order interactions). The interaction terms were added to the

regression models because the predictor variables may have a differential effect on the criteria, depending on the moderator variables (nation, location and sex). For these analyses, the predictor variables were *Z*-standardized. The moderator variables (nation, location and sex) were coded as –1 and +1. In the case of nation, Turkey was coded as –1 and Germany as +1. For location, urban was coded as –1 and rural as +1 for. In the case of sex, female was coded as –1 and male as +1. Due to numerous tests used for the analyses, α was generally set to $\alpha<0.01$.

Ethics approval

Ethics approval for the study was granted through the Ethics Committee of the Faculty of Psychology and Sport Sciences at the University of Bielefeld (EK-2013-039).

Results

Preliminary analyses: intercorrelations between the included variables

Table 2 shows the intercorrelations (Pearson) between the variables included in this study based on the total sample. These preliminary analyses are provided to show the general structure of the included variables (although there may be differences in the subsamples, which are addressed in the regression analyses reported below). First, the correlational analyses show a substantive negative correlation between the reported stress level and wellbeing, indicating that an increased stress level is associated with a lower wellbeing. The coping variable social support is positively associated to the reported stress and wellbeing. The coping variable solving family problems is negatively associated to the reported stress level, whereas it is positively associated to the reported wellbeing. The positive relation between coping strategies and wellbeing and also negative association between solving family problems and stress are expected, but the positive relation between social support and stress may need explanation. This topic is addressed below. Moreover, the RISC and SCS scales related to independence–interdependence are positively correlated. They also show in general positive associations to wellbeing and the coping scales.

Stress level and wellbeing in dependence of nation, location and sex

A multivariate analysis of variance was applied to analyze the impact of nation (Turkey vs Germany), location (urban vs rural) and sex on stress level and wellbeing. Age was included as covariate to control for age differences between the samples. The MANOVA shows multivariate main effects for nation ($F_{(2,1837)}=39.58$, $p<0.001$, $\eta^2=0.041$), for location ($F_{(2,1837)}=12.09$, $p<0.001$, $\eta^2=0.013$) and for sex ($F_{(2,1837)}=63.30$, $p<0.001$, $\eta^2=0.064$). In addition, there were multivariate interactions for location x nation ($F_{(2,1837)}=18.28$, $p<0.001$, $\eta^2=0.020$) and sex ′ nation ($F_{(2,1837)}=5.61$, $p=0.004$, $\eta^2=0.006$). The other two- and three-way interactions proved to be insignificant.

The univariate analyses for the stress level again show main effects for nation ($F_{(1,1838)}=73.37$, $p<0.001$, $\eta^2=0.038$), for location ($F_{(1,1838)}=11.58$, $p=0.001$, $\eta^2=0.006$) and for sex ($F_{(1,1838)}=78.77$, $p<0.001$, $\eta^2=0.041$). Figure 2 illustrates these differences. The reported stress level is in general higher in Turkey than in Germany, higher in rural areas than in urban areas and higher in female than in male adolescents. Beyond this, there were no significant interactions for the reported stress level.

For wellbeing, the univariate analyses show only a main effect for location ($F_{(1,1838)}=22.36$, $p<0.001$, $\eta^2=0.012$) (Fig3). The reported wellbeing is higher in urban than in rural areas. However, in addition there are interaction effects for location x nation ($F_{(1,1838)}=31.79$, $p<0.001$, $\eta^2=0.017$) and nation x sex ($F_{(1,1838)}=11.07$, $p<0.001$, $\eta^2=0.006$). The interaction between location and nation indicates that the main effect for location is probably a consequence of the substantial difference within the Turkish sample, which is not shown in the German sample. Thus, the reported wellbeing is increased in urban areas in Turkey, but there is no difference in Germany. The second interaction indicates that there are small differences between the female wellbeing reports in Turkey and Germany, but that the reported wellbeing is increased in male German adolescents in comparison to male Turkish adolescents.

Table 2: Intercorrelations of the variables included in the study (Pearson correlation)

	(a)	(b)	(c)	(d)	(e)	(f)	(g)
(a) Stress level	1	–0.44**	0.08*	–0.18**	0.03	0.04	–0.10**
(b) Wellbeing		1	0.11**	0.24**	0.29**	0.12**	0.31**
(c) Social support			1	0.38**	0.32**	0.30**	0.16**
(d) Solving family problems				1	0.16**	0.29**	0.12**
(e) Relational–Interdependent Self-construal (RISC) Scale					1	0.54**	0.34**
(f) Interdependent Self-construal Scale (SCS)						1	0.33**
(g) Independent Self-construal Scale (SCS)							1

* $p<0.01$, ** $p<0.001$.

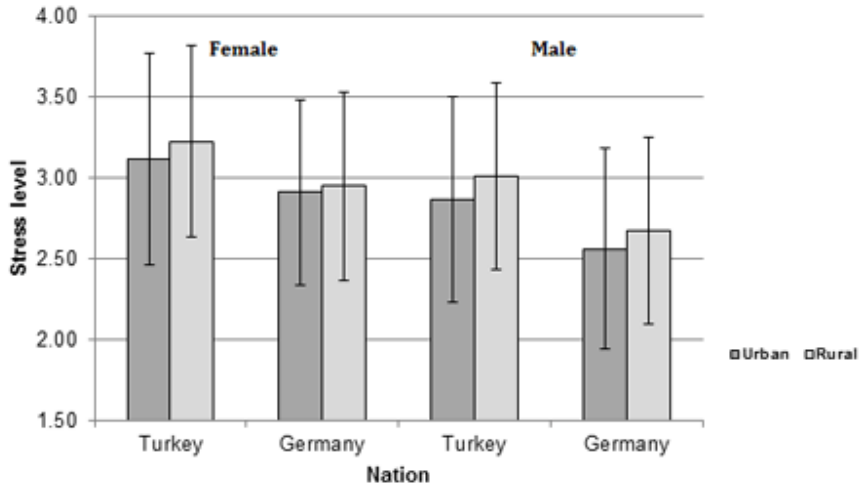

Figure 2: Mean reported stress level by nation (Turkey vs Germany), location (urban vs rural) and sex.

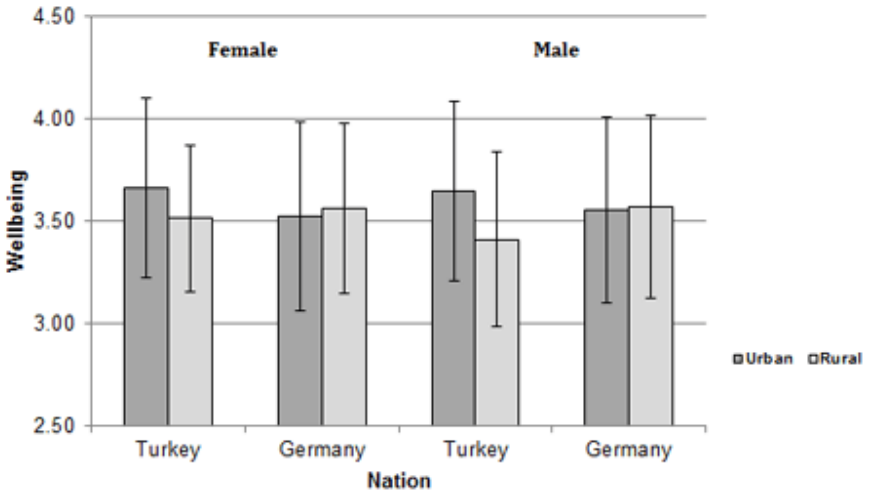

Figure 3: Mean reported wellbeing level by nation (Turkey vs Germany), location (urban vs rural) and sex.

To summarize, the stress level differs by nation (increased in Turkey), location (increased in rural areas) and sex (increased in female adolescents). The level of wellbeing is influenced by location (increased in urban areas), although this effect is limited to the Turkish adolescents. The level of wellbeing is additionally influenced by an interaction between nation and sex: there are no general sex differences in female adolescents, but in male adolescents the general wellbeing is higher in Germany than in Turkey (although it should be noted that the male subgroup of urban Turkish adolescents shows the highest wellbeing ratings).

Prediction of stress level and wellbeing in dependence of nation, location and sex

The following sections report on the prediction of the reported stress level and wellbeing by nation, location, sex and the coping variables (social support and solving family problems) and independence–interdependence. Nation, location and sex were additionally included as moderators (by calculating interaction terms with the coping variables). Age in years was included to control for possible age effects. Table 3 provides an overview for variables with significant associations to the criteria (stress level and wellbeing).

Regarding the reported stress level, the regression analysis shows that 19.6% of the variance is accounted for by the predictor variables ($F_{(44,1801)}$=9.99, p<0.001). The most powerful predictions are related to non-moderated effects. The amount of social support is related to increased stress levels, while solving family problems and an independent self-construal are related to decreased stress levels. Beyond this, there is only one moderated association: the association between an independent self-construal and the reported stress level is moderated by nationality. As an inspection of the slopes shows, the relation between independence and the stress level is more negative in the German than in the Turkish sample (r=–0.19, p<0.001 vs r=–0.04, p>0.01).

For wellbeing, 27.3% of the variance is explained by the predictor variables ($F_{(44,1801)}$=15.35, p<0.001). Again, the most powerful predictions are independent of the moderators. Solving family problems, a relational–interdependent self-construal and an independent self-construal are related to an increased wellbeing, while an interdependent self-construal is associated to a decreased wellbeing. In addition, there are three moderated relations. (a) The relation between wellbeing and the coping strategy 'solving family problems' depends on sex. The respective correlations are r=0.32 and p<0.001 in the female sample versus r=0.14 and p<0.001 in the male sample. (b) The association between an independent self-construal and wellbeing is moderated by nationality. In the Turkish sample, the respective correlation is r=0.24 and p<0.001; in the German sample, it is r=0.48 and p<0.001. (c) The association between an interdependent self-construal and wellbeing depends on nation and location. In Turkey, the correlation is higher in urban than in rural areas (r=0.22, p<0.001 vs r=0.16, p<0.001), while in Germany, it is higher in rural than in urban areas (r =0.09, p>0.01 vs r=0.05, p>0.01). It should, however, be noted that the correlations in the German sample are not significant. Taking the correlations in the Turkish sample alone, the difference is obviously small. Thus, this interaction effect is not very substantial and should not be interpreted.

Because the Turkish urban and rural sample sizes are larger than the German urban and rural sample sizes, all analyses were redone with randomly selected subsamples of the Turkish samples to get comparable sample sizes (Turkish urban n=241; Turkish rural n=383; German urban n=268; German rural n=311). All previously reported results were replicated using the reduced sample size, indicating that the results are not dependent on differences in sample size.

Discussion

This study investigated the effect of preferred coping strategies (developing social support, solving family problems), self-construals and the rural–urban distinction on experienced stress and wellbeing of adolescents from Turkey

and Germany. The results showed that the level of stress experienced by adolescents depends on the nation they belong to (Turkey vs Germany), the location (rural vs urban) and their sex. Considering the nation, the result indicated that, in general, Turkish adolescents experience higher levels of stress than their German peers. This difference may be explained by cultural differences. Cultural orientation (independence and interdependence) plays an important role for one's self-definition, behaviors, traditions and expectations of others[12,28]. Family ties are stronger in non-Western cultures than in Western cultures. Parents are seen as authority figures. During adolescence, individuals want to gain more autonomy and freedom. Therefore, being a part of an interdependent culture, Turkish adolescents might not be able to increase their individual autonomy as they want because of the rules and expectations of their families. This may be one of the reasons for experiencing more stress.

Moreover, the results indicated that, in general, youths in the rural parts of both countries (Germany and Turkey) experience more stress than youths in urban regions. Studies reported that the major problems in the rural settings are limited employment opportunities and limited access to services[29,30]. For instance, in urban settings, adolescents who experience stress may have access to community centers for support to overcome stressful situations and to reduce the emotional impact of the stress. However, in rural settings, access to these services is not as easy. This may be a reason for the rural versus urban difference with regard to experienced stress.

The results indicated that female adolescents experience more stress than their male counterparts. This is in line with previous studies that also showed that female adolescents reported more stress than males[31,32]. Allgood-Merten and colleagues[33] indicated that high-school-age females, for example, are more concerned about their physical appearance than males are, which could be one of the reasons of experiencing more stress. Another study showed that increased stress levels by female adolescents might be dependent on their conflicts with parents. Although parental conflicts are also experienced by males, the self-esteem and self-confidence of female adolescents may be more strongly related to their interpersonal relationships[34]. As a consequence, experiencing stress because of conflict with parents may lead to lower wellbeing in female adolescents. In line with this, the current study showed that solving family problems is associated with higher psychological wellbeing for females and a lower level of stress for both genders. A third explanation may be that female adolescents are more sensitive to bodily discomforts and more willing to report symptoms of distress and illness than male adolescents are, in accordance with their sex role expectations[35].

Moreover, the results indicated that a higher stress level is associated with a higher level of developing social support. Many studies underline that social support is associated with a stress-buffering effect[36-38]. Although the initial expectation was that the availability of social support is associated with lower stress levels, a possible interpretation may be that adolescents who experience high levels of stress search for more social support to cope with their stressors. The cross-sectional design of this study does not allow determination of the causal direction of the influence. As a consequence, this interpretation may be consistent with the data.

As mentioned in the introduction, Preston[3] revealed that the rural–urban difference is larger in developing countries than in developed countries. Therefore, it was predicted that wellbeing could be different, especially between Turkish rural and urban adolescents. The results corroborated the level of wellbeing being mainly dependent on the location (rural vs urban) in the Turkish sample, but not in the German sample. The psychological wellbeing was higher for adolescents who live in the urban areas of Turkey than for adolescents who live in the rural areas of Turkey. Frey[39] stated in 1964 that with modernization, the differences in the education system between rural and urban areas of Turkey were reduced. However, differences still exist. The improvement of the education system is more salient in urban areas than in rural areas. Therefore, urban youths might have access to better education than rural adolescents. When the future expectations of youths are concerned, a poorer education may lead to lower chances of gaining increased economic status, which may be associated with lower psychological wellbeing.

Table 3: Prediction of reported stress level and wellbeing by coping variables and independence–interdependence with nation, location and sex as moderators (included are only significant predictions)

					95% CI of *B*	
	B	**SE**	**β**	***p***	**LL**	**UL**
Stress level						
Social support	0.139	0.026	0.151	<0.001	0.088	0.190
Solving family problems	–0.221	0.022	–0.280	<0.001	–0.263	–0.179
Independent self-construal (SCS)	–0.167	0.036	–0.123	<0.001	–0.238	–0.096
Independent self-construal × nation	–0.050	0.017	–0.079	0.003	–0.083	–0.017
Wellbeing						
Solving family problems	0.152	0.015	0.271	<0.001	0.124	0.181
Relational-interdependent self-construal (RISC)	0.149	0.024	0.185	<0.001	0.102	0.195
Interdependent self-construal (SCS)	–0.097	0.026	–0.115	<0.001	–0.147	–0.046
Independent self-construal (SCS)	0.311	0.024	0.322	<0.001	0.263	0.359
Solving family problems × sex	–0.040	0.012	–0.090	<0.001	–0.063	–0.018
Independent self-construal × nation	0.073	0.011	0.163	<0.001	0.051	0.095
Interdependent self-construal × location × nation	–0.041	0.013	–0.091	0.002	–0.032	0.019

Stress level, R^2=0.196, p<0.001; wellbeing, R^2=0.273, p<001.
B, unstandardized regression coefficient; CI, confidence interval; LL, lower limit; SE, standard error; UL, upper limit.

In addition, according to the results of the current study, male adolescents in Germany showed an increased wellbeing in comparison to male adolescents in Turkey. The reason may be related to traditional role expectations for Turkish men. The gender role expectations in Turkey are still very traditional, which means that the typical expectation is that males dominate the economy, while females dominate the households. The pressure to get appropriate opportunities to gain economic freedom may be a factor contributing to the decrease of the Turkish male adolescents' wellbeing.

Regarding the search for possible influential factors for stress and wellbeing, the results showed that variables related to the interdependent–independent distinction might be relevant predictors. As previous studies have shown, people from non-Western cultures stress the importance of group relations and social norms. In contrast, people from Western cultures focus on developing individual goals[12,14]. The results showed that an independent self-construal has an increased buffering effect on stress for German adolescents and is also associated with increased wellbeing.

Moreover, the results indicated a positive relation between psychological wellbeing and a relational self-construal. The term of relational self-construal emphasizes the importance of one-to-one relationships in one's self-definition[13]. Studies showed that having and maintaining relationships plays an important role in one's life and has positive contributions to one's wellbeing[40,41]. Therefore, as the results showed, if the behaviors of adolescents are indicating the maintenance and development of relationships, this could have a positive effect on their wellbeing.

Limitations and implications

Some weaknesses of the current study should be addressed. One of the limitations is related to the community contexts of the included samples. Although the samples were collected from rural and urban regions, living conditions in the rural parts of Germany and Turkey are not equal. It should also be noted that the size of the urban regions in Germany and Turkey (Bielefeld vs Istanbul) might not be comparable. This may contribute to an increase in the differences between the Turkish and German regions. These differences could limit

the results regarding the effects of the context (urban versus rural) on stress and wellbeing. Another limitation may be that the sample sizes in Turkey and Germany were not completely comparable. Although this did not influence the results as the re-analyses with subsamples showed, it might reduce the representativeness of the results for adolescents in Turkey versus in Germany.

It should also be noted that the reliability score of the independent self-construal scale was low. Cronbach's α was 0.69 in the previous study by Singelis[24]. Although it is unclear why the respective value was so low in the current study, it should be noted that the analyses related to this subscale represented only a small part of the current study. Thus, the majority of the results are not influenced by a low reliability of this subscale.

It should also be mentioned as another possible limitation that the included predictor variables could explain only 19.6% and 27.3% of the variance in stress and psychological wellbeing. This means that additional factors (eg socio-economic variables) may contribute to the experience of stress and wellbeing. As a consequence, future studies should include a larger set of possible influential factors to increase the validity of the results.

A possible implication of this study may be to gain a better understanding of the effects and problems associated with living in urban versus rural areas. Especially, when the distinction between rural and urban Turkey is considered, progressions should be made by national authorities with regard to the health and education systems. Improving these systems in the rural parts of the country could help adolescents to increase their psychological wellbeing and to reduce their current stress level and anxieties about the future. As a consequence, preventive efforts should especially focus on rural areas in developing regions.

Conclusions

In general, it can be concluded that the gap between rural and urban regions is more salient in developing countries. Adolescents living in rural regions do not have the same opportunities as their counterparts in urban regions. This could lead them to think negatively about their future, which may also negatively impact on their psychological wellbeing. Therefore, by improving the social system by providing better education and health care in rural areas, it may be possible to support youth to deal with negative life events more effectively, which in turn may increase their psychological wellbeing.

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