Original Article

Reliability and Validity of Kurdish Language Version of Health Promoting Lifestyle Profile II among Kurdish Healthcare Providers Kurdish Version of HPLP-II

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Abstract

Background: Unhealthy lifestyles pose significant threat to public health. This study aimed to assess the validity and reliability of a Kurdish version of the HPLP-II instrument among Kurdish healthcare providers, whose society and culture differ from that of North America and Spain, where the instrument was developed.

Methods: The instrument was translated into Kurdish, back translated, and pilot tested to ascertain cultural sensitivity. It was then evaluated using a convenience sample of 460 healthcare providers in the Kurdistan region, northern Iraq using a principal components factor analysis.

Results: The order of factors was entirely identical to those isolated previously during the psychometric assessment of the English language version. The majority of our study participants were male (55%). In addition, 39.2% of participants were nurses. In addition, 42% of participants had less than five years of working experience. Furthermore, 82.1% of our study population held a high school diploma. The mean (SE) of Physical Activities dimension was low (15.3 ± 4.8) compared to Spiritual Growth dimension (24.5 ± 4.4). Moreover, the Cronbach's alpha coefficient for the overall HPLP-II questionnaire was 0.870; however, the nutrition dimension was low (0.622) compared to Physical Activities dimension (0.792). Furthermore, the correlation between items ranged from 0.099 to 0.611.

Conclusions: The Kurdish version of the HPLP-II demonstrated initial reliability and validity. It is a precious tool to evaluate and assess lifestyle and lifestyle interventions built to improve the health of Kurds.

Keywords: Health promoting lifestyle (HPL), healthcare providers (HcPrs), reliability and validity

Introduction

Globally, health professionals encourage promotion of healthy lifestyles. Health promoting behaviors are usually accepted as positive lifestyle practices within society.[1] Health promotion leads to increased control over and improvement of our health.[2] Such an instrument could be useful for comparison across settings. To do so, a reliable and valid cross-cultural adaptation of an instrument, based on Pender's Health Promotion Model,[3] was developed. This was to measure the likelihood of individuals engaging in health promoting behaviors to provide valuable data for health promotion interventions.[4] Health promotion and disease prevention have been the focus of attention for public health.[5]

The concept of health improvement includes healthy lifestyle behavior as defined in different ways. Health Promoting Lifestyle Profile II (HPLP-II) according to Walker is a multidimensional pattern of self-initiated actions and perceptions that seek top reserve or improve individuals level of wellness, self-actualization, and fulfillment.[6,7] This is classified by Pender into six dimensions; Nutrition, Physical Activity, Stress Management, Health Responsibility, Spiritual Growth and Interpersonal Relationship. These are used to describe an individual's health promoting lifestyle.[8]

The HPLP, originally containing 48 items in English, has been translated to Spanish. In 1995, the authors revised the instrument and created the 52-item HPLP-II . Thirty-one of the items were retained and twenty-one items were added or underwent major revision. Additionally, the HPLP-II was available in English and Spanish only.[9] Version two is currently available in several languages globally such as Arabic, Turkish, Chinese, Korean, and Portuguese. Also, it is used widely to study health status and lifestyle.[10–14]

Promotion approach, community individuals should be able to accept responsibility for their health and adopt a healthy lifestyle.[15] Activities that promotes health should be part of everyday life.[16] Thus, healthy lifestyle as emphasized in the World Health Organization's goal of "*health for all*",[17] and activities to promote health are relevant in enhancing and preserving the health of individuals.[18]

This study is, therefore, intended to explain the psychometric assessment of a Kurdish language version from HPLP-II, taking into consideration Nutrition, Physical Activity, Stress

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Management, Health Responsibility, Spiritual Growth and the Interpersonal Relationship in Kurdistan/Iraq, a socially and culturally dissimilar region from North America, where the HPLP-II was developed. The assessment included the translation procedure, pilot study, confirmation of content, estimation of reliability, and construct validity. Clearly, accurate and fitting assessment of the likelihood of engaging in health promoting behaviors among Kurds is essential for healthcare providers (HcPrs) to work with the Kurdish community to promote health planning. These goals cannot be accomplished without reliable, valid, and culturally appropriate assessment tools. Identification of a reliable and valid cross-cultural instrument will enable HcPrs to assist the five million Kurds[19] in Iraq to promote complex health issues. Furthermore, it will be beneficial for all Kurds in the world, the fourth largest ethnicity in the eastern Mediterranean region after Arabs, Persians and Turks.[20]

Materials and Methods

Instruments

HPLP-II measures how frequently the participants engaged in 52 health promoting behaviors. The items are categorized into six sub-scales: Nutrition (N = 9), which assesses meal patterns and deals with the choice of a good and balanced diet while Physical Activity (PA = 8) measures regular exercise patterns and recreational activities. Stress Management (SM = 8) quantifies the ability to cope with stress and be focused using relaxation methods to control stress. Health Responsibility (HR = 9) focuses on the individual's general health concerns, while Spiritual Growth (SG = 9) refers to the process of becoming conscious of the being and to a force beyond self. The last sub-scale is Interpersonal Relations (IR = 9) which concerns a sense of intimacy and deals with meaningful relationships. This tool measures the participant's self-reported health promoting behaviors, with higher scores indicating more frequent performance of the health promoting behaviors or habits of well-being on a 4-point Likert scale, with the following choices: 1= Never, 2 = Some time, 3 = Often or 4 = Routinely.

Translation process

HPLP-II has been widely used as a measuring tool for assessing health promoting behaviors and is considered to offer both reliability and validity, domestically and internationally. However, both versions of HPLP and HPLP-II have not yet been validated for the Kurdish language. The HPLP-II instrument was translated into Kurdish by an expert in English-Kurdish language and back-translated into English by another translator who had not seen the English version. Additionally, an expert panel of different specialists such as Nutritionist and Health promoter who were proficient in both languages were invited to comments on the questionnaire. The items on nutritional habits were revised by the panel, giving examples of serving sizes to provide clarity. A final version was agreed on, which was validated in a pilot study that tested the clarity and relevance of the statements. Twenty health care providers were randomly selected for the pilot study. The test-retest values from a two-week interval ranged from 0.743 to 0.905.

Data collection and analysis

A standardized structured questionnaire was used to collect data from the Kurdish HcPrs. The researchers randomly distributed the self-administered questionnaires to the 500 HcPrs in hospitals and Healthcare Centers during the month of October 2015 to January 2016. From the initial 500 participants, only 460 HcPrs completed the study.

For data analysis, the mean, standard deviation, and interquartile range were calculated. To check for the normal distribution of data, we used Kolmogorov-Smirnov test and Q-Q plot with an estimated 95% confidence interval. To compare between the subgroups, we used t-test, Mann-Whiney test, and ANOVA and Kruskal-Wallis test based on the results of the test for normal distribution of data. Moreover, in this analysis, we used the Wilcoxon singed rank test analysis. The Kaiser-Meyer Olkin (KMO) index, which is a criterion for determining whether items are appropriate for principal component analysis, was calculated for the EFA sample and it should be 0.60 or higher to proceed with factor analysis. In the last step to obtain the dimensions of the translated version, we used Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). In order to perform the reliability of the translated version of this questionnaire, we used Cronbach's alpha and factor labeling. An EFA offers an opportunity for scale assessment in untested populations. A CFA was used to test the sufficiency of the original structure model HPLP-II by Walker. It followed the acceptable model criteria adopted, minimum discrepancy/degrees of freedom ratio, which appears as CMIN/DF (X2/DF < 3), where applicable, to their related confidence intervals.[21] Comparative fit index (CFI > 0.800) was determined by comparing the fit of the model and the fit of the independent model. The (PRATIO) is related to the initial parsimony ratio. Values for the PRATIO > 0.90 were originally considered representative of a well-fitting model. Root mean square error of approximation (RMSEA < 0.050) was used to measure the fit between the models and the observed data. The RMSEA is one of the most sensitive indices for models with non-specified factor loadings.[21] The last goodness-of-fit statistic recommended was HOELTER (albeit labeled as Hoelter's .05 and .01 indices), "proposed that a value in excess of 200 is indicative of a model that adequately represents the sample data". It focuses directly on the adequacy of sample size, rather than on model fit.[21] The questionnaire was labeled and coded by the principal researcher, data was reviewed for accuracy and completeness and analyzed using AMOS and SPSS (IBM Corp. Released 2013. IBM SPSS Statistics for Windows, Version 23.0. Armonk, NY: IBM Corp) and appropriate statistical techniques.

Results

Study participants

The demographic characteristics of the sample are described followed by the results, organized by the research questions. Participants were Kurdish HcPrs (n = 460), 55% of participants were male and 45% were female. Further, 49.2% of participants were under 30 years of age, 32% were aged 30–40, and 18.8% were above 40 years of age. Moreover, 8.5% of participants were Doctors (General Practitioner, Physician, Dentist, or Pharmacist), 39.2% Nurses, 12.6% Physician's Assistants , 12.1% Laboratory Specialist, and 27.4% were other specialists (Chemistry, and Biologist, Public Health, Psychologist, Physiotherapist, Optics Technical, Dental Technician, Midwifery, Assistant Radiologist, Assistant Pharmacist, Assistant Public Health, and Assistant Anesthesiologist). Overall, 42% of participants had less than five

years' experience, 20.6% had 6 – 10 years, and 37.4% had more than eleven years of experience. In addition, 82.1% of participants had a high school diploma degree, 16.3% had a bachelor's degree and only 1.6% had MSc or PhD degree (Table 1).

Cronbach's alpha coefficients of internal consistency for the total Kurdish version HPLP-II scale and the six subscales were computed as shown in Table 2. The total scale was found for overall HPLP-II, with an alpha coefficient of 0.870. The six subscales were found to have alpha coefficients ranging from 0.622 for Nutrition subscale to 0.792 for Physical Activity subscale.

In addition, Item-total correlations on the total scale ranged from a minimum of 0.099 for "Eat breakfast" to a maximum of 0.611 for "Reach my target heart rate when exercising". In addition, total item-correlations on the six subscales were as follows: Nutrition sub-scale, two items among total correlations were low, 0.246 for *"Read labels to identify nutrients, fats, and sodium content in packaged food"* and 0.099 for *"Eat breakfast"*. Physical Activities sub-scale, total scale ranged from 0.340 for *"Follow a planned exercise program"* to 0.611 for *"Reach my target heart rate when exercising"*. Stress Management sub-scale, all items were above 0.300 except *"Accept those things in my life which I can't change"* and *"Concentrate on pleasant thoughts at bedtime"* (items correlation of 0.270 and 0.292). In regard to Health Responsibility sub-scale, all items were above 0.350. One more, Spiritual Growth sub-scale, all items were above 0.300 except *"Feel I am growing and changing in positive ways"* (item correlation of 0.299). Additionally, items of Interpersonal Relations sub-scale were above 0.300 except *"Get support from a network of caring people"* (item correlation of 0.250). Thus, the total scale and sub-scale alpha coefficients would not have changed significantly if any of the items that produced low correlations had been deleted.

Factor labeling structure

A factor analysis using principal components extraction followed by Varmax rotation was performed to ascertain whether the Kurdish version of HPLP-II items would load in a pattern similar to the original English version data sets. Items under each of the six factors were reviewed and the factors were labelled (Table 2).

Factor one (F1), had eight items, and was the structure of 'Physical Activities dimension'. Items involved regularly taking part in different degrees of activity. However, all items loaded on factor one. The *"Exercise vigorously for 20 or more minutes at least three times a week"* had the highest loading levels (0.690) within the PA. In regard to the structure of Factor two (F2), it had nine items, and was labelled as the 'Spiritual Growth dimension'. Items focused on a sense of life purpose and meaning in life. Furthermore, all items loaded on F2 except *"Feel I am growing and changing in positive ways"* which loaded on F5. The *"I am aware of what is important to me in life"* had the lowest loading levels (0.339) within the SG. For Factor Three (F3), it had nine items, named 'Interpersonal Relations dimension'. The *"Find it easy to show concern, love and warmth to others"* had the highest loading levels (0.644) within the IR. Moreover, all items loaded on F3. Factor four (F4), it had nine items and was labelled the 'Health Responsibility dimension' factor. Items included reporting health problem to healthcare professionals. The *"Report any unusual signs or symptoms to a physician or other health professional"* had the lowest loading levels (0.403) within the HR, and the all items loaded on F4. Before last, factor five (F5), had eight items, and was the 'Stress Management dimension' structure. The remaining two items loaded under the factor three. *"Get enough sleep"* had the highest loading levels (0.715), and *"Balance time between work and play"* had the lowest loading levels (0.313) within the SM. The last factor, factor six (F6), the 'Nutrition dimension' structure included nine items, all from the original Nutrition dimension. *"Choose a diet low in fat, saturated fat, and cholesterol"* had the highest loading levels (0.684) within the N.

CFA

Our model comprises six latent variables, 52 observed variables,

Table 1. Socio-demographic characteristics among HcPrs (*n* = 460). Note: It is a pure data, when we did not insert the missing data.

Parameter		N	Percentage
Age (yrs.)	≤30	222	49.2%
	31 – 40	144	32%
	41+	85	18.8%
Gender	Male	251	55.0%
	Female	205	45.0%
Expert	Doctors	38	8.5%
	Nurses	176	39.4%
	Physician's Assistant	56	12.6%
	Laboratory Specialists	54	12.1%
	Other Specialists	122	27.4%
Job experience (yrs.)	≤5	167	42.0%
	6 to10	82	20.6%
	11+	149	37.4%
Education level	Diploma	367	82.1%
	Bachelor	73	16.3%
	MS + PhD	7	1.6%

Table 2. Reliability Testing and Factor labeling.

Dimension	Question	Mean	SD	Correlation	Alpha-Deleted	Cronbach's Alpha	
Physical Activity						0.792	Factor 1
	Follow a planned exercise program	13.33	4.38	.340	.793		
	Exercise vigorously for 20 or more minutes at least three times a week (Such as brisk walking, bicycling, aerobic dancing, using a stair climber)	13.22	4.24	.526	.764		.690
	Take part in light to moderate physical activity (such as sustainedwalking30-40 minutes 5 or more times a week).	13.07	4.27	.469	.773		.591
	Take part in leisure-time (recreational) physical activities (such as swimming, dancing, bicycling).	13.59	4.31	.462	.774		.639
	Do stretching exercises at least 3 times per week	13.50	4.22	.579	.756		.662
	Get exercise during usual daily activities (such as walking during lunch, using stairs instead of elevators, parking car away from destination and walking).	13.18	4.20	.521	.765		.645
	Check my pulse rate when exercising	13.66	4.29	.482	.771		.434
	Reach my target heart rate when exercising.	13.36	4.07	.611	.749		.685
Spiritual growth						0.748	Factor 2
	Feel I am growing and changing in positive ways.	21.84	4.06	.299	.748		
	Believe that my life has purpose.	21.69	3.98	.474	.717		.631
	Look forward to the future.	21.59	4.03	.482	.717		.645
	Feel content and at peace with myself.	21.83	4.03	.444	.722		.647
	Work toward long-term goals in my life.	21.66	3.94	.524	.708		.700
	Find each day interesting and challenging.	21.90	4.03	.390	.730		.472
	Am aware of what is important to me in life.	21.56	4.10	.455	.723		.339
	Feel connected with some force greater than myself.	21.78	4.06	.318	.744		.390
	Expose myself to new experiences and challenges.	21.88	3.92	.488	.713		.438
Interpersonal relations						0.712	Factor 3
	Discuss my problems and concerns with people close to me.	20.83	3.67	.440	.677		.317
	Praise other people easily for their achievements.	20.66	3.72	.427	.680		.561
	Maintain meaningful and fulfilling relationships with others.	20.41	3.74	.448	.678		.581
	Spend time with close friends.	20.68	3.79	.300	.702		.452
	Find it easy to show concern, love and warmth to others.	20.49	3.67	.445	.676		.644
	Touch and am touched by people I care about.	20.40	3.76	.407	.685		.595
	Find ways to meet my needs for intimacy.	20.61	3.68	.375	.690		.304
	Get support from a network of caring people.	21.67	3.74	.250	.719		.402
	Settle conflicts with others through discussion and compromise.	20.74	3.62	.436	.677		.313

and 52 error terms (Figure 1). The construct validity of the instrument was assessed with CFA. Thus, initial CFA used a six-factor measurement model. The KMO index was 0.755 (Bartlett's Chi-Square = 3921.215, df = 1326, $P < .000$). Several goodness-of-fit statistic appeared on the AMOS output. The fitness indices are as follows: CMIN/DF = 1.992; CFI = 0.733; RMSEA = 0.046; HOELTER (0.05 = 246 & 0.01 = 253). These values for the six-factor 52-item HPLP-II model all suggest that the model provides a moderately good fit and adequate. The results are shown in Table 3.

Item correlation

Table 4 shows the strong correlation between sub-scales was 0.56 for SG sub-scale & IR sub-scale and the weak correlation between SG sub-scale & N sub-scale. Furthermore, the correlation between overall HPLP-II with sub-scales was 0.77 with HR sub-scale and 0.51 with N sub-scale.

Discussion

The Kurdish language version of the HPLP-II data set in Kurdish

Table 2. Reliability Testing and Factor labeling.   **Continue......**

Dimension	Question	Mean	SD	Correlation	Alpha-Deleted	Cronbach's Alpha	
Health responsibility						0.756	Factor 4
	Report any unusual signs or symptoms to a physician or other health professional	18.71	4.25	.368	.744		.403
	Read or watch TV programs about improving health	18.80	4.28	.372	.743		.573
	Question health professionals in order to understand their instructions.	18.60	4.23	.462	.731		.427
	Get a second opinion when I question my health care provider's advice.	18.85	4.23	.379	.742		.556
	Discuss my health concerns with health professionals.	18.67	4.14	.532	.720		.474
	Inspect my body at least monthly for physical changes/danger signs	19.30	4.06	.449	.733		.535
	Ask for information from health professionals about how to take good care of myself	18.90	4.05	.536	.716		.484
	Attend educational programs on personal health care.	19.33	4.12	.403	.741		.500
	Seek guidance or counseling when necessary.	18.72	4.19	.437	.734		.595
Stress management						0.661	Factor 5
	Get enough sleep	17.41	3.63	.373	.626		.715
	Take some time for relaxation each day.	17.44	3.65	.360	.629		.585
	Accept those things in my life which I can't change.	17.56	3.70	.270	.650		
	Concentrate on pleasant thoughts at bedtime	17.69	3.69	.292	.644		
	Use specific methods to control my stress.	17.64	3.58	.414	.615		.390
	Balance time between work and play.	17.86	3.54	.371	.625		.313
	Pace myself to prevent tiredness.	18.00	3.51	.409	.615		.455
	Pace myself to prevent tiredness.	17.83	3.54	.336	.636		.403
Nutrition						0.622	Factor 6
	Choose a diet low in fat, saturated fat, and cholesterol	19.46	3.99	.272	.602		.684
	Limit use of sugars and food containing sugar (sweets).	19.72	3.95	.314	.591		.652
	Eat 6-11 servings of bread, cereal, rice and pasta each day	20.08	3.93	.301	.595		.550
	Eat 2-4 servings of fruit each day.	19.78	3.89	.425	.563		.524
	Eat 3-5 servings of vegetables each day	20.03	3.96	.335	.586		.608
	Eat 2-3 servings of milk, yogurt or cheese each day	19.99	3.95	.359	.580		.403
	Eat only 2-3 servings from the meat, poultry, fish, dried beans, eggs, and nuts group each day.	19.72	3.92	.369	.577		.548
	Read labels to identify nutrients, fats, and sodium content in packaged food	20.22	4.05	.246	.607		.569
	Eat breakfast	19.29	4.23	.099	.635		.418
Overall HPLP-II						0.870	

HcPrs revealed similar patterns of factors with those described by Walker *et al*.[9] The Kurdish data revealed five sub-scales which correspond to the HPLP-II identified by Walker *et al*. (1995). Only the Stress Management factor grouping was less similar to the Walker *et al*. (1995) groupings. The results of low-to-moderate alpha values for two subscales Nutrition and Stress Management indicate that these two sub-scales are not yet completely reliable for a Kurdish sample. The data show that the alpha findings for these sub-scales were not the same as English HPLP-II.[22]

The Nutrition sub-scale had one item that does not seem relevant in the Kurdish society. This was *"Read labels to identify nutrients, fats, and sodium content in packaged food"* (r = 0.246). In Kurdistan, people eat mostly fresh food and little packaged food is used. However, the other item with a low correlation (r = 0.099), which is *"eat breakfast"* is too low compared with the English and Spanish HPLP-II item.[22]
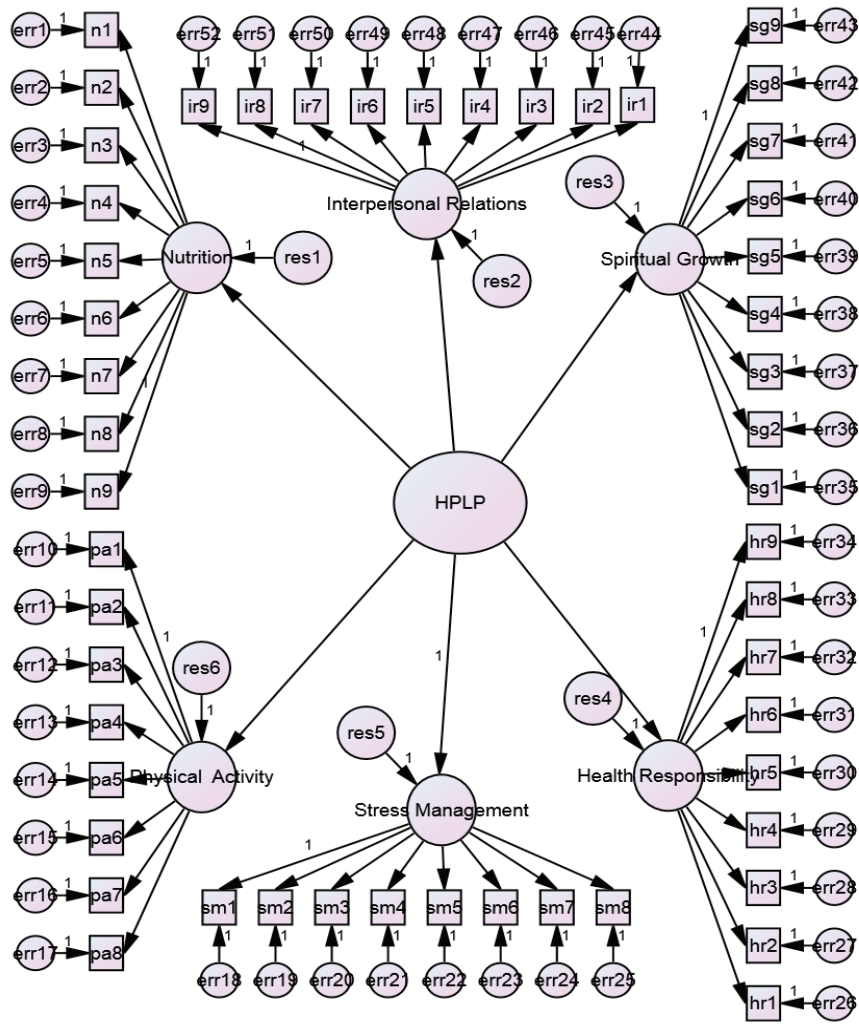
Figure 1. Final model for the Kurdish Version of HPLP-II scale (52 items).

Table 3. Selected AMOS output for hypothesized six-factor CFA model; goodness-of-fitness.

Measure	Adjustment Level Recommended	Score One Our Model
X2 /DF	< 3	1.992
CFI	> 0.800	0.733
PRATIO	> .90	0.920
RMSEA	< 0.050	0.046
HOELTER (.1)	> 200	253
KMO	> 0.60	0.755

The Exercise, Health Responsibility and Spiritual Growth sub-scales did not have any item that may conflict with the Kurdish cultural norm. All items have good correlation together.

The Stress Management sub-scale had two items and the Interpersonal relations sub-scale also had one item with low correlations (r = 0.270 *"Accept those things in my life which I can't change"*; r = 0.292 *"Concentrate on pleasant thoughts at bedtime";* and r = 0.250 *"Get support from a network of caring people.",* respectively) which may have been due to the item translation or to the fact that stress management and Interpersonal relations techniques have not been identified in the Kurdish culture.

Reliability of the Kurdish version was confirmed by Cronbach's alpha, which was found to be 0.87 for the entire questionnaire, which is higher than a study conducted by Zeidi *et al.* in Iran, who found Cronbach's alpha to be 0.82 for the entire questionnaire.[23] In addition, it is higher than the study by Meihan and Ngok in Taiwan, who reported that Cronbach's alpha coefficient surpassed 0.7 for the revised instrument.[24] On the hand hand, it is lower than Aghamolaei and Ghanbarnejad's study, also in Iran, whose Cronbach's alpha was 0.92 for the entire questionnaire.[25]

Cronbach's alpha was recorded from low for Nutrition and Stress management sub-scales to high for Physical Activity sub-scale. This is in line with a study from Turkey, conducted by Pinar *et*

Table 4. Inter-item correlation matrix.

	Nᵃ	PAᵇ	SMᶜ	HRᵈ	SGᵉ	IRᶠ	HPLP-II
Nᵃ	1.00						
PAᵇ	0.20	1.00					
SMᶜ	0.34	0.32	1.00				
HRᵈ	0.27	0.39	0.42	1.00			
SGᵉ	0.13	0.30	0.47	0.53	1.00		
IRᶠ	0.15	0.26	0.45	0.50	0.56	1.00	
HPLP-II	0.51	0.62	0.72	0.77	0.73	0.71	1.00

ᵃN = nutrition, ᵇPA = physical activities, ᶜSM = stress management, ᵈHR = health responsibility, ᵉSG = spiritual growth, ᶠIR = interpersonal relation.

al., in which Cronbach's alpha was found to different dimensions, varying from low for nutrition and stress management sub-scales to high for physical activity sub-scales.[26] Moreover, in line with a study from Portugal, conducted by Sousa *et al.*, Cronbach's alpha was obtained low for Stress Management and high for Physical Activities.[27] This is in contrast with a study conducted by Zeidi *et al.* in Iran, who found high alpha Cronbach coefficient for stress management.[23] Furthermore, Cronbach's alpha was low for Nutrition in Mullins's investigation among Hispanic Male Truck Drivers.[28] In addition, Pérez-Fortis *et al.* in Spain recorded the lowest Cronbach's alpha for Stress management and the highest for Physical activity.[29] It could be concluded that the consistency of questions within each dimension is moderate.

The results of the CFA showed that Walker's 52-item questionnaire with six domains was appropriate. It has a good fit for the data according to the goodness of fit indices. In a study conducted by Sousa *et al.* in Portugal, the results showed an adequate fit to a 52-item, six-factor structure.[27] Reducing the number of items was reported in a study conducted by Aghamolaei and Ghanbarnejad, in Iran, in which the number of items was reduced from 52 to 49.[25] In another study also in Iran conducted by Zeidi *et al.*, the number of items was also reduced from 52 to 49. Pérez-Fortis *et al.*, in Spain, also reported that the number of items was reduced from 52 items to 44 items.[29] Moreover, in a study by Teng *et al.* in Taiwan, neither Walker's original 6-factor model nor a forced 6-factor solution of the 52 items of the HPLP-II was supported, thirty items under 5-factors were obtained for the Chinese version of the HPLP. Meihan and Ngok, also in Taiwan, showed that the items reduced from 52 items to 51 items.[11,24] Furthermore, Cao *et al.* translated the Chinese version of the questionnaire in terms of its structure; the structure was then reduced from 52 to 40 items in six dimensions.[30] Above all, any translation method has some limitations, and we used the Back-Translation Method. While this procedure has been considered the optimal, limitations exist. The cross-sectional nature of this study precludes the ability to infer causal relationships between the statistically significant correlates, and using self-report questionnaire for measuring Healthcare providers' health-promoting lifestyles is another limitation.

In conclusion, considering the results as a whole, it may be concluded that the 52-item Kurdish version of the HPLP-II questionnaire shows good psychometric properties, both in terms of reliability and validity. This tool can be applied to the Kurdish population as an evaluation tool for health-promoting lifestyles and as a tool for testing the effectiveness of health-promoting programs. In addition, further testing is recommended.

Conflict of interest statement

We confirm that this work is original and has not been published elsewhere nor is currently under consideration for publication elsewhere. We also confirm that there are no conflicts of interest to disclose and all authors approved the manuscript and this submission.

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