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Short Commentary

Job Requirements and Physical Demands (JRPD): A Self-Reported Questionnaire to Measure Biomechanical Exposures Related to Chronic Low Back Pain

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INTRODUCTION

Chronic Low Back Pain (CLBP) is defined as pain localized below the costal margin and above the inferior gluteal folds, with or without leg pain, for longer than three months [1,2]. Some risk factors of the CLBP have been reported in various occupational groups, including individual, health behaviours, work organization, psychosocial, and biomechanical factors [1-3]. Among these, the biomechanical exposures have been identified as a main predisposing factor of CLBP [3]. Therefore, precisely examining the biomechanical exposures can prevent the onset and exacerbation of back pain in many occupation groups [3,4]. Overall, using primary prevention programs could improve the quality of life in different occupation groups [1,2,5].

Self-report questionnaires are efficient and inexpensive scales in measuring the associated-factors of CLBP [3]. There are currently various questionnaires to use in pack pain studies, including the Job Requirements and Physical Demands (JRPD) [1,2,6,7], Roland–Morris disability questionnaire and its variants [8], Oswestry disability index [9], the Quebec back pain disability scale [10], the Waddell disability index [11], the low back outcome score [12], and many other measures (see further details in Longo et al. [13]). All of the mentioned scales evaluate patients' limitations in a range of aspects of daily living about physical and mental function, productivity, and work quality, except JRPD.

The JRPD questionnaire was originally developed by the US Air Force (1997), both the military and civilian populations, to prevent work-related musculoskeletal disorders through ergonomics [14]. The Job Factors section of the JRPD, which is generally called JRPD, includes 38 items [14]. It was developed to assess self-reported biomechanical exposures in a variety of occupation groups [14]. The JRPD includes questions about postures and the frequency of certain work-related movements for both the upper extremities and back [3,7,14]. Daniels et al. [3] have investigated the measurement properties of the JRPD specifically in relation to back pain [3]. They have confirmed the validation of JRPD for assessing back pain-related biomechanical exposures [3]. The Biomechanical exposures, which test with JRPD, cover the movements such as bending, twisting, lifting, and sitting [6]. These activities are consistently found to be related to back pain [5]. Scoring each item of the JRPD contains five-point Likert-type scales: 1 (never), 1 (≤ 5 hours/week), 2 (≤ 2 hours/day), 3 (2 to 4 hours/day), and 4 (≥ 4 hours/day) [3]. Summing all the scores of the 38 items gives the total score of JRPD and is ranged from 38 to 152. A higher

score for a subject means a higher level of biomechanical exposure and a greater likelihood of suffering from back pain within the past 12 months [3].

The present study is a short commentary on "Caring-Related Chronic Low Back Pain and Associated Factors among Mothers of Children with Cerebral Palsy" [1]. CLBP is the most prevalent caring-related disability in primary caregivers of children with Cerebral Palsy (CP) (44.7 %), which is the most common cause of undesirable effects on the quality of life and limitations in these mothers [1-3]. Caring for children with CP requires different movements, such as bending, twisting, lifting, and frequent flexing/extending body parts, mainly around the back and lumber [1]. The case-control observational study, conducted by Ramezani et al. [1], was determined the association of the caring-related physical activities with CLBP in mothers of children with CP [1]. To assess caring-related physical activities, the authors [1] have determined 3 out of 38 items of the JRPD questionnaire [1,4,5]. The selected items included the forward-flexion, repetitive bending, and lifting movements [1]. In addition to caring-related physical activities, the authors [1] have entered the variables of Body Mass Index (BMI) and education level, as individual factors, into the logistic regression model, which served to assess the association. The authors found that performing lifting movements (OR 13.73, $\beta = 2.62$, $p < .001$), BMI (OR 11.85, $\beta = 2.47$, $p = .011$), repetitive bending (OR 7.67, $\beta = 2.04$, $p = .010$),forward-flexion (OR 6.71, $\beta = 1.91$, $p = .033$), and level of education (OR .21, $\beta = -1.53$, $p = .020$), in descending order of odds ratios, are significant predictors of the CLBP in mothers of children with CP [1]. Although there is no sufficient evidence to support the findings of the study in the mothers of children with CP [1], it has been confirmed that the above-mentioned factors are associated with CLBP in the other populations [2,15-17]. Overall, it has been correctly concluded that avoiding harmful physical activities, maintaining body weight within a healthy range, and instructing accurate lifting/handling techniques can prevent CLBP in mothers of children with CP [1].

In conclusion, The JRPD is a valid questionnaire to assess the biomechanical exposures related to CLBP. We suggest future studies to conduct cross-cultural adaptation and evaluation of the validity and reliability in other languages and development of the short-forms of the JRPD in various occupation groups.

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