Linguistic Validation of the US Spanish Work Productivity and Activity Impairment Questionnaire General Health Version (WPAI:GH)

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CONCLUSIONS

- **Linguistic validity of the US Spanish WPAI:GH was established among a diverse US Spanish-speaking population, including those with minimal education.**
- **The WPAI:GH is a more accurate method of assessing health-related absenteeism than counts of "sick days" among both English- and Spanish-speaking workers.**
- **Including a comparison group speaking the source language and hypothetical questions for key concepts are useful methods for evaluating linguistic validity.**
- **For both languages, an additional instruction regarding the intent of the presenteeism question in the WPAI:GH might improve accuracy.**

BACKGROUND

- In 2000 there were an estimated 35.3 million Hispanics in the US population; by 2050 Hispanics are expected to increase to 102.6 million, 24.4% of the population [1].
- There is no validated questionnaire for measuring the impact of disease and effectiveness of treatment on the work productivity of the Spanish-speaking labor force.

Linguistic Validation

Cross-cultural equivalence of a translation is determined through a reiterative process of creating harmonized forward and back translations by independent translators and cognitive debriefing of subjects following questionnaire administration. During debriefing, trained interviewers ask subjects to paraphrase each sentence and to identify any problem words or phrases.

OBJECTIVE

To establish the linguistic validity of the US Spanish translation of the Work Productivity and Activity Impairment questionnaire, general health version (WPAI:GH)

METHODS

- A convenience sample of currently employed persons living in the US and at least 21 years of age was enrolled.
- Subjects were stratified by primary language (English or Spanish) and education (<12 years vs. >12 years of academic education).
- Subjects were selected to be diverse with regard to age, gender, occupation, having/not having a health problem, and for the Spanish population, country of origin.
- Subjects completed the self-administered WPAI:GH [2] and were then debriefed by a trained bilingual interviewer on the phone or in person. The US Spanish WPAI:GH was created using standard translation procedures for questionnaires [3].
- Two hypothetical questions were asked during debriefing to test understanding of the need to exclude sick-day absences for personal reasons from health-related absenteeism, and to exclude absenteeism in responding to the question on impaired productivity at work (presenteeism).
- An item comprehension rate was calculated by dividing the total items correctly paraphrased by the total number of items (instructions plus 6 questions).
- A response revision rate was calculated by dividing the total responses revised during debriefing by the total number of responses to the 6 questions.

Work Productivity and Activity Impairment (WPAI) questionnaire

The WPAI questionnaire measures work time missed (absenteeism), impaired productivity at work (presenteeism), and work productivity loss (absenteeism + presenteeism) due to general health or to a specified health problem in the past 7 days. Impairment in performing daily activities, such as work around the house, shopping, child care, exercising, studying, etc. is also assessed. Scores are expressed as percentages, with higher scores indicating greater impairment.

The WPAI has been validated for general health [4] and in a number of chronic diseases, including gastroesophageal reflux disease [5] and dermatitis [6]; it has been useful for assessing treatment effects in clinical trials. [7, 8, 9, 10]

RESULTS

- A total of 66 subjects were enrolled with a primary language of Spanish (N=31) or English (N=35). (Table 1)
- Overall, 45.5% of subjects had <12 years of education; years of education ranged from 3 to 20.
- Spanish subjects were born in one of 8 Spanish-speaking countries in Latin America.

Table 1: Demographic characteristics of the population by primary language

Characteristic	Spanish (N=31)	English (N=35)	Total (N=66)
Mean years of age *(range)*	39.9 (21-64)	41.5 (21-75)	40.8 (21-75)
Females (%)	51.6	57.1	54.5
White-collar occupation (%)	48.4	40.0	43.9
Mean years education *(range)*	10.9 (3-19)	12.4 (8-20)	11.7 (3-20)
< 12 years education (%)	48.4	42.9	45.5
	(n=)	(n=)	(n=)
3-6 years	(5)	(0)	(5)
7-8 years	(4)	(5)	(9)
9-11 years	(6)	(10)	(16)
12-16 years	(14)	(15)	(29)
17 or more years	(2)	(5)	(7)
Country of origin (%)			
United States	0	88.6	47.0
Other, non-Spanish	0	11.4	6.1
Other, Spanish	100	0	47.0
	(n=)		
Puerto Rico	(7)		
Dominican Republic	(6)		
Cuba	(5)		
Guatemala	(3)		
Nicaragua	(3)		
Honduras	(3)		
Peru	(2)		
Mexico	(2)		

- A total of 66.7% reported a health problem in the past 7 days; absenteeism was 8% and presenteeism was 23.2%. (Table 2)

Table 2: Effect of health problems on work and daily activity by primary language

	Spanish (N=31)	English (N=35)	Total (N=66)
Health Problem Past 7 Days	71.0%	62.9%	66.7%
Absenteeism (range)	11.3% (0-100%)	5.0% (0-100%)	8.0% (0-100%)
Presenteeism (range)	26.0% (0-100%)	20.6% (0-70%)	23.2% (0-100%)
Work productivity loss (range)	32.9% (0-100%)	23.5% (0-100%)	27.9% (0-100%)
Activity impairment (range)	34.5% (0-100%)	24.0% (0-80%)	28.9% (0-100%)

- During the debriefing interview, Spanish and English subjects demonstrated comparable comprehension and response revision rates and responses to the hypothetical questions. Results are displayed in Table 3.
- Item comprehension rates were 98.6% for Spanish subjects and 99.6% for English subjects.
- Response revision rates were 1.6% for Spanish subjects and 0.5% for English subjects.
- 90.3% of Spanish subjects and 91.4% of English subjects correctly excluded "sick days" for personal reasons from a hypothetical question about health-related absenteeism.
- 86.2% of Spanish subjects and 84.4% of English subjects correctly excluded absenteeism and the consequences of absenteeism from the calculation of presenteeism in a hypothetical question.

Table 3: Comprehension rates, response revision rates for the WPAI:GH and responses to hypothetical questions by primary language and education

	Spanish		English	
	Education		Education	
	<12 years (N=15)	≥12 years (N=16)	<12 years (N=15)	≥12 years (N=20)
Incorrect paraphrase				
Instructions	0	0	0	0
Employment status	0	0	0	0
Hours missed - health	0	0	0	0
Hours missed - other reasons	0	0	0	0
Hours worked	0	0	0	0
Productivity at Work	0	2	1	0
Activity Impairment	1	0	0	0
Comprehension rate	***98.6% (214/217)***		***99.6% (244/245)***	
Revised responses				
Employment status	0	0	0	1
Hours missed - health	0	0	0	0
Hours missed - other reasons	0	0	0	0
Hours worked	1	1	0	0
Productivity at Work	0	0	0	0
Activity Impairment	0	1	0	0
Response revision rate	***1.6% (3/186)***		***0.5% (1/210)***	
Absenteeism Hypothetical[1] Included "sick day" for personal reasons in health-related absenteeism	1	2	1	2
Correct response	***90.3%***		***91.4%***	
Presenteeism Hypothetical[2]	(N=14)	(N=15)	(N=15)	(N=17)
Included absenteeism	1	1	2	0
Included consequences of absenteeism[3]	1	1	2	1
Correct response	***86.2%***		***84.4%***	

[1]If you took a sick day, that is, called in sick, but weren't really sick, how would you have answered this question about hours missed due to health?

[2]If you missed 4 days from work because you were sick, but the fifth day you went to work and had absolutely no health problem, how would you answer this question about productivity at work?

[3]Anxiety about loss of income, work backlog, and employer disapproval due to absence.

REFERENCES

1 US Census Bureau News; Census Bureau projects tripling of Hispanic and Asian populations in 50 years; non-Hispanic whites may drop to half of total population, March 18, 2004.

2 http://www.reillyassociates.net/WPAI_GH.html

3 Gawlicki M. Procedures for Linguistic Validation of Health Status Questionnaires. Mansfield Center, CT: Corporate Translations, Inc. 2004.

4 Reilly MC, Zbrozek AS, Dukes EM. The validity and reproducibility of a work productivity and activity impairment instrument. PharmacoEconomics 1993;4:353-65.

5 Wahlqvist P, Carlsson J, Stålhammar N-O, Wiklund I.Validity of a Work Productivity and Activity Impairment Questionnaire for Patients with Symptoms of Gastro-Esophageal Reflux Disease (WPAI-GERD) -Results From a Cross-Sectional Study. Value in Health 2002;5:106-113.

6 Reilly MC, Lavin PT, Kahler KH, Pariser DM. Validation of the Dermatology Life Quality Index (DLQI) and the Work Productivity and Activity Impairment: Chronic Hand Dermatitis Questionnaire (WPAI-ChHD) in Chronic Hand Dermatitis (ChHD). J Am Academy Dermatol 2003;48:128-30.

7 Jacobs RJ, Davidson JR, Gupta S, Meyerhoff AS. The effects of clonazepam on quality of life and work productivity in panic disorder. Am J Man Care 1997;3:1187-1196.

8 Tanner LA, Reilly M, Meltzer EO, Bradford JE, Mason J. Effect of fexofenadine HCl on quality of life and work, classroom and daily activity impairment in patients with seasonal allergic rhinitis. Am J Man Care 1999;5(suppl):S235-S247.

9 Perrillo RP, Rothstein KD, Imperial JC et al. Comparison of quality of life, work productivity and medical resource utilization of peginterferon alfa 2a vs the combination of interferon alfa 2b plus ribavirin as initial treatment in patients with chronic hepatitis C. J Viral Hepatitis 2004:11:157-165.

10 Reilly MC, Barghout V, Ruegg P, Pecher E, Ricci J-F. Tegaserod significantly reduces work productivity loss and daily activity impairment in patients with IBS with constipation. Am J Gastroenterol 2004;99(10):S241.