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Validity and reliability of the multidimensional student's life satisfaction scale among Iranian girl students

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Abstract

Life satisfaction is a subjective and unique concept for each person and constitutes an essential component of the subjective well-being. The aims of this study was investigating the psychometric properties of Multidimentional Student's Life Satisfaction Scale (MSLSS). 307 students from Tehran high schools were selected as participant size by stratified multiphase cluster sampling. To calculate the convergent validity of MSLSS, Satisfaction with Life Scale and Body Image Concern Inventory were performed. Confirmatory factor structure for the first-order approach of MSLSS estimated using Weighted Least Squares (WLS) criteria for assessing the adequacy of the data model with RMR, RMSEA, CFI, AGFI, GFI, 2c, / df2 χ and 2 Δ χ used. Cronbach's alpha coefficient of MSLSS was above 0.70 and the limit was in satisfactory level. The first order factor structure of the MSLSS using confirmatory factor analysis was confirmed. Correlation coefficient analysis showed that MSLSS has a significant positive relationship with Satisfaction with Life Scale and significant negative relationship with Body Image Concern Inventory which shows the convergent validity. A single first-order factor structure of MSLSS was better fit with the observed data. Confirmatory factor structure, reliability and validity of the MSLSS for research applications and clinical diagnostics were in acceptable limits.

Keywords: Validity, Reliability, Girl, multidimensional student's life satisfaction, Iran

Introduction

Satisfaction with life is one of the important indexes in the researches of quality of life and subjective well-being. The subjective well-being is a multidimensional construct defind as cognitive and affective evaluation of life [1,2]. Subjective well-being is divided into two dimensions: affective dimension including positive and negative affect, and the cognitive dimension including general satisfaction with life [3]. Life satisfaction is a subjective and unique concept for each person that constitutes an essential component of subjective well-being. It refers to general and cognitive evaluation of the individuals about his or her life. In this process the comparison has been made between the ideal criteria and real living conditions of individuals, and if there is more consistent between ideal and real life, persons feel more satisfactory[4]. In recent

years, many studies have been done on the quality of life in both objective and subjective perspectives. Objective approach points to external conditions such as income, housing quality, friendship networks and access to health services. In contrast, subjective approach emphasizes on Judgments about Satisfaction with life of individuals with regard to the specific life domains such as satisfaction with friends, family satisfaction, and satisfaction with the educational experience [5]. Satisfaction with life can be different depending on the cultural background of the people [6]. There are several studies have examined the satisfaction with life of individuals in various cultures

And some of them reached different results, especially in individualistic and collectivist societies [7,8,9]. Relationship between life satisfactory is usually high and low in individualistic and collectivist societies respectively [10]. International investigations have shown the average level of satisfaction with life between different countries and different cultures of the country [2]. Based on international results, there is a level different between countries with different cultures. So it seems essential that the life satisfaction scale, should contain questions for using in different cultures [11]. Studies about life satisfaction are valuable because of many reasons to study satisfaction with life and its measurements, [12]. Satisfaction with life related to behaviors and psychological states such as depression [13], self-esteem [14], Hope [15] and perfectionism [8]. Several studies have been conducted about satisfaction with life among adults, but so far, there was not enough attention to the satisfaction with life of children and adolescents [16]. Studies carried out in the context of satisfaction with life among adolescents have shown that satisfaction and positive attitude about life of the adolescents or students are quite different from adults. Furthermore, study in this area needs to consider specific components of adolescents. The importance of satisfaction with life demonstrated in adolescents in many longitudinal studies .It indicated a low degree of satisfaction with life to predict the future internalizing and externalizing behavior [17,18]. Negative effects of dissatisfaction with life include increased stress and behavioral problems, frustration, anxiety and depression that result in reduced community partnership, cooperation and social trust. Also, studies have shown that adolescents with high levels of satisfaction with life are less likely to have externalizing behaviors after experiencing stressors in life [19]. Various factors play important role in satisfaction with life of students, including personal factors (temperament), quality of family relationships, peer groups, school and community. Of course it seems that the quality of family relationships is more important than other variables [20]. There are multi-dimensional scales of satisfaction with life in children and adolescent's life which can be found such as 1- Students' Life Satisfaction Sale (SLSS) [21], 2- Brief Multidimensional Students' Life Satisfaction Scale (BMSLSS) [22], and 3- Multidimensional Students' Life Satisfaction (MSLSS) [21]. Multidimensional Students' Life Satisfaction (MSLSS) is one the most useable and reliable tools for children and adolescents [21]. Multidimensional Students' Life Satisfaction is a self-report scale for examining life satisfaction. It is designed for children and adolescents from 9 to 18 years old and used for research and clinical studies. The questionnaire has 40 questions and five subscales (family, friends, self, school, life environment) as well as an overall score for the measure of satisfaction with life [16]. This questionnaire has been used in numerous domestic and international studies. The Cronbach's alpha was 0.86 in the study that was conducted on adolescents in Isfahan. Five factors were identified from an overall of 40 questions [23]. The concurrent validity of the subscales in questionnaire evaluated (except life environment subscale) with the similar questionnaire, the Behavioral Assessment Scale for Children, by Reynolds & Kamphaus in 1992 and good results obtained [14]. However, this questionnaire has already been translated and validated in other studies [23], but only exploratory factor analysis

and confirmatory factor analysis were not done. The main objective of this study was the psychometric properties of the multidimensional scale of satisfaction with life in students.

Method

The population included all high school girl students in Tehran in 2013-14. First, 325 students were selected by stratified multiphase cluster sampling. Then, Tehran divided into 5 sections including North, South, East, West, and Central split. Then, each of the 19 districts of Education (zones 18 and 1,2,4,6) and a school was randomly selected from each area. The two classes were randomly chosen from each school and all of the students were examined in the study. After removing incomplete questionnaires, the number of participants was reduced to 307 people.

the questionnaires of this study that listed as following:

1) Multidimensional Students' Life Satisfaction (MSLSS): This scale was developed by Huebner et al. It is a self-report instrument with 40 questions that a subject should specify his agreement or disagreement in a 6 rate Likert scale. This scale evaluates subject satisfaction. This scale contains 5 subscales of family (7 items), friends (9 items), school (8 items), life environment (9 items), and self (7 phrases). Finally, we could also measure the overall satisfaction of the participants. Coefficients of internal consistency (alpha), have been evaluated in various studies. The results indicate that the validity of the instrument was between 0.7-0.9. The test-retest Pearson coefficient was reported by Huebner et al., at a distance of 2 to 4 weeks, ranging from 0.7-0.9 [24]. In another study [25] Cronbach's alpha coefficient for the total scores was 90% consistency. Test-posttest coefficient was 81% for a total score during 4 weeks. The subscale reliability coefficient was calculated from 53% (self) to 81% (life environment) during the 4 weeks.

2) Body Image Concern Inventory (BICI): This questionnaire was made by Littleton, Axsom & Pury (2005) with 19 items. This questionnaire investigates dissatisfaction and concerns about the individual appearance. In this instrument, the respondent is asked, to measure each item on a Likert scale from 1 to 5 about feelings or behavior shows the extent. In this scale grade 1 means that (I never had this feeling or I did not do this) and grade 5 means that (I always have this feeling or I do this). The total score of the questionnaire ranged between 19 and 95. Obtaining more score indicates a high level of dissatisfaction with one's body image or appearance. In addition, the results of the factor structure of the questionnaire indicate about two important and significant factors. The first factor involves dissatisfaction-ashamed because of appearance and the second factor shows low individual performance because of worry for appearance. The reliability of the questionnaire was evaluated using internal consistency coefficient Cronbach's was 0.93 [26]. The correlation coefficient for each of the questions with the total scores of the questionnaire was 0.32 -0.72 with a mean of 0.62, respectively. The Cronbach's alpha coefficients were 0.92 and 0.76 for the first and second factor respectively. The correlation coefficient is reported 0.69 between the two factors.

3) Satisfaction with Life Scale (SWLS): This scale used for the measurement of subjective well-being, on the cognitive aspect of satisfaction with life. The scale has 5 items. The reliability of the test is reported with split method 0.87 and with the test-retest method 0.82 [27].The Iranian reliability was evaluated by Beck Depression test and Oxford Happiness test. This scale had a significant positive correlation with happiness and significant negative correlation with the Beck Depression Inventory [28].

The parameters used for data analysis contained descriptive statistics (mean and standard deviation), Cronbach's alpha, Pearson correlation coefficient and confirmatory factor analysis. Before studying the procedure of fitness in measurement model, the following assumptions were examined: 1) normal distribution of variables, 2) multiple variables observed (at least two observed

variables for each latent variable), 3) over-identified model, 4) the interval situation of the measurement model [29]. All of them observed and their consideration were confirmed in the present study. The consideration of the first assumption examined with respect to the results of univariate and multivariate normality in LISREL software. First, the statistical fit of measurement model was analyzed for the data using LISREL8.72. This model consists of the Five-Factor Oblique Model [21] with 40 questions on the five factors of multidimensional satisfaction with life scale in students. Table 1 shows the factor loadings, standard errors of parameter estimates and t-test to evaluate the significance of the parameters and coefficient parameters. Due to violations of the normality assumption by using Maximum Likelihood Robust Procedure resistant to violations of the assumptions of normal distribution model was used to assess the model and the following parameters used for model fit: Satorra-Bentler scaled chi-square ($\chi 2$), the ratio of chi square to degrees of freedom (df / $\chi 2$), Goodness of Fit Index (GFI), Adjust Goodness of Fit Index (AGFI), Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA) and Root Mean Square Residual (RMSR).

Results

It can be stated in terms of the demographic distribution of participants that the minimum and maximum ages were 15 and 17 years (mean 15.56 and a range of variation 0.69), respectively.

The results of confirmatory factor analysis for

Table 1 *Demographic information of participants*

	Frequency	Percent
Grade		
First Grade	169	55
Second Grade	105	34.2
Third Grade	33	10.7
Father Education		
High school and lower	49	16
Diploma and Associate's degree	163	53.1
Bachelor	57	18.6
Master and higher	36	11.7
Mother Education		
High school and lower	63	20.7
Diploma and Associate's degree	173	56.4
Bachelor	59	19.2
Master and higher	10	3.2
Number of Persons in the Family		
Only Child	39	12.7
Two Children	164	53.4
Three Children	72	23.5
Four Children	20	6.5
Between Five and Seven Children	11	3.9
Which Child		
First Child	142	46.4
Second Child	108	5.3
Third Child	41	13.4
Fourth Child	10	3.3
Fifth-up Child	6	1.9

questions of multidimensional life satisfaction scale of students are presented in Table 2 in terms of Parameters Estimation (PE), and t values for consideration of significantly examining of PE. Investigation of values for Parameters Estimation showed that the Parameters Estimation values of all questions are at a satisfactory level on respective parameter except items 12, 29, 34 and 24 (PE < 0.3).

Evaluation of different fit model suggests that the model has good fit with the data, it means that the results of the study support the five-factor model. The examination of the index fit model showed that the model has fitted the data reasonably well. Indices CFI, AGFI, GFI indicates about highly desirable and appropriate fit and indices RMSEA and RMR indicates the optimal fit and on the ratio of the degree of freedom chi-square goodness of fit is very satisfactory (Table 3).

Table 2 *The confirmatory factor analysis for MSLSS questions of student*

Question	Parameters Estimation	T-value	Question	Parameters Estimation	T-value
1	0.67	11.87	21	0.79	16.15
2	0.49	8.28	22	0.78	14.32
3	0.48	7.37	23	0.51	9.13
4	0.35	5.38	24	0.25	3.73
5	0.55	9.04	25	0.78	14.31
6	0.70	6.61	26	0.66	11.03
7	0.51	8.26	27	0.31	4.95
8	0.68	12.56	28	0.76	15.70
9	0.51	8.26	29	0.73	13.73
10	0.56	9.52	30	0.74	15.43
11	0.68	12.81	31	0.60	10.81
12	0.19	7.2	32	0.33	5.11
13	0.59	8.48	33	0.60	9.92
14	0.68	13.30	34	0.22	-3.22
15	0.72	13.62	35	0.47	7.36
16	0.83	17.19	36	0.69	13.22
17	0.73	13.75	37	0.49	8.30
18	0.72	14.36	38	0.83	16.71
19	0.79	17.72	39	-0.01	-0.16
20	0.85	17.04	40	0.59	10.73

Therefore, we can conclude, based on the obtained data on first order measurement model that measurement model of the multidimensional life satisfaction scale of student has suitable validity for using in the target society.

Table 3 *The fit indices of confirmatory factor analysis*

SRMR	RMSEA	CFI	AGFI	GFI	df/χ2	df	χ2 Satorra-Bentler
0.07	0.058	0.95	0.93	0.94	2.04	722	1471.18

Reliability

We used Cronbach's alpha and retest coefficient Pearson to determine the reliability of this scale. Cronbach's alpha of life satisfaction for each subscale of family, friends, school, living environment and self has been estimated 0.89, 0.80, 0.84, 0.75 and 0.78 and the total score of 0.90 it respectively. Retest Pearson's coefficient of conducting the test obtained in 2 weeks for each of the subscales of family, friends, school, living environment and self 0.99, 0.99, 0.95, 0.95, 0.99 and for the total score is 0.99, respectively.

Table 4 *Construct validity (convergent validity) of multidimensional students' life satisfaction with satisfaction with life scale and body image concern inventory*

Scale	Family	Friends	School	Living environment	Self	Total Score
Satisfaction with Life	0.47**	0.31**	0.26**	0.47**	0.32**	0.49**
Body Image: Dissatisfaction-ashamed because of appearance	-031**	-0.40**	-0.14*	-0.21**	-0.54**	-0.45**
Body Image: low individual performance because of worry for appearance	-0.14**	-0.11	-0.12*	-0.06	-0.21**	-0.16**

**P<0.01 *P<0.05

Validity

For identifying validity of this test, the construct validity was used. For this purpose, Satisfaction with Life and Body Image Concern Inventory were used. The results of Convergent validity showed in Table 4.

Table 4 shows that Multidimensional Students' Life Satisfaction has a high level of convergent validity with Satisfaction Life Scale and Body Image Concern Inventory. According to Table 3, the correlation between subscales of Multidimensional Students' Life Satisfaction is positive and significant with Satisfaction Life Scale and negative and significant with subscales of Body Image Concern Inventory.

Discussion

The main objective of this study is to examine the confirmatory factor analysis and psychometric properties of the multidimensional scale of life satisfaction in high school students in Tehran. Satisfaction with life is one of the predictors of mental health [32] that is correlated with other psychological variables such as positive affect, self-esteem and optimistic [31]. Although there are various instruments for examining satisfaction with life among children and adolescents, but most of them are one-dimensional and this scale presents multilateral and complete vision for individuals because of multidimensional perspective [32]. Adolescents and youth satisfaction, expand satisfaction in various domains of economic, social, political and cultural. Negative effects of dissatisfaction with life include increasing stress and behavioral problems, hopelessness, anxiety, depression, that result in consequences such as reduced energy spirit of partnership, cooperation and social trust [23]. When an instrument translates from one language or culture to other languages or culture, it is necessary to examine the psychometric properties. The findings of this study indicate about providing valid and reliable scale for the assessment of satisfaction with life among students and using in Iran.

The results of examining the internal consistency for Multidimensional Students' Life Satisfaction were obtained from 0.75 for life environment to 0.89 for family subscales. This result confirms that this scale has suitable internal consistency. These findings were consistent with other studies that results in reaching reliability coefficient for subscale of family 0.86 and for subscale of life environment 0.79 [16]. In other study [33] reliability coefficient of this instrument was reported from 0.91 to 0.92. The retest reliability coefficient (0.95-0.99) is satisfied

and appropriate.

Examination confirmatory factor structure indicates that the model has a good fit to the data, it means that the results of the study tend to support the one-factor model. In addition, the results of this study were consistent with previous studies that used confirmatory factor analysis [16,34,35] and exploratory factor analysis [21,23,36,37].

To assess the convergent validity, the correlation between MSLSS and general satisfaction with life and body image convertory were used. Body image is a principal factor in personality and self-concept of individuals that affect on mental life and his attitude. This image can be positive or negative and affect on the quality of life. If there is many disparities in individual body image, then its effects on effective areas of quality of life, such as social relations, daily functioning, communication, interpersonal and family relationships. As it was noted in the findings section, body image subscales were significantly negatively associated with satisfaction of life subscales. The results of the present study were consistent with other studies [39-38]. In addition, it can be said that the general satisfaction with life represents personal general judgment of life, based on a comparison of living situation with predetermined standards. So it seems logical that there is a significant positive relationship between the MSLSS subscales and satisfaction with life.

Conclusion

The first-order factor structure of Multidimensional Students' Life Satisfaction was better fit to the observed data. Confirmatory factor structure, reliability and validity of the Multidimensional Students' Life Satisfaction scale were within limits acceptable among students for research applications and clinical diagnosis. However, based on the findings of this study Multidimensional Students' Life Satisfaction scale is a reliable scale that can be used to assess Iranian students. Furthermore, the achieved results are reliable and stable.

It should be noted that some of the limitations of present study limits the generalization of the results of the study. First, the results of the study such as many other studies may persuade participants to use approaches for social approval due to the use of self-report instruments (rather than actual behavior). Second, the participant consisted of female students in Tehran, male students and students from other cities in the study did not participate in this study. Also, it is recommended to examine the effect of social- psychological factors in satisfaction with life and validate the Multidimensional Students' Life Satisfaction in universities and different occupational groups. At the end, with taking into account the goals of Multidimensional Students' Life Satisfaction, we can say that this questionnaire can be used in individual or group in several cases as a diagnostic instrument in counseling with children and adolescents.

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Contributions

Study design: MM, MP

Data collection and analysis: MP, SS, ZGH, MP

Manuscript preparation: ZGH, MH, SS

Conflict of interest

"The authors declare that they have no competing interests."

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