



Development and validation of flourishing questionnaire based on seligman's model among Iranian university students

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Abstract

Human flourishing is an issue that has occupied the mind of thinkers for centuries and recently has interested positive psychologist's attention. Because there is no any valid questionnaire based on Seligman's model so far, the aim of this study was to develop a questionnaire to measure human's flourishing based on Seligman's model. Therefore, an initial questionnaire with 65 items was prepared. The studied population consisted all university students. At the initial stage, a participant of 50 participants was selected to assess the reliability, and at the second stage a participant of 400 participants was selected to examine the psychometric properties of the tool. According to the results of factor analysis, 28 items positively correlated with the whole test and at least had a factor loading of 0.35 or over were selected for the final questionnaire. The 28-items questionnaire consisted of a four-factor structure including positive emotions, relationships, meanings and achievements. Convergent validity of the Human Flourishing Questionnaire (HFQ) was examined and confirmed through concurrent implementation of this questionnaire with Ahvaz Self-actualization Questionnaire and Diener's Flourishing Questionnaire and its divergent validity was examined through concurrent implementation of this questionnaire with Beck's Depression Inventory. In addition, the reliability of the HFQ questionnaire using Cronbach's alpha showed that HFQ has satisfactory reliability coefficients and can be used in psychological studies to measure flourishing in students.

Keywords: Development, Flourishing, Reliability, seligman's model, Validity

Introduction

Positive psychology means the scientific study of an ideal human's function. It aims to discover and promote the factors that help individuals, families and societies to develop and become flourished [1,2]. Actually, positive psychology is the science of human's happiness and flourishing [3]. As Martin Seligman, father of positive psychology, says this kind

of psychology is the psychology of twenty-first century, and this science that instead of paying attention to humans' disabilities and weaknesses, focuses on their abilities such as happy living, enjoyment, problem solving and optimism. Positive psychology focuses on human life style to be flourished and using this method reaches persons to their

potentialities [2].

However, as Seligman says, the root of positive psychology can also be seen in remarks of psychologists of twentieth century, but the first person who proposed this issue in a scientific way was Seligman. Before Seligman, psychologists such as Rogers and Maslow had similar views about human life. Rogers accepted individuals unconditionally. He believed that everyone has self personal and unique world that must be respected. Maslow placed self-actualization at the highest level in the hierarchy of needs. He believed that individuals experience a sense of happiness accompanying with relief to the process of self-actualization. Even before the humanists, an American psychologist called William James believed that the main concern of psychology is happiness and well-being of humans. Well-being researchers, who have chosen to study psychological well-being seriously, can be categorized into subjective well-being researchers and psychological well-being researchers [4].

Subjective well-being has affective components (balance of positive and negative emotions) and cognitive components (individual's assessment of life satisfaction) [5,6]. According to Diener in 2009, subjective well-being is what normal people call happiness. Psychological well-being defined as 'engagement with the ontological challenges of life' is known by the six- components concept of Rayf [7] including: self-acceptance, positive relations with others, autonomy, purposeful life, personal growth and environmental mastery [8]. Flourishing is also considered as one of the structures used in positive psychology and suggests that how the experience of life goes well. So, flourishing is a combination of feeling good and functioning effectively in life that is synonymous with high levels of psychological well-being and shows mental health briefly [9-12].

The term flourishing is defined in the concise oxford dictionary in 1964 as vigorously develop, growth and progress, being successful and distinguished. This word is derived from the Latin word 'Flor' that means flower and 'Flor' is derived from an Indo-European word 'Bhlo'

meaning bloom. Flourishing can be related to the blooming of the flowers metaphorically. Colloquial use of the term 'flourishing' is focused on the fulfillment of individual's potentiality (spiritual, developmental, financial, etc.), being successful, progress, or providing considerable assistance to the population in society. It shows the realization of the inherent nature of the organisms, the development of self and others' well-being in an ecological and social system [13].

Recently the general well-being approaches of the flourishing to represent comprehensive models of individuals' optimized performance are more based on psychological needs to approach satisfaction and mental health [13,14]. Seligman in 2011 believes that perhaps comprehensive well-being theory is obtained from putting the recent known aspects of flourishing together with the PERMA (positive emotions, engagements, relationships, meanings and achievements) model. None of these elements define well-being, but each of them is a part of well-being. PERMA components considered as directions to achieve well-being are included: positive emotions, attractions, relationships, meanings, purposes and progresses in life. According to the studies conducted in Iran, there are few studies about measuring and identifying flourishing. Among the studies that have been conducted since 1954, Shostrom Personal Orientation Inventory (POI) [15], and Personal Orientation Dimensions (POD) can be mentioned. In fact, they are the initial questionnaires of interpersonal self-actualization. After them questionnaires such as Shostrom's Caring Relationship Inventory (CRI) [16], and Shostrom's 370-items Self-actualization Questionnaire [17] were made. The recent questionnaire was made by Shostrom based on Maslow's theoretical studies and notes, and then was examined by Sandberg. 13 items were extracted from 370 items using factor analysis method. The items had satisfactory reliability and validity coefficient. The final questionnaire was called Shostrom's Self-Actualization Questionnaire

(SSAQ). Ahvaz Self-Actualization Inventory (ASAI) Questionnaire was made by Ismailkhani et al. in 2001 with good reliability and validity. The validity of this questionnaire was measured using test-retest and internal consistency (Cronbach's alpha). Its reliability was measured through determining the correlation coefficient of this scale with ANQ, Coopersmith Self-Esteem Questionnaire and Beck's Depression Inventory. The results showed that all correlation coefficients between the scores of the participants on ASAI with Anxiety and Depression Questionnaire are negative, but these coefficients are positive for Coopersmith Self Esteem Questionnaire and are significant at the level of $P < 0.001$. In fact ASAI is a precise and reliable tool to identify flourished individuals and has high and satisfactory validity and reliability coefficients [18].

Given that none of the mentioned questionnaires are made based on Seligman's model and measure different aspects of flourishing, the present study aimed developing and validating Human Flourishing Questionnaire (HFQ) based on Seligman's model among university students in Iran.

Method

This research is a descriptive psychometric study. The studied population consisted all university students in the second semester of the academic year of 2013-2014 of Ferdowsi University of Mashhad. Because the purpose of this study was developing and validating HFQ, examining its construct validity factor analysis in a sample size of 400 participants was considered. It is notable that Kamery considered 300 participants as a good sample size and 500 participants as a very good sample size. Kass and Tinzly also suggested a sample size of 300 participants for factor analysis [19]. Participants were selected among students of Ferdowsi University of Mashhad, 146 participants were male and 254 participants were female. Samples were selected in a classified manner (based on the university department) and randomly among university students of different departments

such as Literature, Theology, Physical Education, Science, Administrative Sciences, Educational Sciences, Agriculture, Natural Resources, Mathematics, Architecture, Engineering and Veterinary Medicine .

Researcher-made HFQ: The researcher-made HFQ was used to measure the flourishing. Seligman's model was used to make this questionnaire. Based on this model, flourishing includes five components of positive emotions, engagement, relationships, meaning and achievement. By searching literature review and interviewing with experts, 65 items were developed to measure the five components of flourishing. Experts examined the content validity of the questionnaire and omitted 15 items. After examining the content validity and obtaining required insurance, the preliminary questionnaire was conducted on a sample of 50 individuals from the statistical population. The purpose of this stage was examining the clarity and ambiguity of the items and changing them if be necessary. Given the clarity of the items, the 50-items questionnaire was implemented on 400 students of Ferdowsi University of Mashhad and its psychometric properties were evaluated. Obtained data have been presented in the results section. Answering each item, six options were considered: totally agree, partially agree, slightly agree, slightly disagree, partially disagree, totally disagree and the value of 1, 2, 3, 4, 5 and 6 is considered for each, respectively. questions 1, 5, 9, 13, 17, 21, 25 assess positive emotions, items numbers 2, 6, 10, 14, 18, 22, 26 assess relationships, questions 3, 7, 11, 15, 19, 23 and 27 assess the meaning and questions 4, 8, 12, 16, 20, 24 and 28 assess achievement (a copy of the final questionnaire has been attached).

Ahvaz Self-actualization Inventory: Ahvaz 25- items Self-actualization Inventory was made by IsmaeelKhani et al in 2001 through factor analysis with appropriate reliability and validity to assess flourishing. It had acceptable and satisfactory psychometric properties .Its reliability has been assessed using test-retest and internal consistency

(Cronbach's alpha) and also its validity has been assessed through determining correlation coefficient of the scale with ANQ, Coopersmith Self-Esteem Questionnaire and Beck' Depression Inventory. The results showed that all coefficient correlations between the scores of the participants in ASAI with Anxiety and Depression Questionnaires are negative, but the coefficients are positive on Coopersmith Self Esteem Questionnaire and are significant at the level of $P < 0.001$. ASAI is precise and reliable to identify flourished people and has high and satisfactory validity and reliability coefficients [18].

Diener's Flourishing Questionnaire: This questionnaire has eight items which describe important aspects of individuals' functioning such as positive relationships, sense of competence, feeling that life has meaning and having purpose in life. Each item is based on a 1 to 7 - degree scale from totally disagree to totally agree. Scores range from 8 (totally disagree with all items) to 56 (totally agree with all items). Cronbach's alpha of this questionnaire is 0.87 [20].

Beck's Depression Inventory: Beck' Depression Inventory was first developed in 1961 by Beck et al. It first introduced by Beck et al in 1961, then revised and published in 1971 and 1978 respectively [21]. This questionnaire has 21 items and is developed to assess feedbacks and symptoms in depressed patients. Its items are made based on observation, summarization of attitudes and common symptoms among psychiatric patients with depression. Total test is consisted of 21 items associated with the different symptoms and participants should answer a four- degrees scale from zero to three. The items include questions about sadness, pessimism, sense of inability and defeat, sense of guilt, sleep disturbance, loss of appetite and self-loathing. Thus, two items are allocated to emotion, 11 items to cognition, 2 items to overt behaviors, 5 items to somatic symptoms, and 1 item to interpersonal semiotics. This scale determines different degrees of depression from mild to very severe .Its scores range is from at least zero to the maximum of 63

[22]. Beck and his colleagues ,using the studies that have used this tool , found out that its reliability coefficient was variable from 0.48 to 0.86 based on the intervals between the number of implementation and the studied population. Several studies have been conducted about the validity of Beck's Depression Inventory. Correlation mean of Beck' Depression Inventory with Hamilton Psychiatric Rating Scale (HRSD), Zung Self-Rating Scale, MMPI Depression Scale, Multiple Emotional Trait Scale of Depression and SCL-90 is more than 0.60 [23].

Results

Construct validity of HFQ: Construct validity is the latest form of validity [24]. Construct validity of a test includes its accuracy in measuring the theoretical structure or desired properties. Considering its definition, a test has construct validity when the obtained scores from its implementation be relevant to the concepts or desired theoretical constructs. Factor analysis, convergent validity and divergent validity were used in the present study to assess the construct validity of the HFQ [25]. Analysis of the data factors using main components method and after four rotation experiments achieved the best factor structure. Analysis of the data factors with orthogonal rotation method of varimax resulted in extracting four factors. It is worth data caused this study to be approved for factor analysis. The results of Kaiser-Meyer-Olksin test ($KMO = 0.950$) was satisfactory and Kervit Bartlett test was significant at the level of $P < 0.001$. Factor loadings with minimum 0.3 were used for analyzing the factors (Table 1). Results Examination of factor analysis showed that among the first 50 items, 22 items were omitted and 28 items were remained. As it can be seen, the four extracted factors explain 60.75 % of the matrix variance. Of this amount, 18.03 % are explained by the first factor, 16.59 % by the second factor, 14.31 % by the third factor and 11.82 % by the fourth factor. Factor loadings of the items of the questionnaire for the 28 remaining items have been presented in

Table 1.
Confirmatory factor analysis for determining the fit of four-factor model to the data
To determine the fit of the model with data, a confirmatory factor analysis was used. Confirmatory factor analysis results have been shown in the following figure.
In this model, the factor loadings for each item

have been presented on the related factor. As it can be seen, all items have factor loadings higher than 0.30 on the relevant factors that are statistically and practically significant. According to Thompson' proposal [26], a subset of the overall fit indices including chi-square, normed fit index (NFI), comparative fit index (CFI) and root mean square error of approximation (RMSEA) are the

Table 1 The results of varimax rotation for items of HFQ

Number	Items	Factors			
		1	2	3	4
1	I feel joy more than sadness.		0.760		
5	I feel calmness and relief from stress.		0.695		
9	I wake up with a feeling of comfort and exhilaration.		0.515		
13	I have positive feelings and thoughts.		0.625		
17	I am satisfied with my life.		0.685		
21	I feel that life is enjoyable.		0.735		
25	I am optimistic about the future.		0.511		
2	I feel I am close to people around me.				0.649
6	I express my love and friendliness to others through words and actions.				0.659
10	I would like to share my time with others.				0.738
14	I am able to develop relationships with others based on mutual trust.				0.642
18	When I need others help me.				0.353
22	I feel people my around love me.				0.555
26	If I have a problem with someone, I try to fix it.				0.523
3	I have clear purposes and directions in life.	0.486			
7	I seek understanding and performing my unique role in the world as a human.	0.569			
11	I do things that are related to greater purposes or ideals.	0.621			
15	I have meaningful and purposeful life ahead of me.	0.621			
19	I feel affiliation and belonging to something greater than myself.	0.442			
23	I am always looking for something that gives considerable meaning to my life.	0.722			
27	I have personal plans or purposes that I feel their pursuing is important for me.	0.788			
4	I feel I have achieved a lot to feel proud.			0.708	
8	I feel I have achieved the important goals that I have set for myself.			0.718	
12	I have good progresses in my life.			0.705	
16	I am very proud of what I have achieved.			0.653	
20	My life revolves around ‘success or win ‘.			0.516	
24	I try to be successful even when I am not under pressure or coercion.			0.478	
28	I monitor my progress in favorite activities regularly.			0.337	

most important fit indices. So, the mentioned indices were calculated for the present study. The results of chi-square statistics showed that the amount of this statistics is significant at $p \leq 0.001$ and it indicates poor fit of the model to the data. However, since chi-square is very sensitive to the participant size, is not an accurate index to determine the fit, and this uncertainty leads to developing other indices for

evaluating the fit of the model [19]. The amount of normed fit index (NFI) and comparative fit index (CFI) can be between zero and one. Values of 0.95 and higher are considered acceptable. NFI and CFI values in this study are 0.986 and 0.990, respectively. According to the criteria of 0.95 and higher, these values confirm the model. The second root mean square error of approximation

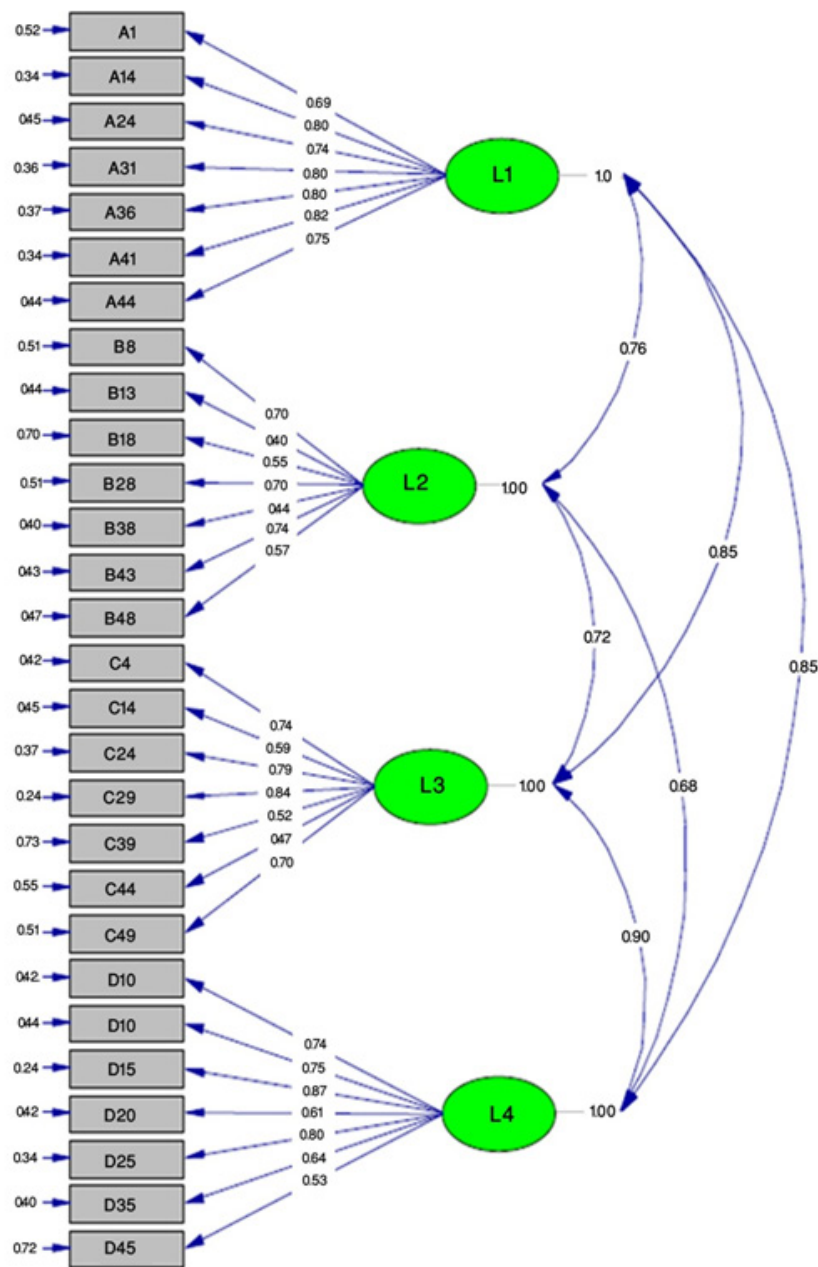


Figure 1 Results of confirmatory factor analysis (factor loadings and correlations among components)

(RMSEA) shows the mean of remainings between observed correlation/covariance of the participant and expected model of the population .Lohlin considers values lower than 0.08 as a good fit, 0.08

to 0.10 as an average fit and higher than 0.10 as a poor fit [26]. The value of RMSEA was calculated 0.079 for the present study and indicates average to good fit of the model with data.

Determining convergent validity and divergent validity of HFQ

To determine the convergent validity of HFQ, it was implemented concurrently with ASAI and Diener' Flourishing Questionnaire. To determine the divergent validity, HFQ and Beck's Depression Inventory were implemented concurrently. Results have been presented in the following Table.

As it can be seen, there is a negative significant relationship among Beck's Depression Inventory and ASAI, Diener's Flourishing Questionnaire and components of HFQ (positive emotions, relationships, meaning and achievement). But there is a positive significant correlation between ASAI, Diener's Flourishing Questionnaire and four components of HFQ. Correlation coefficients indicate that flourishing construct has a close relationship with the items mentioned, so

convergent validity and divergent validity of HFQ are confirmed.

Reliability of HFQ

Internal consistency method was used to assess the reliability of HFQ. To assess the internal consistency of the questionnaire Chronbach's alpha was used (Table 3).

Results of Table 3 show that all remaining 28 items on the related factors have suitable discrimination coefficient. In addition, elimination of none items had a significance increase in the amount of alpha coefficient. Therefore, HFQ has a good reliability with four components so that based on the results of the table, the reliability of positive emotions, relationships, meaning and achievement was 0.91, 0.83, 0.88 and 0.87, respectively that were favorable and satisfactory.

Table 2 Determining convergent validity and divergent validity of HFQ

	ASAI	Beck's Depression Inventory	Diener's Flourishing Questionnaire	Positive emotions	Relationships	Meaning	Achievement	Total
ASAI	1							
Beck's Depression Inventory	-0.770	1						
Diener's Flourishing Questionnaire	0.821	-0.661	1					
Positive emotions	0.792	-0.740	0.919	1				
Relationships	0.682	-0.474	0.676	0.588	1			
Meaning	0.657	-0.381	0.711	0.607	0.730	1		
Achievement	0.721	-0.622	0.772	0.751	0.762	0.650	1	
Total	0.825	-0.655	0.898	0.868	0.869	0.838	0.911	1

*All correlations are significant at the level of $p \leq 0.001$.

Discussion

The purpose of this study was developing a questionnaire to measure human flourishing based on Seligman's model, because, before this study, no any valid questionnaire performed based on this model. The need for having a tool to measure flourishing is noteworthy for several reasons. First, flourishing is a combination of feeling good and effective functioning in life that is the synonymous with high levels of psychological well-being and it shows mental

health briefly [9-12]. Developing tools in this domain causes expansion in assessing positive psychology constructs through making tools for assessing flourishing. Second, a practical tool is provided for those who are involved in the promotion of mental health and increasing the number of flourished people in the society. Third, making flourishing assessment test can be applied in supporting future studies that examine the relationship between this construct and

Table 3 Statistical parameters including discrimination coefficient and alpha coefficient for HFQ factors

The First factor			The Second factor		
Item number	Discrimination coefficient	Alpha coefficient if the items are deleted	Item number	Discrimination coefficient	Alpha coefficient if the items are deleted
a1	0.700	0.904	b2	0.632	0.801
a5	0.765	0.893	b6	0.564	0.813
a9	0.692	0.901	b10	0.529	0.818
a13	0.757	0.894	b14	0.632	0.802
a17	0.758	0.894	b18	0.520	0.820
a21	0.786	0.891	b22	0.677	0.795
a25	0.683	0.902	b26	0.520	0.819
	0.91	Alpha coefficient for the first factor		0.83	Alpha coefficient for the second factor
c3	0.680	0.857	d4	0.686	0.844
c7	0.559	0.872	d8	0.704	0.842
c11	0.737	0.849	d12	0.810	0.830
c15	0.775	0.843	d16	0.584	0.860
c19	0.511	0.878	d20	0.708	0.841
c23	0.673	0.859	d24	0.565	0.861
c27	0.701	0.855	d28	0.474	0.870
	0.88	Alpha coefficient for the third factor		0.87	Alpha coefficient for the fourth factor

other variables of positive psychology such as tolerance, optimism, happiness, etc. This is more important when increasing evidence suggests that high levels of well-being and flourishing bring about good consequences for individuals and the society. In cross-sectional, longitudinal and experimental studies is cleared that high levels of well-being is associated with a range of positive outcomes including effective learning, productivity and creativity, good relationships, pro-social behaviors, good health and life expectancy [9,27,29]. For this purpose and understanding the characteristics and outcomes of flourishing, this concept should be studied according to a favorable and proper way. So, flourished people or groups or ethnics in which there are high levels of flourishing, should be identified and specified [30]. Thus, in this study, based on valid texts and existing questionnaires, a primary questionnaire university students of Ferdowsi University. Validity of the questionnaire was examined through content validity (based on

experts' opinion), construct validity (factor analysis), convergent validity (concurrent implementation with ASAI and Diener's Flourishing Questionnaire), divergent validity (concurrent implementation with Beck's Depression Inventory) and reliability of the questionnaire was evaluated using Cronbach's alpha coefficient. The results of content validity showed that, based on experts' opinion, HFQ has a good content validity for measuring flourishing. Based on the results of factor analysis, 28 items positively correlated with the whole test and had factor loading of 35% or higher at least on one factor, were selected for the final questionnaire. This 28- items questionnaire (HFQ) was named HFQ (HFQ). It includes a four-factors structure including positive emotions, relationships, meaning and achievement. Component attraction was not confirmed and it can be due to participant type or maybe people usually do not an experience attraction because of lack of

pleasure, interest and engaging in affairs. Each component has 7 items. It should also be noted that Seligman considers components are independent, whereas in the present study components have high correlation. Convergent validity of Human Flourishing Questionnaire (HFQ) was confirmed through its concurrent implementation with Ahvaz self-actualization Questionnaire and Diener's Flourishing Questionnaire and its divergent validity was examined and confirmed through concurrent implementation with Beck's Depression Inventory. In addition, the results of HFQ reliability using internal consistency method (Cronbach's alpha) showed that HFQ has satisfactory reliability coefficients. Based on the results obtained from the validity and reliability, HFQ can be used in psychological studies to measure individuals' flourishing. Finally, it should be noted that some limitations of this study are that validating the HFQ was only by questionnaires and implementation of the study only was on university students, so generalizability or external validity of this study becomes limited to some extent. So, it is recommended validity of this tool studies is examined in other society to the generalizability of HFQ will be increased in future.

Conclusion

In general, based on the results of this study and considering the suitability of content validity (experts' opinion), construct validity (factor analysis), convergent validity (concurrent implementation of Flourishing Questionnaire with Ahvaz Self-actualization Questionnaire and Diener's Flourishing Questionnaire), divergent validity (concurrent implementation of HFQ with Beck's Depression Inventory), having good reliability (Cronbach's alpha), ease of implementation and grading and lasting for a short time (5 to 7 minutes), it can be concluded that the Human Flourishing Questionnaire (HFQ) can be used in psychological studies to measure individuals' flourishing.

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Contributions

Study design: SS, HH, AMR

Data collection and analysis: SS, AMR, FK

Manuscript preparation: SS, AMR, FK, KKP

Conflict of interest

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

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