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# Psychometric Properties of the Orientations to Happiness Scale and Measurement Invariance Between Samples of Turkish and Russian University Students

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**Abstract**   The purpose of this study was to investigate the psychometric properties of the Orientations to Happiness Scale (OHS) in a sample of Turkish university students and to compare the factorial structures derived from Turkish and Russian samples. The OHS, Satisfaction with Life Scale, General Life Satisfaction Scale and UCLA Loneliness Scale (version 3) were administered to 1,007 volunteer university students from two countries. The validity and reliability findings generally supported the multifactorial structure of the OHS in both samples. All of the components of the OHS significantly predicted life satisfaction (SWL) in the Turkish sample. In the Russian sample, only meaning significantly contributed to SWL. Therefore, the Turkish version of the OHS effectively assesses Turkish individuals' orientations to happiness.

## 1 Introduction

There has long been a growing interest in the definition and characteristics of a "good life." Positive psychology attempts to provide information about individuals' quality of life. Before World War II, treating mental illness, helping people live more productive lives and talent development were among the primary goals of psychology (Seligman and Csikszentmihalyi 2000). After World War II, studies indicated (Cohen et al. 2003; Danner et al. 2001) that positive mental states were more important than the absence of negative states. As a result, psychology began to develop in a new direction. Positive psychology has increased the importance of several concepts, including subjective well being (SWB) .

Subjective well being (SWB) has been defined as an individual's subjective evaluation of his or her life (Diener et al. 1995; Diener and Ryan 2009). SWB includes many

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constructs, including emotional responses, domain satisfaction, happiness and life satis-
faction. Each construct is highly correlated to SWB (Diener et al. 1999). Although hap-
piness and life satisfaction are the cornerstones of SWB, Cummings (1998) claimed that
these concepts should be measured and commented upon separately.

Positive psychology has examined happiness using three concepts: hedonism, meaning
and engagement. For the ancient Greek philosophers, a good life maximized pleasure and
minimized pain. This concept is known as hedonism, the reverse of ascetism, and was first
articulated by Aristuppus (435–366 BCE); (Decci and Ryan 2001; Peterson et al. 2005).
Hedonism directly affects happiness, which is the positive balance between pleasure and
pain (Veenhoven 2003). There are many arguments about hedonism's effects on individ-
uals' lives. For instance, religious systems strongly reject the hedonistic life. Hedonism
was termed "pleasure" in Peterson's happiness model.

In contrast to hedonism, eudomonia, which can be traced back to Aristotle, refers to
identifying one's virtues, cultivating them and living in accordance with them. The
pursuit of a meaningful life is accepted as the way to achieve life satisfaction (Peterson
et al. 2005) and protects individuals from negative outcomes (Pearson and Sheffield
1989) in the modern world. This concept is called the "life of meaning" in Peterson's
model. The third component of happiness is based on Csikszentmihayli's (1990) concept
of flow and is known as the "life of engagement." According to this theory, people, who
are engaging in more activities are happier and more satisfied with life. Peterson et al.
(2005) combined these three concepts of happiness to develop the Orientations to
Happiness Scale (OHS).

Studies attempting to measure SWB have developed a number of scales, including the
(SWLS; Diener et al. 1985), the Positive and Negative Affect Schedule (PANAS); (Watson
et al.1988), the Temporal Satisfaction with Life Scale (Pavot et al. 1998), the Oxford
Happiness Inventory (Hills and Argyle 1998) and the OHS (Peterson et al. 2005). The OHS
was developed by Peterson et al. (2005) to measure the three orientations to happiness. The
scale has a multifactorial structure and includes three subscales: "life of meaning," "life of
pleasure" and "life of engagement". The scale consists of 18 items, and each subscale
includes six items. The three orientations are moderately correlated. Life satisfaction is
significantly predicted by these three orientations to happiness. However, the life of
meaning and life of engagement components predict life satisfaction more than the life of
pleasure.

Numerous studies (Gabriele 2008; Vella-Brodrick et al. 2009; Proyer et al. 2012; Anić
and Tončić 2013; Chan 2013) have investigated the contributions of orientations to hap-
piness and other variables (character strengths) to life satisfaction (SWL) in individual
cultures. Several validation studies have also been conducted (Chan 2009; Ruch et al.
2010; Chen 2010; Chen et al. 2010). Cross-cultural comparisons using the OHS are
infrequent in the literature. However, Peterson et al. (2007) and Vella-Brodrick et al.
(2009) have produced two leading cross-cultural studies. Peterson et al. (2007) compared
US and Swiss samples, and the results showed similar ratings for the two samples. Vella-
Brodrick et al.'s (2009) research can be considered an extension of Peterson's (2007)
study. They compared US and Australian samples and examined the predictors of SWL
and positive and negative affect. Sociodemographic and personality variables were
included as predictors of these variables. The results indicated that engagement and
meaning predicted SWL and positive and negative affect more than pleasure and demo-
graphic variables for the US sample. For the Australian sample, engagement and meaning
were the main predictors of SWL, but no other variables significantly explained SWL.

## 1.1 Significance of the Study

This study is important for two primary reasons. First, validation of the OHS in Turkish culture could contribute significantly to studies on well being. Such validation would make cross-cultural comparisons possible and would make the scale a useful tool for gaining insight into the well being of the Turkish population.

Second, positive psychology attempts to improve human wellbeing. Valid knowledge is therefore needed to inform applied research and the applications emerging from it. In addition, such knowledge should be contextually culturally relevant. However, cultural contexts are not unique and static (Kağıtçıbaşı 2012). Oishi et al. (2013) indicated that cultural variations exist in the concept of happiness and asserted that the meaning of happiness may differ across cultures and therefore affect survey responses across cultures. In the same study, the researchers indicated that happiness is typically defined in two ways: as good luck or as a favorable internal emotional state. Turkey and Russia are different cultures whose primary definition of happiness also differs. In Russia, the meaning of happiness is primarily based on good luck. In Turkey, it is defined by pleasure. This study is designed to determine the effect of culture on the concept of happiness by comparing the Turkish and Russian factor structures revealed by the OHS.

The purpose of this study was to investigate the psychometric properties of the OHS in a sample of Turkish university students and compare the factorial structures of the Turkish and Russian samples. In addition, it sought to determine the consistency with which the three OHS life styles predicted SWL across countries and cultures. Specifically, this research investigated which cultural components of OHS (pleasure, meaning and engagement) contributed more to SWL. It is expected that cultural differences between the two countries will affect the predictive power of these components.

## 2 Methods

### 2.1 Participants

This study was conducted at three universities (two in Turkey and one in Russia). The sample consisted of 1,007 volunteer university students from Turkey (600) and Russia (407). In the Turkish sample, 383 of the participants were female and 217 were male. In the Russian sample, 311 students were female and 96 were male. Students completed the questionnaire using paper and pencil. The questionnaire included the OHS, General Life Satisfaction Scale (GLSS), SWLS and UCLA-3 Loneliness Scale. Students were asked to indicate their age, sex and family's monthly income. In the Turkish sample, the mean age was 21.9 (SD = 1.25). In the Russian sample, the mean age was 21 (SD = 1.13). The students' mean family incomes were 30,624 Rubles ($903.22) and 2,216 Turkish Liras ($1,030) in the Russian and Turkish samples, respectively.

### 2.2 Measures

#### 2.2.1 Orientations to Happiness Scale

The primary measurement tool used in this study was the OHS. The OHS is a unique measurement tool for assessing orientations to happiness. The 18-item scale was developed by Peterson et al. (2005) and assesses the three orientations to happiness (life of pleasure,

life of engagement and life of meaning). These orientations are represented in the OHS subscales, which consist of six items each. The scale items are rated on a 5-point Likert scale ranging from 1 (very unlike me) to 5 (very like me). Peterson et al. (2005) noted the scale's high internal consistency (0.84–0.87) and high test–retest reliability (3 weeks, r = 0.83; 9 months, r = 0.77). Their item factor analysis also indicated good construct validity. In this study, the Turkish translation of the OHS was used for the Turkish sample and the original (English) form was used for the Russian university students, who were fluent in English. Higher scores indicate higher orientations to happiness.

### 2.2.2 The Satisfaction with Life Scale (SWLS)

The SWLS, developed by Diener et al. (1985), measures life satisfaction. The scale consists of five items and is rated on a 7-point Likert scale. Scores on the scale range between 5 and 35. Higher scores indicate higher life satisfaction, and lower scores indicate lower life satisfaction. The SWLS takes 1–2 min to complete. It measures a person's overall life satisfaction but is not designed to measure specific life domains. The SWLS's unidimensional structure has been confirmed in several studies. The Turkish adaptation of the SWLS was completed by Durak et al. (2010). Three independent samples (university students, correctional officers and elderly adults) were used in the adaptation process. The reliability and validity findings supported the unidimensional structure of the scale in Turkish culture.

### 2.2.3 General Life Satisfaction Scale (GLSS)

The GLSS is a single-item measure that assesses general life satisfaction. Responses are given on a 7-point Likert scale, where 1 indicates "very low" life satisfaction and 7 indicates "very high" life satisfaction.

### 2.2.4 UCLA-3 Loneliness Scale

UCLA Loneliness Scale (version 3) was developed by Russell (1996) and consists of 20 items (9 positively worded and 11 negatively worded) that evaluate loneliness. Responses are given on a 4-point Likert scale ranging from O (often) to N (never). The Turkish version was adapted by Durak and Durak (2010). The adaptation was tested in two samples (Turkish university students, N = 481; elderly, N = 284). The three-factor structure of the scale was confirmed in both samples. The internal consistency of the scale ranged from 0.85 to 0.90. Based on these reliability and validity results, researchers concluded that the UCLA-3 could be used to measure the loneliness of Turkish individuals.

### 2.3 Data Analysis

The primary aim of this study was to investigate the psychometric properties of the OHS in a Turkish sample of university students. To achieve this aim, the total Turkish sample was divided randomly into two equal groups. Sample A was used to conduct exploratory factor analysis (EFA); sample B was used for confirmatory factor analysis (CFA). The Russian sample was also divided randomly into two equal subsamples (sample A and B). Sample A was used to conduct EFA, and sample B was used for CFA. The undivided samples were used to obtain the descriptive statistics and to perform correlational analysis and hierarchical multiple regressions on the ability of the three orientations to happiness to predict

life satisfaction. Before conducting the data analysis, the data were examined for missing values and incorrect coding. Fourteen cases from the Turkish sample and seven cases from the Russian sample were omitted from the data analysis because of missing values.

## 2.4 Procedure

The OHS was translated into Turkish by two translators who were expert in both Turkish and English. Then, the translations were compared to ensure their correspondence with one another. Next, two psychologists examined the translations for cultural and psychological validity. The back-translation process was performed by a different pair of translators. The two translations were compared to reach a consensus, which resulted in the final Turkish instrument. The questionnaire was administered in a classroom setting and took 10 min to complete. Before administration, all of the students were informed about the aim of the study.

# 3 Results

## 3.1 Exploratory Factor Analysis (EFA)

To examine the factorial structure of the OHS, EFA was conducted on the data from both samples. In EFA, the most important decision is determining how many factors to retain. There are several methods for determining the number of factors: Kaiser's "eigenvalues greater than one" rule, Cattel's scree test, Velicer's minimum average partial (MAP) correlation and Horn's parallel analysis (Tabachnick and Fidel 2001; Zwick and Velicer 1986). Kaiser's "eigenvalue greater than one" rule overestimates the number of components, and the scree test's reliability is low. However, Velicer's MAP correlation and Horn's parallel analysis are widely acknowledged to estimate the optimum number of components and to have advantages over other methods (Zwick and Velicer 1986).

In accordance with the aforementioned literature, MAP correlation, parallel analysis (PA) and principal components analysis (PCA) with oblique rotation were conducted to estimate the number of principal components to be retained. Tabacknick and Fidel (2001) suggested that oblique rotation should be used when there is a possibility that the factors are correlated. In the Turkish sample, the results of Velicer's revised MAP correlation ($n = 293$, $k$ [number of variables] $= 18$ items) suggested that two factors should be extracted (O'Connor 2000). The smallest average squared partial correlation was 0.0155, and the smallest average fourth power partial correlation was 0.0006. A PA suggested that four factors should be extracted ($n = 293$, $k = 18$ items; raw data eigenvalue $= 3.532$, mean $= 1.453$, fifth root percentile random data eigenvalue $= 1.224$). In the Russian sample, Velicer's revised MAP correlation ($n = 200$, $k$ [number of variables] $= 18$ items) suggested that three factors should be extracted (O'Connor 2000). The smallest average squared partial correlation was 0.0163, and the smallest average fourth power partial correlation was 0.0008. A PA suggested that three factors should be extracted ($n = 200$, $k = 18$ items; raw data eigenvalue $= 3.085$, mean $= 1.617$, fourth root percentile random data eigenvalue $= 1.384$; see Fig. 1). Figure 1, a Velicer's MAP test and Horn's parallel analysis of the Russian data indicated that three factors should be retained. The same tests on the Turkish data showed that three factors could be retained but that a forth factor was acceptable.
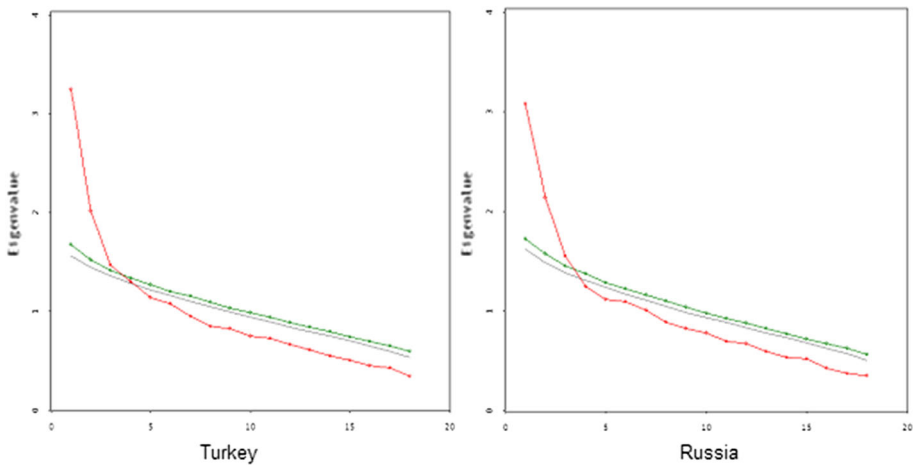
**Fig. 1** Parallel analysis of the OHS data from the Turkish and Russian samples

Table 1 shows the pattern matrix for both samples' data. Bartlett's test of sphericity and the KMO (Russian sample: $\chi^2 = 1{,}138{,}075$, $df = 153$, $p < .001$, KMO $= 0.837$; Turkish sample: $\chi^2 = 848{,}238$, $df = 153$, $p < .001$, KMO $= 0.756$) indicated that both samples were suitable for factor analysis. In the Turkish sample, four factors explained 19.74, 10.39, 8.50 and 5.96 % of the variance, respectively. In the Russian sample, three factors explained 29.14, 11.74 and 9.69 % of the variance, respectively. Factor loadings ranged from 0.499 to 0.849 in the Turkish sample and from 0.401 to 0.840 in the Russian sample. In the Turkish sample, 17 items loaded optimally on their associated factors, but item 17 loaded strongly on a different factor. In the Russian sample, all of the items loaded on their associated factors, as in Peterson et al. (2005). One purpose of this study was to perform a cross-cultural comparison. Therefore, item 17 was not eliminated from the scale because it was necessary to compare the same structure in both samples.

### 3.2 Confirmatory Factor Analysis

Peterson et al. (2005) indicated that OHS has a three-factor structure. This structure was tested using CFA. CFA generates statistics that explain the degree to which the competing models fit the data. These statistics are called "fit statistics" (Gillapsy 1996). The correspondence between hypothesized latent variable models is quantified by several fix indexes (Hu and Bentler 1995). In this study, $\chi^2$ (Kline 2005), $\chi^2/df$ (Bollen 1989), GFI, AGFI (Jöreskog and Sörbom 1993), CFI (Bentler 1990), the non-normed fit index (NNFI; Frias and Dixon 2005), SRMR and RMSEA (Stapleton 1997) were used to assess model fit. $\chi^2$ is affected by sample size and model complexity. Therefore, it was used with $df$. Values $<3$ are considered a good fit for $\chi^2/df$. For GFI, AGFI, CFI and NNFI, values between 0.00 and 1.00 and values close to 1.00 indicate good fit. Values $<0.05$ indicate good fit for SRMR and RMSEA (Frias and Dixon 2005). The three-factor structure of the 18-item OHS was examined in Turkish and Russian samples of university students. The CFA findings are summarized in Table 2.

In the Turkish sample, the fit indexes indicated an adequate fit. Error variances, factor loadings and factor covariances were significant, and standardized estimates ranged

**Table 1** OHS pattern matrix

| Items | Turkish sample | | | Russian sample | | |
|---|---|---|---|---|---|---|
| | LM | LP | LE | LM | LP | LE |
| I have a responsibility to make the world a better place | **0.654** | −0.065 | 0.014 | **0.791** | −0.077 | −0.043 |
| My life has lasting meaning | **0.69** | 0.123 | −0.012 | **0.619** | 0.049 | 0.001 |
| My life serves a higher purpose | **0.67** | −0.021 | −0.267 | **0.423** | 0.174 | −0.299 |
| In choosing what I do, I always take into account whether it will benefit other people | **0.523** | 0.101 | −0.013 | **0.516** | 0.129 | −0.114 |
| What I do matters to society | **0.598** | −0.099 | −0.032 | **0.544** | −0.095 | −0.129 |
| I have spent much time thinking about what life means and how I fit into the bigger picture | 0.154 | 0.098 | 0.132 | **0.437** | −0.123 | 0.179 |
| For me, the good life is the pleasurable life | −0.011 | **0.712** | −0.121 | 0.081 | **0.581** | 0.016 |
| Life is too short to postpone the pleasures it can provide | −0.044 | **0.663** | 0.255 | −0.078 | **0.66** | −0.074 |
| I agree with this statement: "Life is short; eat dessert first" | −0.232 | **0.628** | −0.056 | −0.118 | **0.84** | 0.042 |
| I love to do things that excite my senses | 0.112 | **0.521** | −0.087 | −0.009 | **0.509** | −0.043 |
| In choosing what I do, I always take into account whether it will be pleasurable | 0.234 | **0.512** | 0.113 | 0.171 | **0.401** | −0.078 |
| I go out of my way to feel euphoric | −0.088 | **0.499** | 0.101 | 0.089 | **0.678** | −0.064 |
| In choosing what I do, I always take into account whether I can lose myself in it | 0.067 | −0.032 | **0.849** | −0.197 | 0.077 | **0.597** |
| I am always very absorbed in what I do | 0.044 | −0.054 | **0.832** | 0.052 | −0.068 | **0.44** |
| I seek out situations that challenge my skills and abilities | −0.02 | 0.033 | **0.769** | 0.296 | −0.012 | **0.608** |
| Whether at work or play, I am usually "in the zone" and am not conscious of myself | −0.021 | 0.011 | **0.687** | 0.22 | −0.02 | **0.59** |
| I am rarely distracted by what is going on around me | 0.156 | −0.044 | **0.587** | −0.197 | 0.077 | **0.693** |
| Regardless of what I am doing, time passes very quickly | 0.02 | −0.115 | **0.542** | 0.232 | 0.06 | **0.612** |

Bold indicates that the highest factor loadings

*LE* life of engagement, *LP* life of pleasure, *LM* life of meaning

**Table 2** CFA results for the three-factor solution of the OHS

|  | $\chi^2$ | df | p | $\chi^2/df$ | RMSEA | SRMR | GFI | AGFI | CFI | NNFI |
|---|---|---|---|---|---|---|---|---|---|---|
| Turkish sample | 257.78 | 132 | 0.000 | 1.95 | 0.051 | 0.066 | 0.91 | 0.89 | 0.90 | 0.90 |
| Russian sample | 278.19 | 132 | 0.000 | 2.11 | 0.069 | 0.071 | 0.87 | 0.83 | 0.93 | 0.93 |
| Russian sample (3 modifications) | 217.06 | 129 | 0.000 | 1.68 | 0.043 | 0.047 | 0.93 | 0.91 | 0.96 | 0.96 |

between 0.42 and 0.62. In the Russian sample, the initial model showed poor model-data fit (Table 2). Further analysis revealed several error covariances among the items (item 4–item 7, item 9–item 16 and item 11–item 17). The new model was tested with three modifications. Fit indexes showed that the modified model had adequate model-data fit. The CFA results showed that the three-factor OHS model was confirmed in Russian and Turkish samples of university students.

## 3.3 Descriptive Statistics for the Orientations to Happiness Scale

The means, standard deviations, item-total correlations (ITC) and intercorrelations of the OHS's subscales were calculated and summarized in Table 3. Table 3 shows that the three orientations to happiness are significantly correlated with each other. The strongest relationship was found between the life of engagement and the life of pleasure in the Turkish and Russian samples. The intercorrelations of the three subscales were significantly correlated to each other in both samples. The ITC of the items in each subscale ranged between 0.280–0.714 in the Turkish sample and 0.588–0.762 in the Russian sample. Therefore, all of the scale items were significant representatives of each subscale. The internal consistency coefficients of each subscale ranged between 0.64–0.70 in the Turkish sample and 0.74–0.80 in the Russian sample. These reliability findings indicated that OHS was a reliable instrument in both samples.

The mean scores of the three OHS subscales indicate that Turkish university students have higher mean scores than Russian university students. A *t* test was conducted to determine whether the mean subscale scores were significantly different between the samples. Table 4 shows that Turkish university students' life of meaning, life of pleasure

**Table 3** OHS descriptive statistics and ITCs

|  | N | M | SD | α | LM | LP | LE | ITC (min–max) |
|---|---|---|---|---|---|---|---|---|
| Russian sample |  |  |  |  |  |  |  |  |
| Life of meaning (LM) | 400 | 18.20 | 4.18 | 0.74 | 1.00 | 0.32 | 0.35 | 0.593–0.724 |
| Life of pleasure (LP) | 400 | 19.58 | 4.90 | 0.80 | 0.32 | 1.00 | 0.46 | 0.588–0.762 |
| Life of engagement (LE) | 400 | 18.30 | 4.76 | 0.80 | 0.35 | 0.46 | 1.00 | 0.640–0.750 |
| Turkish Sample |  |  |  |  |  |  |  |  |
| Life of meaning (LM) | 574 | 21.12 | 3.67 | 0.70 | 1.00 | 0.13 | 0.32 | 0.280–0.702 |
| Life of pleasure (LP) | 574 | 21.46 | 3.77 | 0.64 | 0.13 | 1.00 | 0.36 | 0.437–0.714 |
| Life of engagement (LE) | 574 | 21.51 | 3.67 | 0.66 | 0.32 | 0.36 | 1.00 | 0.458–0.705 |

*ITC* Item-total correlations

All intercorrelations are significant ($p < .01$)

**Table 4** *t* test results

|  | $M_T$ | $M_R$ | *df* | t | *p* |
|---|---|---|---|---|---|
| Life of meaning | 21.12 | 18.205 | 199 | −7.79 | 0.000 |
| Life of pleasure | 21.195 | 19.580 | 199 | −3.606 | 0.000 |
| Life of engagement | 21.645 | 18.305 | 199 | −7.609 | 0.000 |

$M_T$ = mean score of Turkish sample

$M_R$ = mean score of Russian sample

and life of engagement mean scores were significantly higher than those of Russian university students. Therefore, Turkish university students reported being happier than Russian university students.

### 3.4 OHS Measurement Invariance

The OHS measurement invariance between the Turkish and Russian samples was tested using multigroup structural equation modeling. In structural equation modeling, measurement tools are developed for the specific group being analyzed. Therefore, it is recommended that the factor structures of the samples be determined through factorial invariance tests. Factorial invariance is examined by performing a series of null hypothesis tests. First, the equivalence of covariance structures is tested.

Model 1: $H_0$: $\Sigma 1 = \Sigma 2 = \Sigma 3\ldots = \Sigma N$.

This test assumes that factor loadings, factor correlations and error variances are invariant across samples. Accepting this null hypothesis means that loadings, factor correlations and error variances are invariant across samples. Rejecting the null hypothesis, however, requires additional restricted hypothesis tests to find the sources of structural variance. These tests are

Model 2: $H_0$: $\lambda 1 = \lambda 2 = \lambda 3\ldots = \lambda N$. Factor loadings are invariant across groups.
Model 3: $H_0$: $\Theta 1 = \Theta 2 = \Theta 3\ldots = \Theta N$. Error variances are invariant across groups.
Model 4: $H_0$: $\Phi 1 = \Phi 2 = \Phi 3\ldots = \Phi N$. Factor variances and covariances are invariant across groups (Byrne et al. 1989). Table 5 summarizes the multigroup analysis for both samples.

Model 1 was rejected in the multigroup analysis, indicating that the factor loadings, factor correlations and error variances differed by culture. Model 2 tested the invariance of the factor loadings. The model-data fit indexes showed that the factor loadings varied between the Turkish and Russian samples. Model 3 tested the error invariance across samples. The results indicated that error variances were present between the samples. Model 4 tested the factor invariance and covariance between the samples. The fit indexes showed the presence of factor variances and covariances in the two samples. These results indicate that the Turkish and Russian OHSs' factor structures differed.

### 3.5 Concurrent and Discriminant Validity of the Orientations to Happiness Scale

To assess the concurrent validity of the OHS, the correlations among related constructs were examined. The OHS is positively correlated with SWL (r = 0.323, $p < .01$) and general life satisfaction (r = 0.263, $p < .01$). The discriminant validity of the OHS was

**Table 5** Multigroup analysis of the OHS

|  | $\chi^2$ | df | $\chi^2/df$ | p | RMSEA | SRMR | GFI | CFI | IFI |
|---|---|---|---|---|---|---|---|---|---|
| Model 1 | 812.13 | 303 | 2.68 | 0.000 | 0.083 | 0.17 | 0.82 | 0.84 | 0.85 |
| Model 2 | 717.59 | 288 | 2.49 | 0.000 | 0.078 | 0.14 | 0.83 | 0.87 | 0.87 |
| Model 3 | 734.97 | 285 | 2.58 | 0.000 | 0.081 | 0.16 | 0.82 | 0.87 | 0.87 |
| Model 4 | 756.45 | 288 | 2.63 | 0.000 | 0.084 | 0.18 | 0.81 | 0.84 | 0.84 |

examined by correlating it with an unrelated construct, the UCLA Loneliness Scale (version 3). As expected, the OHS was negatively correlated with the UCLA-3 (r = −0.233, p < .01).

### 3.6 Association Between Life Satisfaction and the Orientations to Happiness

Hierarchical multiple regression analysis was performed to test the association between life satisfaction and the OHS components. The data from the Turkish and Russian samples were analyzed independently. A five-step analysis was conducted, and predictor variables were introduced into the analysis at different steps. Preliminary analyses were conducted to ensure that there were no violations of the assumptions of normality, linearity, multicollinearity and homoscedasticity. For both samples, age and sex were controlled in step 1. Income was entered in step 2, and the OHS subscales were entered in steps 3, 4 and 5, respectively.

Table 6 shows the regression analysis results for the Turkish sample. The total variance explained by the model was 14 %. Table 6 also shows that the demographic variables—age, sex and income—were not significantly associated with SWB, accounting for only 2.5 % of the variance in the criterion variable. Orientations to happiness increased the association with SWL by an incremental 11.5 %. Meaning was the strongest predictor of SWL and explained most of the observed variance. Pleasure was the weakest predictor among the OHS subscales. The ANOVA results indicated that the model as a whole is significant [F(6.193) = 450.18, p < .01]. The final model showed that three components of happiness were significantly associated with SWL. The beta weights of meaning, pleasure and engagement were positive, indicating that an increase in any of the orientations to happiness was associated with increased SWL.

Table 7 displays the results of the regression analysis for the Russian sample. The total variance explained by the model was 4.5 %. Only step 3 of the analysis was significant. The ANOVA results indicated that the model as a whole is significant [F(6.488) = 475.74, p < .01]. Age and sex were not significantly associated with SWL and explained only 0.6 % of the variance. Income was not significantly associated with SWL and accounted for only 0.8 % of the variance. Meaning contributed the most to the observed variance and pleasure contributed the least among the OHS subscales. The final model showed that only meaning was significantly associated with SWL.

## 4 Discussion

The purpose of this study was to investigate the psychometric properties of the OHS in a sample of Turkish university students and compare the factorial structures and contributions of the OHS subscales to SWL in Turkish and Russian samples. In the Turkish sample,

**Table 6** Predicting SWL from the OHS subscales and demographic variables (Turkish sample)

| Model | R | $R^2$ | Adjusted $R^2$ | Change statistics | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | $R^2$ change | F change | $df1$ | $df2$ | Sig. F change |
| SWL | | | | | | | | |
| 1[a] | 0.147 | 0.022 | 0.018 | 0.022 | 5.435 | 2 | 492 | 0.005 |
| 2[b] | 0.157 | 0.025 | 0.019 | 0.003 | 1.602 | 1 | 491 | 0.206 |
| 3[c] | 0.351 | 0.123 | 0.116 | 0.098 | 54.875 | 1 | 490 | 0.000 |
| 4[d] | 0.366 | 0.134 | 0.125 | 0.011 | 6.037 | 1 | 489 | 0.014 |
| 5[e] | 0.375 | 0.140 | 0.130 | 0.007 | 3.740 | 1 | 488 | 0.054 |

| Turkish sample | Unstandardized coefficients | | Standardized coefficients | | |
|---|---|---|---|---|---|
| | B | Standard error | Beta | T | Sig. |
| Age | −0.155 | 0.107 | −0.061 | −1.451 | 0.148 |
| Sex | −1.529 | 0.587 | −0.111 | −2.605 | 0.009 |
| Income | 0.000 | 0.000 | 0.052 | 1.237 | 0.217 |
| Meaning | 0.478 | 0.078 | 0.274 | 6.155 | 0.000 |
| Pleasure | 0.133 | 0.077 | 0.078 | 1.718 | 0.086 |
| Engagement | 0.160 | 0.083 | 0.091 | 1.934 | 0.050 |

[a] Predictors: (constant), age, sex

[b] Predictors: (constant), age, sex, income

[c] Predictors: (constant), age, sex, income, meaning

[d] Predictors: (constant), age, sex, income, meaning, pleasure

[e] Predictors: (constant), age, sex, income, meaning, pleasure, engagement

the tripartite structure of the scale was supported; 17 items loaded on their designated factors. Item 17 loaded on a fourth factor. Horn's parallel analysis and Velicer's MAP test supported the existence of the fourth factor. Confirmatory factor analysis results confirmed the scale's factorial structure. In the Russian sample, EFA, Velicer's MAP test and Horn's parallel analysis support the assumption of the scale's tripartite structure. This structure was also confirmed by the CFA results. The reliability coefficients of each orientation to happiness were adequate and acceptable in both samples. These findings suggest that the OHS is a valid and reliable tool for assessing Turkish and Russian university students.

Although the statistical findings for the Turkish sample supported those of Peterson et al. (2005), additional discussion is necessary. The results showed that item 17 is problematic in the Turkish sample. The result observed with this item could be explained in several ways. First, item 17 (I have spent much time thinking about what life means and how I fit into the bigger picture) has dual content: "I have spent much time thinking about what life means" and "how I fit into the bigger picture." These statements are connected by the conjunction "and". Students may have felt they were responding to two different statements, and the dual content of the item may have confused students and affected their responses. Second, the participants might struggle to understand particularly second part of this item (how I fit into the bigger picture) because this phrase seems complicated and is not frequently used in Turkish daily life. Any of these explanations could account for the results associated with item 17. Item discrepancies are not unique to Turkish culture. The literature indicates that the scale has different structures in different cultures (Chen et al. 2010; Chen 2010;

**Table 7** Predicting SWL from the OHS subscales and demographic variables (Russian sample)

| Model | R | $R^2$ | Adjusted $R^2$ | Change statistics | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | $R^2$ change | F change | $df1$ | $df2$ | Sig. F change |
| SWL | | | | | | | | |
| 1[a] | 0.075 | 0.006 | −0.004 | 0.006 | 0.555 | 2 | 197 | 0.575 |
| 2[b] | 0.088 | 0.008 | −0.008 | 0.002 | 0.408 | 1 | 196 | 0.524 |
| 3[c] | 0.211 | 0.045 | 0.025 | 0.037 | 7.550 | 1 | 195 | 0.007 |
| 4[d] | 0.211 | 0.045 | 0.020 | 0.000 | 0.010 | 1 | 194 | 0.922 |
| 5[e] | 0.211 | 0.045 | 0.015 | 0.000 | 0.000 | 1 | 193 | 1.000 |

| Russian sample | Unstandardized coefficients | | Standardized coefficients | | |
|---|---|---|---|---|---|
| | B | Standard error | Beta | T | Sig. |
| Sex | 0.746 | 0.909 | 0.061 | 0.820 | 0.413 |
| Age | 0.040 | 0.214 | 0.014 | 0.184 | 0.854 |
| Income | 0.000 | 0.000 | −0.063 | −0.852 | 0.395 |
| Meaning | 0.285 | 0.111 | 0.196 | 2.563 | 0.011 |
| Pleasure | −0.009 | 0.100 | −0.007 | −0.091 | 0.928 |
| Engagement | 0.000 | 0.105 | 0.000 | 0.000 | 1.000 |

Ruch et al. 2010; Anić and Tončić 2013). Chen et al.'s (2010) study showed that item 3 had non-significant factor loading and was removed from the scale. In Chen's (2010) research, three items were problematic and were removed from the scale. In Ruch et al. (2010), item 9 was problematic, and a four-factor structure had higher fit indices. Anić and Tončić's (2013) factorial structure differed widely from the original factor structure.

In this study, a cross-cultural CFA comparison was conducted to determine whether the OHS had the same factorial structure in both countries. The findings indicated that the factor loadings, factor correlations and error variances differed between the countries. This finding confirms the factorial variance of the OHS in the Russian and Turkish samples. Oishi et al.'s (2013) study asserted that there are cultural variations in the concept of happiness. Their research further indicated that the definition of happiness is different in Turkey and Russia. Therefore, these countries cannot be expected to have the same factorial structure because they define happiness differently.

The OHS subscales were positively correlated with SWL, as in other studies (Ruch et al. 2010; Chen 2010; Chen et al. 2010; Anić and Tončić 2013; Peterson et al. 2005), and negatively correlated with the UCLA Loneliness Scale (version 3). These concurrent and discriminant validity findings supported the validity of the OHS. The ITCs indicated that all of the subscale items, except for item 17, were significant representatives of their OHS construct, supporting the construct validity of the OHS. The mean scores of the three orientations to happiness in the Turkish sample were higher than in the Russian sample. Russia is known to be a collectivist culture, and previous studies (Göregenli 1997; Kağıtçıbaşı 2012) have indicated that individualist and collectivist tendencies have both been observed in Turkish culture. Kapıkıran (2012) noted that in collectivist cultures, positive emotions are low and that in individualist cultures, positive emotions are high. The results of this study parallel Kapıkıran's (2012) findings. However, Turkish and Russian

economic development has recently been attracting attention. Kagitcibasi (2012) stated that socioeconomic and sociocultural development affect a society's tendency toward individuality or collectivity and influences individuals' psychological outlook (e.g., happiness, attitudes, aspirations, etc.). The results showed that economic development has enhanced the individualization of Turkish culture; in Russian culture, however, this effect is not clear.

Related research (Chen 2010; Chen et al. 2010; Chan 2013; Peterson et al. 2005; Vella-Brodrick et al. 2009) showed that individuals' life satisfaction was associated with the three orientations to happiness. This finding was strongly supported in the Turkish sample and moderately supported in the Russian sample. All three orientations to happiness significantly contributed to the prediction of SWL in the Turkish sample, but only the life of meaning contributed significantly to SWL in the Russian sample. Prediction rates in the Turkish sample were higher than in the Russian sample. Although in Peterson et al. (2005) and Seligman's (2002) study, meaning and engagement were significant and primary predictors of life satisfaction, meaning was the highest and most significant contributor to the prediction of life satisfaction in both the Turkish and Russian samples.

### 4.1 Limitations and Future Directions

This study had several limitations. First, the sample was limited to Turkish and Russian university students and included only young individuals. Therefore, it is difficult to generalize the results to populations of different ages. Research on more diverse samples is recommended. Second, the OHS is a self-report measure. Self-report instruments only collect individuals' self-evaluations. Other sources, such as peer ratings or behavioral ratings, should be used to improve the validity and reliability of these findings in future studies.

The final limitation was the factorial structure of the OHS in the Turkish sample. Item 17 loaded strongly on a separate factor in EFA. Therefore, only the CFA findings are valid in this study. Future studies investigating the psychometric properties of the OHS should be considered. Cross-cultural and cross-country studies are strongly recommended. Items identified as problematic in this and other studies should be revised.

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