

Turkish Validity Examination of the Multidimensional Students' Life Satisfaction Scale

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Abstract The validation studies of the Multidimensional Students' Life Satisfaction Scale (MSLSS) have been conducted with samples from different nations but mostly from western individualistic cultures. Life satisfaction and its constructs could differ depending on cultural characteristics and life satisfaction scales should be validated in different cultures before using as measurement tools. This paper exhibits the validation study of the MSLSS in the collectivistic Turkish context and the study was conducted among 959 high school and primary school students. The MSLSS was found to be reliable and valid for the Turkish context with a few exceptions.

Keywords Life satisfaction · Multidimensional Students' Life Satisfaction Scale · Validity · Turkey

1 Introduction

Life satisfaction has been one of the important indicators in quality of life and subjective well-being researches. Subjective well-being is a multidimensional construct that is defined as people's emotional and cognitive evaluations of their lives (Chico 2006; Diener et al. 2003). Andrews and Whithey (1976) stated that life satisfaction should be added to psychological well-being as a third variable along with positive and negative effects. Subjective well-being has been classified into two components: the affective aspect including both positive and negative effect, and the cognitive aspect of overall life satisfaction (Pilcher 1998). According to Gilman (2001), life satisfaction is considered to be less ephemeral than the affect component and is therefore thought to be a key subjective well-being indicator.

Life satisfaction has been defined as a person's evaluation of various areas of life (i.e. satisfaction with school experiences) or global judgments of one's life (i.e. satisfaction with life as a whole) (Diener and Diener 1995; Diener 2000). It has been studied from both

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global and domain-specific perspectives (Gilligan and Huebner 2002). Seligson et al. (2005) stated that there are many reasons for studying life satisfaction and measures of life satisfaction, and accordingly research in this area may prove to be of great value. Numerous studies of life satisfaction have been done with adults (Lucas et al. 1996; Yetim 2003; Solberg et al. 2004; Vittersø et al. 2005; Gignac 2006), and researches aiming at examining the structure of life satisfaction in children and adolescents have recently begun (Park et al. 2004; Huebner and Gilman 2002; Valois et al. 2003; Gilman et al. 2004; Zullig et al. 2005; Park 2005).

Life satisfaction could differ depending on cultural context (Yetim 2003). There are several studies (Matheny et al. 2002; Gilman et al. 2005; Moore et al. 2005; Wang et al. 2005; Oishi 2006; Gilman et al. 2008) that examine life satisfaction across cultures and some have found different results especially between individualistic and collectivistic societies. Diener and Diener (1995) found that the size of the relation between life satisfaction and satisfaction with the self was higher in individualistic nations and lower in collectivistic countries. International surveys of life satisfaction have showed consistent mean level differences across nations and also there were differences between ethnic groups within nations (Diener et al. 2003). Diener (2000) stated that variables often correlate differently with life satisfaction in dissimilar cultures. Thus, it is essential that the scales which are used to measure life satisfaction should be tested in different cultural contexts.

The validation studies of the MSLSS have been conducted with Canadian (Greenspoon and Saklofske 1997, 1998), Spanish (Casas et al. 2001), and Korean (Park et al. 2004) samples along with the Huebner's (1994) study. Park et al. (2004) stated that although research to date with the MSLSS has demonstrated good psychometric properties and a consistent five-factor structure, the research has been limited mostly to samples from Western, individualistic cultures with a limited age range. According to Gilman et al. (2008) although there were developments about understanding the nature of life satisfaction and its correlates, there were only a few investigations of the construct among adolescents from other nations. Meanwhile, there were limited number of researches aiming at measuring psychometric properties and generalizability of MSLSS in collectivistic cultures.

The main purpose of this study is to evaluate the validity of the Multidimensional Students' Life Satisfaction Scale (MSLSS) in the collectivistic Turkish context. The MSLSS was designed for use with students from third through the twelfth grades (Huebner and Gilman 2002), and in this study, the validity of the scale was examined among sixth to tenth grades of Turkish students.

2 Methodology

2.1 Translation

The original version of the MSLSS was translated into Turkish by two translators (one of the authors of this study and an English lecturer). The authors and a philologist made an agreement about the best translation for each single item. Each item was then translated back into English by two different English lecturers. Authors and a philologist examined the back translations. At this stage, three items were modified, translated back into English, and again rechecked. Finally authors and a philologist made an agreement for the linguistic and the psychological essence of the items.

2.2 Procedure

The approval for the research was requested from school administrations and their guidance offices. The questionnaire sessions were conducted in the classrooms during guidance lesson hours by the support of guidance teachers. After completed questionnaire forms were gathered, each of them coded and all data were entered to SPSS and LISREL.

2.3 Participants

The data were collected from nine primary schools and four high schools. Sixth and seventh grade students were included in primary schools, and ninth and tenth grade students were included in high schools. Eighth and eleventh grades are the last years of primary and high schools in Turkey, and they focus on after graduation exams like science high school and university entry examinations. Therefore, they were not included in this study.

The total of 959 students participated in the study. Fifty percent of them were male and 50% were female (five missing). The mean age of participants was 14.35 ($SD = 1.50$). 317 (33.06%) of them were high school students and 642 (66.94%) participants were primary school students.

2.4 Instruments

The Multidimensional Students' Life Satisfaction Scale (MSLSS; Huebner 1994) was the objective for this research and it was designed to provide a multidimensional profile of students' life satisfaction judgments (Huebner and Gilman 2002). The MSLSS used in this study includes 40 items aimed to provide a profile of students' satisfaction with five important, specific domains which are School, Self, Family, Friends, and Living Environment (Huebner 2001). Students were asked to select one of the five options from strongly disagree to strongly agree for each question. Greenspoon and Saklofske (1998) argued that a 5 point scale may be appropriate, because this would offer a closer approximation to a midpoint. In the present study, a 5 point scale was preferred, because Turkish students are more familiar with 5 point scale due to Turkish primary and high school grading system, and the Turkish translation of "mildly disagree" option was confusing for the students. Responses for 10 inverse items were reversed in the dataset; therefore higher values on the MSLSS indicate higher levels of life satisfaction.

The other scale was the Satisfaction with Life Scale (SWLS; Diener et al. 1985) which was used for concurrent validity analysis in this study. The SWLS is a person's satisfaction with life as a whole, rather than in any specific domain (Chang 2004) and has been one of the most widely used scales for the measurement of global life satisfaction (Oishi 2006). Diener et al. (1985) stated that the SWLS is designed around the idea that one must ask subjects for an overall judgment of their life in order to measure the concept of life satisfaction. In this study, students were asked to answer on a 5 point gradation scale that best describes their own values about their overall life satisfaction. The reliability of the SWLS was assessed by Cronbach's α and it was found reliable ($\alpha = 0.7723$).

Both scales were administered in the same questionnaire form which contains 45 items. The items of the MSLSS were placed in the first 40 questions, and the questions from 41 to 45 were the items of the SWLS. The arrangement of the items of the MSLSS were the same as they were arranged in Huebner's Manual (Huebner 2001), and the arrangement of the items of the SWLS were the same as they were given in the appendix of Pavot and Diener's (1993) study.

2.5 Analysis

Internal reliability was assessed by means of Cronbach's α scores and item-total correlations. Dimensionality was determined by confirmatory factor analysis which was done by using LISREL 8.5. Convergent validity and discriminant validity were evaluated by composite reliabilities and average variances extracted (AVE) by utilizing the results of the confirmatory factor analysis. In order to reveal the concurrent validity, Pearson correlations between the MSLSS and the SWLS were used.

3 Results

3.1 Exploratory Analysis

Means and standardized deviations were calculated for the MSLSS domains (see Table 1). There were higher satisfaction in Family and Friendship dimensions, and comparatively lower satisfaction in School dimension. Also the results of the item analysis of the MSLSS were given in Table 1. The reliabilities of the MSLSS dimensions were assessed by Cronbach's α coefficient and each dimension's item-total correlations. Here acceptable criteria were ≥ 0.70 for Cronbach's α coefficients, and ≥ 0.25 for item-total correlations (Nunnally and Bernstein 1994; Carretero-Dios et al. 2007).

The items, which have corrected item-total correlations below 0.25 and also have higher standardized error variances than 0.90, might not measure the same construct measured by the other items in the subscales. Therefore, it can be suggested that these items require at least rewording or possibly elimination for the new context. In the present study, problematic items were deleted one at a time, followed by another round of items. The item-total correlations of these items were lower than 0.25 in the reliability analysis, and their standardized error variances were higher than 0.90 in the structural equation modeling. Eight items were eliminated at this stage, and they were indicated with bold characters in Table 1. In this situation, the coefficient α was increased from 0.86 to 0.88 for the total score. The changes in the α coefficients for the subscales were given in Table 1, and the final α values of them were between 0.77 and 0.83. These data indicated a good reliability for the total score and for all five subscales (Hair et al. 1998).

The difference between life satisfaction levels of primary school (sixth and seventh grades) and high school (ninth and tenth grades) students were evaluated by using independent sample *t*-tests. Primary school students were significantly found to be more satisfied than high school students on School (3.72 and 3.07, respectively), Family (4.18 and 3.85), and Living Environment (4.07 and 3.58) dimensions. Independent sample *t*-tests also revealed that the life satisfaction scores of females were significantly higher than males on School (3.65 and 3.41, respectively), Family (4.15 and 3.98) and Friends (4.13 and 3.86) dimensions.

3.2 Confirmatory Factor Analysis

The evaluation of model fit was done by using confirmatory factor analysis (CFA). In order to perform the CFA, LISREL 8.5 was used and the model parameters were estimated by using maximum likelihood (Jöreskog and Sörbom 2001). LISREL 8.5 provides a full range of goodness-of-fit measures. The three types of overall model fit measures useful in CFA

Table 1 Item analysis of the MSLSS

Dimension	Item	Mean	SD	Corrected item-total correlations	α if item deleted
Self		3.76	0.77		
$\alpha^a = 0.71$	2. I am fun to be around	3.69	1.15	0.15	0.75
$\alpha^b = 0.77$	5. There are lots of things I can do well	3.97	0.97	0.38	0.69
	10. I think I am good looking	3.42	1.18	0.55	0.65
	14. I like myself	4.01	1.11	0.52	0.66
	17. Most people like me	3.73	1.01	0.56	0.65
	33. I am a nice person	3.65	1.10	0.61	0.63
	35. I like to try new things	4.30	0.92	0.24	0.72
School		3.53	0.82		
$\alpha^a = 0.76$	3. I feel bad at school	3.89	1.16	0.49	0.73
$\alpha^b = 0.78$	6. I learn a lot at school	4.08	1.03	0.54	0.73
	9. There are many things about school I don't like	3.05	1.22	0.33	0.76
	13. I wish I didn't have to go to school	3.23	1.54	0.48	0.73
	20. I look forward to going to school	3.35	1.33	0.62	0.71
	22. I like being in school	3.65	1.21	0.68	0.70
	25. School is interesting	2.90	1.32	0.19	0.78
	26. I enjoy school activities	3.59	1.2	0.43	0.74
Family		4.07	0.73		
$\alpha^a = 0.83$	7. I like spending time with my parents	4.14	1.04	0.65	0.79
$\alpha^b = 0.83$	8. My family is better than most	4.23	1.01	0.54	0.82
	18. I enjoy being at home with my family	4.07	1.06	0.62	0.79
	19. My family gets along well together	4.25	0.99	0.60	0.80
	21. My parents treat me fairly	4.03	1.11	0.50	0.82
	28. Members of my family talk nicely to one another	4.05	1.03	0.52	0.81
	30. My parents and I do fun things together	3.62	1.16	0.62	0.80
Living environment		3.74	0.79		
$\alpha^a = 0.72$	15. There are lots of fun things to do where I live	3.63	1.16	0.33	0.71
$\alpha^b = 0.76$	27. I wish I lived in a different house	3.50	1.44	0.42	0.69
	31. I like my neighborhood	3.71	1.27	0.55	0.67
	32. I wish I lived somewhere else	3.43	1.42	0.53	0.67
	34. This town is filled with mean people	3.17	1.26	0.21	0.73
	36. My family's house is nice	4.14	0.97	0.46	0.69
	37. I like my neighbors	3.76	1.15	0.45	0.69
	39. I wish there were different people in my neighborhood	2.67	1.32	0.17	0.74
	40. I like where I live	4.01	0.12	0.56	0.68
Friends		4.00	0.71		
$\alpha^a = 0.69$	1. My friends are nice to me	3.71	0.95	0.50	0.65
$\alpha^b = 0.82$	4. I have a bad time with my friends	4.27	1.06	0.24	0.70

Table 1 continued

Dimension	Item	Mean	SD	Corrected item-total correlations	α If item deleted
	11. My friends are great	4.05	0.97	0.58	0.63
	12. My friends will help me if I need it	4.10	1.05	0.55	0.64
	16. My friends treat me well	3.96	0.98	0.63	0.62
	23. My friends are mean to me	3.14	1.49	0.04	0.76
	24. I wish I had different friends	2.80	1.38	0.21	0.71
	29. I have a lot of fun with my friends	4.19	0.92	0.50	0.65
	38. I have enough friends	3.97	1.09	0.41	0.67

^a Cronbach's α before elimination

^b Cronbach's α after elimination

Table 2 Fit statistics of LISREL models

Model	χ^2	χ^2/df	NFI	TLI	CFI	GFI	AGFI	RMSEA	RMR
40 items model	2516.76*	3.4	0.91	0.93	0.93	0.88	0.87	0.051	0.092
32 items model	1305.70*	2.8	0.94	0.95	0.96	0.92	0.91	0.044	0.076

* $p < 0.01$

can be represented by absolute, incremental and parsimonious fit (Schumacker and Lomax 1996). In this study, in order to evaluate the absolute fit, χ^2 (χ^2 : minimum fit function test), goodness of fit index (GFI), comparative fit index (CFI), and root mean square residual (RMR) were used. Normed fit index (NFI) and Tucker–Lewis index (TLI) were used as incremental fit measures. The results related to models were summarized in Table 2.

It could be seen from Table 2 that, the probability levels of all χ^2 statistics were less than 0.01, indicating a rather poor absolute fit (Timm 2002). χ^2 minimum fit function test depends on sample size (Hair et al. 1998; Bollen 1989). For this reason, in order to evaluate the absolute fit, χ^2/df measure was used. χ^2/df ratio should be ≤ 3.0 and RMR should be ≤ 0.10 (Chau 1997). Schumacker and Lomax (1996) suggested that GFI, CFI, AGFI, NFI and TLI should at least be 0.90, and RMSEA should be less than 0.05. For the 40 items model, all measures but the χ^2 , χ^2/df , GFI, and AGFI surpassed the acceptable levels. On the other hand, LISREL output indicated that there were very large positive standardized residuals for eight items of Self, School, Living Environment and Family, and the modification indexes for this pair of items were large. For this reason, eight items, which were also decreasing the reliability (see Table 1), excluded and a new model was structured with 32 items. All criteria of new five factor model indicated a good fit to the data. Figure 1 shows the estimated error variances, factor loadings, and the correlations between the subscales of the MSLSS.

3.3 Convergent Validity

The convergent validity of the research instrument can be assessed by three measures: item reliability, construct (composite) reliability and average variance extracted (Fornell and Larcker 1981). Item reliability indicates the amount of variance in an item due to the underlying construct rather than to error. Either an item reliability of at least 0.50, or a

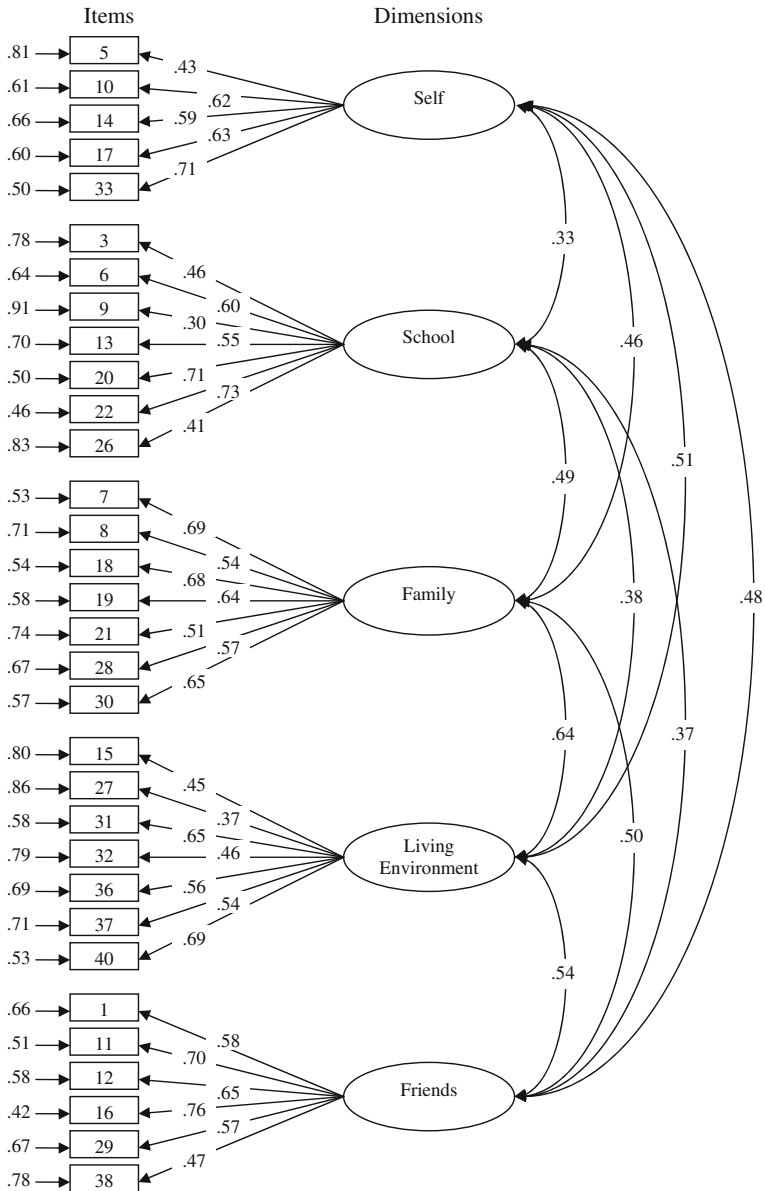


Fig. 1 Structural equation modeling of the MSLSS

significant *t* value, or both, observed for each item, is considered to be evidence of convergent validity (Chau 1997). As seen from Fig. 1, all *t*-values of the items were significant and all item reliabilities were greater than 0.50, except seven items.

The composite reliability of each construct is one of the principal measures used in assessing the measurement model and commonly used threshold value for acceptable composite reliability is 0.70 (Hair et al. 1998). The construct reliability values for each

Table 3 Construct reliabilities, AVE, squared correlations, and correlations between subscales

Subscales	Construct reliability	AVE	Self	School	Family	Living environment	Friends
Self	0.74	0.36	–	0.11	0.22	0.26	0.23
School	0.75	0.31	0.33	–	0.24	0.14	0.14
Family	0.81	0.38	0.46	0.49	–	0.40	0.25
Living environment	0.74	0.29	0.51	0.38	0.64	–	0.29
Friends	0.79	0.40	0.48	0.37	0.50	0.54	–

Note: The values under diagonal indicate Pearson correlation coefficients between subscales

subscale of the MSLSS were calculated, and as seen from Table 3, all of them were over 0.70.

The average variance extracted (AVE) measures the amount of variance that is captured by the construct in relation to the amount of variance due to measurement error. When the AVE is less than 0.50, the variance due to measurement error is greater than the variance due to the construct (Fornell and Larcker 1981). In this case the convergent validity of the construct is questionable. AVE values were calculated for all five dimensions, and they were lower than 0.50 (see Table 3). Accordingly, the instrument failed one of the three tests of convergent validity, and it passed two of them.

Inter-correlations between five dimensions of the MSLSS were given in Table 3, and all of them were significant at 0.01 level. There were moderate levels of relationships between the subscales, and the highest correlation was between Family and Living Environment.

3.4 Discriminant Validity

Discriminant validity shows the degree of divergence between dissimilar constructs. In this study, discriminant validity was tested by using Fornell and Larcker's (1981) method which has lower tolerance. Fornell and Larcker (1981) suggested that discriminant validity can be evaluated by comparing the squared correlations between two constructs with their respective AVE. Discriminant validity is demonstrated if the AVE of both constructs are greater than their squared correlation. This method is simpler as required figures can be obtained from the LISREL output and it is not necessary to re-estimate the model (Chau 1997). Calculated squared correlations were given in Table 3. According to the results, discriminant validities were demonstrated in nine of ten possible pairs, and it could not be demonstrated in only one pair (Family AVE = 0.29 and Living Environment AVE = 0.38, Squared correlation = 0.40).

3.5 Concurrent Validity

Concurrent validity is attested where a measure correlates well with another measure that the two measures for the same construct, or for substantially related constructs. Pearson correlations between five dimensions of the MSLSS and the uni-dimensional Satisfaction with Life Scale (SWLS) were presented in Table 4. The MSLSS full-scale score related significantly with the SWLS. High levels of Family and Living Environment were associated with higher levels of the SWLS. There were moderate level of relationships between Self, Friends and the SWLS, and there was comparatively lower relationship between School and the SWLS.

Table 4 Relationships between the SWLS and the MSLSS

		Self	School	Family	Living environment	Friends	MSLSS (Total)
SWLS	Pearson's <i>r</i>	0.435*	0.271*	0.503*	0.551*	0.376*	0.604*
	<i>N</i>	845	809	831	841	863	662

* $p < 0.01$

4 Discussion

The results for the MSLSS were found to be reliable and valid for the Turkish adolescent students with a few exceptions. The goodness of fit values obtained from confirmatory factor analysis revealed that the data fit better to the 32 items and five factors structure than to the 40 items structure. The high correlation between the SWLS and the total score of the MSLSS proved the concurrent validity. However, two of the three methods of measuring convergent validity showed better convergent validity, but one method showed a weak convergent validity. In the literature, researchers generally use only one of these methods. Therefore it can be stated that the MSLSS has an adequate convergent validity.

On the other hand, discriminant validity analysis showed an adequate degree of divergence between the dimensions of the MSLSS except between Family and Living Environment. This was not a confusing result, because there is a strong relationship between Family and Living Environment in the collectivistic Turkish society. There are family elders and relatives in most part of the Living Environment of the Turkish adolescents, and are also relatively stronger neighborhood relationships in comparison to individualistic societies. The highest correlation between Family and Living Environment (see Table 3) could support this argument.

Gilman et al. (2008) have conducted a research with 1,338 youth adolescents in two individualistic and two collectivistic nations. The results of Chinese adolescents, which is also a collectivistic society, were similar with the results of Turkish students in some aspects: (i) internal consistency coefficients of each dimensions of the MSLSS were much closer to the results of the present study in comparison with the results of the US, Ireland and South Korea studies, (ii) the highest satisfaction level of both Chinese and Turkish students is from Family, (iii) the highest correlation was between Family and Living Environment in both Chinese and Turkish studies.

The reasons for the psychometric shortcomings of the eight items, which were eliminated for the Turkish context in this study, could be listed as follows: (i) the lives of Turkish primary and high school students are mostly dependent on their families, and they generally do not make decisions on their own. Therefore items like "I like to try new things" could not be relevant for Turkish students. (ii) The friendship circles of Turkish adolescents are not disconnected from each other, such as school friends and neighborhood friends. Also families, neighbors, and even teachers are connected with these circles. An adolescent who is somehow different from others, will not be easily excluded from these groups, and he/she can still find a place in these circles. Hence, items like "I wish I had different friends" could have not been interpreted by the students as they have been interpreted in individualistic cultures. (iii) It could be denoted that, the solidarity culture of the Turkish society is still alive, and also there are relatively stronger neighborhood relationships in Turkey in comparison to the individualistic societies. Accordingly, items

like “This town is filled with mean people” or “I wish there were different people in my neighborhood” could have not been found expressive by the students.

In conclusion, the Multidimensional Students’ Life Satisfaction Scale exhibits acceptable levels of reliability, convergent validity, concurrent validity and discriminant validity in the collectivistic Turkish context with a few exceptions. It is seen that eight items were problematic for the scope of the present study. As a result, the life satisfaction levels of the Turkish students and the affecting factors of the students’ life satisfaction could be examined by using the 32 items and five factors model in advance.

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References

- Andrews, F. M., & Whithey, S. B. (1976). *Social indicators of well-being*. New York: Plenum Press.
- Bollen, K. A. (1989). *Structural equations with latent variables*. New York: Wiley.
- Carretero-Dios, H., De los Santos-Roig, M., & Buela-Casal, G. (2007). Influence of the difficulty of the matching familiar figures test-20 on the assessment of reflection-impulsivity: An item analysis. *Learning and Individual Differences*. doi:10.1016/j.lindif.2007.10.001.
- Casas, F., Alsinet, C., Rosich, M., Huebner, E. S., & Laughlin, J. E. (2001). Cross-cultural investigation of the multidimensional students’ life satisfaction scale with Spanish adolescents. In F. Casas & C. Saurina (Eds.), *Proceedings of the Third Conference of the International Society for Quality of Life Studies* (pp. 359–366). Girona, Spain: University of Girona Press.
- Chang, E. C. (2004). Distinguishing between ruminative and distractive responses in dysphoric college students: Does indication of past depression make a difference? *Personality and Individual Differences*, 36, 845–855. doi:10.1016/S0191-8869(03)00157-0.
- Chau, P. Y. K. (1997). Reexamining a model for evaluating information center success using a structural equation modeling approach. *Decision Sciences*, 28, 309–334. doi:10.1111/j.1540-5915.1997.tb01313.x.
- Chico, E. (2006). Personality dimensions and subjective well-being. *The Spanish Journal of Psychology*, 9, 38–44.
- Diener, E. (2000). Subjective well-being: The science of happiness and a proposal for a national index. *The American Psychologist*, 55, 34–43. doi:10.1037/0003-066X.55.1.34.
- Diener, E., & Diener, M. (1995). Cross-cultural correlates of life satisfaction and self-esteem. *Journal of Personality and Social Psychology*, 68, 653–663. doi:10.1037/0022-3514.68.4.653.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, 49, 71–75. doi:10.1207/s15327752jpa4901_13.
- Diener, E., Oishi, S., & Lucas, R. E. (2003). Personality, culture, and subjective well-being: Emotional and cognitive evaluations of life. *Annual Review of Psychology*, 54, 403–425. doi:10.1146/annurev.psych.54.101601.145056.
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *JMR, Journal of Marketing Research*, 18, 39–50. doi:10.2307/3151312.
- Gignac, G. E. (2006). Self-reported emotional intelligence and life satisfaction: Testing incremental predictive validity hypotheses via structural equation modeling (SEM) in a small sample. *Personality and Individual Differences*, 40, 1569–1577. doi:10.1016/j.paid.2006.01.001.
- Gilligan, T. E., & Huebner, E. S. (2002). Multidimensional life satisfaction reports of adolescents: A multitrait-multimethod study. *Personality and Individual Differences*, 32, 1149–1155. doi:10.1016/S0191-8869(00)00196-3.
- Gilman, R. (2001). The relationship between life satisfaction, social interest, and frequency of extracurricular activities among adolescent students. *Journal of Youth and Adolescence*, 30, 749–767. doi:10.1023/A:1012285729701.
- Gilman, R., Ashby, J. S., Sverko, D., Florell, D., & Varjas, K. (2005). The relationship between perfectionism and multidimensional life satisfaction among Croatian and American youth. *Personality and Individual Differences*, 39, 155–166. doi:10.1016/j.paid.2004.12.014.
- Gilman, R., Easterbrooks, S. R., & Frey, M. (2004). A preliminary study of multidimensional life satisfaction among deaf/hard of hearing youth across environmental settings. *Social Indicators Research*, 66, 143–164. doi:10.1023/B:SOCI.00000007495.40790.85.

- Gilman, R., Huebner, E. S., Tian, L., Park, N., O'Byrne, J., Schiff, M., et al. (2008). Cross-national adolescent multidimensional life satisfaction reports: Analyses of mean scores and response style differences. *Journal of Youth and Adolescence*, 37, 142–154. doi:10.1007/s10964-007-9172-8.
- Greenspoon, P. J., & Saklofske, D. H. (1997). Validity and reliability of the multidimensional students' life satisfaction scale with Canadian children. *Journal of Psychoeducational Assessment*, 15, 138–155. doi:10.1177/073428299701500204.
- Greenspoon, P. J., & Saklofske, D. H. (1998). Confirmatory factor analysis of the multidimensional students' life satisfaction scale. *Personality and Individual Differences*, 25, 965–971. doi:10.1016/S0191-8869(98)00115-9.
- Hair, J. F., Anderson, R. E., Tahtam, R. L., & Black, W. C. (1998). *Multivariate data analysis*. New Jersey: Pearson Education.
- Huebner, E. S. (1994). Preliminary development and validation of a multidimensional life satisfaction scale for children. *Psychological Assessment*, 6, 71–82. doi:10.1037/1040-3590.6.2.149.
- Huebner, E. S. (2001). *Manual for the multidimensional students' life satisfaction scale*. Columbia, SC: Department of Psychology, University of South Carolina.
- Huebner, E. S., & Gilman, R. (2002). An introduction to the multidimensional students' life satisfaction scale. *Social Indicators Research*, 60, 115–122. doi:10.1023/A:1021252812882.
- Jöreskog, K. G., & Sörbom, D. (2001). *Lisrel 8: User's reference guide*. Chicago: Scientific Software International.
- Lucas, R. E., Diener, E., & Suh, E. M. (1996). The discriminant validity of well-being measures. *Journal of Personality and Social Psychology*, 71, 616–628. doi:10.1037/0022-3514.71.3.616.
- Matheny, K. B., Curlette, W. L., Aysan, F., Herrington, A., Gfroerer, C. A., Thompson, D., et al. (2002). Coping resources, perceived stress, and life satisfaction among Turkish and American university students. *International Journal of Stress Management*, 9, 81–97. doi:10.1023/A:1014902719664.
- Moore, S. E., Leslie, H. Y., & Lavis, C. A. (2005). Subjective well-being and life satisfaction in the Kingdom of Tonga. *Social Indicators Research*, 70, 287–311. doi:10.1007/s11205-004-1541-z.
- Nunnally, J. C., & Bernstein, I. J. (1994). *Psychometric theory*. New York: McGraw-Hill.
- Oishi, S. (2006). The concept of life satisfaction across cultures: An IRT analysis. *Journal of Research in Personality*, 40, 411–423. doi:10.1016/j.jrp.2005.02.002.
- Park, N. (2005). Life satisfaction among Korean children and youth: A developmental perspective. *School Psychology International*, 26, 209–223. doi:10.1177/0143034305052914.
- Park, N., Huebner, E. S., Laughlin, J. E., Valois, R. F., & Gilman, R. (2004). A cross-cultural comparison of the dimensions of child and adolescent life satisfaction reports. *Social Indicators Research*, 66, 61–79. doi:10.1023/B:SOCI.0000007494.48207.dd.
- Pavot, W., & Diener, E. (1993). Review of the satisfaction with life scale. *Psychological Assessment*, 5, 164–172. doi:10.1037/1040-3590.5.2.164.
- Pilcher, J. J. (1998). Affective and daily event predictors of life satisfaction in college students. *Social Indicators Research*, 43, 291–306. doi:10.1023/A:1006883231707.
- Schumacker, R. E., & Lomax, R. G. (1996). *A beginner's guide to structural equation modeling*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Seligson, J. L., Huebner, E. S., & Valois, R. F. (2005). An investigation of a brief life satisfaction scale with elementary school children. *Social Indicators Research*, 73, 355–374. doi:10.1007/s11205-004-2011-3.
- Solberg, E. G., Diener, E., & Robinson, M. D. (2004). Why are materialists less satisfied? In T. Kasser & A. D. Kanner (Eds.), *Psychology and consumer culture: The struggle for a good life in a materialistic world* (pp. 29–48). Washington, DC: American Psychological Association.
- Timm, N. H. (2002). *Applied multivariate analysis*. New York, NY: Springer.
- Valois, R. F., Zullig, K. J., Huebner, E. S., & Drane, J. W. (2003). Dieting behaviors, weight perceptions, and life satisfaction among public high school adolescents. *Eating Disorders*, 11, 271–288. doi:10.1080/10640260390242506.
- Vittersø, J., Biswas-Diener, R., & Diener, E. (2005). The divergent meanings of life satisfaction: Item response modeling of the satisfaction with life scale in Greenland and Norway. *Social Indicators Research*, 74, 327–348. doi:10.1007/s11205-004-4644-7.
- Wang, L., Tian, L. L., & Gilman, R. (2005). A cross-cultural study on life satisfaction between Chinese and American middle school students. *Chinese Mental Health Journal*, 19, 319–323.
- Yetim, U. (2003). The impacts of individualism/collectivism, self esteem, and feeling of mastery on life satisfaction among the Turkish university students and academicians. *Social Indicators Research*, 61, 297–317. doi:10.1023/A:1021911504113.
- Zullig, K. J., Huebner, E. S., Gilman, R., Patton, J. M., & Murray, K. A. (2005). Validation of the brief multidimensional students' life satisfaction scale among college students. *American Journal of Health Behavior*, 29, 206–214.