

## Measuring psychosocial exposures: validation of the Persian of the copenhagen psychosocial questionnaire (COPSOQ)

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Received: 20 May 2014

Accepted: 25 March 2015

Published: 13 June 2015

### Abstract

**Background:** The effect of psychosocial work environment on personal and organizational aspects of employees is well-known; and it is of fundamental importance to have valid tools to evaluate them. This study aims to evaluate the reliability and validity of the Persian version of Copenhagen Psychosocial Questionnaire (COPSOQ).

**Methods:** The questionnaire was translated into Persian and then back translated into English by two translators separately. The wording of the final Persian version was established by comparing the translated versions with the original questionnaire. One hundred three health care workers completed the questionnaire. Chronbach's alpha was calculated, and factor analysis was performed.

**Results:** Factor analysis revealed acceptable validity for the five contexts of the questionnaire. Cronbach's alpha ranged from 0.73 to 0.82 in different contexts.

**Conclusion:** This study revealed that the Persian version of COPSOQ is a reliable and valid instrument for measuring psychosocial factors at work.

**Keywords:** Occupational Health, Validity, Reliability, Iran, Psychosocial Work Environment.

*Cite this article as:* Pournik O, Ghalichi L, TehraniYazdi A, Tabatabaee SM, Ghaffari M, Vingard E. Measuring psychosocial exposures: validation of the Persian of the copenhagen psychosocial questionnaire (COPSOQ). *Med J Islam Repub Iran* 2015 (13 June). Vol. 29:221.

### Introduction

Working life and its related conditions are powerful determinants of health in both positive and negative direction. Psychosocial working conditions are of growing interest for different reasons. Health care researchers are becoming more and more concerned by the dramatic increase of psychological problems and their adverse effects such as bipolar disorders, anxiety disorders, depression, burnout, post-traumatic stress, addictive behavior and suicide. In

different surveys and studies from different populations, a large proportion of employees report exposures to negative psychosocial factors at work, and the consequences are believed to be significant for the employees, workplaces and the society (1).

The concept of work and working conditions has gone through many changes in most workplaces in recent years. Comprehensive changes of production conditions in industry, administration and service, as well as demands on the employees are most

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important (2). These changes have sometimes resulted in increased psychological stress. Furthermore, as a main consequence, sick-leave days and health care costs due to psychosocial factors have increased over the last years (1,3). Moreover, cardiovascular diseases, musculoskeletal disorders, burnout, reduced quality of life and decreased motivation and productivity can be the other outcomes of adverse psychosocial work factors (1).

To evaluate the psychosocial exposures situation, it is fundamental to collect valid data of the psychological factors on the workplace in the first step. According to Iranian Occupational Health Legislature, work places are obligated to evaluate potential risk factors for different working places and perform appropriate health promotion and safety measures when needed. Although psychological health is included in the definition and requisites, many employers have failed to attend to this matter properly due to lack of valid measuring instruments.

Therefore, we aimed to prepare the Persian version of the most common and reliable measuring instrument in this field. First, we focused on the Job-Content Questionnaire (JCQ) and prepared the validated Persian version of JCQ, and we then published the results (4). The Copenhagen Psychosocial Questionnaire (COPSOQ) has been regarded a valid and comprehensive new instrument as it highlights more components of the complex psychosocial environment.

The Copenhagen Psychosocial Questionnaire has been developed and validated by Kristensen and Borg of the Danish National Institute for Occupational Health (5). The questionnaire was aimed to be “theory-based without being based on one specific theory.” Therefore, the COPSOQ is covering a broad range of aspects of leading concepts and theories in this field including not only psychosocial work environment but also health, well-being and personality traits like coping style and sense of coherence.

As Nubling (2) has mentioned, the following items are addressed for the work environment part: the job characteristics model, the Michigan organizational stress model, the demand-control-(support) model, the socio-technical approach, the action-theoretical approach, the effort-reward-imbalance model and the vitamin model.

The COPSOQ tries to deal with the broadness and indefiniteness of the construct “psychosocial factors” by applying a multidimensional approach with a very wide spectrum of ascertained aspects (1).

The COPSOQ can be described as a generic tool applicable to all types of work places and occupations. Since its validation in Denmark, it has been adapted to different languages such as German, French, Spanish and many others (2,6-8).

A second version of the original questionnaire has been prepared based on the feedbacks from different studies (COPSOQ2) and has been recently validated. This version of the COPSOQ is more predictive of the need for recovery as an early predictor, and it is a sensitive indicator of reduced well-being. However, the original questionnaire contains important variables which need to be considered in evaluations (9).

The scientific aim of this study was the establishment of a Persian version of the COPSOQ1 questionnaire and a detailed examination and assessment of its measuring qualities. All scales from the medium version of COPSOQ were included.

## Methods

There are three versions of the COPSOQ1 questionnaire: long (141 questions), medium (95 questions) and short (44 questions). Similar to other COPSOQ validation studies in other countries, the medium or sometimes long versions of the questionnaire are used for scientific purposes. We decided to start with the medium version. The Persian questionnaire was generated by using the standard translation, back-translation procedure. First, the questionnaire was translated into Persian by two translators sepa-

Table 1. Main Scheme, Scales and Number of the Questions of the Medium Version of the Copenhagen Psychosocial Questionnaire, (COPSOQ1)

Context and Level	Scales	Question(N)
Work place/Type of production & tasks	1. Quantitative demands	4
	2. Cognitive demands	4
	3. Emotional demands	3
	4. Demands for hiding emotions	2
	5. Sensory demands	4
Work organization & job content	6. Influence at work	4
	7. Possibilities for development	4
	8. Degree of freedom at work	4
	9. Meaning of work	3
	10. Commitment to the work place	4
Interpersonal relations & leadership	11. Predictability	2
	12. Role clarity	4
	13. Role conflicts	4
	14. Quality of leadership	4
	15. Social Support	4
	16. Feedback at work	2
	17. Social relations	2
	18. Sense of community	3
Work-individual interface	19. Insecurity at work	4
	20. Job satisfaction	4
Individual/Health and well-being	21. General health	5
	22. Mental health	5
	23. Vitality	4
	24. Behaviourial stress	4
	25. Somatic stress	4
	26. Cognitive stress	4

rately. Then the two Persian translations were translated back into the original language. The various versions were compared and the wording of the final Persian version was established.

The medium version of the COPSOQ consists of 5 contexts: Type of production and task (17 questions), work organization and job content (19 questions), interpersonal relations and leadership (24 questions), work-individual interface (8 questions) and health and well-being (26 questions). The respective scales are demonstrated in Table 1. Most of the questions have five response options: "to a great extent, to some extent, somewhat, a little, very little" or "always, often, sometimes, rarely, never/almost never". The five response options were transformed on scores ranging from zero to 100.

### *Participants*

The employees of a public health service center (186 individuals) in Tehran-Iran were sent an e-mail explaining the study and the confidentiality of the data and in-

vited them to complete the web-based questionnaire.

### *Statistical Analysis*

Factor analysis was applied to evaluate the structural validity of the translated version. Principal Axis Factoring with Varimax Rotation was applied. Cronbach's alpha coefficient was calculated to assess the reliability of the scales of the questionnaire. Statistical analysis was performed using SPSS 16 and Stata 10 software.

### *Results*

The participants consisted of 103 individuals (66% females). The average age of the participants was 39.5 years (SD: 7.2), and the average education time was 16 years (SD: 1.6).

Kaiser-Meyer- Olkin statistic was 0.783. Bartlett test was significant ( $p < 0.001$ ), indicating the appropriateness of the performed factor analysis. Principal Axis Factoring with Varimax Rotation was performed on 103 cases with no missing field

Table 2. Chronbach's Alpha for Five Main Context of the Persian Version of COPSOQ

	Chronbach's alpha	Items
Type of production and task	0.822	17
Work organization and job content	0.799	19
Interpersonal relations and leadership	0.809	24
Work-individual interface	0.734	8
Health and well-being	0.757	26

and revealed 20 empirical factors. Three factors perfectly corresponded to “type of production and task”, “work-individual interface” and “health and well-being” scales. Another single factor analysis corresponded to two scales (work organization and job content, interpersonal relations and leadership). Only one question (taking holidays) was better placed in the work-individual scale.

Cronbach's alpha coefficients were calculated and they ranged from 0.734 in the work-individual interface to 0.822 in the type of production and task (Table 2).

### Discussion

The purpose of this study was to present the validity results of the COPSOQ1 in the Persian language. Based on the knowledge of the developers of this questionnaire, it aims at describing a large number of relevant factors in the field of psychosocial work environment, health, well-being and personality (1). The original questionnaire showed good internal reliability and validity<sup>1</sup> and the translated versions of the COPSOQ in different languages also confirm that this tool is a reliable and valid instrument for measuring psychosocial factors at work (2,6). Our results in this study showed that the Persian version of the COPSOQ has good validity for measuring psychosocial factors at work.

The moderate response rate can be considered a limitation for this study. However, it is generally believed that representativeness of the sample has a more determining affect than the response rate (10). The low response rate may have resulted from the web-based nature of our survey, as highlighted in previous studies (11). Moderate response rates had already been reported in similar web-based studies in health care settings in Tehran (12).

The present questionnaire could be used at different work environments to help the employers find opportunities to improve the psychosocial work conditions (2). The observed differences between similar work categories or within single institutions could be a good starting point to effectively plan for improving the work condition. This questionnaire could also be applied in various research projects which aim to evaluate the effect of psychosocial exposures on different aspects of personal health and organizational performance. This questionnaire can also be used to monitor the changes in the work environment through time, as already being used in other studies (13).

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