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RELATION BETWEEN SELF-ADMINISTERED AND OBJECTIVE MEASURES OF PHYSICAL FUNCTION IN GREEK OLDER ADULTS

INTRODUCTION

The assessment of physical function in older adults has been regarded as a very important process for evaluating the general health status of the elderly and their ability to live independently [4]. The importance of these measures is the detection of functional limitation, through detection of some impairment elements which indicate a high risk of disability although not realized by older adults [6]. For this reason many researchers have been putting their efforts together to create the most appropriate and effective measures addressing two basic methods of assessment: self-report/interviewer-administered and direct observation of physical function. The performance-based measures are assessments of functional limitations, whereas self-reported assessment reflects disability as ensuing from some chronic conditions [2, 5]. The performance-based measures of functional capacity have the advantage of overcoming limitations intrinsic in self-reporting of basic and instrumental activities of daily living scales and of making comparisons across countries [1, 6]. Despite the importance of physical function a gold mean does not exist, as different scales may use different reference ranges and response items [3]. The aim of this study was to examine the relation between self-administered and objective measures of physical function in older Greek adults as appropriate measures to identify functional limitations.

METHODS

The subjects included 150 healthy older men (n=67) and women (n=83), over 65 years of age, with the mean age of 72.1 years (SD: 4.92), without any serious

health problems. From the total sample of 168 older people, 156 agreed to participate in the study and 150 completed all the test measurements. Data collection took place at the Centers for the Elderly located in five Greek cities. Before the measurements a researcher informed the participants about the purpose and content of the study, and each subject signed a consent form. Participation in this study was voluntary and each subject was tested individually. The data collection procedure lasted about 30 minutes.

A seven-item version of the Physical Performance Test (PPT) was used in the study. This is a direct observation measure of physical function which the subjects can easily accomplish in four minutes. The seven-item version measures simulated daily activities of different degrees of difficulty. More specifically, the participants were trying to write down a sentence, simulate eating, lift a book and put it on a shelf above shoulder height, put on and take off a jacket, pick up a coin from the floor, turn around through 360 degrees and walk 50 feet. The total PPT ranged from 0 (worst performance) to 28 (best performance) representing the function level of older adults.

The participants' functional capacity was assessed by the administration of self-reported basic and instrumental daily activities by means of a modified OARS [7] questionnaire. To avoid the floor or ceiling effects the range of participants' answers was extended from a 3-point scale [3] to a 7-point scale. The modified questionnaire assessed basic daily activities (eating, dressing, walking, bathing, toileting, bedding, hair-dressing) and instrumental activities (cooking, house-keeping, using telephone, transporting, managing money, taking medicine, shopping).

Another self-administered instrument used in this study was the SF-36 questionnaire [3]. It included eight scales (physical functioning, role limitation causing physical health problems, role limitation causing emotional problems, energy fatigue, emotional well-being, social functioning, pain, general health perceptions) defining the two basic factors of the questionnaire: physical and mental health. The scales assess physical functioning and well-being, and the questions are used to determine how the older adults feel and how well they are able to perform their usual activities. Each scale has a 0-100 point range point, with 0 indicating the worst function and 100 the best function.

RESULTS

The statistical analysis was carried out using the SPSS v.10.1 package. The results of the descriptive analysis for men and women are shown in Table 1. The mean age of all participants was 72.3 (SD = 4.87 years). The computed somatic measurements included body mass index and waist to hip ratio. Participants of both sexes were at risk of developing diseases as the majority of older men (BMI = 25-29.9 kg/m²) and women (BMI = 30-34.9 kg/m²) were classified into the overweight category. The WHR values showed that the male participants were in the low risk (WHR <0.90 cm) category; however, the older women were in the high risk group (WHR >0.85 cm).

Table 1. Characteristics of the elderly Greek men and women (means and standard deviations)

	Men			Women		
	M.O	SD	N	M.O	SD	N
Age	73.6	4.77	67	71.15	4.72	83
Perceived Health Status	3.59	0.88	67	3.77	0.68	83
Education level	6.96	3.49	67	5.63	2.85	83
MME	27.83	2.95	67	26.84	3.19	83
BMI	27.53	3.13	64	30.27	3.88	74
WHR	0.88	0.08	63	0.97	0.05	74

Correlation coefficients between the different measures of physical functioning are presented in Table 3. The correlation between the PPT scores and the OARS and SF-36 were significant (p<0.01). Correlations between the two self-administered measures of physical functioning was 0.454 (p<0.01), with the modified OARS correlating mostly with the physical health scale of SF-36 (0.546, p<0.01).

Table 2. Means and standard deviations of measures of physical functioning in three age categories

		SF-36	Physical Health	Mental Health	Modified OARS	PPT
65-69 years old N=49	Men	76.12 (15.77)	75.11 (17.51)	77.13 (15.91)	96.65 (3.25)	25.76 (1.85)
	Women	77.59 (14.26)	80.13 (16.18)	75.05 (14.75)	97.37 (1.69)	25.28 (2.06)
70-74 years old N=50	Men	74.56 (10.95)	71.65 (15.32)	77.48 (11.42)	95.65 (3.55)	23.9 (3.01)
	Women	73.65 (16.93)	72.71 (20.25)	74.59 (15.97)	96.47 (4.71)	24.12 (2.91)
75-84 years old N=51	Men	75.98 (11.67)	74.06 (14.69)	77.92 (11.47)	95.47 (5.15)	23.94 (2.77)
	Women	68.29 (15.88)	65.85 (19.15)	70.74 (14.77)	92.79 (8.97)	23.11 (3.26)

Table 3. Spearman's rho correlations between measures of physical function

	MO	MOB	MOI	SF-36	PH	MH	PPT
Modified OARS (MO)	1.00						
Modified OARS BADL (MOB)	0.978**	1.00					
Modified OARS IADL (MOI)	0.877**	0.814**	1.00				
SF-36	0.454**	0.466**	0.409**	1.00			
Physical Health (PH)	0.546**	0.556**	0.483**	0.926**	1.00		
Mental Health (MH)	0.261**	0.276**	0.231**	0.885**	0.668**	1.00	
PPT	0.437**	0.446**	0.426**	0.466**	0.494**	0.366**	1.00

Correlation is significant at the 0.01 level (2-tailed)

DISCUSSION

Measurements of physical function using the two common methods: self-administered and performance-based have obvious advantages and disadvantages [2]. The results of this study showed a moderate association between the instruments (Modified OARS, PPT, SF-36) used to measure physical functioning, with Spearman's correlation coefficients ranging from 0.44 to 0.46. A moderate correlation was also reported between the performance-based and self-report measures [1] (kappa ranging from 0.41 to 0.55). According to other surveys, a possible explanation for the discrepancies between the measures of physical function and various self-report instruments may be tapping into physical function being assessed at different levels [3].

The findings of the present study fail to support a high correlation between the performance-based measure (PPT) and the health functioning measure (SF-36). The lack of association between the data provided with the two instruments may indicate that physical performance measures are scarcely influenced by psychological factors [5].

In our study the data provided with the self-administered measures of both basic and instrumental daily activities did not indicate significant limitations even though the data provided by the PPT test depicted a few limitations. This discrepancy in the data provided by the two measures may be due to the fact that older adults overestimate their functional capacity when using a self-report instrument. According to the results of this study a stronger correlation was found within the self-report measures and particularly between the physical health subscale of SF-36 and the OARS scale of basic daily activities. A possible explanation of the above findings is

the fact that both instruments contain items such as walking, household activities, bathing, shopping etc. When a large proportion of the sample scores appears at the scale's low end, it may be necessary to supplement the SF-36 with additional items that measure basic daily activities [8].

Despite the fact that physical performance tests do not reflect how a person with limitations in a particular test has adapted to normal life and can live independently in his/her own home [2], it is accepted that measures which assess physical function are good estimators of disabilities in older adults. In conclusion, the self-report and performance-based measures of the functional status can complement each other and contribute to a better understanding of the functional status of older adults.

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