

Conference Paper

Validity and Reliability of a Questionnaire About Dental and Oral Health

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Abstract.

Knowledge about dental and oral health is one of the factors that influence the occurrence of various dental and oral complaints. Lack of knowledge about the importance of dental and oral care can lead to individuals neglecting dental and oral hygiene. To measure knowledge about dental and oral health, a questionnaire that has been tested and is ready for use is needed. This study aims to test the validity and reliability of a questionnaire about dental and oral health. A random sample of 29 people were selected to complete the questionnaire. The validity test used the Kappa coefficient, and the reliability test used the Cronbach alpha test. The results showed that of the 25 questions tested, 25 questions were valid, and 5 questions were reliable. In conclusion, the questionnaire needs to be reviewed in terms of sentence structure by experts in dentistry, so the questionnaire is easily understood by respondents.

Keywords: validity, reability, questionnaire

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1. INTRODUCTION

The health of the oral cavity is currently considered as important as the general health of a person's body. The state of a person's oral health depends on the attitude of a person in terms of maintaining his health. Such attitudes naturally reflect their own personality, perceptions in the cultural sphere, beliefs in the family environment, and other life situations that greatly influence the health behavior of the oral cavity [1]. Oral cavity health is defined as "a state free from pain in the mouth and face area, cancer of the mouth and throat, infections and mouth sores, periodontal tissue disease (gums), tooth decay, loss of teeth and other diseases and disorders that limit a person's ability to bite, chew, smile, speak and psychosocial well-being[2,3].

The oral cavity provides an important function for our body especially when it comes to speech and mastication. The above causes maintaining the health of the oral cavity

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is very important for our health and well-being. [4]. Diseases of the oral cavity can cause serious disruption of body functions, cause discomfort, and pain that can cause physical, psychological, and social disabilities. So it can be concluded that this disease of the oral cavity significantly affects the quality of life for the sufferer. To prevent diseases of the oral cavity, strategies are needed for the prevention of oral diseases and the promotion of the health of the oral cavity[5].

There is a two-way relationship between oral health and systemic health. Some systemic diseases cause early symptoms of diseases of the oral cavity, which in the end diseases of the oral cavity can cause infections, inflammation, and other serious impacts on a person's overall health. For example, periodontal disease (gum infection caused by oral bacteria) can interfere with fetal growth, lung disease, cardiovascular disease and diabetes mellitus [4,6]

Efforts to maintain the health of the teeth and oral cavity we must review from various aspects, including aspects of knowledge, environment, public awareness, education and types of care . The behavior of a person who is less concerned with the health of the teeth and oral cavity, as well as the lack of knowledge in maintaining the cleanliness of the teeth and oral cavity are factors that can lead to a high prevalence of the occurrence of diseases of the teeth and oral cavity [4]. Of the several factors that can affect the health of the teeth and oral cavity, which have been researched by previous researchers, a person's level of knowledge of the health of the teeth and oral cavity has received little attention [7]. A low level of knowledge about dental health is associated with a low understanding of the importance of prevention and maintenance so that it can lead to poor health conditions [8].

Knowledge of dental and oral health can give a person an understanding of how to perform maintenance and how to be able to prevent dental and oral diseases [9]. However, at the moment there is no questionnaire instrument available as the gold standard for assessing the level of knowledge regarding the health of the teeth and oral cavity[10]. Based on the explanation above, we need a questionnaire instrument to assess the level of knowledge about the health of the teeth and oral cavity. Questionnaires are one of the most widely used tools for collecting data in a study [11]. In this study, a questionnaire was compiled containing questions related to dental and oral health by researchers who work as dentists, which then these questions were tested for reliability and validity. Reliability and validity are the two most important and fundamental features in the evaluation of any instrument or measurement tool for good research [12].

The purpose of this study was to determine the validity and reliability of the questionnaire as the main measuring instrument in research regarding the level of knowledge about dental and oral health so the questionnaire can be used for further research.

2. METHODS

The method used in this study is a survey approach, with the number of samples used is 29 respondents who are selected randomly from security officer in Universitas Islam Bandung in March-April 2021. Instrument testing was not carried out on the population, but respondents who were outside research target, so for this research 30 respondent is sufficient but in second test, 1 subject refused to follow this study again.

The questionnaire consist of 25 question was made by researchers who works as dentist, where the questions type is closed single-choice questions. Question analysis is carried out based on consideration professional judgment. Based on this technique, each question is discussed together with dentists. The questionnaire contained questions about knowledge about dental and oral health. Validation and reliability tests were carried out twice with a range of data collection for 2 weeks. The validity of the questions was analyzed by Kappa coefficient and the reliability test uses the Cronbach alpha test.

3. RESULTS AND DISCUSSION

A questionnaire is a collection of questions created to collect data with a specific purpose. The questionnaire used in a study can be adapted from a questionnaire that has been previously tested by other researchers or it can also be developed as a new data tool specifically for measuring certain things. Therefore, it is necessary to test the reliability and validity of a questionnaire. [13]. Table 1 show that questionnaire validity and reliability result indicating valid, reliable and no reliable questions.

The validity of the questionnaire shows the accuracy of a questionnaire[14]. The validity of the questionnaire determines how well the questionnaire meets the standards set by certain criteria. An invalid questionnaire showed that there were questions in the questionnaire that could not be measured through such questionnaires. So it can be said that the validity of a questionnaire shows how accurately a questionnaire can measure what is meant in a study. [15].

The reliability of the questionnaire shows the consistency value obtained from a questionnaire. The term reliability was first introduced in 1904 by Spearman who defined

it as a comparison between the variance of the actual score and the variance of the score under study. By estimating the reliability of a questionnaire, several score consistency criteria can be explained [14]. The reliability test value concerns a belief in the measurement results obtained by a questionnaire [16].

Reliability calculations must be carried out only on questionnaire questions that have been validated, so validation tests must be carried out first before conducting reliability tests. A reliable questionnaire means that the questions in the questionnaire will produce the same answer when used multiple times on the same object of study [17]. The reliability value is influenced by several environmental aspects including the assessment factor, sample characteristics, type of instrument, administrative method and statistical method used to measure reliability test. Therefore, the results of a study using measuring instruments, especially instruments, can only be interpreted when the assessment conditions and statistical approach are clearly displayed by the researcher [18].

English translation.

Some of the questions in table 1 show that there are some questions that are not reliable because in some studies it is quite difficult to test the reliability of a questionnaire such as a questionnaire that uses an attitude scale or a questionnaire to measure the level of knowledge, this is because by doing repeated readings of a question, a person is likely to continue to change in giving answers due to experience in the process of filling out the questionnaire. So, actually the subject of the study can answer a series of questionnaire questions on the reliability test if the test is designed in a chain thinking process that leads to a new insight or further integration of knowledge. The period of time for which the questionnaire was given could be within a day, a week, or a month later, the subject could have answered the same question differently without a definite reason [19]. Compiling questions for a questionnaire for researchers is not an easy task because it involves many important aspects that a researcher needs to consider. Often researchers make ambiguous questions that are difficult for the subject of the study to answer. Therefore, the trial of the questionnaire before it is given to the research subjects is actually one of the important steps for the researcher to determine whether the data collected later can meet the research objectives. [20].

TABLE 1: Questionnaire validity and reliability result.

Question number	Agreement (%)	P Kappa	Alpha reliability coefficient	Validity result	Reliability result	Suggestion
1	65.52	0.38	0.74	Valid	Reliable	Review
2	44.83	0.74	0.74	Valid	No reliable	Review
3	558.62	0.21	0.74	Valid	No reliable	Review
4	37.93	0.9	0.74	Valid	No reliable	Review
5	72.41	0.81	0.74	Valid	No reliable	Review
6	.	.	0.74	Valid	Reliable	Applicable
7	58.62	0.28	0.74	Valid	No reliable	Review
8	58.62	0.15	0.74	Valid	No reliable	Review
9	37.93	0.79	0.74	Valid	No reliable	Review
10	58.62	0.12	0.74	Valid	No reliable	Review
11	48.28	0.39	0.74	Valid	No reliable	Review
12	58.62	0.11	0.74	Valid	No reliable	Review
13	65.52	0.01	0.74	Valid	Reliable	Applicable
14	72.1	0.35	0.74	Valid	No reliable	Review
15	62.07	0.05	0.74	Valid	Reliable	Applicable
16	86.21	0.63	0.74	Valid	No reliable	Review
17	65.52	0.32	0.74	Valid	No reliable	Review
18	68.97	0.52	0.74	Valid	No reliable	Review
19	65.52	0.59	0.74	Valid	No reliable	Review
20	72.41	0.05	0.74	Valid	Reliable	Applicable
21	82.76	0.66	0.74	Valid	No reliable	Review
22	96.55	0.5	0.74	Valid	No reliable	Review
23	79.31	0.07	0.74	Valid	Reliable	Applicable
24	58.62	0.12	0.74	Valid	No reliable	Review
25	55.17	0.46	0.74	Valid	No reliable	Review

4. CONCLUSION

The Questionnaire was valid and but no reliable. This questionnaire needs to be reviewed in terms of sentence structure by experts in dentistry, so the questions sentence in the questionnaire are easily understood by respondents.

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References

- [1] Sanadhya YK, Thakkar JP, Divakar DD, Pareek S, Rathore K, Yousuf A, et al. Effectiveness of oral health education on knowledge, attitude, practices and oral hygiene status among 12-15-year-old schoolchildren of fishermen of Kutch district, Gujarat, India. *Int Marit Health*. 2014;65(3):99–105.
- [2] Glick M, Williams DM, Kleinman DV, Vujicic M, Watt RG, Weyant RJ. A new definition for oral health developed by the FDI World Dental Federation opens the door to a universal definition of oral health. *Br Dent J*. 2016 Dec;221(12):792–3.
- [3] Yap AU. Oral Health Equals Total Health: A Brief Review. *Journal of Dentistry Indonesia*. 2017;24(2):59–62.
- [4] Mardianti FT, Rahma A, Ridho FM, Setyawan AP, Santoso NU, Salma N, et al. *Syst Rev Pharm*. 2020;11:879–83.
- [5] Buset SL, Walter C, Friedmann A, Weiger R, Borgnakke WS, Zitzmann NU. Are periodontal diseases really silent? A systematic review of their effect on quality of life. *J Clin Periodontol*. 2016 Apr;43(4):333–44.
- [6] Priyono B, Kusnanto H, Pramono D. [Majalah Kedokteran Gigi]. *Dent J*. 2016;49:115–9.
- [7] E. Abu-Gharbieh, B. Saddik, M. El-Faramawi, S. Hamidi, and M. Basheti, “Oral Health Knowledge and Behavior among Adults in the United Arab Emirates.,” *BioMed Research International*. vol. 2019, no. 2019, pp. 1–7, 2019.
- [8] Jagan P, Fareed N, Battur H, Khanagar S, Manohar B. Conceptual knowledge of oral health among school teachers in South India, India. *Eur J Dent*. 2018 Jan-Mar;12(1):43–8.
- [9] Novita CF. Cakradonya. *Dent J*. 2017;9:121–6.
- [10] Ghaffari M, Rakhshanderou S, Ramezankhani A, Mehrabi Y, Safari-Moradabadi A. Systematic review of the tools of oral and dental health literacy: assessment of conceptual dimensions and psychometric properties. *BMC Oral Health*. 2020;20(1):1–12.
- [11] H. Taherdoost, How to Test the Validation of a Questionnaire/Survey in a Research .2016.
- [12] Mohajan HK. *Annals of Spiru Haret University. Economic Series*. 2017;17:59–82.
- [13] Bolarinwa OA. Principles and methods of validity and reliability testing of questionnaires used in social and health science researches. *Niger Postgrad Med J*. 2015 Oct-Dec;22(4):195–201.
- [14] Tang W, Cui Y, Babenko O. *Journal of Psychology and Behavioral Science*. 2014;2:205–20.

- [15] Oktavia R, Mentari M, Mulia IS. *J. Phys. Conf. Ser.* IOP Publishing; 2018. p. 12014.
- [16] Chairani A. *Child. Stunting, Wasting, Obesity, as Crit. Glob. Heal. Issues Forg. Cross-Sectoral Solut.* Masters Program in Public Health, Universitas Sebelas Maret; 2020. pp. 100–6.
- [17] Kahraman T, Genç A, Göz E. The Nordic Musculoskeletal Questionnaire: cross-cultural adaptation into Turkish assessing its psychometric properties. *Disabil Rehabil.* 2016 Oct;38(21):2153–60.
- [18] A. C. de Souza, N. M. C. Alexandre, E. de B. Guirardello. *Epidemiol Serv Saude.* 2017;26:649–59.
- [19] Taber KS. The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education. *Res Sci Educ.* 2018;48(6):1273–96.
- [20] Feng CK, Yamat H. *Int J Acad Res Bus Soc Sci.* 2019;9:347–58.