International Journal of Medical and Health Research
ISSN: 2454-9142
Received: 24-01-2019; Accepted: 15-03-2019
www.medicalsciencejournal.com
Volume 5; Issue 4; April 2019; Page No. 90-95

Designing and evaluating a questionnaire for assessing job satisfaction of dentists

RezaEmrani[1], Hossein Hessari[2], Ahmad Jafari[3]

[1] DDS, PhD Candidate, Department of Community Oral Health, School of Dentistry, Tehran University of Medical Science, Tehran, Iran

[2] Assistant Professor, Research Center for Caries Prevention, Dentistry Research Institute, Department of Community Oral Health, School of Dentistry, Tehran University of Medical Sciences, Tehran, Iran

[3] Assistant Professor, Research Center for Caries Prevention, Dentistry Research Institute, School of Dentistry, Department of Community Oral Health, School of Dentistry, Tehran University of Medical, Sciences, Tehran, Iran

Abstract

Aims and Objectives: The purpose of this study was to design a standard questionnaire for assessing job satisfaction of dentists.

Materials and Methods: In order to prepare the questions bank, we reviewed the available resources related to the subject and determined the validity of the appearance and validity of the content, the questionnaire was reviewed by the experts. To examine reliability, Cronbach's alpha coefficient calculated, and for validity, Content Validity Index (CVI) Content Validity Ratio (CVR), and Inter-Class Correlation (ICC) coefficient was reported.

Result: The questionnaire had 12 domains: Income, Sense of sympathy and altruism, social respectful, work Independence, Communication with colleagues, staff and patients, work skills, workload, self-satisfaction, Feel the ability, Environment of Workplace, Stress. The questionnaire was designed in 47 questions. The Cronbach's alpha coefficient was 0.813. CVI and CVR for all questions were estimated between 25 -75% and 80-95% respectively. The ICC was calculated at two times equal to 0.97 ($p < 0.001$).

Conclusion: Considering the use of standard techniques for designing the research tools and the results on validity and reliability indices, it seems that this questionnaire could be used as a reliable tool for determining the job satisfaction of dentists.

Keywords: dentist, job satisfaction, questionnaire

Introduction

Job satisfaction may be defined as a person's attitude toward his job. Individuals who experience high levels of Job satisfaction are more likely to hold positive attitudes toward their job, whereas those with low levels of satisfaction are more likely to hold negative attitudes about their job. Job satisfaction is a complex set of interrelationships of tasks, roles, responsibilities, interactions, incentives, and rewards [1, 2].

Job satisfaction can be defined as people's outlook on their job. Job satisfaction is the indicator that may have an influence on career longevity. Job satisfaction is a strong predictor of individual happiness; it can also persuade an individual's decision to leave a profession. It has been Reported that change in the work environment may increase the career longevity of dentists [3, 4].

Today, dentistry is an attractive but not very easy profession. The dominant perception of the community is that dentistry is a high-income and luxury manual profession; therefore, according to the public perception, this profession can provide satisfaction and comfort. However, dentistry is considered as a demanding and difficult profession [5].

Therefore, dentistry is classified as a stressful profession. Excess stress may put an early end to the professional life of dentists. Financial concerns, anxious and sensitive patients, employment issues, resource constraints, poor working conditions, and repetitive nature of their work are common stressors for dentists [6, 7]. Dentists are exposed to a variety of occupational risk factors, such as infectious and orthopaedic diseases, which greatly affect their general health. Small work environment, special social relationships between dentists and patients, exposure to personal and private affairs, sensitive human relationships, personal characteristics, and dentists' and patient' emotions are only some of these particular situations [8]. What makes it difficult to measure job satisfaction is that it may be satisfactory from some aspects, but, unsatisfactory from some other aspects. As a result, in the majority of job satisfaction assessments, some factors known as occupational aspects are considered in the evaluation of certain elements involved in job satisfaction [9-11].

To improve the dentists' job satisfaction, the role of various elements such as the social reputation, position in the society, and many other factors of daily life are important. Job satisfaction is the most important factor for a practitioner. Satisfaction produces happiness, motivation, creation, and skills. Knowledge on dentists' job satisfaction and the effect of environmental factors on it are very important. In this regard, questionnaire is the main tool for assessment of job satisfaction [12].

The factors that should be considered in designing such questionnaires include introducing the general purpose at the beginning of the questionnaire, attention to the rational

course of questions, starting with general questions, considering control questions, lack of orientation in questions, using words that are clear to all people, using simple questions in the form of tables, determining the location of coding in questions, attention to the time required for completing the questionnaire, and validity and reliability of the questionnaire [13].

Due to the lack of a standard questionnaire for assessing job satisfaction of dentists, the purpose of this study was to design a standard questionnaire for assessment of job satisfaction of dentists and to determine its validity and reliability.

Method and Materials

This descriptive analytical study was conducted to design a questionnaire. The samples were selected purposively. This study was approved by the Ethics Committee, School of Dentistry, Tehran University of Medical Sciences (letter number 42794260). The study population included experts (one sociologist, one psychologist, one epidemiologist, and five faculty members).

This study had an observational design (assessment of the validity and reliability of a diagnostic test). Therefore, the words job satisfaction, dentistry, questionnaire designing, and factors affecting dentistry were used for literature review. Based on the available literature, all questions related to the dentists' job and occupational satisfaction were gathered. Finally, the questions were selected from two questionnaires, one from England and another from Australia and some questions were added to the final questionnaire. Then, questions first divided to either affecting factors or satisfaction questions, then categorized according to the categories in valid questionnaires. In this regard, similar questions were merged, and if the questions were not similar enough to be merged, both questions were included. If a topic was not mentioned in the collected questions, a new question(s) was offered. On the other hand, the form of the questions might have a marked effect on a logical and real answer. Therefore, the selected questions tried to have characteristics such as being as short as possible, being related to the research topic, lack of ambiguity, and lack of negative verbs in their structure due to its effect on the interpretation of the answer. Moreover, the designed questions only had one part, since it is difficult to answer and interpret questions containing two or more parts. The selected questions formed our primary job satisfaction questionnaire.

A questionnaire was then prepared to evaluate the reliability of primary questionnaire. The questionnaire assessed the necessity (3 scales), relevance (4 scales), clarity (4 scales), and simplicity (4 scales) of the questions in the primary questionnaire contained the parts that examined the variables based on their priority. Finally, all of the indicators (142 questions) that could be helpful in assessing job satisfaction among dentists were included in the questionnaire.

To assess the questions and their relevance to the topic, the draft of the questionnaire was evaluated by eight experts (including a sociologist, a psychologist, an epidemiologist, and five professors in the Faculty of Dentistry), and the final selection of the questions was done according to the experts' opinions. The experts evaluated the questions from four aspects of necessity, relevance, clarity, and simplicity. Then, CVR (Content Validity Ratio) was calculated (Figure 1) for all 142 questions.

Thirteen questions with a CVR between 1 and 0.75 were selected, and 2 questions having a CVR between -1 and -0.75 were rejected. Questions with a CVR between 0.5 and -0.5 were (n=127) again forwarded to experts to be re-evaluated in terms of necessity. Then, 20 lay dentists familiar with questionnaire designing process completed the questionnaire and expressed their views on the questions. The questionnaire finalized after applying their comments. Our sample size was 8 experts, 20 lay persons and 20 dentists. The final questionnaire was designed in 47 questions in 12 domains and was distributed among 20 dentists. Determining the number of experts has always been partly arbitrary. At least five people are recommended to have sufficient control over chance agreement. The maximum number of judges has not been determined yet; however, it is unlikely that more than ten people are used, but it should be noted as the number of experts increase, the probability of chance agreement decreases [14]. The Domains were: Income, Sense of sympathy and altruism, social respectful, work Independence, Communication with colleagues, staff and patients, work skills, workload, self-satisfaction, Feel the ability, Environment of Workplace, Stress. They completed the final questionnaire and expressed their views on the questions. In the first step, they examined them in two directions: clarity and simplicity. In order to determine the reliability, the questionnaire was given to them for a second time and the results were used to determine the reliability and to measure the Cronbach's alpha coefficient. In the next phase, questions with a CVR of -0.5 to 0.5 were assessed by 20 lay persons (general dental practitioners) who were familiar with questionnaire designing process. In this stage, the questions were assessed in terms of clarity and simplicity, and the weight of the questions was determined out of 10. Then, the dentists marked their agreement or disagreement with each question considering their current occupational status.

After selecting a number of highly valid questions in terms of form, the validity and reliability of the content were determined. For reliability testing, the dentists were asked to determine the weight of each domain affecting satisfaction out of 0-10 scores and state their agreement or disagreement with each domain considering their current occupational status. The total score of the 12 domains was 120 with a maximum of 100%.

In order to measure the validity of the questionnaire, the CVI and CVR were calculated and reported. To calculate the Content Validity Index (CVI), the opinions of experts in this field were used. After explaining the objectives of the test and providing definitions related to the content of the questions, they were asked to rate each question using a three-point Likert scale as "necessary", "useful, but not necessary," and "unnecessary". This indicator was calculated according to the formula presented in Figure 1, and the minimum acceptable CVR was determined based on the number of specialists who answered the questions.

CVI was calculated according to the formula in Figure 2. The experts determined "relevance", "clarity", and "simplicity" of each item using a 4-point Likert scale (for relevance: 1= not relevant, 2= relatively relevant, 3= relevant, 4= highly relevant; for simplicity: 1= not simple, 2= relatively simple, 3= simple, 4= very simple; for clarity: 1= not clear, 2= relatively clear, 3= clear, 4= very clear). The minimum acceptable CVI was 0.79. If the CVI was

below 0.79, the item was deleted.
Reliability was obtained with Cornbrash's Alpha coefficient and Interclass Correlation Coefficient (ICC). The amount of agreement and the amount of KAPPA statistics were determined and reported for each of the Questions. Data were analysed by SPSS software (Version 21).

Results

The results of the responses of 20 dentists for assessment of repeatability using the Kappa coefficient as well as the percentage of agreement are presented in Table 1. The minimum and maximum ICC was 0.77 and 0.98, respectively. The ICC of the questions (considering the similar weights for all questions) was calculated twice, which was 0.97 ($p < 0.001$). The Average Cornbrash's alpha coefficient of the reliability (repeatability) of the dentists' responses was 0.813. To calculate the scale-level content validity index (S-CVI), the total number of questions identified as desirable by all qualified specialists was divided by the total number of questions (table 2). To calculate the item-level CVI (I-CVI), the total number of specialists who recognized the relevance, simplicity, and clarity of each question as desirable or completely desirable was divided by the total number of specialists. All questions were weighted similarly in all areas, but we did not assign the same weight to the 12 domains for the total score of job satisfaction. Therefore, the contribution of each domain in the overall score was based on its weight.

Discussion

The present study was conducted to design a standard questionnaire to assess the job satisfaction of dentists in Iran. The number of questions in the proposed questionnaire was 47, and the average reliability coefficient was 0.813. The content validity index of all questions was 90% in most cases and 85% in some cases. One the strength of our study was to use a combination of experts and practitioners to increase credit. Also, different indicators were used to measure the accuracy of the questionnaire design.
Designing a questionnaire using the content validity process was one of the strengths of this research. We assessed the content validity of the tool to reduce the need for correction and revision, decrease the number of sources required for revision, and increase the likelihood of achieving an acceptable reliability and validity. The importance of content validity in designing a questionnaire is not limited to achieving acceptable content validity indexes (relevance, clarity, and comprehensiveness). In addition to the above, which are absolutely necessary for each tool designed, improvement of the instrument's reliability indicators and reducing the number of resources required to produce a good questionnaire are advantages that cannot be simply overlooked. Our limitation in this study was the lack of similar study in Persian language, so we had to search only in English. If there was a Persian version we could see more cultural and social similarities.
Job satisfaction is a very subjective concept and a dynamic process that is related to the lifestyle, expectations, personal experiences, and individual, social, and cultural values. On the other hand, tools and questionnaires used to measure job satisfaction in a community or a job may not be sufficiently precise to estimate it in another society or in another job. Moreover, some studies have evaluated the job satisfaction of dentists and faculty members of dental colleges in the country, but no standard questionnaire has been designed to assess the job satisfaction of freelance dental practitioners. Therefore, there was a need for designing a specific questionnaire in this regard.
Different studies have reported contradictory results about the dentists' job satisfaction. Jong *et al*. (2006) studied job satisfaction of South Korean dentists and reported that the half of participants (51%) had modest views about their job satisfaction [15].
Kiap *et al* (2015) also reported a score of 3.18 out of 5 for job satisfaction of dentists in Srikakulam region, India The study was conducted among 66 registered dentists in Srikakulam, India. Job satisfaction was measured by using a modified version of the Dentists Satisfaction Survey questionnaire [16].
The results of our study were similar to the study by Michel Crosatowo *et al*. (2014) in Brazil, and 605 Brazilian dental practitioners were interviewed by the Sheffield Compliance Questionnaire. In Sao Paulo, dental care was measured by using a modified version of the job satisfaction questionnaire for dentists. Based on Dentists' responses to 29 self-help options were obtained using a 5-point Likert scale. The options were translated into Portuguese and compared to the original English version after being translated into English. The amount of internal reciprocity and validity of the questionnaire were calculated and according to the results of the research, the final job satisfaction score was 2.86 out of 5 points in the Likert criterion, and the Cronbach's alpha coefficient was 0.83, indicating good internal reproducibility and homogeneity of the options [17].
Differences in the results of job satisfaction among dentists in different studies can be related to the diversity and heterogeneity of dentist groups that are selected from different social backgrounds. All of the above studies were performed on dentists, but cultural differences led to different responses to satisfaction questionnaires, indicating different perceptions among the dentists about various aspects of job satisfaction. Moreover, most of the methods of reliability testing place emphasis on repeating a test or performing more than one type of tool. However, the main problem is that the researcher is not able to repeat the test or perform similar tests in most cases. It is often impossible to conduct a double test or use two tools.
Hence, in this research, internal consistency assessment methods were used that the researcher examines a tool (in our questionnaire) in a group of testers. To show the level of reliability, one of these indicators is the Cornbrash's alpha coefficient. A Cornbrash's alpha coefficient higher than 0.7 indicates the acceptable reliability of the tool; however, Nunnally and Bernstein (1994) reported a minimum Cornbrash's alpha coefficient of 0.6 for acceptable reliability [18].
The degree of inter-rater agreement (IRA) was calculated and reported using the less conservative approach. IRA reflects the degree of agreement between the experts participating in the research about the relevance, simplicity, and clarity of the tool. Many texts recommend 70% agreement, and some texts 80% agreement, as the minimum acceptable inter-rater agreement, and in this case, there is no need for revision [19].
In the present study, the content validity of all questions was also calculated, which was 90% in most cases and 85% in some case, indicating the acceptable content validity of the

designed tool.

In future studies, the use of a questionnaire designed to determine the job satisfaction of dentists along with other instructors and dental practitioners such as dental therapist or hygienist is also necessary. It also seems that the study is necessary to determine the degree of occupational satisfaction of dentists at different time intervals in order to update the information.

Table 1: Kappa coefficients and percentage of agreements in the repeatability of questionnaire

Question	Level of agreement (%)	Kappa coefficient (%)	ICC	p-value
1	90	86	0.95	P< 0.001
2	85	75	0.87	P< 0.001
3	90	84	0.95	P< 0.001
4	85	85	0.95	P< 0.001
5	80	80	0.78	P< 0.001
6	90	80	0.95	P< 0.001
7	90	72	0.96	P< 0.001
8	90	82	0.87	P< 0.001
9	85	66	0.83	P< 0.001
10	85	78	0.93	P< 0.001
11	85	79	0.93	P< 0.001
12	85	79	0.93	P< 0.001
13	90	83	0.95	P< 0.001
14	90	80	0.88	P< 0.001
15	85	78	0.86	P< 0.001
16	90	86	0.93	P< 0.001
17	90	86	0.96	P< 0.001
18	90	85	0.94	P< 0.001
19	85	76	0.94	P< 0.001
20	85	85	0.88	P< 0.001
21	90	85	0.95	P< 0.001
22	95	93	0.93	P< 0.001
23	90	87	0.98	P< 0.001
24	90	85	0.97	P< 0.001
25	90	85	0.95	P< 0.001
26	90	86	0.93	P< 0.001
27	85	74	0.94	P< 0.001
28	85	80	0.88	P< 0.001
29	90	87	0.96	P< 0.001
30	90	83	0.97	P< 0.001
31	90	85	0.89	P< 0.001
32	90	84	0.95	P< 0.001
33	90	84	0.94	P< 0.001
34	90	85	0.95	P< 0.001
35	85	73	0.94	P< 0.001
36	85	82	0.84	P< 0.001
37	85	77	0.86	P< 0.001
38	90	86	0.86	P< 0.001
39	90	86	0.94	P< 0.001
40	90	83	0.95	P< 0.001
41	90	77	0.89	P< 0.001
42	85	83	0.77	P< 0.001
43	90	76	0.89	P< 0.001
44	85	81	0.87	P< 0.001
45	90	75	0.94	P< 0.001
46	90	83	0.79	P< 0.001
47	90	74	0.92	P< 0.001

ICC: Inter-class Correlation Coefficient

Table 2: The values obtained of IRA_70% and S-CVI for each area

		IRA_70%	S-CVI (Universal agreement)	S-CVI (Average I-CVIs)
income	Relevancy	0.5	0.25	0.68
	Clarity	0.5	0.25	0.71
	Simplicity	0.5	0.25	0.75
Sense of sympathy and altruism	Relevancy	0.5	0.25	0.71
	Clarity	1	0.5	0.9
	Simplicity	1	0.5	0.9

Social respect	Relevancy	0.5	0	0.87
	Clarity	1	0	0.87
	Simplicity	0.5	0	0.75
independence	Relevancy	1	0	0.7
	Clarity	1	0	0.62
	Simplicity	1	0	0.64
Communication with colleagues staff and patients	Relevancy	0.5	0	0.73
	Clarity	0	0	0.75
	Simplicity	0	0	0.69
skill	Relevancy	0.5	0	0.75
	Clarity	0.5	0	0.7
	Simplicity	0.5	0	0.72
Equipment and facilities	Relevancy	0	0	0.78
	Clarity	1	0	0.87
	Simplicity	1	0	0.84
workload	Relevancy	1	0	0.85
	Clarity	1	0	0.87
	Simplicity	1	0	0.87
Inner satisfaction	Relevancy	1	0.5	0.78
	Clarity	1	1	0.79
	Simplicity	1	1	0.79
Sense of ability	Relevancy	0.5	0	0.64
	Clarity	0.5	0	0.64
	Simplicity	0.5	0	0.64
Work Environment	Relevancy	0	0	0.62
	Clarity	0	0	0.7
	Simplicity	0	0	0.62
Overall satisfaction	Relevancy	0	0	0.77
	Clarity	0	0	0.73
	Simplicity	0	0	0.73
Work environment characteristics (equipment and resources)	Relevancy	1	0.5	0.87
	Clarity	1	0.5	0.86
	Simplicity	0.5	0.5	0.8
	Clarity	1	0.5	0.87
	Simplicity	0.5	0.5	0.81
	Clarity	1	0.75	0.93
	Simplicity	1	0.25	0.87
Work ethic	Relevancy	0.5	0.5	0.83
	Clarity	1	0	0.83
	Simplicity	1	0	0.75
Relationship with colleagues and staff	Relevancy	1	0.5	0.91
	Clarity	0.5	0.5	0.83
	Simplicity	0.5	0	0.7
Relationship with patients	Relevancy	0.5	0.5	0.76
	Clarity	1	1	0.81
	Simplicity	1	1	0.82
Problems during work	Relevancy	1	0.5	0.91
	Clarity	1	0.5	0.91
	Simplicity	1	0.5	0.91
Executive responsibilities	Relevancy	0.5	0	0.68
	Clarity	1	0	0.75
	Simplicity	0.5	0	0.68
Feeling ability and confidence	Relevancy	1	0.5	0.9
	Clarity	1	1	0.95
	Simplicity	1	1	0.95
Job satisfaction	Relevancy	1	0	0.91
	Clarity	0	0	0.9
	Simplicity	0	0	0.83
Reasons for choosing dentistry	Relevancy	0.5	0.5	0.95
	Clarity	1	0.5	0.97
	Simplicity	1	0.5	0.97

$$CVR_{=} \frac{(Total\ number\ of\ specialists)/2 - Number\ of\ specialists\ who\ chose\ the\ necessary\ option}{total\ number\ of\ specialists/2}$$

Fig 1: CVR calculation formula

$$CVI = \frac{Number\ of\ specialists\ who\ scored\ 3\ and\ 4}{Total\ number\ of\ specialists}$$

Fig 2: Formula for calculating CV

Conclusion

In this research, a standard questionnaire was designed to determine the job satisfaction of dentists. In general, considering the use of standard techniques for designing the research questionnaire and the results of the validity and reliability of the tool, this instrument can be safely used as a valid and reliable one to determine the job satisfaction of dentists.

References

1. Pau A, Sabri BA. Relationship between emotional intelligence and job satisfaction in newly qualified Malaysian dentists. Asia Pacific Journal of Public Health. 2015; 27(2): p. NP1733-NP1741.
2. Khamisa N. *et al.,* Work related stress, burnout, job satisfaction and general health of nurses. International journal of environmental research and public health. 2015; 12(1):652-666.
3. Gupta D. *et al*., Is Complementary and Alternative Medicine Effective in Job Satisfaction Among Dentists With Musculoskeletal Disorders? A Cross Sectional Study/Czy Medycyna Komplementarna I Alternatywna Ma Wplyw Na Satysfakcje Zawodowa Dentystów Z Zaburzeniami Miesniowo-Szkieletowymi? Badanie Przekrojowe. Medycyna pracy. 2014; 65(3):317.
4. Adriaenssens J, De Gucht V, Maes S. Determinants and prevalence of burnout in emergency nurses: a systematic review of 25 years of research. International journal of nursing studies. 2015; 52(2):649-661.
5. Wilson R. *et al.,* Perceived sources of occupational stress in general dental practitioners. British dental journal. 1998; 184(10):499.
6. Chang WJ, Chang YH. Patient satisfaction analysis: Identifying key drivers and enhancing service quality of dental care. Journal of Dental Sciences. 2013; 8(3):239-247.
7. Cooper C, Watts J, Kelly M. Job satisfaction, mental health, and job stressors among general dental practitioners in the UK. British dental journal. 1987; 162(2):77-81.
8. Lee KT. *et al.,* Patient satisfaction with the quality of dental treatment provided by interns. Journal of Dental Sciences. 2013; 8(2):177-183.
9. Lacy FJ, Sheehan BA. Job satisfaction among academic staff: An international perspective. Higher education. 1997; 34(3):305-322.
10. Squires JE. *et al.,* Job satisfaction among care aides in residential long-term care: a systematic review of contributing factors, both individual and organizational. Nursing research and practice, 2015-2015.
11. Han K, Trinkoff AM, Gurses AP. Work-related factors, job satisfaction and intent to leave the current job among United States nurses. Journal of clinical nursing. 2015; 24(21-22):3224-3232.
12. Logan H, *et al*., Contributors to dentists' job satisfaction and quality of life. The Journal of the American College of Dentists. 1997; 64(4):39-43.
13. Osivand S. *et al.,* Principles of Questionnaire Designing in Medical Science'Studies. Tehran: Pejhvake Elme Aria, 2010, 148.
14. Zamanzadeh V. *et al.,* Design and implementation content validity study: development of an instrument for measuring patient-centered communication. Journal of caring sciences. 2015; 4(2):165.
15. Jeong SH. *et al*., Factors related to job satisfaction among South Korean dentists. Community dentistry and oral epidemiology. 2006; 34(6):460-466.
16. Kaipa S. *et al*., Career satisfaction among dental practitioners in Srikakulam, India. Journal of International Society of Preventive & Community Dentistry. 2015; 5(1):40.
17. Michel-Crosato E. *et al.,* Translation and validation of the Brazilian version of the Dentist Satisfaction Survey. Clinical and Laboratorial Research in Dentistry. 2014; 20(4):234-243.
18. Senne OW. Exploring relationships amongst restructuring, work engagement and psychological safety of retained employees, North-West University (South Africa), Potchefstroom Campus, 2016.
19. Coomber B, Barriball KL. Impact of job satisfaction components on intent to leave and turnover for hospital-based nurses: a review of the research literature. International journal of nursing studies. 2007; 44(2):297-314.