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Validity of the global physical activity questionnaire in the National Health Survey–Chile 2009–10.

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Abstract

Introduction: Physical Activity (PA) is one of the most important risk factors associated with cronic non-communicable diseases. Therefore, having a valid and reliable instrument to measure PA is crucial for health surveillance systems. However, data from national surveys from middle-income countries is limited. The purpose of this study is to evaluate the validity of Global Physical Activity Questionnaire (GPAQ) in a subsample of the National Health Survey (NHS) of Chile 2009–10 using the accelerometers.

Methods: Population older than 15 years of different educational levels of the urban area of the Metropolitan Region of Santiago–Chile were recruited as part of the 2009–10 NHS. PA was measured using accelerometers (ActiGraph GT3X) for seven days and the moment of the collection of the device the Questionnaire was applied again. Different measures of agreement and median differences were explored. Agreement between the questionnaires and the accelerometer measurements was also evaluated using Bland Altman plots.

Results: Of the 306 subjects recruited, 158 participants used the accelerometers for 5 or more days. The mean age of the sample was 44,6 ± 14,5 years and included 55,7% females. 58.9% reported at least 8 years of education. According to BMI, 33,6% were normal and 66,4% were overweight. The criteria validity for the “sufficiently active” category according to GPAQ versus accelerometer was (Kappa = 0.24 $p < 0.01$, Agreenment = 71,9%). The correlation of both measures in time (minutes) of weekly PA was (Spearman’s rho = 0.35 $p < 0,01$). Median of the differences between GPAQ versus accelerometers was of 548 minutes per week. The reported time of PA according to GPAQ was positively associated with being a male and having low educational level ($p < 0,05$). Similarly, PA measured by accelerometers was positively associated with being a male, higher educational level and negatively associated with BMI ($p < 0,05$).

Discussion: The validity of the GPAQ in the population of Chile is comparable to other populations from Latin America. The Questionnaire, in comparison with the accelerometers measurement, overestimates the minutes of weekly PA, mainly in men and individuals with low educational level. Lack of understanding of complex concepts in questions like “typical week”, level of intensity of PA and “10 continuous minutes” might explain the differences with the measurement made by the accelerometers. Information regarding the relationship between some specific questions of the Questionnaire and health outcomes could help to improve its validation.