Original Article

Dental Consultation Communication Checklist: Translation and Validation of the Persian Version

A. Pakdaman [1], R. Ahmadpour [2], M. Serajzadeh [3].

[1] 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
[2] Dentist, Private Office, Karaj, Iran
[3] Dentist, Private Office, Tehran, Iran

Abstract

Background and Aim: Attention to proper communication with patients in dental setting is important in the quality of care. The purpose of the present study was to translate the Dental Consultation Communication Checklist (DCCC) to Persian and validate the Persian version.

Materials and Methods: In this descriptive analytical study, the standard 'forward-backward' method was used to translate the English version of the checklist to Persian. Face and content validity were assessed and the reliability was scored by calculating the intra-class correlation coefficient (ICC) and Cronbach's alpha. A number of 4th, 5th and 6th year dental students completed the checklist. The mean score in each domain was calculated and compared using one way ANOVA test.

Results: Of 245 dental students, 83% responded (n=204). The content validity index (CVI) was 0.83 and 0.93 for the appropriateness and clarity, respectively. Reliability analysis showed satisfactory result (ICC=0.86, Cronbach's alpha=0.89). The self-reported positive response to question "I introduced myself and explained my role" was weak compared to all other questions. There was no statistically significant difference in the scores obtained by the three groups of dental students.

Conclusion: The Persian version of DCCC is a valid and reliable instrument for use in the clinical setting.

Key Words: Communication Dental Care, Validation Studies, Oral Health

➢ **Cite this article as:** A. Pakdaman A, Ahmadpour R, Serajzadeh M. Dental Consultation Communication Checklist: Translation and Validation of the Persian Version. J Islam Dent Assoc Iran. 2015; 27(4):173-181.

Corresponding author: A. Pakdaman, 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

Pakdaman@sina.tums.ac.ir

Received: 3 Jul 2015
Accepted: 21 Sep 2015

Introduction

Communication skills is an important component of social interaction and is the cornerstone of human development and relations. Communication skills help individuals to better express their emotions and needs and achieve their social goals. In medical and dental education, there have been some recent changes in instruction and education of communication skills in the practice, and the curricula have been shifted from purely theoretical topics to practical guides on social and communication skills along with clinical proficiency. At present, social and communication skills are among the important criteria taken into account by patients when judging the expertise and proficiency of physicians, dentists and health care personnel [1].

Dental and medical students must learn how to attract patients' trust and fulfill their needs in relation to communication skills. As dental patients are often anxious, a successful dental treatment partly depends on establishing an efficient communication with patients. Moreover, dental patients might have concerns about the transmission of infectious diseases such as acquired immunodeficiency syndrome and hepatitis, and it is important to reassure patients about compliance with infection control measures

and guidelines. Verbal and non-verbal communication and facial expressions are also important in reassuring the patients, and efficient communication skills such as mutual respect, sympathy with patient, asking open questions, active listening and use of words easily understandable by patients can effectively enhance taking a medical history and increase patient satisfaction [2,3].

Establishing good communication is the first step in earning patient's trust and leads to a suitable patient-clinician interaction decreases the anxiety and stress in the course of treatment and eventually results in successful management of patient. On the other hand, a survey on graduate dentists on acquiring professional and social skills via dental curricula reported that less than 30% of dentists believed that they learned adequate communication skills during their dental education [4]. Evidence shows the importance of instruction of communication skills in dental schools; although there is doubt about the efficacy and assessment of the quality of this instruction. A review article by Carey et al, in 2010 reported the use of different instruments for assessment of communication skills [5]. Use of a standard patient, checklists, viewing vide-taped performance of students and receiving feedbacks are common methods for such assessments in dentistry. Assessment of the performance of students with regard to their communication skills was first suggested by Theaker et al, in 2000 and an instrument was developed to be used in dental setting called DCCC [6], which was later used in the Netherlands [5]. This instrument has been used in the clinical setting as a valid and reliable tool [6]. The purpose of the present study was to translate the DCCC to Farsi and assess the validity and reliability of its Farsi version.

Materials and Methods

This descriptive analytical study was conducted to translate the DCCC to Persian and validate it. The original English version of the checklist was first translated to Persian by the first author, who was proficient in English using forward-backward translation method [7]. The translated version was then given to two other dentists, who were also proficient in English and had not read the original version. They were asked to separately translate the Persian version to English. A session was held with a third person and the English versions were combined to draft the final English version considering the comments of dental clinicians. This version was compared with the original English version and ambiguities were discussed. Questions were assessed during several sessions and a final Persian version was prepared after changing the ambiguous words.

Face validity of the checklist, which included the writing style, grammatical points, integration and appearance was assessed by two experts and confirmed. For content validity of the Farsi version, the Farsi version of DCCC was evaluated by six experts including one psychologist (who held a Master's degree in psychology and communication skills), two epidemiologists and three dental clinicians. Each question was scored in terms of appropriateness using a four-point scale (4: completely appropriate to 1: completely inappropriate). Also, each question was scored in terms of clarity using the same scoring system. To determine the content validity, the CVI was calculated for each question. The ratio of responses with the highest scores (scores 3 and 4) was calculated.

In the pilot study, in order to assess the reliability of the instrument, the checklist was filled out by 15 students twice and the reliability indices including the internal consistency coefficient (Cronbach's alpha) and ICC were calculated. According to the opinions of the experts, the responses, which were based on a 7-point Likert scale were revised and converted to a 5-point Likert scale. Since the checklist was self-reported, verbs were mentioned as first person singular form based on previous studies [8-10].

Following the initial validity and reliability assessment of the instrument, the Farsi version of the checklist was filled out by all dental students of Tehran University of Medical Sciences, School of Dentistry who had taken clinical courses (4^{th}, 5^{th} and 6^{th} year dental students).

After obtaining consent, the checklist was distributed to the 4^{th}, 5^{th} and 6^{th} year dental students after they were verbally briefed in this respect. Considering the recent inclusion of a communication skills course in dental curriculum

of the university, the checklist was filled out by students prior to their participation in the course.
The checklist included five domains as follows:
Introduction and greeting (five questions), taking medial history (12 questions), clinical examination (eight questions), closure (three questions) and patient (three questions). The first four domains were related to dental students and the last domain was related to patient, which were included in the preliminary version of the checklist. The percentage of self-reported response to questions in different domains was calculated using a Likert scale from the lowest (1) to highest (5) score. The data were analyzed using SPSS version 16. The Cronbach's alpha for each domain was calculated. The mean scores of the domains were compared using one way ANOVA test. The mean and standard deviation of the self-reported response score to different questions of DCCC were calculated, and the effect of demographic factors on the scores was analyzed using linear regression analysis.

Results

(A)Reliability and validity of the Persian version: The CVI for the appropriateness and clarity of all questions was found to be 0.83 and 0.93, respectively (Table 1). The Cronbach's alpha was calculated to assess the internal consistency of the checklist, which was found to be 0.89 in total; this value was 0.88 for males and 0.9 for females, which indicated a favorable result. The ICC was calculated to be 0.86, which indicated favorable reliability of the questionnaire.
(B)Descriptive findings: Of a total of 245 dental students, 204 responded (83% response rate); out of which, 65% were females. Over 95% of the respondents had not received any communication skills training. Of all, 33% were in their 6th year of dental education with a mean age of 23.8 years, 34% were in their 5th year of dental education with a mean age of 22.8 years and 33% were in their 4th year of dental education with a mean age of 21.5 years. Table 2 summarizes the demographic information of dental students.
The highest mean score in the introduction domain was acquired by the 5th year dental students (out of a total of 25 scores). However, the difference in this regard among the three groups of dental students was not significant (P>0.05). Scores 4 and 5 had the lowest frequency for question 3 in this domain "I introduced myself and explained my role" with 25.8%, 34.3% and 22.1% of 4th, 5th and 6th year dental students giving high scores (scores 4 and 5) to this question, respectively. In medical history domain, the lowest response rate belonged to question 7 "use probing/follow-up questions" with 1.8%, 37.28% and 34.1% of 4th, 5th and 6th year dental students positively responding to this question, respectively. The frequency of high scores (scores 4 and 5) allocated to question 6 "open questions" was 9.9%, 42.40% and 35.3% by 4th, 5th and 6th year dental students, respectively. More than 50% of dental students in all three groups gave scores 4 and 5 to questions in the "clinical examination" domain. In the "closure" domain, less than 50% of dental students gave scores 4 and 5 to question #26 "clearly signal ending of consultation" and question #27 "invite outstanding questions and concerns". In the "patient" domain, more than 60% of students in the three groups gave scores 4 and 5 to questions in this domain.
The mean acquired score and the Cronbach's alpha for each domain are presented in Table 3. According to ANOVA, no significant difference was noted in terms of total DCCC score in "introduction" (P=0.68), "taking medical history" (P=0.25), "medical examination" (P=0.09) or "closure" (P=0.92) domains among the three groups of dental students. Assessment of the effect of demographic factors on the total score showed that none of the demographic variables (such as academic year) significantly affected the total acquired score (Table 4).

Discussion

The results of this study on the self-reported communication skills of dental students using DCCC showed that the Persian version of the checklist had favorable face validity, content validity, internal consistency and reliability for assessment of communication skills of dental students. More than half the respondents were females. Most dental students were single and had not participated in any communication skills training course. Sixth year dental students gave higher self-reported scores (4 and 5) to different

questions of DCCC and had higher communication skills; although this difference was not statistically significant.

Several instruments have been introduced for

Table 1. Demographic information of dental students participating in the study (n=204)

Variables	Levels	Number	Percentage
Academic year	**Fourth year**	66	32.35
	Fifth year	70	34.31
	Sixth year	68	33.34
	Total	204	100
Sex	**Female**	133	65.2
	Male	69	33/8
	No response	2	1
	Total	204	100
Previous participation in social skills training course	**Yes**	5	2.5
	No	198	97
	No response	1	0.5
	Total	204	100
Previous participation in psychology course	**Yes**	10	4.9
	No	193	94.6
	No response	1	0.5
	Total	204	100
Marital status	**Married**	31	15.2
	Single	172	84.3
	No response	1	0.5
	Total	204	100
Mean age (standard deviation)		22.7(1.2)	

Table 2. The content validity index for appropriateness and clarity of items in DCCC

Domain	Questions	Appropriateness CVI	Mean CVI	Clarity CVI	Mean CVI
Introduction	1.Read case notes/referral letter	1.00	0.89	1.00	0.96
	2. Great patient	1.00		1.00	
	3. Introduce self	0.66		1.00	
	4. Ask patient reason for visit	1.00		1.00	
	5. Explain what will happen during visit	0.83		0.83	
Medical history	6. Open questions	1.00	0.91	0.66	0.83
	7. Use probing/follow-up questions	0.83		0.66	
	8. Avoid multiple questions	0.83		0.66	
	9. Summaries and reflect back to check understanding	0.83		0.83	
	10. Use bridging statements to guide and structure interview	1.00		0.83	
	11. Avoid technical language	0.83		1.00	
	12. Rephrase questions if necessary	1.00		0.83	
	13. Ask personal questions sensitivity	1.00		1.00	
	14. Show empathy	0.83		0.83	
	15. Maintain eye contact	1.00		0.83	
	16. Turn towards patient	0.83		0.83	
	17. Show interest and evidence of listening	1.00		1.00	
Examination	18. Explain what you are going to do and why	1.00	0.85	1.00	0.83
	19. Check patient comfort	0.83		1.00	
	20. Ensure patient dignity (for example when removing the denture)	0.83		0.66	
	21. Give full explanation of condition	1.00		1.00	
	22. Avoid technical language	0.83		0.83	
	23. Provide reassurance if appropriate	0.83		0.66	
	24. Check understanding	1.00		0.83	
	25. Invite questions and concerns	0.83		0.66	
Closure	26. Clearly signal ending of conversation	1.00	1	1.00	0.94
	27. Invite outstanding questions or concerns	1.00		0.83	
	28. Explain what will happen next	1.00		1.00	
Patient	29. Expressed his opinion easily	0.50	0.38	0.50	0.5
	30. Expressed his concerns easily	0.33		0.50	
	31. Seemed calm and comfortable	0.33		0.50	
Mean CVI for all questions		--	0.83	--	0.93

Table 3. Comparison of internal consistency and mean scores of domains (n=204)

Domain	Mean (standard deviation)	Cronbach's alpha
Introduction (0-25)	17.77(3.02)	0.44
Medical history (0-60)	43.7(6.5)	0.804
Clinical examination (0-40)	29.79(4.91)	0.825
Closure (0-15)	10.44(2.27)	0.57
Patient (0-15)	11.10(2.26)	0.78
Total score	112.92(14.77)	0.895

Table 4. Results of regression analysis on the effect of demographic variables on the total score of dental students in DCCC

Model	Non-standard coefficients		Standard coefficients	T	P value
	B	Standard error			
Constant coefficient	95.018	24.782	-	3.834	0.0001
Age	0.757	1.211	0.067	0.625	0.53
Sex	-4.328	2.404	-0.138	-1.8	0.07
Academic year	0.943	1.967	0.051	0.479	0.63
Marital status	0.922	3.217	0.022	0.287	0.78
Previous course of communication skills	8.948	7.658	0.09	1.168	0.24
Previous course of psychology	-2.939	5.08	-0.044	-0.579	0.56

assessment of communication skills in medicine and dentistry [11,12]. Among these tools, DCCC has been specifically designed for preliminary assessment of communication skills of undergraduate dental students. Items covered in this checklist are comprehensive and include communication with patients at different phases of treatment. This instrument was introduced by Theaker et al, [6] in 2000 and was used in 43 third year dental students. Use of Likert scale scores for assessment of the responses of participants to questions in this checklist further adds to the accuracy of responses [10].

The main advantage of DCCC is that it has been designed based on the interaction of clinicians and patients over time. For this reason, a wide range of patient responses and their communication needs have been covered. This ensures high content validity of the questionnaire. Theaker et al, confirmed the validity and reliability of this instrument [6]. Also, Van der Molen et al, in 2004 used DCCC as a reliable and appropriate tool for assessment of communication skills of dental students [13].

In the current study, the Persian version of the checklist was evaluated and the results showed that it had adequate validity and reliability for assessment of communication skills of dental

students. The Cronbach's alpha was found to be 0.805 for reliability of all responses of students to questions, which was optimal. Internal consistency index was acceptable for all domains except one (introduction). In terms of content validity, the "patient" domain was poor in terms of appropriateness and clarity, which appears to be due to the different nature of questions in this domain. In a previous study, the questions of the "patient" domain were eliminated [14].

Evaluation of the effect of academic year on student responses showed that in "introduction" domain, the frequency of high-score responses (scores 4 and 5) by 5th year dental students was higher in some domains than by 4th and 6th year dental students. In the "medical history" domain, the sum of responses with the highest scores among 4th year dental students was lower than that in 5th and 6th year dental students. In all questions related to the "clinical examination" domain, a higher frequency of 6th year dental students gave the highest scores to questions, which may be due to their improved communication skills due to further instruction of these topics and greater experience with patients. However, no significant difference was noted in terms of total mean scores acquired by the three groups of dental students in different domains.

It means that as assessed by this tool, by an increase in experience of dental students who had not received communication skills training, their communication skills did not improve significantly. On the other hand, absence of a significant difference in this regard by an increase in experience of dental students in the current study may also be due to small sample size in each group.

To assess the appropriateness and clarity of DCCC questions in the current study, six faculty members were requested to express their opinions in this regard using a 4-point Likert scale. The inter-rater agreement of experts in this respect was within the acceptable range and it was ≥0.7 for most items, which ensures acceptable reliability of the translated version of DCCC.

Since DCCC is self-report, scoring may have low accuracy; however, Gordon [15] in a review study in 1991 showed that self-reported checklists had a moderate value for evaluation of medical proficiency and communication skills. However, self-report checklists can serve as a valuable and applicable tool for collecting information if participants receive thorough instructions on how to fill out the form. Use of standard forward-backward method to translate DCCC to Persian, adequate sample size and selection of experts among the faculty members of an accredited university for assessment of face validity, internal consistency and reliability of the checklist were among the strengths of this study. In general, high CVI indicates optimal content validity of the instrument. The higher the number of experts assessing the instrument, the higher the risk of a lower CVI, because by an increase in the number of experts, number of questions judged to be appropriate unanimously by the experts, decreases. The opinions of six experts were used in this study, which was acceptable for this purpose.

Most methods suggested for assessment of reliability emphasize on repeating a test; however, researchers are not capable of repeating the tests under equal conditions in most cases. Thus, internal consistency measures are often used in such studies, in which, a researcher uses an instrument once in a group of subjects. Cronbach's alpha is calculated in such cases to assess reliability. A Cronbach's alpha >0.7 indicates acceptable reliability. Based on the current results, Cronbach's alpha was >0.89, which indicated that the instrument was reliable. Also, ICC was calculated, which indicated acceptable repeatability and reproducibility of the checklist. Low alpha value may be related to small number of questions in each domain.

In a study by Hannah et al, in 2004 in New Zealand, dental students were willing to take the communication skills course sooner than their 3rd year of dental education and wanted to retake it in the next years. Since the effects of instruction of skills decrease over time, continuing education courses are required on this topic to improve the communication skills of dental students and graduates. Also, this instruction must be followed by accurate assessment of communication skills to receive feedback on the quality of instruction to further modify and improve it accordingly. Assessment of communication skills must be done frequently as part of assessment of clinical skills

and proficiency of dental students. Communication skills educational courses must be designed for dental students, and further studies are required to assess the efficacy of such courses for improving the communication skills of dental students. Efficient instruction must enhance the knowledge of students and improve their performance [16].

Assessment of communication skills was done among 4th, 5th and 6th year dental students in this study in order to do a comprehensive evaluation. Similar studies on freshman dental students as well as post-graduate dental students can provide more information in this regard. The communication skills course must be offered to dental students prior to their contact with patients in the clinical setting and must be repeated later in the curriculum. Although Tehran University of Medical Sciences, School of Dentistry is an accredited university, similar studies are required to be undertaken in other universities to increase the generalizability of the results to all dental students**.**

Conclusion

The Persian version of DCCC had adequate validity and reliability for assessment of communication skills of undergraduate dental students and can be successfully used for this purpose**.**

Acknowledgement

This study was part of a thesis (#6073) submitted to Tehran University of Medical Sciences (93-02-69-25678). The authors would like to thank the Research Deputy of Tehran University of Medical Sciences, School of Dentistry**.**

References

1. Piazza O, Cersosimo G. Communication as a basic skill in critical care. J Anaesthesiol Clin Pharmacol. 2015 Jul-Sept; 31(3):382-383.

2. Abrahamsson KH, Berggren U, Hallberg L, Carlsson SG. Dental phobic patients' view of dental anxiety and experiences in dental care: A qualitative study. Scand J Caring Sci. 2002 June; 16(2):188-196.

3. Schouten BC, Eijkman MA, Hoogstraten J. Dentists' and patients' communicative behaviour and their satisfaction with the dental encounter. Community Dent Health. 2003 Mar; 20(1):11-15.

4. Fazel A, Jafari A, Khami M, Seddighpour L, Kharrazifard M, Nassibi M, et al. Dental curriculum revision in Iran: Dentists' perspective on achievement of essential competencies through National Curriculum. Iran J Public Health. 2013 Jan; 42 (Supple.1):129-133.

5. Carey JA, Madill A, Manogue M. Communications skills in dental education: a systematic research review. Eur J Dent Educ. 2010 May; 14(2):69-78.

6. Theaker ED, Kay EJ, Gill S. Development and preliminary evaluation of an instrument designed to assess dental students' communication skills. Br Dent J. 2000 Jan8;188(1):40-44.

7. Montazeri A, Harirchi AM, Shariati M, Garmaroudi G, Ebadi M, Fateh A. The 12-item General Health Questionnaire (GHQ-12): translation and validation study of the Iranian version. Health Qual Life Outcomes. 2003 Nov 13; 1:66.

8. Symons AB, Swanson A, McGuigan D, Susan Orrange S, Akl EA. A tool for self-assessment of communication skills and professionalism in residents. BMC Medical Education. 2009 Jan; 9 (1):1-7.

9. De Von HA, Block ME, Moyle-Wright P, Ernst DM, Hayden SJ, Lazzara DJ, et al. Psychometric Toolbox for Testing Validity and Reliability. J of Nurs Scholarsh. 2007 June; 39(2):155-164.

10. Dawes J. Do data characteristics change according to the number of scale points used? An experiment using 5 point, 7 point and 10 point scales. Int J of Market Res. 2008; 50(1): 61-77.

11. Kurtz SM, Silverman JD. The Calgary-Cambridge Referenced Observation Guides: An aid to defining the curriculum and organizing the teaching in communication training programmes. Med Educ. 1996 March; 30(2):83-89.

12. Simmenroth-Nayda A, Heinemann S, Nolte C, Fischer T, Himmel W. Psychometric properties of the Calgary Cambridge guides to assess communication skills of undergraduate medical students. Int J Med Educ. 2014 Dec 6;5:212-8.

13. Van der Molen H, Klaver A, Duyx M. Effectiveness of a communication skills training programme for the management of dental anxiety.

Br Dent J. 2004 Jan; 196(2):101-107.
14.Sangappa SB, Tekian A. Communication skills course in an Indian undergraduate dental curriculum: A randomized controlled trial. J Dent Educ. 2013 Aug; 77(8):1092-8.
15. Gordon MJ. A review of the validity and accuracy of self-assessment in health professions training. Acad Med. 1991 Dec; 66(12):762-769.
16. Hannah A, Millichamp CJ, Ayers KM. A communication skills course for undergraduate dental students. J Dent Educ. 2004 Sept; 68(9):970 -977.