

# Validity and Reliability Study of the Life Engagement Test in Turkish Adults 60 Years and Above

## 60 Yaş ve Üzeri Bireylerde Yaşam Bağlılığı Ölçeği'nin Türkçe Geçerlilik ve Güvenilirlik Çalışması

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**ABSTRACT Objective:** Valuable goals provide a purpose in life and enable us to establish meaningful relationships with life. The aim of this study is to examine validity and reliability of the Life Engagement Test, which is a self-assessment measure of purpose in life and means participation, joy, passion, engagement and effort for maintaining behaviors, among 60 years and older individuals in Turkish society. **Material and Methods:** It was carried out on 92 elderly individuals who were residing in three nursing homes located in Afyonkarahisar. **Results:** Based on the results of factor analysis, Bartlett's test for sphericity and Kaiser-Meyer-Olkin test for sampling adequacy confirmed the adequacy of the data for the analysis (Bartlett's Test=372.453;  $p<0.001$  and  $KMO=0.801$ ). In this context, it has been found that the Life Engagement Test including 6 items was assembled under one dimension (factor) explaining 69.211% of total variance having an eigenvalue of 3.637. Also, the factor loads of all items has been above 0.40. Cronbach's alpha coefficient regarding internal consistency of the Life Engagement Test has been found to be 0.782; and correlation value has been calculated as 0,803 for test-retest reliability. At the end of confirmatory factor analysis, an appropriate single factor model was attained for the Life Engagement Test (since  $2.88<3$  for  $\chi^2/df$ ;  $RMSEA=0.076$ ;  $GFI=0.870$ ;  $CFI=0.950$ ;  $NFI=0.910$ ). **Conclusion:** The Life Engagement Test which was adapted for Turkey has been valid and reliable to measure social autonomies of 60 years and older individuals.

**Keywords:** Nursing homes; senescence; value of life; quality of life

**ÖZET Amaç:** Değerli hedefler, yaşamımıza amaç sağlayarak, yaşama anlamlı ilişkiler kurmamızı desteklerler. Bu çalışmanın amacı, hayattaki amacın bir öz değerlendirme ölçütü olan ve davranışların sürdürülmesinde gösterilen katılım, coşku, tutku, özveri ve gayret anlamına gelen Yaşam Bağlılığı Ölçeği'nin, 60 yaş ve üzeri bireylerde Türk toplumu için geçerlilik ve güvenilirliğini incelemektir. **Gereç ve Yöntemler:** Afyonkarahisar'da yer alan 3 huzurevinde yaşayan 92 yaşlı birey üzerinde yürütülmüştür. **Bulgular:** Faktör analizi sonuçlarına göre, Bartlett küresellik ve Kaiser-Meyer-Olkin örneklem yeterliliği testleri, analiz için verilerin yeterliliğini doğrulamaktadır (Bartlett Testi=372,453;  $p<0,001$  ve  $KMO=0,801$ ). Bu çerçevede, 6 maddeden oluşan Yaşam Bağlılığı Ölçeğinin, özdeğeri 3,637 olan toplam varyansın %69,211'ini açıklayan tek boyut (faktör) altında toplandığı görülmüştür. Tüm maddelere ait faktör yüklerinin 0,40 değerinin üzerinde olduğu tespit edilmiştir. Yaşam Bağlılığı Ölçeğinin iç tutarlığına ilişkin Cronbach alfa katsayısı 0,782 olarak bulunmuş, test-tekrar test güvenirliliği için korelasyon değeri 0,803 olarak hesaplanmıştır. Doğrulayıcı faktör analizi sonucunda Yaşam Bağlılığı Ölçeğine ilişkin tek faktörlü uygun bir model elde edilmiştir. ( $\chi^2/df$  için  $2,88 < 3$  küçük olduğu için;  $RMSEA=0,076$ ;  $GFI=0,870$ ;  $CFI=0,950$ ;  $NFI=0,910$ ) **Sonuç:** Türkiye için uyarlanan Yaşam Bağlılığı Ölçeği, 60 yaş ve üzeri yaş grubundaki bireylerin sosyal bağımsızlıklarını ölçmek için geçerli ve güvenilir bulunmuştur.

**Anahtar Kelimeler:** Huzurevi; yaşlılık; yaşamın değeri; yaşam kalitesi

Behaviors are important for the continuity of life and health. There are reports advocating that life is continued by the engagement in behaviors.<sup>1</sup> Two significant factors such as the ability to identify valued goals and the perception make these goals achievable

play roles in the generation of behaviors. Valuable goals provide a purpose in life and enable us to establish meaningful relationships with life. Our commitment to our goals also support our individual endurance against negative life experiences.<sup>2-4</sup>

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Due to the fact that mankind is a sociocultural creature, it is a natural need for him/her to have a specific purpose in life. Unlike other living creatures since its existence, it has a sense of meaningfulness. This feeling caused him to investigate and question the meaning of life.<sup>5</sup> Having a purpose in life also makes a contribution to the development of human at an optimum level. Therefore, there is a positive correlation between purpose and subjective well-being. It has been indicated that individuals who determine a goal and make an effort to achieve that, are at a better level in terms of subjective well-being compared to the ones who do not make an effort.<sup>6,7</sup>

There is need for a meaningful and better life in order to maintain a purpose.<sup>8</sup> Therefore, life engagement is also closely associated with quality of life. The individual also meets her/his own needs such as finding the meaning of life and life satisfaction during the process of achieving the goals set by her/him.<sup>9,10</sup>

Individuals meet many developmental crises during their lives; and effective coping with these requires a strong engagement with life.<sup>11</sup> Life engagement represents the extent to which a person is engaged in personal activities that he/she values. Lack of purpose or life engagement brings along risks for psychological and physiological well-being.<sup>9</sup> Therefore, life engagement makes a significant contribution to physical and psychological health of the individual based on the goals of the individual.<sup>11-13</sup> As a conclusion, having a purpose in life provides us a reason to live.<sup>14,15</sup>

Life engagement can not be evaluated solely as surviving. It is a purpose that is acquired to make a difference in the process we live in reality. The individual has to find out alternative meaningful activities that will enhance engagement during this process. If he/she can not find new activities, he/she thinks that life is meaningless.<sup>16</sup>

The ability to show consistent behaviors that strengthens this engagement has been found to be correlated positively with optimism, self-adequacy, emotional balance, social functionality, physical well-being, extroversion and life satisfaction; and negatively correlated with depression, perceived

stress, anger and hostility.<sup>9,16-18</sup> So, not only our belief in life, but also psychosocial health outcomes affect life engagement. It is believed that our feelings against the situations have significant effects on psychological and physiological well-being. Life is full of situations that are desired to occur; and the individual has to find meaningful activities for life engagement. Therefore, what people think makes their activities meaningful and valuable.<sup>9,16</sup>

Old age is a period where typical characteristics and interests may disappear. Also some experiences can vary in the background during this period. Individuals aged between 50-70 years old prepare for their 3<sup>rd</sup> ages. This is a period during which working life experiences are shared, working life still continues, further trainings are taken, having retired or having activities such as grandchildren care. During 70-85 years old, struggle with health and disease increases; and long term spouse or partner care, new travel opportunities and economic disadvantages are experienced. Moreover, they experience a phase requiring a deep struggle with health and economic problems over 85 years old including gratitude and golden era of wisdom.<sup>19</sup>

Previous studies have shown that there is a strong correlation between active engagement with life and health outcomes during old age period. Moreover, meaningful and oriented activities carried out within this period constitute a positive dimension in the lives of older individuals. Their purposes in life and the meaning that they attributed to social and physical environment play an important role in successful aging.<sup>20</sup>

The increase in social relationships and engagement among the elderly shows positive effects on health behaviors and emotional state.<sup>21</sup> Wilcox has indicated that participation (or meaningful activity participation) reflects four main requirements that humans have such as making, being, existing and belonging. Participating in the activities gives us the chance to express who we are through what we do. Interestingly, making, being, belonging and existing are the main elements of psychological well-being or happiness.<sup>22</sup> Besides, life engagement is an important indicator of life satisfaction. Life satisfac-

tion is characterized by personal development and sense of self acceptance. In other words, aging elderly continue to grow and learn. They use today for the future and use previous experiences to cope with their goals.<sup>23,24</sup>

In this work, the life goals of elderly individuals have been evaluated using measurement tools such as Life Satisfaction Scale, Quality of Life or Life Satisfaction Scale (CLAS). On the other hand, Life Participation Test is a self-assessment scale used to determine the individual's commitment to life.<sup>13</sup> This scale expresses concepts such as participation, enthusiasm, passion, dedication and effort to maintain behaviors. Evaluating the life goals and life satisfaction of the aged persons will help the health professional to determine the needs and to plan the initiatives to be applied. There is no enough research on life satisfaction in Turkey and the effects on the health of the elderly individuals. Uğur et al. have adapted the scale to Turkish people for the first time in our country with collaboration of university students in 2015. In this study, it has been aimed to reveal the usefulness and reliability of the scale in our country in order to improve and protect the health of the elderly.<sup>25</sup>

## MATERIAL AND METHODS

This methodological study has been carried out in Sandikli Huseyin Develi Nursing Home, Emirdag Nursing Home and Bolvadin Nursing Home, affiliated with Afyonkarahisar Provincial Directorate of Family and Social Policies between 01.01.2018 and 02.28.2018.

### SAMPLE

Sample size of the study has been determined based on the criterion of having at least 5-10 times the number of items in the scale.<sup>26</sup> Since the number of items in the Life Engagement Test was 6, 92 volunteer individuals who were 60 years and older, who did not have any severe psychiatric disorders, who had a score between 0-4 from Geriatric Depression Scale (Short Form), who did not have any severe problems associated with hearing, seeing and speaking and any severe physical deficiencies and who were eligible for the inclusion criteria were included in the study

out of a total of 92 older individuals residing in Sandikli Huseyin Develi Nursing Home, Bolvadin Nursing Home and Emirdag Nursing Home in Afyonkarahisar. Mean age of the individuals participated in the study was 80-89 years old.

### DATA COLLECTION

The Life Engagement Test, which was developed by Scheier et al. to assess purposes in life, is a measurement instrument including 6 items and one dimension (life engagement). The scale has a 5-Likert type grading such as (1) Strongly disagree, (2) Disagree, (3) Neutral (4) Agree and (5) Strongly agree.<sup>27</sup> Items 1,3 and 5 are reverse coded in the scale. All scores are summed up after reverse and negative coding of elements. Possible score range is between 6 to 30. Increased scores show that there is a bigger purpose in life. Individual's purpose in life is considered as a self-assessment instrument.<sup>9</sup>

The reliability and validity study of its Turkish adaptation was carried out by Ugur and Akin in 2015 on the university students.<sup>25</sup>

First treatment of the test was performed on older individuals through face-to-face interviewing method; and post-test treatment was conducted by the same method after 15 days. Interviews lasted for nearly 15-20 minutes.

### ETHICAL ASPECT OF THE STUDY

The study was started after taking ethics approval from Non-interventional Clinical Research Ethics Committee of Hacettepe University Faculty of Medicine; and written permissions were obtained from Scheier who developed the scale and ethics committee approval was obtained from Hacettepe University Non-interventional Clinical Research Ethics Committee (date:13.02.2018 no: 16969557) in order to conduct the study. Also, an institutional permission (date: 08.10.2017, no: 85187) was taken from Department of Training and Publication of the Ministry of Family and Social Policies for the applicability of scale on older individuals residing in the institutions. Moreover, individuals who participated in the study were instructed about validity-reliability study of Life Engagement Test on 60 years and older individuals; and they provided written informed con-

sents. The study was conducted in accordance with the Helsinki Declaration 2008 Principles.

## DATA ANALYSIS

Exploratory Factor Analysis (EFA) was used for life engagement test in the study. On the other hand, Cronbach's alpha value providing internal consistency was calculated for reliability analysis and test-retest reliability was calculated to determine the correlation between pretest and posttest values. Besides, Confirmatory Factor Analysis (CFA) was performed to posttest data after 15 days in order to confirm factor structure that was obtained by exploratory factor analysis. Data retrieved in the study were analyzed by using Stastical Package for Social Science for Windows (SPSS 21.0); and LISREL 8.71 program was used for confirmatory factor analysis.

## RESULTS

Among 92 individuals included in the study, 39.1% were between 80-89 years old; and characteristics of the participants were given in Table 1. 58.7% of them were males; 68.5% were widows and 52.7% were illiterate. 82.6% of the residents have been residing in the institution for 0-5 years. 89.1% admitted to the institution willingly. 57.6% were paying to the institutions; and 78.3% were staying in a double room. 66.3% had one and more chronic diseases.

The results of exploratory factor analysis for life engagement test and reliability analysis were presented in Table 2. Based on the results of factor analysis, Bartlett's test for sphericity and Kaiser-Meyer-Olkin sampling adequacy test confirmed the adequacy of data for analysis (Bartlett's Test=372.453;  $p < 0.001$  and KMO=0.801). In this context, it was observed that life engagement test including 6 items was assembled under one dimension (factor) explaining 69.211% of total variance with an eigenvalue of 3.637. It was also detected that factor loads of all items were above the value of 0.40.

Cronbach's alpha coefficient for reliability analysis was calculated as 0.782 for life engagement test. All of Cronbach's alpha coefficients were found to be above the critical value of 0.70 when an item was removed. In addition, it was observed that ad-

**TABLE 1:** Socio-demographic characteristics of nursing home residents.

Socio-demographic Variables	n	%
<b>Age</b>		
60-69	25	27.2
70-79	21	22.8
80-89	36	39.1
90 age and older	10	10.9
<b>Gender</b>		
Women	38	41.3
Man	54	58.7
<b>Marital Status</b>		
Married	9	9.8
Divorced	14	15.2
Widow	63	68.5
Single (Never married)	6	6.5
<b>Education Level</b>		
Illiterate	48	52.2
Literate	12	13.0
Primary education	29	31.5
High school	2	2.2
University	1	1.1
<b>Duration in the Institution</b>		
0-5 year	76	82.6
6-11 year	11	12.0
12-17 year	5	5.4
17-23 year	0	0
24 year and more	0	0
<b>Status of Arrival</b>		
With own request	82	89.1
The request of children or relatives	7	7.6
Lack of anyone	3	3.3
<b>Number of Chronic Diseases</b>		
No	31	33.7
1	29	31.5
2 units	16	17.4
3	15	16.3
4 and above	1	1.1
<b>Stay in the Institution</b>		
Free	39	42.4
Paid	53	57.6
<b>Room Type</b>		
For one person	20	21.7
Double	72	78.3

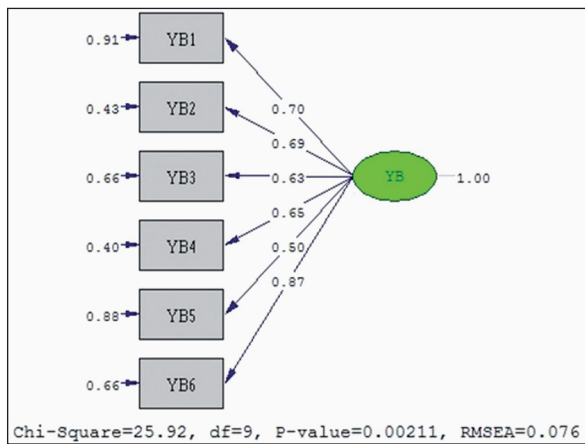
justed item total correlation values were above 0.40. Moreover, correlation value was calculated as 0.803 for test-retest reliability. These results sug-

**TABLE 2:** The results of exploratory factor analysis and reliability analysis for the life engagement test.

Items	Factor loads	Corrected item total correlation	Cronbach's Alpha deleted
1: There is not enough purpose in my life	0.479	0.474	0.765
2:To me. the things I do are all worthwhile	0.512	0.569	0.744
3:Most of what I do seems trivial and unimportant to me	0.636	0.597	0.733
4:I value my activities a lot	0.490	0.588	0.739
5:I don't care very much about the things I do	0.810	0.424	0.777
6:I have lost of reasons for living	0.710	0.583	0.736
<b>Eigenvalue</b>	3.637	-	-
<b>Explanation of variance (%)</b>	69.211	-	-
<b>Overall scale Cronbach's alpha</b>	-	-	0.782
<b>Test-retest reliability (r)</b>			0.803

Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)=0.801

Bartlett's Test of Sphericity: Chi-Square=372.453; p<0.001

**FIGURE 1:** FA Path Diagram for Life Engagement Scale.

gested that there was no need to remove an item from the scale.

Path diagram that was retrieved at the end of Confirmatory Factor Analysis (CFA) which was applied to posttest data is provided in [Figure 1](#).

Fit indices for construct validity in CFA are shown in [Table 3](#).<sup>28</sup> When fit measures were examined, RMSEA, NFI, NNFI, CFI SRMR and AGFI showed an acceptable fit whereas  $\chi^2/df$  showed a perfect fit since  $2.88 < 3$ . According to fit indices, single factor model was found to be fitted to data at an adequate level. Based on these results, factor structure that was obtained from EFA was tested by CFA and the suitable model was generated.

## DISCUSSION

Aging is a process where many losses can be experienced, also maintenance and economic problems can be experienced.<sup>20</sup> In this period, when such problems are experienced, an active life can affect positively the health of the elderly persons.<sup>21</sup> This can also increase the life satisfaction and help them to be more positive.<sup>24</sup>

In behavioral medicine and health psychology researchs, the content of the scale has been developed to evaluate the purpose in life.

**TABLE 3:** Fit indices for the life engagement test.

Measures	Perfect fit	Acceptable fit	Finding	Result
RMSEA	$0 \leq RMSEA \leq 0.05$	$0.05 < RMSEA \leq 0.08$	0.076	Acceptable
NFI	$0.95 \leq NFI \leq 1$	$0.90 \leq NFI < 0.95$	0.910	Acceptable
NNFI	$0.97 \leq NNFI \leq 1$	$0.95 \leq NNFI < 0.97$	0.960	Acceptable
CFI	$0.97 \leq CFI \leq 1$	$0.95 \leq CFI < 0.97$	0.950	Acceptable
SRMR	$0 \leq SRMR \leq 0.05$	$0.05 < SRMR \leq 0.10$	0.086	Acceptable
AGFI	$0.90 \leq AGFI \leq 1$	$0.85 \leq AGFI < 0.90$	0.870	Acceptable
$\chi^2/DF$	<3	<5	2.880	Perfect
				Harmony

Life Engagement Test has shown that it associated with other psychosocial factors such as tendency optimism, social network size and emotional expression style, which are known to be linked to health outcomes.<sup>9</sup>

In this study for testing validity and reliability of the Turkish version of Life Engagement Test on older individuals, Bartlett's Test and KMO values revealed the applicability of factor analysis in the framework of sampling adequacy. In addition, it has been found to be assembled under a single factor explaining more than two third of total variance of life engagement test. Similarly, in the validity and reliability study by Ugur et al., it has been observed that the scale showed well fit in one dimension.<sup>25</sup>

In the validity and reliability study by Shahnaz et al. which was conducted on university students in Bangladesh, the results were 304.167 for Bartlett's Test ( $p < 0.001$ ) and 0.784 for KMO; and they were very similar to our results.<sup>29</sup> Again in the study by Katsunori Sumi which was performed with adult employees in Japan, Bartlett's Test result was found to be 508.56 ( $p < 0.01$ ) and KMO result was 0.78 which were also comparable.<sup>13</sup>

Cronbach's alpha coefficient regarding internal consistency of the scale was calculated above the critical value of 0.70.<sup>30</sup> On the other hand, item total correlation values were found to be above the value of 0.40. It has been indicated that this value should be above 0.30.<sup>31</sup> These results confirmed the validity and reliability of the Life Engagement Test including 6 items without removing any items. In the validity and reliability study by Shahnaz et al. on university students in Bangladesh, Cronbach's alpha coefficient was found to be 0.77, eigenvalue was greater than 1.00 and total variance was 46.80% and correlation values were above 0.30.<sup>29</sup> In the study by Katsunori Sumi on adult employees in Japan, Cronbach's alpha coefficient was 0.83, eigenvalue was greater than 1.00 and total correlation was above 0.40 as similarly.<sup>13</sup> Ugur et al. found total correlation coefficients between 0.22 and 0.60; and Cronbach's alpha coefficient as 0.74.

In a study on different groups, Scheier et al., found Cronbach's alpha coefficient as 0.80 and 0.81

and they obtained high results in factor loads as 56 at minimum and 81 at maximum among 3 groups having a mean age of 65 years and older.<sup>9</sup>

In this study, factor structure, that was obtained by exploratory factor analysis, was confirmed by Confirmatory Factor Analysis; and a suitable model was attained by path diagram. At the end of dividing Chi-square by degrees of freedom (Chi-square / df), a ratio smaller than 3 was found indicating that this model showed a perfect fit.<sup>32</sup>

In parallel with the studies conducted by Scheier et al. and Katsunori Sumi for a similar age group, it has been observed that the scale was suitable for the structure of the Turkish society and there was no need to remove items.

## CONCLUSION

It is very important to evaluate the continuity of the behavior of older individuals who have been struggling for a long time. The meaning of life and life engagement is a new field of research in our country. In the studies conducted in our country, it has been preferred to investigate the relationships between participation in life and physical well-being more. At the end of the study, the scale was found to be valid and reliable in evaluating the life engagement of elderly individuals in Turkish society. The scale is thought to be a measurement tool that can contribute to the psychological and social evaluation, planning and development of the care services of the elderly in our country. Also, how much this scale can be affected depending on a number of variables can be investigated in future studies. With the increase of such studies, many factors affecting life engagement can be determined in old age.

### Source of Finance

*During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.*

### Conflict of Interest

*No conflicts of interest between the authors and / or family members of the scientific and medical committee members or mem-*

bers of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

### Authorship Contributions

**Idea/Concept:** Ayten Küçük, Oya Nuran Emiroğlu; **Design:** Ayten

**Küçük, Oya Nuran Emiroğlu; Control/Supervision:** Oya Nuran Emiroğlu; **Data Collection and/or Processing:** Ayten Küçük; **Analysis and/or Interpretation:** Ayten Küçük, Oya Nuran Emiroğlu; **Literature Review:** Ayten Küçük, Oya Nuran Emiroğlu; **Writing the Article:** Ayten Küçük; **Critical Review:** Ayten Küçük; **References and Fundings:** Ayten Küçük.

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