

## Persian Version of Healthy Lifestyle and Personal Control Questionnaire (HLPCQ): A Confirmatory Factor Analysis

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### Abstract

**Background:** lifestyle modification is known as the cornerstone for prevention and treatment of chronic diseases. To promote individual's lifestyle, the first step is to measure their lifestyle by a valid and reliable tool. The aim of present study was to evaluate psychometric properties of the Persian version of Healthy Lifestyle and Personal Control Questionnaire (HLPCQ).

**Method:** A cross-sectional study carried out on 300 medical students in Kerman University of Medical Sciences, Iran. Data collected using a questionnaire contained demographic data and Persian version of HLPCQ. The reliability of the questionnaire determined using Cronbach's alpha and intra class correlation coefficient (ICC). The construct validity of the questionnaire evaluated by exploratory and confirmatory factor analysis. Data were analyzed by SPSS version 19 and Lisrel 8.8.

**Results:** Internal consistency of HLPCQ was 0.78 using Cronbach's alpha and 0.80 by ICC. In confirmatory factor analysis, the scale had acceptable goodness of fit indices.

**Conclusions:** The Persian version of HLPCQ had excellent psychometric properties and can be used in primary health care settings.

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## Introduction

According to world health Organization , “ non communicable diseases <sup>1</sup> are one of the public health challenges of the 21st century, especially in low- and middle-income countries”. <sup>2</sup>

Four modifiable behavioral risk factors, such as unhealthy diet, physical inactivity, tobacco use and the harmful use of alcohol, increase the risk of NCD. So that, lifestyle modification is known as the cornerstone for prevention and treatment of chronic diseases. <sup>4,3</sup>

It has been found that these unhealthy behaviors are also common and worrying among university students. <sup>5-7</sup> This age period is very critical due to development of life style habits which may affect the progression of common NCDs. <sup>8-10</sup> At this period, the likelihood of fast food consumption is higher than healthy foods and on the other hand, due to time constraints, physical activity also reduced. <sup>7</sup> Therefore, the universities have great opportunity to establish healthy behavioral choices among their students through effective health promoting interventions. <sup>9</sup>

To improve healthy behaviors among young adult, the first step is to measure their lifestyle by a valid and reliable tool. Different lifestyle scales have been designed in various settings to assess individuals' healthy behaviors such as Fantastic Lifestyle Questionnaire developed in 1984, by Wilson and Ciliska <sup>11</sup> and Health-Promoting Lifestyle Profile designed by Walker *et al.* <sup>12</sup> The latter's psychometric properties has been evaluated in Iran and used widely in different settings. <sup>13-18</sup>

Healthy Lifestyle and Personal Control Questionnaire (HLPCQ) introduced by Darviri *et al* in 2014 as a valid and reliable scale for assessing individual's control over his/her daily activities including: dietary healthy choices, dietary harm avoidance, daily routine, organized physical activities and social and mental balance. <sup>19</sup>

## Objectives

The first aim of present study was to evaluate psychometric properties of the Persian version of HLPCQ and the second aim was to assess medical students' lifestyle according this scale.

## Materials and Methods

A cross-sectional study carried out on 300 medical students in Kerman University of Medical Sciences (KUMS), Kerman province in south- eastern Iran. All medical students who were studying in KUMS between April and September 2017 were selected through the census method. Inclusion criteria were studying in KUMS during study period and informed consent to participate. Exclusion criteria was the students with more than 10% unanswered questions.

The data were collected using a two-section self-administered questionnaire. The first section contained demographic data, such as age, gender, and educational level (basic sciences, and pre clerkship, clerkship, and internship). The second part was the Persian version of Healthy Lifestyle and Personal Control Questionnaire (HLPCQ) which was used in Darviri *et al* study. <sup>19</sup>

The instrument assesses the frequency of adopting to 26 positively stated lifestyle habits and consists of five dimensions including: dietary healthy choices, dietary harm avoidance, daily routine, organized physical activities and social and mental balance with 7,4,8,2 and 5 items, respectively. Responses to each item is on a four- point Likert scale (1 = never/rarely, 2 = sometimes, 3 = often, 4 = always). Total scores and the score of each dimension were calculated by summing the scores. <sup>19</sup> For better comparison between different dimensions, the scores converted to a value between 0 and 100. Higher scores indicated healthier lifestyle.

The questionnaire was translated into Persian and back translated and adapted culturally. Its reliability was determined 0.78 using Cronbach's Alfa coefficient. Also, test-retest reliability of the instrument was determined 0.80 by intra class correlation coefficient (ICC). To do so, 30 medical students completed the questionnaire twice at two- week intervals. Confirmatory factor analysis also employed using chi-square test and model fit indices including root mean squared error of approximation (RMSEA), standard root mean square residual (SRMR), goodness-of-fit index (GFI), adjusted GFI (AGFI), non-normed fit index (NNFI), and

comparative fit index (CFI). Data analyzed by SPSS software version 19.0 (SPSS Inc., Chicago, IL, USA) and LISREL version 8.80 (Scientific Software International, Chicago, IL, USA). Independent T test, ANOVA and linear regression, also, employed.

Our study approved by the Ethics Committee of Kerman University of Medical Sciences (IR. KMU. REC.94.34).The questionnaires were completed anonymously and voluntarily. The participants were assured the data would be used only for research purposes. It took about eight to ten minutes to complete the questionnaire.

### Results

A total of 300 medical students participated in

the study (Participation rate: 75.0 %). The majority of them (67.0%) were female and in the basic sciences level (41.3%). The mean age of participants was 22.03±2.9 yrs. with minimum and maximum 18 and 33 years, respectively. Table 1 shows the mean and standard deviation of the participants 'score on HLPCQ according to its dimension, gender and educational level.

In multiple regression, only studying in internship significantly predicted the total score on HLPCQ. Accordingly, inters on average had 5.81 point lower scores compared to medical students in basic sciences level. (B= -5.81, SE=2.69, CI<sub>95%</sub> = -11.11- -0.51, P=0.03).

Confirmatory factor analysis (CFA), revealed acceptable goodness of fit indices for HLPCQ. (Table 2).

Table 1. The participants 'scores on HLPCQ according to dimensions, gender and educational level

|                   |                | Dietary healthy choices | Dietary harm avoidance | Daily routine | Organized physical activity | Social and mental balance | Total HLPC |
|-------------------|----------------|-------------------------|------------------------|---------------|-----------------------------|---------------------------|------------|
|                   |                | Mean ± SE               |                        |               |                             |                           |            |
| Overall           |                | 43.19±0.69              | 34.80±1.02             | 43.45±0.85    | 22.77±1.39                  | 51.66±0.78                | 42.08±0.51 |
| Gender            | Female         | 44.11±0.84              | 35.15±1.22             | 43.30±1.06    | 19.65±0.69                  | 51.40±0.94                | 42.07±0.63 |
|                   | Male           | 41.31±1.22              | 34.09±1.87             | 43.77±1.43    | 29.12±0.69                  | 52.18±1.43                | 42.11±0.88 |
| P                 |                | 0.06                    | 0.62                   | 0.80          | 0.004*                      | 0.64                      | 0.97       |
| Educational level | Basic sciences | 41.43±0.84              | 30.24±1.17             | 47.17±0.95    | 20.43±1.65                  | 54.94±0.91                | 42.46±0.48 |
|                   | Pre clerkship  | 43.60±2.42              | 39.32±3.24             | 43.75±4.00    | 34.89±5.25                  | 49.37±2.80                | 43.42±2.22 |
|                   | Clerkship      | 44.71±1.33              | 40.44±2.35             | 40.85±1.63    | 24.59±3.07                  | 51.05±1.60                | 42.54±1.05 |
|                   | Internship     | 44.47±1.94              | 34.13±2.29             | 39.31±1.93    | 18.81±3.07                  | 47.09±2.02                | 40.03±1.40 |
| P                 |                | 0.20                    | 0.001                  | 0.001         | 0.009                       | 0.002                     | 0.22       |

Table 2. The goodness of fit indices for Healthy Lifestyle and Personal Control Questionnaire

| Model | $\chi^2/df$ | SRMR | RMSEA (CI95%)   | GFI  | AGFI | NNFI | CFI  | IFI  |
|-------|-------------|------|-----------------|------|------|------|------|------|
| HLPCQ | 1232/325    | 0.06 | 0.04(0.03-0.05) | 0.90 | 0.88 | 0.82 | 0.84 | 0.84 |

## Discussion

Our study revealed the Persian version of 26-item HLPCQ had acceptable psychometric properties. The reliability of the instrument was 0.78 using Cronbach's alpha coefficient indicating good internal consistency. Its reliability also determined 0.8 by ICC confirming again good reliability of the instrument. In the original version, Darviri *et al* found cronbach's alpha coefficient 0.75, 0.65, 0.81, 0.78 and 0.63 for dietary healthy choices, dietary harm avoidance, daily routine, organized physical activities and social and mental balance dimensions.<sup>19</sup>

In the present study, CFA revealed acceptable goodness of fit indices for HLPCQ. According to results, the Persian version of 26-item HLPCQ had sufficient psychometric properties and can be used as a valid and reliable tool for assessment of individual's life style in the primary health care. With regards to the different sub-items in the tool, it is possible that appropriate interventions carried out for the unhealthy dimension.

Our study, also, revealed our medical students in KUMS had a low score on HLPCQ. Organized physical activity had the lowest score among the subscales especially in females that was consistence with similar studies.<sup>9, 13, 19</sup> The popularity of social media and internet among the youth has led to a sedentary life.<sup>9</sup> Cultural limitations for females to use outdoor exercise facilities is another important reason for low physical activity.<sup>14</sup>

According to present study, the Persian version of HLPCQ can be used as a reliable and valid instrument for assessing individual's control on their lifestyle in primary health care. Our design was cross-sectional with its potential limitation in time measurement. However, it seems logical due to our main purpose (determination of psychometric properties of the instrument). Our study population were medical students in KMUS. Therefore, it is necessary the instrument to be evaluated in other populations.

## Conclusions

The Persian version of HLPCQ had excellent validity and reliability and can used in primary health care centers for assessing individual's control on different dimensions of lifestyle.

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## Conflicts of Interest

There are no conflicts of interest

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