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Psychometric Properties of the Turkish Health Enhancement Lifestyle Profile-Screener Questionnaire (T-Help-Screener)

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ABSTRACT

Objective: Healthy ageing is associated with a healthy lifestyle. The aim of this study was to evaluate the validity, reliability, and cultural adaptation of the Turkish version of the Health Enhancement Lifestyle Profile Screener (T-HELP-Screener).

Methods: This study included 150 participants aged 65 years and above. Internal consistency of the T-HELP-Screener was measured using Kuder–Richardson. Test-retest reliability was performed with 66 of the 150 participants using intraclass correlation coefficient (ICC). Construct validity of the T-HELP-Screener was analyzed with the Healthy Lifestyle Behavior Scale-II (HLBS-II).

Results: This study showed a substantially reliable level (Kuder–Richardson=0.72). The ICC for each of the T-HELP-Screener items ranged from 0.750 (95% CI = 0.590–0.847) to 0.965 (95% CI = 0.942–0.978) indicating acceptable to good test-retest reliability. There was a significant moderate correlation between the T-HELP-Screener and the HLBS-II (r_s = 0.488; p =0.001).

Conclusion: This study supports the psychometric properties of the T-HELP-Screener. This tool can help quickly identify older adults who need a more comprehensive assessment of their health risk behaviours. Future studies should develop and validate a Turkish version of the comprehensive 56-item Health Enhancement Lifestyle Profile (HELP).

Keywords: aging, lifestyles, older adults, health promotion

1. INTRODUCTION

The world's elderly population is growing every day. By 2050, the population of people aged 65 and up is predicted to double (1). Older adults are at the highest risk for chronic diseases (2). The phenomena of changes in health status observed among individuals during ageing has led to theories on the causes of ageing as well as the conceptualization of "successful" or "healthy" ageing (3,4). These aging models depict the process by which older adults optimize their chances of improving and maintaining physical, cognitive, and social functions that can contribute to a healthy long life (5). Extension of both life span and health span has become the optimal outcome of health promotion measures of modern times (6).

Epidemiological studies have showed that a healthy lifestyle is linked to healthy aging and it has a significant role in the primary prevention of many diseases (7). Lifestyle factors such as smoking behaviour, alcohol consumption, physical activity and body weight are related to an individual's health and functionality (8, 9). Moreover, an unhealthy lifestyle has been accepted as the determinant of many diseases owing to which people have lost their lives to date. To provide the well-being of a rapidly growing elderly population, strategies must be in place to promote healthy lifestyles and prevent the occurrence of neurodegenerative and non-communicable diseases in the later stages of life (10). Therefore, measures aiming to enhance healthy lifestyle behaviours for the elderly have been of great interest in recent years (7).

The occupational therapy profession is focused on a holistic approach in analyzing and managing different lifestyle factors and vocations that can decide health and wellness, according to the literature (11,12). The screening version of the Health Enhancement Lifestyle Profile (HELP-Screener) is a 15-item self-report questionnaire that was designed as a time-efficient tool for screening health risk behaviours in older adults (13). The HELP-Screener uses a dichotomous scale: yes (1 point) or no (0 point), with a total score ranging from 0 to 15. Higher scores show a potentially healthier lifestyle. The established cut-off score (9 points) aids in

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identifying those who may benefit from a more in-depth evaluation with the 56-item Health Enhancement Lifestyle Profile (14,15). The development and adoption of a healthy lifestyle is critical in healthy ageing. Lifestyle measurements can guide occupational therapists in planning interventions or recommendations that could enhance healthy aging for individual clients or a community as a whole. In Turkey, there has been a lack of screening tools measuring lifestyle behaviours of older adults. Lengthy measurements have been found impractical for use as a routine screening in clinical settings with high numbers of elderly clients. The 15-item HELP-Screener (13) can potentially be a quick and easy lifestyle screening tool to use with older adults in various settings in Turkey.

The purpose of this study was to translate and adapt the 15-item HELP-Screener for its cross-cultural use in Turkey. Adapting an instrument developed within one cultural context for its use in another requires empirical scrutiny to ensure psychometric soundness (16). Several procedures were conducted in this study to ensure the linguistic and cultural appropriateness as well as to establish reliability and validity of the Turkish version of HELP-Screener (T-HELP-Screener).

2. METHODS

2.1. Participants

Criteria for the study participants were age over 65 years, no communication problems, and a Mini-Mental State Examination score of 24 or above (17). The necessary ethics committee approval was obtained for the study and written informed consent was received from all participants. In the validity and reliability studies, we decided to work with 150 people (15x10), 10 times the number of items, according to the application of 5-10 times the number of items We adopted the rule of thumb, the 10:1 ratio of respondents to items for determining our anticipated participant size of 150 (18). Permission to develop the Turkish version of HELP-Screener was granted by the original author.

2.2. Stages of the Study

The study comprised four parts: (1) translation and cultural adaptation of the T-HELP-Screener, (2) content validity, (3) internal consistency and reliability, and (4) construct validity.

2.2.1. Translation and Cultural Adaptation

Two bilingual Turkish experts translated the HELP-Screener from English to Turkish. Two translations were assessed and converted into one scale with consensus. Then, the scale was translated from Turkish to English by a native English-speaking expert who also speaks Turkish. The back translation was compared with the original version in a meeting by the translation team. Each item of the T-HELP-Screener was semantically the same as that in the original version. This initial T-HELP-Screener was reviewed and approved by the author of the original HELP-Screener. Subsequently, a pilot study was performed to evaluate the intelligibility of the Turkish version in the last stage. Thirty participants aged 65 years or above were invited to complete the initial T-HELP-Screener and to determine whether they faced difficulty in understanding the items due to possible language or cultural unfitness.

2.2.2. Content Validity

A panel of 10 experts comprising four occupational therapy practitioners, four physiotherapists, one dietitian, and one nurse were asked to contribute their opinions for content validity. A 4-point content validity index (CVI) was used by the experts to rate each T-HELP-Screener item (1 – not essential, 2 – somewhat essential but the item needs to be revised, 3 – essential but may need minor revision, and 4 – very essential). Lawshe's content validity ratio was used to determine content validity for each T-HELP-Screener item (19) (see Results).

2.2.3. Internal Consistency and Test-Retest Reliability

Internal consistency and test-retest reliability were assessed as reliability measures for the T-HELP-Screener. Internal consistency, which is the consistency of the results of the items in a test, was measured using Kuder Richardson. Test-retest reliability was determined by 66 participants who completed the T-HELP-Screener twice, with an interval of 2 weeks (20).

2.2.4. Construct Validity

The construct validity of the T-HELP-Screener was assessed by the correlation between the T-HELP-Screener and Healthy Lifestyle Behavior Scale II (HLBS-II) (21). The HLBS-II has been administered with individuals aged 19-92 years. In other words, the scale is used in the evaluation of adults, not exclusively for the elderly population. The HLBS-II measures health promoting behaviours through a total of 52 items in the six subscales: mental development, health responsibility, physical activity, nutrition, interpersonal relationships, and stress management. A 4-point Likert scale is used by the HLBS-II to indicate the frequency of health promoting behaviours (1 – never, 2 – sometimes, 3 – often, and 4 – regularly).

2.4. Data Analysis

Data was analyzed by using SPSS Statistics for Windows, Version 22.0 (IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp). The internal consistency reliability of the T-HELP-Screener was assessed by calculating Kuder–Richardson coefficient. Both Kappa statistics and the intraclass correlation coefficient (ICC) were used to assess the test-retest reliability. To determine the construct validity, Spearman's rho correlation coefficient (r_s) was calculated to

analyze the correlations between the T-HELP-Screener and the HLBS-II. The following cut-offs of correlation coefficients were used to interpret the strength of the relationships: correlation coefficient (r_s) of 0 to 0.20 suggests a negligible correlation, 0.20 to 0.40 suggests a low correlation, 0.40 to 0.60 suggests a moderate correlation, 0.60 to 0.80 suggests a high correlation, and 0.80 to 1.00 suggests a very high correlation. A *p*-value of <0.05 was used to confirm statistical significance.

3. RESULTS

3.1. Participant Demographics

We recruited 150 study participants (81 females and 64 males) aged 65 years or above (67.33 ± 3.86 years). Five individuals were excluded from data analysis due to incomplete responses. Table 1 shows the demographics of the 145 participants. The majority were married (81%), with a university degree (57%), living in an urban area (92%), and retired (75%).

Table 1. *Descriptive characteristics of the individuals.*

Descriptive characteristics (N=145)		n (%)
Marital status	unmarried	1 (0.70)
	married	118 (81.40)
	widowed	26 (17.90)
Education	primary	24 (16.60)
	high school	39 (26.90)
	university and above	82 (56.60)
Living Place	village	4 (2.80)
	district	8 (5.50)
	city	133 (91.70)
Employment Status	never worked	18 (12.40)
	retired	108 (74.50)
	retired but I work	19 (13.10)

3.2. Translation and Cultural Adaptation

The results of the pilot study revealed that the 30 participants who completed the initial T-HELP-Screener considered the items, by and large, were understandable and culturally appropriate. However, some participants stated that they had difficulty understanding the word “sedentary” in Item 15. Therefore, the word “inactive” was added in parentheses next to “sedentary.”

3.3. Content validity

Minor changes were made in line with the recommendations of the 10 content validity experts, and the T-HELP-Screener was finalized. The mean CVI score by the experts was 3.47 ± 0.20. Table 2 shows the calculated content validity ratio (CVR) for each T-HELP-Screener item. The CVRs across the items ranged from 0.80 to 1.0, exceeding the critical value (0.62) set for the given numbers of our review experts (10) and test items (15) (19,22).

Table 2. *Content validity ratio (CVR) calculation table.*

Statement	n_e	N/2	$CVR = \left(\frac{n_e - (N/2)}{N/2}\right)$	CVR	Decision
Item 1	9	5	4/5	+0.80	Acceptance
Item 2	10	5	5/5	+1.00	Acceptance
Item 3	10	5	5/5	+1.00	Acceptance
Item 4	9	5	4/5	+0.80	Acceptance
Item 5	10	5	5/5	+1.00	Acceptance
Item 6	9	5	4/5	+0.80	Acceptance
Item 7	9	5	4/5	+0.80	Acceptance
Item 8	10	5	5/5	+1.00	Acceptance
Item 9	10	5	5/5	+1.00	Acceptance
Item 10	10	5	5/5	+1.00	Acceptance
Item 11	10	5	5/5	+1.00	Acceptance
Item 12	10	5	5/5	+1.00	Acceptance
Item 13	10	5	5/5	+1.00	Acceptance
Item 14	9	5	4/5	+0.80	Acceptance
Item 15	9	5	4/5	+0.80	Acceptance

ne = number of experts rating the item as “essential”
N= total number of experts

3.4. Internal Consistency and Test-Retest Reliability

The Kuder–Richardson reliability coefficient for the initial T-HELP-Screener was 0.66 and for the final T-HELP-Screener was 0.72. With the iteration process when the T-HELP-Screener items were deleted one by one, Kuder–Richardson reliability coefficients ranged from 0.623 to 0.657. All these results suggest a substantially reliable level of internal consistency for the T-HELP-Screener. The Kappa statistics at the item level ranged from 0.597 to 0.931, indicating moderate to excellent test-retest agreement across the T-HELP-Screener items. Similarly, the ICC values ranged from 0.750 (95% CI = 0.590 – 0.847) to 0.965 (95% CI = 0.942 – 0.978), suggesting that the test items demonstrate good to excellent test-retest agreement. Table 3 shows the ICC values for the 15 T-HELP-Screener items.

Table 3. *Test–retest evaluation of T-HELP-Screener test items.*

ITEM	ICC	95% CI
T-HELP-Screener Item 1	0.811	0.690–0.885
T-HELP-Screener Item 2	0.924	0.876–0.953
T-HELP-Screener Item 3	0.900	0.837–0.939
T-HELP-Screener Item 4	0.953	0.923–0.971
T-HELP-Screener Item 5	0.925	0.877–0.954
T-HELP-Screener Item 6	0.893	0.824–0.934
T-HELP-Screener Item 7	0.913	0.858–0.947
T-HELP-Screener Item 8	0.888	0.817–0.932
T-HELP-Screener Item 9	0.965	0.942–0.978
T-HELP-Screener Item 10	0.750	0.590–0.847
T-HELP-Screener Item 11	0.897	0.832–0.937
T-HELP-Screener Item 12	0.952	0.921–0.970
T-HELP-Screener Item 13	0.854	0.761–0.911
T-HELP-Screener Item 14	0.878	0.801–0.926
T-HELP-Screener Item 15	0.774	0.630–0.862

ICC: intraclass correlation coefficient
CI: confidence interval

3.5. Construct Validity

Table 4 shows the correlations between the T-HELP-Screener and the HLBS-II. Significant low to moderate correlations were found between the T-HELP-Screener and the six subscales of the HLBS-II (r_s = 0.368 – 0.459). There was a significant moderate correlation between the total scores of the two instruments (r = 0.488; p = 0.001).

Table 4. *Correlations between the T-HELP-Screener and Healthy Lifestyle Behavior Scale II (HLBS-II).*

	Spearman's rho (r_s)	*p*
HLBS-II: Health responsibility	0.376	0.001
HLBS-II: Physical activity	0.459	0.001
HLBS-II: Nutrition	0.368	<0.001
HLBS-II: Mental development	0.397	0.001
HLBS-II: Interpersonal relationships	0.387	0.001
HLBS-II: Stress management	0.412	0.001
HLBS-II Total	0.488	0.001

4. DISCUSSION

Occupational therapists and other healthcare professionals working in the geriatric field know the importance of measuring healthy lifestyle behaviours (14,15). In Turkey, there is no screening tool that provides information about healthy lifestyle behaviours of older adults. This study showed that the Turkish version of the Health Enhancement Lifestyle Profile – Screener (T-HELP-Screener) can help quickly identify older adults who need a more comprehensive assessment.

In the validity study of the original HELP-Screener, Hwang found that all the items, except one ("I consume a variety of healthy foods rich in protein, fibre, or calcium every day") fit the Rasch measurement model (13). Our study found this nutrition item had the lowest correlation with all other items of the T-HELP-Screener. This item was subject to scrutiny by the content review experts. As a result, the item was not deleted because 8 of 10 experts indicated that the item was suitable and essential.

Hwang (13) pointed out that, due to the all-inclusive feature of the HELP-Screener, a high level of internal consistency (homogeneity) within the scale was not expected. The original HELP-Screener's internal consistency of 0.74 was considered an acceptable level of reliability for the instrument (23). Our study has the similar findings: Kuder–Richardson coefficient of 0.66 for the initial T-HELP-Screener and 0.72 for the final version.

The test-retest reliability of the original HELP-Screener was good to excellent as the degree of agreement was supported through *k* statistic (*k*s = 0.76–0.96) (23). Similar findings were also found in our study. Most of the T-HELP-Screener demonstrate good to excellent test-retest reliability, except for Item 10 (avoid foods that are high in fact) that shows a Kappa score of 0.597. the T-HELP-Screener's test–retest reliability was confirmed between the test and retest scores of each item through the analyses of *k* statistic percentage of agreement. This study used a time interval of 2 weeks between testing and retest in recalling bias. The lowest Kappa score was 0.597 for Item 10 (avoid foods that are high in fat). Unknown factors that could altered eating habits of the participants (e.g., holiday events, personal binge or abstention) during the test-retest interval might call for further investigation.

The correlations between the T-HELP-Screener and the six subscales of the HLBS-II were, by and large, significant but low. This is not unanticipated because the T-HELP-Screener as a whole attempts to measure the all-inclusive lifestyle behaviours as opposed to each HLBS-II subscale that undertakes measure for only one specific aspect (e.g., physical activity, mental development, stress management). In turn, a significant moderate correlation (r_s = 0.488) was found between the total scores of the T-HELP-Screener and the HLBS-II. A high correlation was not seen possibly due to the difference in the response formats of the two instruments (binary versus Likert/ordinal scale) (24).

During the translation process of the HELP-Screener from English to Turkish, only one modification to Item 15 (avoid sedentary activities/behaviours) was made. The term "inactive" in parentheses was added beside the word "sedentary" because the latter term is not used in daily practice in the Turkish language. Given the universal feature and content of the health-related lifestyle behaviours included in the original HELP-Screener, the pilot study participants and the content review experts did not identify any need for cultural adaption for the translated T-HELP-Screener.

4.1. Limitations and Future Research

Despite the legitimate participant size according to the rule of thumb (Boateng et al, 2018), this study has a limitation related to the results of convenience sampling. For example, the majority of participants (57%) owned a bachelor's degree or higher. By contrast, only 11% of the population in Turkey are college graduates (25). Moreover, almost all participants (92%) were recruited from an urban area (city). It is unknown whether these disproportionate demographic characteristics as a whole might have skewed the resultant data.

Future normative studies with a larger participant size are needed to establish the cut-off score for the T-HELP-Screener and to examine other aspects of psychometric properties (e.g., known group validity, clinical utility). In addition, we hope to develop and validate a Turkey version of the comprehensive 56-item HELP (14).

5. CONCLUSION

The preliminary evidence is presented in this study for the T-HELP-Screener psychometric properties. The 15-item binary instrument can serve as a self-report questionnaire that is time-efficient and client-centred. All healthcare professionals including occupational therapists who work with elderly

clients in Turkey can adopt this tool in routine practice to monitor the clients' health promoting and risk behaviours. Each T-HELP-Screener item may indicate a specific aspect of health-related lifestyle behaviour. Before the cut-off norm of the T-HELP-Screen and its complete 56-item version come available, professionals can explore the client's response to each item and collaborate with them for identifying health risk behaviours as well as the corresponding remedial strategies.

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