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Testing of the questionnaire on dental care satisfaction in a sample of adult patients visiting dental clinics at Faculty of Odontology, Kaunas University of Medicine. A Pilot study

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SUMMARY

A pilot study was conducted with the aim to test and develop a questionnaire which covers dental patients attendance, satisfaction with dental care, oral health self-evaluation, attitudes and knowledge about oral health, before applying it to a broad population. A total of 53 adult subjects (mean age 40.1) visiting Kaunas University of Medicine dental clinics, filled in the questionnaire presented by the researchers. Statement choices to define dental care satisfaction were selected from previously used instruments for similar studies in other countries. Results: major difficulties in answering questions were related to using the Likert scale response alternatives. All statements concerning dental care satisfaction with the mean Likert score value below 2.0 were decided to be indicative for the importance of characteristics. According to factor analysis and distribution of the mean scores of dental care satisfaction characteristics it was decided to include no more than 8 questions in each dimension to the final version of questionnaire. In case of equal loadings of several statements in the factor analysis, the statement with lower mean score was used. Conclusions: the use of professional terminology in questionnaire survey should be tested before applying to a broad population. The final instrument for measuring dental care satisfaction should be formed on the basis of statistical evaluation of relative importance and comparative load of different questions/statements to be included in the questionnaire.

Key words: questionnaire design, dental care satisfaction, oral health behaviour.

INTRODUCTION

The quality of health service as well as treatment needs are usually assessed by commonly accepted clinical indices. However, such a normatively appraised need does not always correspond to patients' expectations (1; 11; 16; 17). Traditional assumption that patients share their doctors' values is very much questionable today (21). During past two decades many studies evaluated satisfaction of various patient groups with dental care, trying to assess factors that motivate patients to seek for dental treatment. In questionnaire studies dental care has been evaluated in various dimensions, such as technical competence of the dentist, his/her personality and organisation of the surgery, interpersonal aspects of care, accessibility/convenience, treatment-related pain and fear and general satisfaction (1; 4; 5; 6; 9; 10; 12; 19; 13; 14; 15; 18).

Lithuania, just as many other developing countries undergoes the process of reorganisation of health care system. Because of the limited governmental financial support dentistry in Lithuania tends to private sphere. Therefore, it is important to stimulate patients' motivation to take actions by themselves when seeking qualitative dental treatment. Dental care satisfaction studies mentioned above were carried out in the countries that significantly differ by social, cultural and economical aspects in comparison with Lithuania's situation. Nearly no studies of dental care satisfaction have been performed in Lithuania, neither there were any studies to identify factors that can be used to predict dental health behaviour, treatment motivation, decision making in relation to provide complete dental treatment and to follow dentist's recommendations after the treatment. The oral health status as well as oral health behaviour and attitudes of Lithuanian adult population are rather poor (2; 3; 20; 22). Assessment of dental care satisfaction, patient's expectations as well as their behaviour could be a helpful tool in creating a motivation model for the Lithuanian population that would stimulate individuals to seek for

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Table 1. Background information about study population

	n = 53	%
Gender	Mail	38
	Female	62
Marital status	Married or living together	77
	Single	23
Education	University	40
	Vocational school	34
	Secondary school	26
Household monthly income per person*	Below average	32
	Average	42
	Higher than average	26

* Household monthly income per person was defined as follows: below average – less than 500 litas per month; average – 500–1000 litas per month; higher than average – more than 1000 litas per month.

regular and qualitative dental care.

A pilot study was conducted with the aim to test and develop a questionnaire which covers patients' attendance, their satisfaction with dental care, oral health self-evaluation as well as attitudes and knowledge about oral health, before applying it to a broad population.

Objectives of this study were:

1. To evaluate construction defects of the questionnaire for its' final revision.
2. To develop an instrument for evaluation of dental care satisfaction by identifying the most important statements used by respondents in three dimensions:
   - Professional competence of a dentist
   - Personality of a dentist
   - Organization of dental surgery (availability, access, equipment, fees).

MATERIAL AND METHODS

A pilot questionnaire survey was carried out at Kaunas University of Medicine, Faculty of Odontology in February - March 2004. The target group was defined as 35 – 44 year-old patients, who visited University dental clinics and received various dental treatments from dental students. A total of 33 individuals visiting dental clinics during the study period were asked to fill and return the questionnaires immediately, or soon after the visit. Other 35 individuals of the same age range, who had been treated not earlier than three years ago at the Clinic of Prosthodontics, were selected from the clinic files. Every one of them was sent the same questionnaire with a post-age-paid return envelope and short cover page with the request to send back the filled questionnaire in one week. In addition, these individuals were contacted by phone and asked to fill in the questionnaire. The response rate for post-returned questionnaires was 54% (19 subjects). The total final sample of 53 subjects was used for evaluation of the results. Mean age of the respondents was 40.11 years (SD=3.36). Description of the study sample is presented in the Table 1.

Table 2. Description of questionnaire response results

Description of questions/statements and possible answer alternatives	Assessment of invalid response cases
Questions related to the dental visit at University clinic Visit type (new visit; continuing treatment) Visit content (8 alternative treatment procedures) Reason of the visit (6 alternatives – one answer requested) Time of the previous dental before visiting University clinics (4 alternatives)	3 cases: misinterpretation of the question (reason for the visit): several answers instead of one.
Satisfaction with the most recent dental visit Response alternatives according to Likert scale	13 cases: misinterpretation of answer alternatives in Likert scale
Previous dental visiting pattern Frequency and usual reasons of dental visits (3 alternatives) Type of practice (3 alternatives: private, governmental, both) Changes and reasons in dental visiting frequency during past 5 months	No cases of question/answer misinterpretation
Self-reported aspects of dental health and dental appearance Status of dental health and appearance (response alternatives according to Likert scale) Importance of dental health and appearance (response alternatives according to Likert scale) Occurrence of dental symptoms during past 6 months (12 alternatives – multiple answers if needed) Dental discomfort cases during past 12 months (9 alternatives - multiple answers requested if needed) Completed dental treatment (5 alternatives)	4 cases: misinterpretation of answer alternatives in Likert scale. 12 cases: missing answer for a question about dental discomfort, 3 cases: new alternative added 6 cases: misinterpretation of completed dental treatment
Self-reported dental care attitude and knowledge Frequency of tooth brushing (4 alternatives) Inter-dental space cleaning modes (4 alternatives) Frequency of interdental space cleaning (4 alternatives) Concern level of bleeding gums (6 alternatives) Statements related to oral health knowledge (response alternatives according to Likert scale)	3 cases: misinterpretation of answer alternatives in Likert scale.
Dental care satisfaction statements professional competence of the dentist (11 statements), personality of the dentist (13 statements), organization of the dental surgery (15 statements)	10 cases: misinterpretation of answer alternatives in Likert scale.

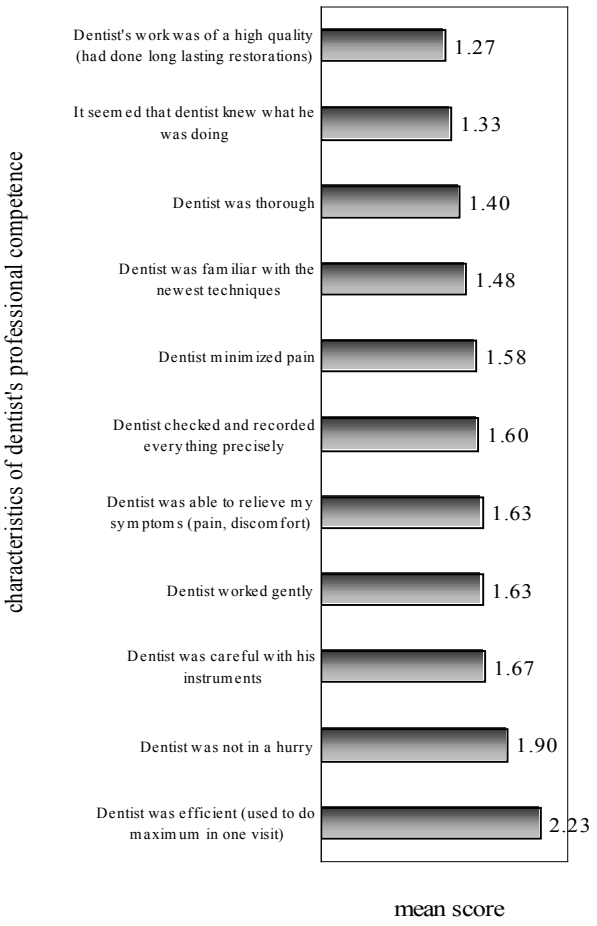


Fig. 1. Evaluation of statements related to professional competence of the dentist

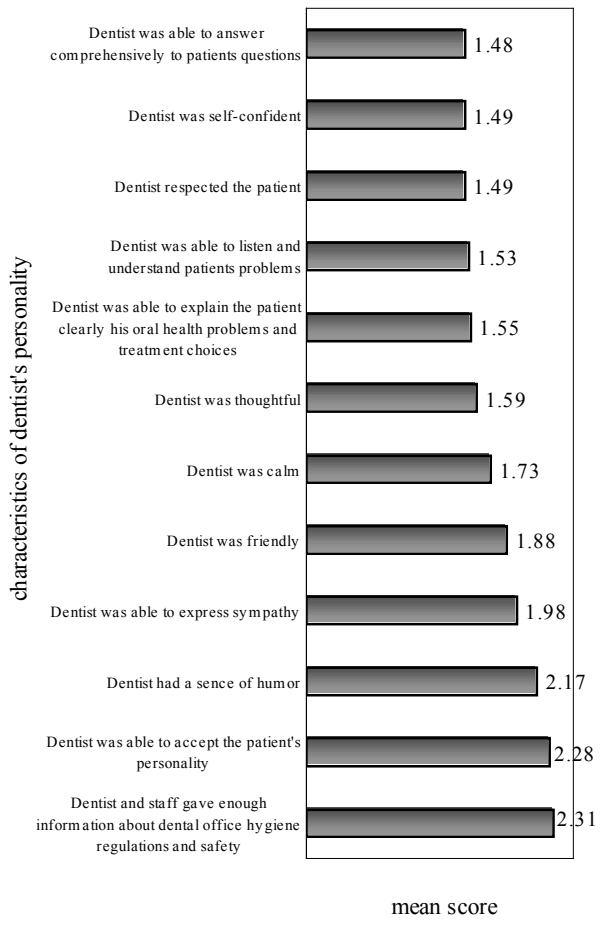


Fig. 2. Evaluation of statements related to characteristics of dentist's personality

The questionnaire comprised two parts.

First part included a total of 47 questions :

- demographic data,
- questions related to the last visit to the dentist
- experience of previous attendance seeking dental treatment,
- self-reported dental health and appearance, symptoms and dental discomfort during past 12 months,
- dental health attitudes and dental health knowledge.

Second part of the questionnaire included dental care satisfaction statements in 3 dimensions:

- professional competence of the dentist (11 statements),
- personality of the dentist (13 statements),
- organization of the dental surgery (15 statements).

Statement choices to define dental care satisfaction were selected from previously used instruments for similar studies in other countries (5, 7, 9, 10, 12, 19).

Statistical analysis: the computer program SPSS (Statistical Package for Social Science, version 10.1) was used for the data analysis. The methods applied were the ^{2} (Pearson) test, independent samples t (Student) test, Fisher test, non parametric Mann-Whitney ("U") test. Correlation analysis was performed Pearson and Spearman correlation coefficients. Responses to the questions related to dental care satisfaction were available within the categories of a modified Likert scale, displayed according to the relative weight of importance (1 – entirely important/ very good; 2 – important/good; 3 – unimportant/bad; 4 – entirely unimportant/very bad). A mean score for every statement was calculated. The values below the mean were considered as relevant to be included in the final questionnaire. Normality of scores distribution was tested using Kolmogorov-Smirnov test. Reliability of instruments scale was measured by reliability coefficient, Cronbach's alfa = 0.7. Factor analysis with rotated component matrix was applied for each dental care dimension to measure category loadings. Extraction method was used for principal component analysis. Varimax with Kaiser Normalization method was used for extracting rotated factor loadings.

RESULTS AND DISCUSSION

Description of the responses to the questionnaire is presented in Table 2.

Analysis of the responses to the questionnaire showed that major difficulties in answering questions were related to using the Likert scale alternatives (Table 2).

Certain parts of the questionnaire (particularly, the questions related to description of dental treatment procedures and oral health status) had cases of misunderstanding, and difficulties in selecting an appropriate answer alternative (Table 2).

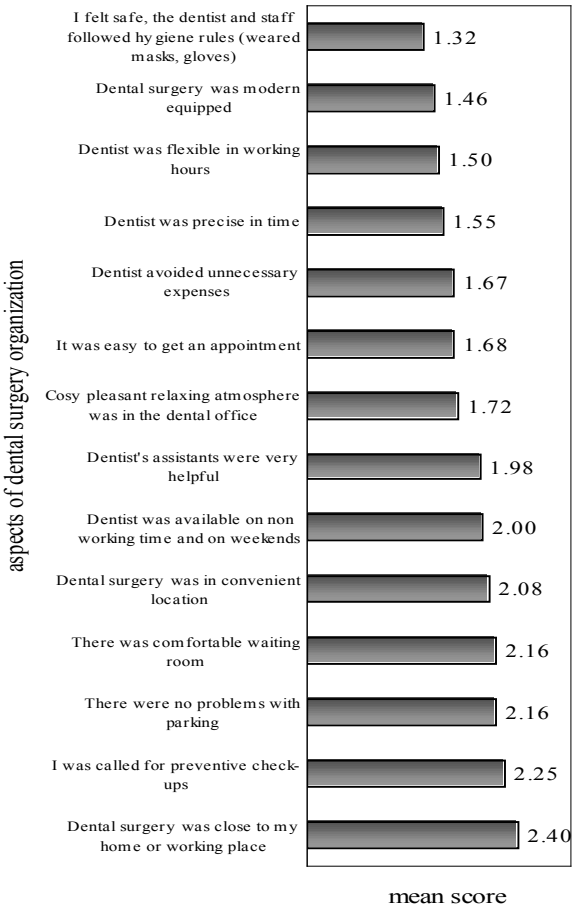
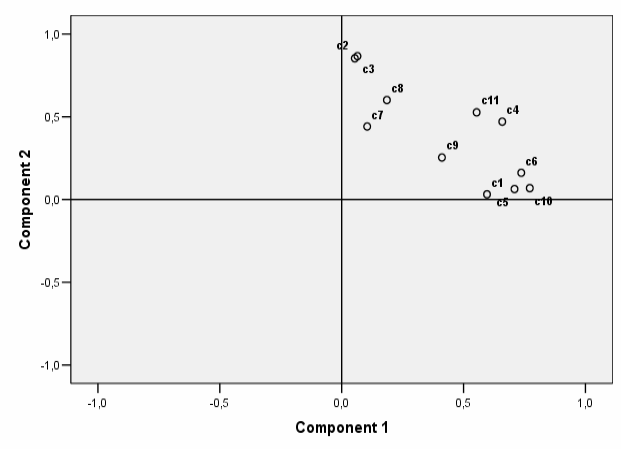


Fig. 3. Evaluation of statements related to organisation of dental surgery



c1 - Dentist was careful during dental examinations
c2 - Dentist was efficient is reducing pain
c3 - Dentist was able to relieve my symptoms (pain, discomfort)
c4 - Dentist was gentle
c5 - Dentist was meticulous
c6 - Dentist was not in a hurry
c7 - Dentist's work was of high quality (long lasting results)
c8 - Dentist was efficient (did a maximum possible during one visit)
c9 - Dentist was confident in what he was doing
c10 - Dentist was familiar with modern techniques
c11 - Dentist was careful with his instruments

Fig. 4. Rotated factor loadings of statements related to professional competence of a dentist

From the analysis of the response results it appears that, apart from simplicity and clarity of the message given in the question, layout of the total questionnaire is important as well. It was useful to group questions by topics so that the respondent was able to understand general sense of the instrument leading him to finish answering completely.

Mean scores of relative importance of characteristics related to dentists' professional competence as reported by the study participants are presented in Figure 1.

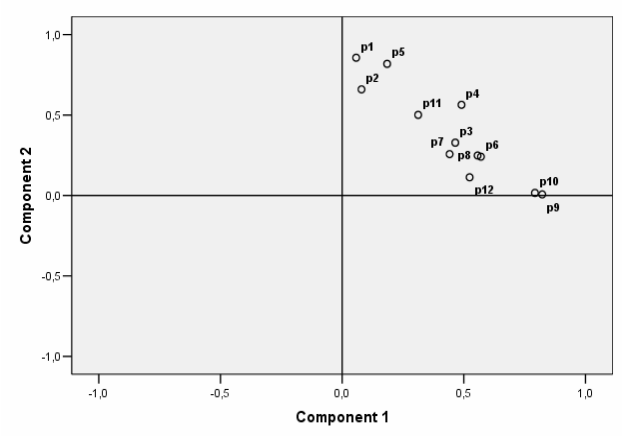
Statements evaluated by lower mean scores were considered to be more important for the patient when assessing dentist's professional competence. From the range of different statements describing dentist's professional competence, the study participants indicated quality of dentist's work ('long lasting results', 'dentist is confident in what he is doing', 'dentist is meticulous') as the most important characteristics (Figure 1). Dentist's knowledge of modern techniques as well as ability to minimise pain also seams to be of great importance for the study participants. The least important characteristic of the professional competence, according to the questionnaire results, appeared to be the time efficiency of the dentist, i.e. execution of maximum procedures in one visit.

Mean scores for relative importance of dentists' personality characteristics, as reported by the study participants are presented in Figure 2.

Analysis of the statements regarding dentists' personality showed that such characteristics as ability to comprehensively answer patient's questions had the lowest mean score of Likert scale, thus appeared to be the most important characteristics for the study participants. Dentist's self-confidence as well as respect and attention showed for the patient were also significantly valued by the study participants. As appears from the results of this study, dental patients don't require detailed information about hygiene regulations and safety from their dentist and dental staff.

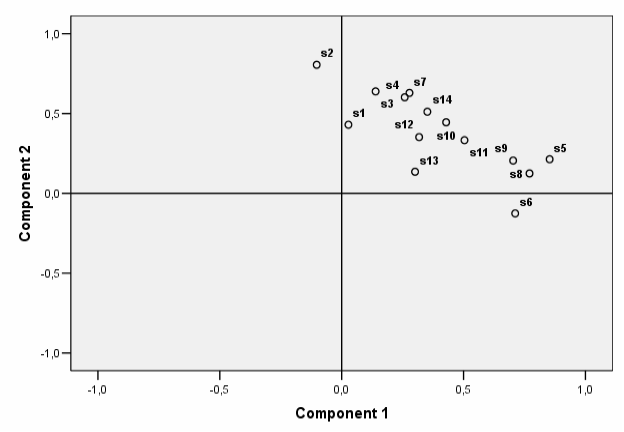
Mean scores of relative importance of different aspects related to dental surgery organization as reported by the study participants are presented in Figure 3.

The most important aspect of dental surgery organization as reported by the study participants was evidence that the dentist and his staff follow common hygiene requirements, i.e. wear protective masks, gloves, and use clean instruments (Figure 3). Other important statements related to organization of dental office were the modern equipment use, flexible working hours and dentists' punctuality in time. Treatment expenses as well as atmosphere of the dental office were highly scored by the study participants as well. Location of the dental office and parking possibility were estimated of lower importance (Figure 3). Surprisingly low importance expressed by study participants was dentists' recall for the preventive check-up.



p1 - Dentist was friendly
p2 - Dentist was calm
p3 - Dentist was thoughtful
p4 - Dentist was able to express sympathy
p5 - Dentist had a sense of humour
p6 - Dentist was self-confident
p7 - Dentist respected the patient
p8 - Dentist was able to listen and understand patients problems
p9 - Dentist was able to answer comprehensively to patients questions
p10 - Dentist was able to explain the patient clearly his oral health problems and treatment choices
p11 - Dentist was able to accept the patient's personality
p12 - Dentist and staff gave enough information about dental office hygiene regulations and safety

Fig. 5. Rotated factor loadings of statements related to characteristics of dentist' personality



s1 - Dental surgery was modern equipped
s2 - There was comfortable waiting room
s3 - Dentist was precise in time
s4 - I was called for preventive check-ups
s5 - It was easy to get an appointment
s6 - Dentist was flexible in working hours
s7 - Dentist's assistants were very helpful
s8 - Dentist was available on non working time and on weekends
s9 - Dental surgery was in convenient location
s10 - There were no problems with parking
s11 - Dental surgery was close to my home or working place
s12 - Dentist avoided unnecessary expenses
s13 - I felt safe, the dentist and staff followed hygiene rules (weared masks, gloves, instruments looked clean)
s14 - Cosy pleasant relaxing atmosphere was in the dental office

Fig. 6. Rotated factor loadings of statements related to aspects of dental surgery organisation

Factor analysis with rotated component matrix was applied for each dimension of dental care satisfaction. Factor loadings for every category are presented in Figure 4 (professional competence), Figure 5 (personality characteristics), Figure 6 (organization of dental surgery).

After evaluation of principal component analysis in rotated matrix as well as of distribution of the mean scores of dental care satisfaction characteristics it was decided to include no more than 8 questions in each dimension to the final version of questionnaire. In case of equal loadings of several statements in the factor analysis, the statement with lower mean score (higher value of importance) was decided to include into final version of questionnaire.

Testing of self-administered questionnaire in order to identify construction defects is highly advisable part of its' development. However, in practice it is often done haphazardly if at all, and there are no generally accepted requirements for pre-testing (8). The self-administered questionnaire requires careful construction, for it alone comes under the respondent's complete control. Size, shape, weight, colour, paper quality, cover design, question order, and layout are important features as well. A matter of concern is overall effect, in particular motivational appeal. Questionnaire should be well organized and easy to complete, each part should be engineered to fit with every other part. Dillman D. A. offered questionnaire testing method which is based several questions which should be evaluated (8). Findings after testing should be evaluated carefully and taken into consideration then developing final version of the questionnaire.

CONCLUSIONS

The use of dental professional terminology in self-administered questionnaire survey should be tested before applying to the study population in order to make sure that it is understood properly by respondents. This phenomenon should be taken into consideration during communication between the dentist and the patient as well.

Very explicit instructions should be given for respondents for every part of a questionnaire.

The final instrument for measuring dental care satisfaction should be formed on the basis of statistical evaluation of relative importance and comparative load of different question/statements to be included in the questionnaire.

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