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HINTS & KINKS

Influence of response options on self-perceived health status

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Health is a dynamic and multidimensional concept that includes different quality of life domains such as physical health, psychological health, social relationships or environment (Larson 1999). From a public health perspective, having an indicator that objectifies the population's health status is valuable. However, it is essential to take into account that the collection of information about the health status of a population relies heavily on subjective measures such as self-perceived health, which is a person's global and subjective appraisal of his/her health status. Apart from its limitations, this indicator is useful both at population and individual levels, and a large number of studies have found evidence at its association with other domains of health status and found it to be a powerful predictor of future morbidity and mortality (Blank and Diderichsen 1996; Kaplan et al. 1996; Idler and Benyamini 1997; Benyamini and Idler 1999; Nery Guimarães et al. 2012). Self-perceived health can be easily measured by a simple question such as "How do you consider your health?" which allows its inclusion in face-to-face, telephone or self-administered population surveys. Its use has become widespread and many countries and regions include questions on self-perceived health in population health surveys.

The European Office of the WHO published in 1996 a document on harmonization of methods and instruments used in health surveys in which it recommended measuring self-perceived health status with the question "How is your health in general?" with five response options (ordinal scale): two positive, two negative and one neutral located in an intermediate position (WHO 1996). Euro-REVES, a European project on health expectations, published a report on health indicators in 2003 (Robine et al. 2003) which includes a review of European health surveys developed at the national level. In this report, the inclusion of the question proposed by the WHO was recommended in order to ascertain self-perceived health status. And also, the report revealed a great variability between countries in terms of asking about self-perceived health status, both in the wording of the question and in the response options. This means that the perception of health is often difficult to compare.

In order to ascertain the impact of the response options in questions oriented toward self-perceived health status, an analysis was planned within the framework of the Behavioral Risk Factor Surveillance System of Galicia (SICRI). SICRI is comprised of cross-sectional surveys, which have been carried out annually, since 2005, among Galician residents who were at least 16 years of age. Sample size is around 8000 each year. The information was collected through a computer-assisted telephone interview (CATI system). Since 2007, the following question has been included at the beginning of the questionnaire: "In general, how do you consider your health status?" with five response options: very good, good, fair, bad and very bad (scale 1). To analyze whether the response options influence the assessment of self-perceived health status, in SICRI-2014, the same question was repeated at the end of the questionnaire, but with different response options: excellent, very good, good, regular and bad (scale 2).

Figure 1 shows the percentage of people in each category of self-perceived health according to scale 1 and scale 2. Classification of the population in relation to self-perceived health varied depending on the scale used. Moreover, for categories common to both scales, for example "good," the percentage of people who chose that category was different: 41.6% [95% confidence interval (CI) 40.4–42.7] in scale 1, and 53.4% (95% CI 52.3–54.6) in scale 2.

In order to analyze the concordance between the two scales, the five response categories could not be directly compared, so a grouping was made in four categories, equating excellent–very good (scale 2) with very good

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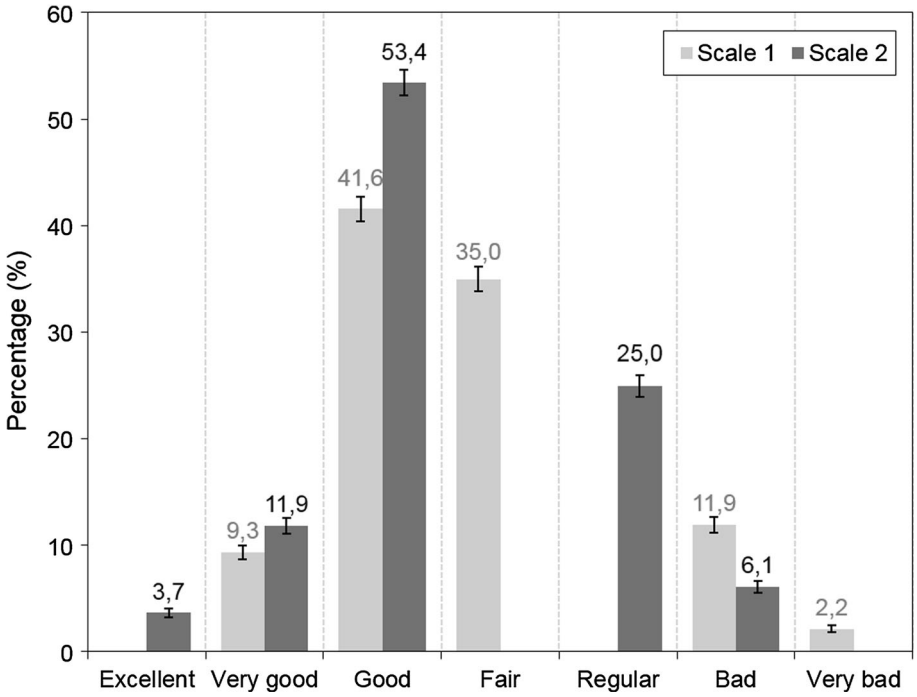

Fig. 1 Percentage of population aged 16 and over in each self-perceived health status in scale 1 and scale 2. Galicia, 2014. Percentage and 95% confidence interval. *Note*: The figure was created with Microsoft Excel

(scale 1), and both options bad–very bad (scale 1) with bad (scale 2), keeping good and fair or regular in the middle. When analyzing the two scales, an observed agreement of 60.1% (95% CI 59.0–61.3) was obtained, and a kappa coefficient of 0.40 (95% CI 0.39–0.42) was obtained. This coefficient, and its 95% CI upper limit, is very far from the value 1, which indicates perfect agreement (Fleiss 1981), so the agreement between the two scales is very low. It stands out that 18.4% (95% CI 17.5–19.3) of people classify their health status as fair, according to scale 1, and as good, according to scale 2 (Table 1).

In order to summarize the values of an ordinal scale, the position index (PI) can be used (Silva 1997). This index quantifies the global position of a sample with respect to the scale, which provides a value between 0 and 1. The PI of the self-perceived health status can be interpreted as the quantifiable mark that the population gives to its health status. To calculate it, the response categories are coded with values between 1 and 5 from worst to best self-perceived health status. With the SICRI-2014 data, a PI of 0.61 (95% CI 0.59–0.63) was obtained on scale 1 and 0.46 (95% CI 0.44–0.47) on scale 2. Since the individuals are the same and it is not reasonable that their health status has changed during the interview, this indicates that when valuing their self-perceived health, they positioned themselves according to the available options and, as was seen, a good status does not mean the same on one scale as on the other. When the two scales were merged into one, seven different categories appeared (1-Very bad, 2-Bad, 3-Regular, 4-Fair, 5-Good, 6-Very good, 7-Excellent), and the PI obtained with this coding was somewhat similar [0.55 (0.53–0.57) vs. 0.59 (0.57–0.61)], and the one derived from scale 1 being lower.

This work shows how different ordinal scales oriented to ascertain self-perceived health status lead to conflicting results. However, the question about which is the appropriate scale in order to measure health status within populations remains unresolved. Further research is needed to address the challenges related to the selection of

Table 1 Percentage of the population aged 16 and over according to concordance between scale 1 and scale 2. Galicia, 2014

	Scale 2			
	Excellent/very good (%)	Good (%)	Regular (%)	Bad (%)
Scale 1				
Very good	7.4	1.8	0.2	0.0
Good	6.8	32.0	2.7	0.1
Fair	1.2	18.4	15.0	0.3
Bad/very bad	0.2	1.2	7.1	5.7

appropriate response options through, for example, predictive or construct validation.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Human participants and/or animals rights Research involving human participants and/or animals: not applicable.

Informed consent The study was conducted by telephone, and accordingly agreement to participate implies consent.

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