

The Brazilian version of the High-Activity Arthroplasty Score: cross-cultural adaptation

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INTRODUCTION

The functional outcome of hip and knee arthroplasty can be assessed by health-related quality of life (HRQL) instruments, which within the current literature evaluate pain as the principal symptom. This emphasis on pain gives rise to a degree of difficulty when discerning those individuals who demonstrate no pain limitation for low-demand activities, such as daily living activities (DLA), but who endure limitation when participating in more demanding activities, such as sports. In response to these dilemma, Talbot et al. developed and validated the High-Activity Arthroplasty Score (HAAS), which was designed to assess the functional ability of a patient by incorporating a greater spectrum of physical and sporting activity, this aside from customary emphasis on the painful symptom. It is a patient-related outcome measure (PROM) instrument, divided in four domains: i) Walking; ii) Running; iii) Stair Climbing; iv) Activity Level. Each domain must assess the highest capacity of the patient from a hierarchical order of items, which reflects a score varying from 0 to 18 in total. Higher scores betoken greatest patient function. The HAAS was developed in the British English language and there is no cultural adaptation for the Brazilian Portuguese language.

OBJECTIVES

Cross-culturally adapt the HAAS from British English to the Brazilian Portuguese language.

METHODS

To adapt the HAAS, we adhered to the guidelines suggested by Beaton et al. with further considerations by Borsa, Damasio and Bandeira. The procedure encompasses six steps: translation, synthesis, review by committee, pretesting, back-translation and submission of documentation to the developers. The translation involved two independent bilingual translators whose mother language was Brazilian Portuguese producing two blind translations: T1 and T2. A conciliated version T1,2 was produced by two Brazilian Portuguese native speakers. The review by a committee of experts appreciated T1,2 and the Coefficient Content Validity (CCV) proposed by Hernandez-Nieto was used to guide adaptations, producing V1. Three-Step Test-Interview (TSTI) with 5-item Likert Scale was used to assess the comprehensibility of V1 in pretesting. Sample size was determined by saturation criteria technique. A final version (Vf) was produced as a result. Back-translation was blind, performed by a native British English speaker fluent in Portuguese language, without technical knowledge about the subject of study. The aim of the final step was to submit the Brazilian version of HAAS to the original developers for appreciation. The entire process was documented in writing or video for adjudication.

RESULTS

Step 1 produced two independent translations: T1 and T2. The synthesis of T1 and T2 produced T1,2 that was evaluated and reviewed by the multidisciplinary committee on the third step. The main modifications proposed by the committee are listed on Table 1 and Table 2. The qualitative analysis undertaken by the multidisciplinary committee of specialists was guided by the CCV. Items in which CCV was below 0.8 were modified by committee before pretesting. Grammar, typing, and formatting errors were revised as part of this step. As a result, a version (V1) for pre-test was produced. V1 was applied to 46 volunteers, 51% male, with a mean age of 36,63 years-old (min 19, max 69) in a heterogeneous sample regarding scholarship and income, according to data compiled on Table 3. Among volunteers, 73,33% were engaged in physical activities (PA) (Graphic 1). Minimal modifications were proposed on a final version (Vf) and re-presented to the committee. Modifications are highlighted in Box 4. Following deliberation of experts, no new pre-testing was required and Vf was back translated (Box 5) and submitted to developers' appreciation, which declared satisfaction with the results and did not propose any further recommendations. Thus, the Vf was considered to be the final translation of the HAAS, i.e. the HAAS-Brazil.

Table 1 – Main modifications proposed by the committee

Original	Adapted
Competitive sports	<i>Esportes de alto rendimento com ênfase na competição</i>
Social sports	<i>Esportes sociais sem ênfase na competição</i>
Vigorous recreational activities	<i>Atividades físicas vigorosas</i>
Moderate recreational activities	<i>Atividades físicas moderadas</i>
Light recreational activities	<i>Atividades físicas leves</i>
Select	<i>Marque um X ou circule</i>
> 1 hour	<i>por mais de 1 hora</i>
e.g.	<i>exemplos:</i>

Graphic 1 - Physical activity practice among volunteers

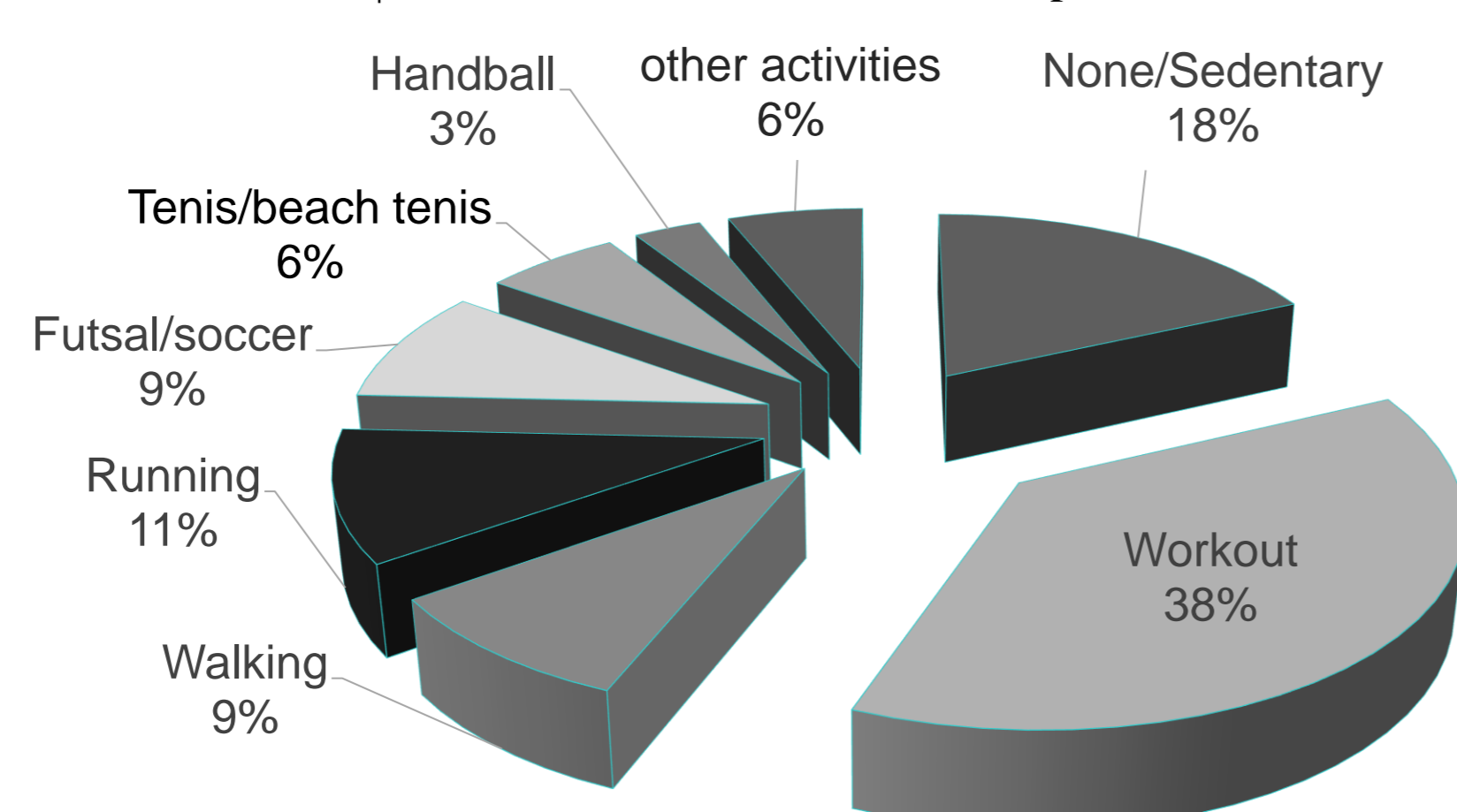


Table 2 – Main modifications proposed about sports and physical activities

Original examples	Adapted examples
Singles tennis / doubles tennis	Futebol
Running	Vôlei
Cycling	Basquete
Jog/jogging	Handebol
Skiing	Natação
High impact aerobics	Tênis
Low impact aerobics	Corrida
Hill-walking	Ciclismo
Heavy gardening	Surfe
Manual work/farming	Skate
Golf	Crossfit
Light gardening	Dança vigorosa
Light working activities	Exercício aeróbico vigoroso (bicicleta ergométrica, spinning, elíptico, esteira)
Lawn bowls	Exercícios fisioterápicos para fortalecimento muscular
	Faxina pesada
	Trilha moderada
	Faxina leve
	Hidroginástica
	Dança de salão
	Pilates
	Trilha leve
	Bocha/boliche
	Hidroterapia

Table 3 - Descriptive data of pre-test volunteers

Scholarity	Gender	Age mean (min-max)	Income	Skin Color*	HAAS mean (min-max)	Time for filling mean
		42,5 (26-69)	< 3 basic salaries (n = 7)		11 (6-16)	0:04:33
Middle School or less (n = 10)	M (n = 5)	40,2 (26-56)	66% 1-3 basic salaries (n = 3)	W 1 B 3 P 1	12 (6-16)	0:04:28
	F (n = 5)	44,8 (26-69)	75% under 1 basic salary (n = 4)	W 0 B 5 P 0	10 (7-14)	0:04:38
Complete High School (n = 16)	M (n = 8)	25,12 (19-40)	50% no income (n=8)	W 3 B 1 P 4	15,62 (14-18)	0:01:44
	F (n = 8)	28,87 (20-56)	62% < 1 basic salary	W 3 B 3 P 2	14,25 (8-17)	0:03:13
College Graduated (n = 20)	M (n = 10)	36,8 (23-65)	10% > 15 basic salaries (n = 19)	W 7 B 0 P 3	14,05 (8-18)	0:02:22
	F (n = 10)	38,5 (23-65)	22,2% >15 basic salaries (n = 9)	W 5 B 1 P 4	13,8 (8-18)	0:02:49
		35,1 (25-59)	40% 3-6 basic salaries (n = 10)		14,3 (8-18)	0:01:56

* Skin color options according to Instituto Brasileiro de Geografia e Estatística (IBGE)'s statistics collection (Fonte: IBGE, Diretoria de Pesquisas, Coordenação de Trabalho e Rendimento, Pesquisa Nacional por Amostra de Domicílios Contínua 2012-2019); BMI = body mass index; HAAS = high activity arthroplasty score; F = female; M: male; W = white; B = black; P = pardo; w = weight; h = height.

DISCUSSION

The practice of PA and its definitions are influenced by the historical context of formation of concepts that vary in accordance to the culture to which it applies. When recognizing that the objective of the original questionnaire is to assess both the level of PA as a motor skill and the practice of sports as a sporting skill, aspects of conceptual reframing were proposed by the committee based on available Brazilian sports literature (Table 1). Whilst Borsa et al. suggests that the pre-test be applied to the target population, the methodology as inferred by Guillemain et al. and Beaton et al. proposes undertaking this step with healthy volunteers. As such, it was elected to apply the pre-test to volunteers. A back-translation constituted the fifth step, and its role has been somewhat debated since its objective was never to obtain a literal equivalence between an adapted version and that of the original version. We do recognize it however as an effective tool, which enables the presentation of the adapted instrument to the original developers. Therefore, we performed back-translation as the fifth step – as advocate by Borsa et al. – in contrast to Beaton et al.5 which placed this step as following the synthesis. We can highlight, as a limitation of this study, the performance of the pre-test, when drawing upon a sample from a single urban center within the country – which being worthy of note – Brazil is a continental country encompassing numerous regional linguistic and cultural differences. In order to minimize this limitation, we attempted to provide a heterogeneous sample of volunteers in relation to parameters such as education and financial income.

CONCLUSION

The HAAS was translated into the Brazilian Portuguese language and adapted to Brazilian cultural reference. Our hypothesis that its adaptation for use in Brazil is feasible and acceptable has - in major part - been corroborated. Yet whilst stating this, we are cognizant that validation of the HAAS in Brazil remains work-in-progress.

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