

DEVELOPMENT OF A QUESTIONNAIRE ON NUTRITIONAL KNOWLEDGE FOR THE OBESE HOSPITALIZED PATIENT: THE NUTRIKOB QUESTIONNAIRE.

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INTRODUCTION

Nutritional knowledge is the set of concepts concerning nutrition, based on national and international guidelines. It has been shown that nutritional knowledge is a relevant part of the decision-making process in choosing foods, along with other factors such as age, gender and socioeconomic status [1]. In fact, nutritional knowledge can influence food choices both indirectly, e.g. by helping to understand and memorise the reading of food labels, and directly on consumer behaviour [1,2]. This makes it clear how important it is to pay more attention to nutritional education and to monitoring nutritional knowledge over time, especially for certain target populations [3, 4]. This is even more relevant when nutritional education becomes part of the therapeutic approach, such as for patients with severe obesity [4]. In obese and overweight populations, a higher level of nutritional knowledge, achieved through nutritional education, has been shown to be associated with greater weight loss. This is explained by increased awareness in food choices leading to better nutritional quality and improvement in food habits and patient empowerment [5]. In literature several questionnaire exist (i.e. General Nutritional Knowledge Questionnaire [6], Moynihan [7]) but these instruments have the capability of investing nutritional knowledge in the general population. The only questionnaire found in literature validated to investigate the nutritional knowledge in obese patient is the questionnaire constructed by a Norwegian group study [8], the problem is that it is based on food of the Nordic countries.

AIM

The aim of this work was to construct and validate a questionnaire investigating nutritional knowledge of Italian food in individuals with obesity.

METHODS

A first draft of questionnaire was created by means of i) the identification of several items from published questionnaires related to nutritional education, ii) the creation of items based on the experience of the researchers involved in the study. The items provided more options with only one answer correct. Subsequently this first draft was submitted to panel of experts (clinical endocrinologists and nutritionists and health professionals) to optimize the sequence of items.

The analysis of item characteristics and measurement properties of the questionnaire was conducted in two phases: a pilot one on a small sample of patients and a conclusive one on the whole sample. We performed an item difficulty analysis to identify item too easy or difficult (correctness rate higher than 90 % or below 15%). We calculated the Kuder Richardson-20 (KR-20), the version of Cronbach's α for dichotomous item, to measure the internal consistency. We made a confirmatory factor analysis to assess the fit of a unidimensional structure. To do so, we employed the Diagonally Weighted Least Squares (DWLS) estimator, which uses a tetrachoric correlation matrix, using as fit criterion the standardized root mean square residual (SRMR), with cut-off ≤ 0.08 [9]. A test-retest approach (after two weeks later) was applied on a subsample (N = 150) to assess the stability of the instrument by Spearman correlation index. The construct validity (if the questionnaire reflects the true theoretical meaning of the construct of interest) was ~~obtained~~ assessed comparing the score measured in two groups of students (one with "good nutrition knowledge" and the other which has not) by an independent sample's t-test or Wilcoxon test.

RESULTS

We recruited patients hospitalized in San Giuseppe Hospital of Piancavallo, Istituto Auxologico Italiano (Verbania, Piedmont, Italy) during the period April-October 2019. We included the patients with BMI ≥ 30 Kg/m² and with age between 18 and 75 years. For the pilot phase we included 100 patients and for the conclusive phase we included an additional sample of 350 patients. Moreover, we analysed 300 students (150 enrolled in the third year of the Nutrition degree and 150 enrolled in the third year of the Psychology degree of the University of Milan) for construct validity analysis.

The first draft of the questionnaire, composed by 56 item, was administered to the pilot sample. The item difficulty analysis highlighted that 5 items were to exclude. The KR-20 resulted 0.83 (95% CI 0.77-0.87) suggesting high internal consistency. When the new version of questionnaire was submitted to the final sample, the KR-20 value was confirmed (0.81, 95% CI 0.78 to 0.83). The SRMR was 0.059 suggesting that the unidimensional model had adequate fit to the data. Moreover, when submitted to 150 nutrition students and 150 psychology students, the score was significantly higher in the first group (median 50.00 [35.00 to 51.00] vs 35.00 [30.00 to 38.00] respectively, p-value < 0.0001). Spearman correlation of test-retest was high [0.80 (95% CI 0.73 to 0.85)].

CONCLUSIONS

The questionnaire seems a good tool for investigating dietary knowledge in the obese population. The psychometric tests confirmed a good internal consistency of the structure, a validity of the content, a good reproducibility. This tool could be useful during clinical practice to monitor the results of nutritional rehabilitation in this population.

REFERENCES

1. Worsley A. Nutrition knowledge and food consumption: can nutrition knowledge change food behaviour? *Asia Pac J Clin Nutr.* 2002;11 Suppl 3:S579–85
2. Leng G, Adan RAH, Belot M, Brunstrom JM, De Graaf K, Dickson SL, et al. The determinants of food choice. *Proc Nutr Soc.* 2017;76(3):316–27
3. Wang L, Zhuang J, Zhang H, Lu W. Association between dietary knowledge and overweight/obesity in Chinese children and adolescents aged 8-18 years: a cross-sectional study. *BMC Pediatr [Internet].* 2022;22(1):558
4. Valmórbida JL, Goulart MR, Busnello FM, Pellanda LC. Nutritional knowledge and body mass index: A cross-sectional study. *Rev Assoc Med Bras.* 2017;63(9):736–40.
5. Klohe-Lehman DM, Freeland-Graves J, Anderson ER, McDowell T, Clarke KK, Hanss-Nuss H, et al. Nutrition knowledge is associated with greater weight loss in obese and overweight low-income mothers. *J Am Diet Assoc.* 2006;106(1):65–75.
6. Bukenya R, Ahmed A, Andrade JM, Grigsby-Toussaint DS, Muyonga J, Andrade JE. Validity and reliability of general nutrition knowledge questionnaire for adults in Uganda. *Nutrients.* 2017;9(2):1–11.
7. Rosi C, Pennella S, Fantuzzi AL, Pedrazzi P, Passalacqua M, Gavioli M, et al. The usefulness of Moynihan questionnaire in the evaluation of knowledge on healthy diet of patients undergoing cardiology rehabilitation. *Monaldi Arch Chest Dis - Card Ser.* 2013;80(2):76–89.
8. Feren A, Torheim LE, Lillegaard ITL. Development of a nutrition knowledge questionnaire for obese adults. *Food Nutr Res.* 2011;55:1–7
9. Hu L.-T., Bentler P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods*, 3(4), 424-453

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Poster

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