Reliability and validity of the psychosocial job risk factors questionnaire in Colombian working population

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The assessment of psychosocial risk factors in the work has been a topic in development within Latin American countries. In the region, there are few scientific publications which are aimed at the design and validation of instruments to evaluate these risk factors in representative populations (Tabanelli, 2008) (1). Colombia is one of the only countries in Latin America that through the Ministry of Labor, has made two specific instruments for the identification and evaluation of psychosocial risk factors in the work environment. Recent publications in Colombia (Castrillón, D., & Knob, L. E, 2016). (2) refer to the limitations of these surveys, which are designed trough of a cluster-type national study, conducted at a total of 2360 workers in the year 2011 (Ministry of Labor, 2011) (3). However, in Colombia, there aren’t published research in the last 5 years that analyze the psychometric properties of these instruments.

The objective of this study was to determine the reliability and validity of the instruments designed by the Ministry of Labor of Colombia, for the identification and evaluation of psychosocial job risk factors in Form A and B (Ministry of Labor, 2011) (3). Internal consistency (α. Cronbach alpha and Split half) and exploratory factor analysis (main component analysis and promax rotation method) were carried through SPSS statistics.

The collecting process were carried out with census-type study to 18213 leaders (Form A) and 49778 workers (form B) belonging to different economic sectors (n=11): financial, justice, construction, manufacture, communications / technology, education, health, services, transport, mining / hydrocarbons and sport.

The reliability of the construct global in the form A and B of the instrument was excellent in all economic sectors (n=11; α: 0.94 - 0.96 Form A) (n=11; α: 0.94 - 0.95 Form B). Also, the reliability in the domains evaluated by the instrument (Leadership and social relations, control over the work, demands of work and rewards) was very good in all sectors (n=11; α: 0.71 - 0.96 Form A) (n=11; α: 0.72 - 0.96 Form B). However, the Cronbach’s alpha coefficient among the factors evaluated by the instrument showed that the dimension of demands of the working schedule was the one that presented lower reliability in the form A and B, in all economic sectors. (N=11; α: 0.37 - 0.64 Form A) (n=7 α: 0.54 - 0.64 Form B). The other factors of the instrument form A, showed adequate reliability. In the form B, the dimensions: rewards (n=6; α: 0.43 - 0.61 Form B), quantitative demands (n=5; α: 0.41 - 0.58 Form B) and influence of the work on the extra-work environment (n=4; α: 0.54 - 0.64 Form B), showed a low reliability in a large part of the economic sectors.

Exploratory factor analysis showed that the laboral construct in both forms of the instrument, did not confirm the original factorial structure. In all economic sectors, there was a different pool of factors that explained the variance of the construct. Between 23 to 37 factors explained the 62% to 80% of the variance in form A and between 19 to 26 factors...
explained the 63% to 84% of the variance in Form B. The sectors with the greatest difference in the factorial structure with respect to the original were: communications, health (Form A), education and mining (Form B).

When performing the exploratory factor analysis for the domains and dimensions, it was found that the one domain that retained the original factorial structure was control over work for both forms of the instrument (n=11; 67 - 74 factors 5% explained variance form A) (n=11; 64 - 75 factors 5% explained variance form B). The other domains and dimensions showed significant differences in their structure, proposing new factors for the formulation of the construct. The dimensions that reported lower validity were social relations at work (2 to 3 factors; form A and B), environmental demands and physical effort (3 to 4 factors; form A and B), the demands of the working schedule (2 factors; form B) and recognition (2 factors; form B). The economic sectors that showed at the end of the rotations of the model, major changes in the factorial structure of both instruments, were education, mining, construction, sports and health.

In conclusion, the questionnaire to assess psychosocial job risk factors in Colombian working population (Ministry of Labor, 2011) (3), showed a global coefficient of reliability, with low scores in specific dimensions of the construct that could be revised. Also, according to the analysis of construct validity, the factorial structure of the instrument in form A and B, does not correspond to the original formulation; It is suggested based on the results, adjustments to the instrument in some specific factors, for the purpose of confirming its validity and reliability.

