Original article

Developing a French version of the Occupational Stress Indicator (OSI)

Validation d'une version française de l'*Occupational Stress Indicator* (OSI)

D. Steiler [a,*], B. Paty [b]

[a] *Département management et comportement, Grenoble École de management, BP 127, 12, rue Pierre-Sémard, 38003 Grenoble cedex 01, France*
[b] *Laboratoire de psychologie appliquée EA 3793, université de Reims Champagne-Ardenne, 57, rue Pierre-Taittinger, 51096 Reims cedex, France*

Abstract

This research presents the validation of a French version of the Cooper, Sloan and Williams' Occupational Stress Indicator – OSI – (1988), which consists of seven specific scales: Sources of Pressure, Type A Behaviour, Locus of Control, Coping Strategies, Mental Health, Physical Health and Job Satisfaction. After a translation and back-translation procedure, committee evaluation and a pilot trial on 20 managers, 290 volunteer managers provided data to test its psychometric qualities. Confronted with the difficulty of reproducing and validating the original factorial structure and the weakness of some subscales reliability results, a complementary procedure, including exploratory and confirmatory factor analysis, was used to further improve the psychometric qualities of the French OSI. Even though the main seven-factor structure was maintained, little similarity existed between the published 25-subscale score keys of the original version and the more parsimonious 12-subscale structure, which the present study brought to light.
© 2008 Elsevier Masson SAS. All rights reserved.

Résumé

Cette recherche présente les travaux de validation d'une version française de l'Occupational Stress Indicator de Cooper, Sloan et Williams – OSI – (1988), qui est constitué de sept échelles spécifiques : sources de pression, comportement de Type A, lieu de contrôle, stratégies de *coping*, santé mentale, santé physique et satisfaction au travail. À l'issue d'une procédure incluant une traduction et traduction en retour, l'évaluation d'un comité d'experts ainsi que le test de l'outil auprès d'un groupe pilote de 20 managers, 290 managers volontaires ont permis de recueillir les données nécessaires à la validation de ses qualités psychométriques. Confronté à la difficulté de reproduction et de validation de la structure factorielle d'origine ainsi qu'à la faiblesse de certaines sous-échelles en termes de fidélité, une procédure complémentaire a été mise en œuvre. Elle incluait une analyse factorielle exploratoire et confirmatoire dans le but d'améliorer les qualités psychométriques. Si la constitution finale de cette version française conserve les échelles initiales, la structure factorielle de chacune d'entre elles a considérablement évolué pour passer de 25 sous-échelles à une version plus parcimonieuse de 12 sous-échelles.
© 2008 Elsevier Masson SAS. Tous droits réservés.

Keywords: OSI; Validity; Reliability; Work stress; France

Mots clés : OSI ; Validité ; Fidélité ; Stress au travail ; France

1. Introduction

For more than two decades, the results of many studies have suggested that occupational stress is a major concern for companies on an individual and organisational level (ILO, 1992; Robinson and Inkson, 1994; Tarquinio, 2008; Darr and Johns, 2008). If, as stated by Verborgh (1992),"workplace assessment is the first stage of any action being undertaken in order to improve the work environment" (pv), the measurement of the risks of professional stress represents one of the essential conditions of its success.

Although French companies are beginning to acknowledge stress as a key strategic issue, few studies actually examine

* Corresponding author.
  E-mail address: dominique.steiler@grenoble-em.com (D. Steiler).

the whole concept (Godin et al., 2006). In this context, it is important for French occupational psychologists and physicians, managerial executives, stress management consultants and even government policy-makers to be able to understand and accurately assess the problem of occupational stress, which constitutes the first step in the overall occupational stress management process. Unfortunately, French-speaking researchers seem to have a much more limited panel of tools than their English-speaking colleagues. A first review of the literature on the measurement of professional stress led to the conclusion that there is, at present, no French language composite tool that measures occupational stress. Therefore, in such a situation and as recommended by Vallerand (1989), the most relevant solution seems to be to work on the transcultural validation in French of questionnaires that exist in English and to extend the range of tools available, while improving the quality and accuracy of intercultural studies, paying careful attention to bias and equivalence (Van de Vijver and Tanzer, 2004).

The aim being essentially to provide an overall measurement tool in French, our choice tended towards composite stress measurement tools, in pursuit of work by Spielberger (1994), who stated that most of these tools included stressors, strains, personality characteristics and coping skills.

Although validation of its factorial structure appeared to be necessary (Hurrell et al., 1998, p. 371), the occupational stress indicator (OSI) seemed to fulfill the desired criteria of a wide scope of work stress variables; it had some mediators–moderators and stress outcome measurements, an excellent normative database and had already been validated in at least five foreign languages: Portuguese (Cunha et al., 1992), Chinese (Lu et al., 1997), Brazilian Portuguese (Swan et al., 1993), Dutch (Evers et al., 2000) and Bulgarian (Russinova et al., 1997).

Consequently, the goal of this article is to describe the psychometric assessment of the French version of the OSI, which led to a substantial revision of the scales, very close in their factorial structures to the English version proposed by Lyne et al. (2000).

2. The OSI

As presented by the authors, the OSI was developed more as an indicator than as a test. It was built to provide a broad measurement of work stress in order to help organisations and collaborators plan organisational change and/or individual adaptation. The design goal of the OSI was simple and pragmatic: "to produce an instrument that could provide a comprehensive, integrated, relevant and accurate measure of occupational stress" (Zalaquett and Wood, 1997).

The OSI was used in a wide variety of situations and presently constitutes a normative database from a survey of more than 20,000 people. As described by Evers et al. (2000), there are three main objectives to its use:

- to provide managerial boards with information for making work stress management decisions;
- to evaluate stress management programs;

- finally, to conduct scientific research.

As an operational tool, the OSI has investigated many different occupational groups; for example, nurses (Baglioni et al., 1990), anaesthesists (Cooper, 1999), police officers (Biggam et al., 1997; Kirkcaldy and Cooper, 1992), IT personnel (Lim and Teo, 1996), senior civil servants (Bogg and Cooper, 1995; Renault de Moraes et al., 1993). It has also been useful in evaluating the results of Employee Assistance Programs (Highley and Cooper, 1994) and in observing stress in managerial situations like downsizing actions, for example (Flude, 1994).

Based on the Cooper and Marshall stress model (1976) and as observed by Spielberger (1994), it "incorporates some aspects of the P-E Fit (French and Caplan, 1972; French et al., 1982) and Demand–Control models (Karasek, 1979; Meier et al., 2008), and Lazarus's Transactional Process Theory" (Lazarus and Folkman, 1984). The basic conceptual relationship between the component scales of the OSI highlights the strain-stress approach of this assessment tool, as adapted from Cooper et al. (1988). Integrating the three main components of this relationship, the figure firstly puts forward the model hypothesis of a predictive relationship between job pressure and stress-related outcomes, that is, health and job satisfaction. Secondly, it supposes that individual characteristics (Type A behaviour pattern and Locus of Control) moderate this relationship. Finally, the model also stresses the moderating impact of coping strategies on stress-related outcomes.

The main limitation of the model, however, is its lack of accuracy and indications with respect to relations between the variables. Furthermore, it bears no association with a specific psychological model, perhaps due to the authors' desire to combine individual and collective aspects. Even though the OSI model is not clearly positioned in either of the two main psychological stress models, it depicts a very linear model that comes closer to interactional theory than transactional theory.

Item and factor analysis on a sample of British managers led the authors to build a seven-scale, 25-subscale and 167-item indicator, rated on a six-point Likert-type scale. The first scale, Sources of Pressures (61 items) and the three scales assessing moderating variables, Type A (14 items), Locus of Control (12 items) and Coping Strategies (28 items), represent the independent variables. The last three questionnaires, Mental health (18 items), Physical Health (12 items) and Job Satisfaction (22 items) represent the dependent variables.

The second limitation of the OSI is that the reliability of 15 out of the 25 subscales appeared to be really low. More specifically, three scales presented very problematic results: Type A, Locus of Control and Coping Strategies, with in some cases, the split-half as low as 0.20 or 0.10 (Cooper et al., 1988). Further studies (Cooper and Williams, 1991; Davis, 1996; Kahn and Cooper, 1991; Robertson et al., 1990; Williams and Cooper, 1997) on the English or even non-English versions (Cunha et al., 1992; Lu et al., 1995; Swan et al., 1993) yielded better reliability scores on larger samples, but they all still demonstrated weaknesses for the same three scales.

Thirdly, even though the OSI is useful in a corporate context, given the scope of information collected, its factorial structure