Modified Harris Hip Score: Clinimetric Properties of the Greek Questionnaire in Hip Osteoartritic Patients

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Introduction

The modified Harris Hip Score (mHHS)[1] is the patient-reported modification of the Harris Hip Score[2]. It has been widely used as a patient-reported outcome (PRO) measure in hip arthroscopy surgery. Given that the mHHS was not initially developed for the evaluation of patients with hip chronic diseases and/or after major hip surgeries, there is lack of information regarding its measurement properties.

Purpose

The present observational study aimed to explore the reliability and validity properties of the Greek version of the modified Harris Hip Score (mHHS-Gr) in patients with hip osteoarthritis (OA).

Participants

One hundred and ten patients were assessed for eligibility. Five patients declined to participate, three were excluded because of prior hip arthroscopy, three had congenital hip dislocation, two had avascular femoral necrosis, four because they suffer from parkinsonian syndromes and three because of cognitive impairments.
Finally, the data from 90 hip OA patients (24 men and 66 women) were analyzed. The demographic characteristics and clinical measurements of the participants are shown in Table 1.

Methods

Cross-cultural Adaption: Official permission for reprinting and translating the original mHHS questionnaire was given by J. W. Thomas Byrd and Kay S. Jones. The adaptation of mHHS into Greek followed the guidelines developed by Guillemin et al.[3,4], and Beaton et al[5].

Statistics: All tests were two-sided, a p-value of <0.05 was used to denote statistical significance. All analyses were carried out using the statistical package SPSS version 17.00 (Statistical Package for the Social Science, SPSS Inc., Chicago, Ill., USA).

Methods: Reliability – Validity Study

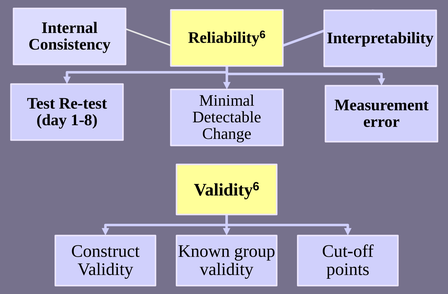

Table 1. Demographic and clinical characteristics of the study's sample (N=90)

Characteristics	Values	Range
Age (y)[α]	66.28 ± 8.27	55 - 87
Height (m)[α]	1.66 ± 0.085	1.48 - 1.88
Weight (kg)[α]	77.86 ± 14.90	55 - 126
BMI (Kg/m^2)[α]	28.13 ± 4.36	20.28 - 39.18
Sex (%)		
Men	26.7	
Women	73.3	
Dominant Lower Limb (%)		
Right	86.7	
Left	13.3	
Affected Hip (%)		
Right	48	
Left	42	
Kellgren & Lawrence Classification of hip OA (%)		
Grade 1	1.1	
Grade 2	15.6	
Grade 3	47.8	
Grade 4	35.6	
Use of walking aid (%)	24.4	

[α] The values are expressed as Mean ±Standard Deviation
y= years, m=meters, kg=kilograms, BMI=Body Mass Index

Table 2: Reliability properties of Modified Harris Hip Score – Greek version (n=90)

Internal consistency	Cronbach's alpha	0.614	
Test-retest reliability	ICC 95%CI	0.948 (0.91-0.97)	*p*< 0.001
Reproducibility	Paired samples t-test	51.49 ± 16.3[a] – 50.70 ± 16.15 [a]	NS (0.277)
Interpretability	SEM	3.54	*p*<0.05
	MDC	10.39	MIC < MDC
	MIC	7.75	

[a] The values of Modified Harris Hip Score-Gr at Initial assessment and Re-assessment expressed as Mean ± SD
SEM=standard error of measurement, MIC=minimal important change, MDC=minimal detectable change

Results

The results of the present study are represented in Tables 2 and 3 and in Figure 1.

Table 3: Validation Properties of the Modified Harris Hip Score – Greek version (n=90)

Construct validity (criterion-related validity)		
Validation Instruments	Modified Harris Hip Score – Greek version	*p*-value
LEFS - Greek version [7]	0.801[a]	<0.001
WOMAC-Gr LK 3.1 –Total [8]	-0.783 [a]	<0.001
WOMAC-Gr LK 3.1 – Pain [8]	-0.728 [a]	<0.001
WOMAC-Gr LK 3.1 – Stiffness [8]	-0.593 [a]	<0.001
WOMAC-Gr LK 3.1 – Function [8]	-0.786 [a]	<0.001
Face Pain Scale-revised [9]	-0.645 [b]	<0.001
Timed Up and Go Test [10]	-0.547 [b]	<0.001
9stairs-ascend/descend Test [11]	-0.575 [b]	<0.001

Known - groups validity			
Subgroups of patients [c]	N	Mean ± SD [d]	*p*-value
TUG performance time less than 13.5 sec [c]	48	59.00 ± 14.16	<0.001
TUG performance time more than 13.5 sec [c]	42	44.62 ± 13.32	

[a] All values are presented as Pearson's correlation coefficient
[b] All values are presented as Spearman's correlation coefficient
[c] The patients derived using the Timed Up and Go performance time (cut-off value of 13.5 sec) as estimated variable
[d] Mean ± SD of Modified Harris Hip Score – Greek version

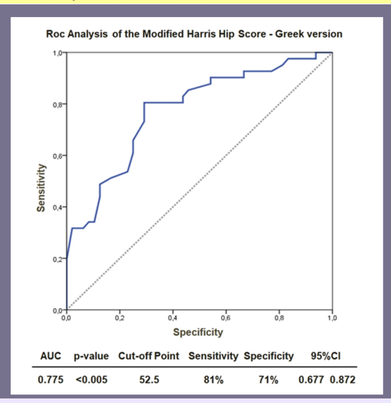

Figure 1. Roc analysis of the modified Harris Hip Score — Greek version using the TUG score (cut-off 13.5 sec) as estimated variable.

Discussion & Conclusions

The results shown here indicate that the mHHS-Gr has high reliability properties and presenting strong correlations with the selected PRO measures, and satisfactory correlations with the physical performance measures.

Further research is needed to confirm our results and to explore the questionnaire's reliability properties in different groups of patients and its validity properties against other PROs.

Implications

The present study suggests that mHHS-Gr is a valid and reliable assessment tool that could be used in the clinical practice and research for the assessment of patients with hip osteoarthritis.

A broader awareness of these findings in the Greek setting would facilitate objective comparisons between studies of different national origin and would contribute to the validity of future meta-analyses.

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Further information