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Validation of the Glover-Nilsson Smoking Behavioral Questionnaire for Portuguese Population: a preliminary study.

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BACKGROUND

Tobacco addiction causes severe health problems, such as coronary disease and cancer which can be potentially disabling and fatal. According to Benowitz (2008), tobacco addiction involves many aspects, such as physiology, individual's personality, social environment and learned or conditioned factors. The Glover-Nilsson Smoking Behavioral Questionnaire (GNSBQ), created by Elbert Glover and Fredrik Nilsson, pretends to assess the behavioral dimension of smoking, and it can also be useful to estimate the degree to which behavioral intervention will be helpful in smokers who want to stop smoking. Rath, Sharma and Beck (2013) aimed to establish reliability and validity of the GNSBQ in the USA. The results have shown that the GNSBQ was internally consistent (Cronbach = .82; N=100) and temporally stable (3-4 week test-retest r=.86; N=41). When the GNSBQ scale was included in the factor analysis, it loaded mainly on only one factor (all factor loadings $\geq$ .40). In Portugal, the GNSBQ has been used for research and clinical purposes, but its Portuguese version has never been subjected to a validation process. This is the aim of the current study: to establish validity of the Portuguese version of the GNSBQ.

METHODS

Participants of the study were recruited in the Faculty of Psychology of University of Porto, as well as in the community through the snow-ball technique. Participants were included in this study if they were 18 years or older, have Portuguese nationality, were smokers and healthy (subjects were excluded if they have a smoking-related disease or other major health problem). A total of 124 participants were included and the Portuguese version of the GNSBQ was applied to all of them. The GNSBQ consists of 11 items and the score ranges from 0 to 44. 58.9% of the 124 participants are women and 41.1% men. The mean age is 33.48 (SD = 11.07), with an age range from 18 to 58 years. Regarding education, there is a wide range of subjects who finished the 4th grade to individuals who completed PhD (25 years), being 13,23 (SD=3,90) the mean value.

It was used the SPSS and AMOS program (version 20) for the introduction and statistical analysis, namely an exploratory and confirmatory factor analyses with varimax rotation to establish the construct validity of the Portuguese version of the GNSBQ.

RESULTS

The results performing Exploratory Factorial analysis varimax solution (eingenvalues>1) the solution explain 49,1% of variance and retain two factors: 1) with items 1,4,5,7 and the remaining items in the other. Performing a Confirmatory Factor analysis including the 11 items the solution is not acceptable (RMSEA: .096 ; CFI: .857), however when retrieving items 1,2 and 3 the solution is good (RMSEA: .094; CFI: .911). One hypothesis which explain these results is related to the translation of the original version to Portuguese language. We did not translate the original version to Portuguese (because it was already in clinical use), however we did the back translation from the Portuguese version to English and send it to Elbert Glover, who concluded that some questions did not solicit the same information. We then proceeded to another translation, this time following the suggestions given from the original author. We are now collecting data among university students to perform psychometric analysis of the new Portuguese version of the GNSBQ created by us.

TABLE 1: EXPLORATORY FACTOR ANALYSES (ROTATED FACTOR LOADINGS FOR THE PRINCIPAL COMPONENT ANALYSES OF THE GNSBQ)

ITEM	COMPONENT	
	1	2
Item 1		.772
Item 2	.456	
Item 3	.569	
Item 4	.319	.698
Item 5		.772
Item 6	.582	.347
Item 7	.325	.572
Item 8	.482	.352
Item 9	.803	
Item 10	.726	
Item 11	.667	

TABLE 2: CONFIRMATORY FACTOR ANALYSES RMSEA: .096; CFI: .857

	ESTIMATE
Item 1 ← F1	,481
Item 2 ← F1	,469
Item 3 ← F1	,472
Item 4 ← F1	,643
Item 5 ← F1	,595
Item 6 ← F1	,628
Item 7 ← F1	,559
Item 8 ← F1	,545
Item 9 ← F1	,597
Item10 ← F1	,607
Item 11 ← F1	,632

TABLE 3: COMPARISON BETWEEN GNSBQ ORIGINAL VERSION, FIRST AND SECOND PORTUGUESE VERSIONS: QUESTIONS WHICH DID NOT SOLICIT THE SAME INFORMATION (ITEMS 2, 3, 4, 5, 7, 8 and 10)

ORIGINAL VERSION	FIRST PORTUGUESE VERSION	SECOND PORTUGUESE VERSION
I handle and manipulate my cigarette as part of the ritual of smoking.	Jogo e manipulo o cigarro como parte do ritual do hábito de fumar.	Pego e manipulo o cigarro como parte do ritual do hábito de fumar.
Do you place something in your mouth to distract you from smoking?	Habitualmente coloco alguma coisa na boca para evitar fumar.	Coloca alguma coisa na boca para distrair-se de fumar?
Do you reward yourself with a cigarette after accomplishing a task?	Recompenso-me com um cigarro antes de iniciar uma tarefa.	Recompensa-se com um cigarro depois de completar uma tarefa?
If you find yourself without cigarettes, will you have difficulties in concentrating before attempting a task?	Quando não tenho tabaco, sinto dificuldades em me concentrar e realizar qualquer tarefa.	Se não tiver tabaco, sente dificuldade em concentrar-se antes de realizar uma tarefa?
Do certain environmental cues trigger your smoking, eg, favorite chair, sofa, room, car, or drinking alcohol?	Alguns lugares ou circunstâncias incentivam-me a fumar. (o meu sofá, casa, carro)	Algumas circunstâncias ambientais propiciam a sua vontade em fumar (a sua cadeira favorita, casa, quarto, carro, beber álcool)?
Do you find yourself lighting up a cigarette routinely (without craving)?	Por rotina, acendo um cigarro, sem desejar fumá-lo	Acende um cigarro por rotina sem sentir necessidade de fumá-lo?
Does part of your enjoyment of smoking come from the steps (ritual) you take when lighting up?	Parte do meu prazer de fumar deve-se ao ritual de acender um cigarro.	Parte do seu prazer de fumar deve-se aos passos (ritual) que efetua quando acende um cigarro?

CONCLUSIONS

The results of this study allow us to recognize the lack of validity of the Portuguese version of the GNSBQ currently in use. We are now working in a new Portuguese version of the same questionnaire, according to suggestions of the original author. We are also collecting data to validate this new version. This new Portuguese version will contribute to assess properly behavioral dependence of the Portuguese population in the future, and will help to promote more rigorous research and clinical interventions.