

Psychometric properties of the Arabic version of the Dental Cognition Questionnaire

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Objectives: This study investigates the psychometric properties of the Arabic version of the Dental Cognitions Questionnaire (DCQ), especially evolved for the purpose. **Study Design:** The DCQ was administered to a total of 1,266 Kuwait University undergraduate students, 348 males and 918 females, achieving high internal consistency ($\alpha = .87$). **Results:** Factor analysis resulted in the selection of eight factors each for males and females from the DCQ. The Arabic DCQ significantly and positively correlated with measures of dental fear (ADFI and DFS), dental anxiety (CDAS and DAST) and dental opinion (DO). Significant gender differences were observed with regard to 16 items of the DCQ. Overall, females showed greater DCQ believability than males. **Conclusion:** The DCQ correlates with dental fear more than dental anxiety. The study provides insights into factor structure of the Arabic Version of the DCQ, with significant correlation between scores on the DCQ and CDAS, suggesting that DCQ could be used as a reliable research tool.

Key words: Arabic version, DCQ, dental anxiety, dental fear, psychometric properties, Kuwaiti undergraduates.

Introduction

Dental fear often prevent many people from visiting the dentist. Intelligent and rational people are not above this fear factor, which prevents them from taking advantage of the dental care facilities and hence maintaining optimal dental health. For all practical purposes, fear is a reaction to perceived danger, with the individual being aware of the object or procedure which provokes fear. The result is that the concerned person may experience anxiety when confronted with the stimulus, which may trigger temporary changes, at times profound, due to the initiation of the "FIGHT or FLIGHT" response. Although, this response is often considered a useful reaction to life-threatening situations, in dental surgery it is counterproductive, if it remains uncontrolled.

The prevalence of dental fear as reported in American and European populations is high (Crockett, 1965; Kleinknecht *et al.*, 1973; Kleinknecht and Bernstein, 1978; Wong *et al.*, 1998; DAPA, 2000; Klemendz *et al.*, 2000; McNeil *et al.*, 2001; Quteish, 2001; and Kvale *et al.*, 2002). In Middle-Eastern countries, 12% of Jordanians have high dental fear (Taani, 2002), while in Kuwait the prevalence of dental fear is 19% (Alansari, 2003). Studies also report that the dental fear, and the avoidance of dental treatment, has a detrimental effect on oral health (McGlynn *et al.*, 1990; DAPA, 2000). Several studies reportedly support the applicability of the cognitive approach to dental fear (de Jongh and Ter Horst, 1993; de Jongh, *et al.*, 1994; de Jongh *et al.*, 1995), thereby demonstrating a strong association of dental anxiety and fear with the tendency to experience negative or threatening thoughts. Although, these findings make it difficult to rule out the cause and effect, they suggest

that negative thinking patterns play a crucial role in the evocation of fear. The studies also highlight the relative ease in gathering information concerning the presence of the occurrence of negative beliefs and self-statements (de Jongh and Ter Horst, 1993) as an easy way to understanding the processes involved in maintenance of dental fear and dental anxiety.

An instrument was developed to obtain a better understanding of the cognitive characteristics of dental patients and their relationship to anxiety and fear (de Jongh *et al.*, 1995b). This instrument was the Dental Cognition Questionnaire (DCQ), which was administered to investigate the psychometric properties of the respondents on a 38-item scale of believability of negative cognitions related to dental treatment, based on its application to 221 undergraduates and 85 dental phobics. The results showed discriminate validity, good internal consistency, and high test-retest reliability. Correlations with indices of anxiety and other cognitive measures showed adequate concurrent validity. Factor analysis revealed a 1-factor solution. Combination of DCQ items showed more explanatory powers than did the Dental Anxiety Scale (an anxiety trait measure), and explained up to 71% of the variance in anxiety state ratings in the dental situation. Phobics reported more frequent negative and catastrophic beliefs, and greater belief in their negative thoughts than did control subjects. The study primarily focused on the psychometric properties of the Arabic version of DCQ-38.

The predictions made prior to conducting the study was that both dental anxiety and dental fear are global phenomena, and can be examined across cultures using DCQ scale since all dentists use largely the same dental procedures. Up to now, no Arabic study has used such

an instrument, hence in this study an Arabic version of DCQ has been adopted to examine cross-cultural generality of dental cognition (Table 2).

Method

Participants

A total of 1,266 Kuwaiti undergraduate students (348 male and 918 female) of Kuwait University, belonging to eleven colleges: Law (7.3%), Arts (15.20%), Sciences (18.70%), Medicine (4.70%), Engineering (7.10%), Islamic Shareea (6.8%), Social Sciences (17.1%), Pharmacy (2%), Dentistry (2%), Allied Health (2.7), Education (15.4%) constituted the study sample. The participants age ranged from 18-25 years with a mean age of 19.7 years (SD=1.7). The selection of the participants sample was based on a stratified random sampling procedure.

The Scales

The Dental Cognitions Questionnaire (DCQ) had 38 negative cognitions comprised of beliefs and self-statements related to dental treatment. The first section of the questionnaire contained a list of 14 negative beliefs pertaining to dentistry in general (e.g. "Dentists don't care when it hurts") and the patient him/herself (e.g. "I can't stand pain"). Following the sentences: "When knowing that I have to undergo dental treatment very soon, I think.", participants are asked to tick "Yes" or "No" for each item. The second section comprised of 24 negative self-statements pertaining to the respondents thinking pattern during treatment (e.g. "Everything goes wrong"). Following the sentence: "While being treated, I think ...", participants are again asked to tick "Yes" or "No" for each item." Yes"-responses on the items were calculated as a measure of the total negative cognition score (range 0-38).

The Corah's Dental Anxiety Scale (CDAS; Corah 1969)

This constitutes a four-item self-report scale, widely used for measuring dental trait anxiety. Items are generally scored on a scale of 1 to 5, and calculated to give an overall anxiety score, ranging from 4 (not anxious at all) to 20 (extremely anxious). Cronbach's alpha of the CDAS in our sample was found to be 0.95.

Dental Anxiety Self Test.

This test consisted of 9 x 2 items, and is the most popular test on the internet to assess dental anxiety. For instance, "have you had a prior dental experience that was unpleasant?" "Does seeing the dentist or dental hygienists' instruments make you anxious?"

Dental Opinion. (Kleinknecht, Klepac, & Alexander 1973).

This scale consisted of 14 x 5 items, assessing the level of fear elicited by various components of dentistry. It provided an overall rating of general fear of dentistry, and four items soliciting information concerning reactions to dentistry among family and friends. For instance, very painful dental treatment; perceived poor management; dislike of dentist's personality. This scale has been used

to test the opinion of people regarding the dental service and their reaction to dentistry. This scale has been used in studies to assess dental fear.

Arabic Dental Fear Inventory ADFI (Alansari,2003).

This inventory aimed at assessing the dental fear, and comprised of 33 x 5 items (e.g. Not being numb enough; pain from the drill; fear of the feeling of being numb). This inventory was found to have satisfactory psychometric properties in terms of reliability and validity, based on Kuwaiti society.

Dental Fear Scale, (Kleinknecht, Klepac, & Alexander 1973).

A 27-item dental fear scale was designed to identify specific fear stimuli and to measure patients' reactions. This questionnaire, with a five-point scale (1, no reaction or fear; 5, great fear or reaction), comprised two items concerning avoidance of dentistry, six items concerning the extent of felt physiological arousal during dentistry, 14 items assessing the level of fear evoked by various dentistry components, an overall rating of general fear of dentistry, and four items soliciting information concerning reactions to dentistry among family and friends. Three open-ended items were included for the participants to describe past painful and most feared dental experiences, and their own interpretation of ways in which they acquired their present reaction to dentistry. The internal consistency of this scale was examined using Chronbach's alpha on the sample. These scales were found to achieve adequate reliability coefficients. (Table 1). As well both the concurrent and factorial validity of the above scales were examined (Table 5).

Procedure

The six scales were distributed through the respective faculty Vice Deans for Research and were administered anonymously to students by four research assistants in group testing sessions in their classrooms during scheduled university hours. All participants volunteered for the study after the research assistants explained its purpose and assured them that anonymity would be maintained. If the student did not want to participate, he or she could leave. The self administration time was restricted to 40 minutes as a maximum time limit.

Results

Reliability

The mean scales were found to achieve adequate internal consistency as regards the sample. The item-remainder correlations ranged from 0.13 to 0.53 with an average item-total correlation for the scale of 0.38, denoting in general moderate internal consistency (Table 2). It should be noted that item-remainder correlation for items 2, 9, 10, 13, 14 and 24 received relatively low item remainder correlations to the total Arabic DCQ scale (Dentists are often impatient; My teeth might break; I am a difficult person; I am someone with very long roots; The sound of the drill frightens me; I can't stand this treatment for long).

Table 1. Alpha Reliability of scales among undergraduates.

<i>Scales & Groups</i>	<i>Items & Responses</i>	<i>Measures</i>	<i>Males (n=348)</i>	<i>Females (n=918)</i>	<i>Combine (n=1266)</i>
			<i>Alpha r</i>	<i>Alpha r</i>	<i>Alpha r</i>
Dental Cognitions Questionnaire	38 x 2	Dental Beliefs	.87	.87	.87
Coral Dental Anxiety Scale	4 x 5	Dental Anxiety	.85	.84	.85
Dental Anxiety Self Test	9 x 2	Dental Anxiety	.72	.70	.71
Dental Opinion	14 x 5	Dental Opinion	.76	.75	.76
Arabic Dental Fear Inventory	33 x 5	Dental Fears	.96	.95	.96
Dental Fear Scale	27 x 5	Dental Fears	.95	.96	.96

Table 2. Item Remainder Correlation (r_{IT}) for Arabic Version of Dental Cognition Questionnaires

<i>Item</i>		<i>Male Group (n=348)</i>	<i>Female Group (n=918)</i>	<i>Both Groups (n=1266)</i>
Beliefs about oneself and dentistry in general				
1	Dentists do as they please	.20	.35	.31
2	Dentists are often impatient	.28	.30	.29
3	The dentist does not care if it hurts	.32	.38	.37
4	Dentists do not understand you	.46	.43	.44
5	Dentists are often incapable	.32	.33	.33
6	Dentists think you act childish	.41	.41	.42
7	Treatments often fail	.40	.34	.35
8	My teeth can't be saved	.37	.32	.34
9	I should be ashamed about my teeth	.25	.18	.21
10	My teeth might break	.30	.28	.27
11	I can't stand pain	.38	.42	.41
12	I am tense person	.48	.34	.38
13	I am a difficult person	.32	.27	.28
14	I am someone with very long roots	.25	.13	.19
Self-statement during treatment				
15	Everything goes wrong	.38	.39	.38
16	This treatment will hurt	.45	.40	.41
17	My teeth will break	.44	.39	.40
18	Something surely will go wrong	.45	.43	.43
19	It never runs smoothly	.46	.42	.43
20	I am helpless	.43	.38	.39
21	I can't control myself	.43	.47	.47
22	I can't escape, I'm locked in	.49	.48	.48
23	Anesthetic often do not work	.29	.32	.31
24	The sound of the drill frightens me	.31	.14	.19
25	The dentist will drill into my tongue, gums or cheek.	.48	.27	.31
26	The nerve will be touched	.46	.47	.47
27	I have no control over what happens	.46	.48	.47
28	I will die during treatment	.39	.34	.36
29	I will panic during treatment	.53	.46	.48
30	I will faint during treatment	.48	.37	.40
31	I will suffocate during treatment	.47	.47	.47
32	I can't stand this treatment for long	.16	.42	.29
33	I will certainly have pain afterwards	.28	.38	.35
34	The filling will certainly fall out and has to be made again	.57	.42	.46
35	This treatment fails	.37	.50	.47
36	I become sick	.49	.42	.43
37	The dentist will lose control over his drill	.47	.48	.48
38	The dentist believes that I am a difficult patient and act childish	.50	.47	.48
Mean r		.40	.38	.38
Alpha DCQ - 38		.87	.87	.87

Factorial Validity

The DCQ correlational matrix (38x38) items on the believability scores for males and females separately were subjected to principal components factor analysis followed by oblique rotation of axes oblimin. To identify the number of factors to be obtained, the Eigen value greater than or equal to 1.0 criterion was followed, and based on salient item loading in each factor is greater than or equal to r.35. These yielded eight factors for males and females (Table 3 and 4) according to the above criteria indicating the factorial validity of the Arabic version of the DCQ. This result may be considered as an indicator of adequacy, suitability, and worthiness of the items in measuring a consistent phenomenon.

Concurrent Validity

The relation between the Dental Cognitions Questionnaire, Corah's Dental Anxiety Self-test, Dental Opinion, Arabic Dental Fear Inventors, and the Dental Fear scale were assessed using Pearson Correlations Coefficient (Table 5).

All measures were found to be significantly correlated. The magnitude of correlations between the DCQ and measure of dental opinion was higher than the correlations between DCQ and measures of dental fear (ADFI and DFS) and dental anxiety (CDAS and DAST). These findings suggest that the DCQ taps unique aspects (cognitive beliefs) of anxiety related to the dental setting. An exploratory principal component factor analysis

Table 3. The Dental Cognition Questionnaires scale items and pattern matrix obtained after oblique rotation for males (n=348).

Item	F1	F2	F3	F4	F5	F6	F7	F8
22 I can't escape, I am locked in	.78							
21 I can't control myself	.68							
27 I have no control over what happens	.67							
12 I am a tense person.	.60							
20 I am helpless	.60							
29 I will panic during treatment	.46							
28 I will die during treatment		-.77						
15 Everything goes wrong		-.70						
16 This treatment will hurt		-.55						
30 I'll faint during treatment		.54						
33 I'll certainly have pain afterwards		.38						
2 Dentists are often impatient			.68					
4 Dentists do not understand you			.67					
23 Anesthetics often do not work			.48					
8 My teeth can't be saved			.47					
7 Dentists do as they please			.45					
1 Dentists do as they please				.72				
3 Dentists do not care if it hurts				.66				
6 Dentists think you act childish				.60				
19 It never runs smoothly				.46				
25 The dentist will drill into my gums tongue or cheek					.79			
26 The nerve will be touched					.68			
37 The dentist will lose control over his drill					.54			
31 I will suffocate during treatment					.54			
24 The drill sound frightens me					.49			
10 My teeth might break						.80		
17 My teeth will break						.64		
18 Something surely will go wrong						.52		
36 I become sick						.50		
9 I should be ashamed about my teeth						.48		
11 I can't stand pain						.44		
13 I am a difficult person							-.70	
38 The dentist believes that I am a difficult patient and act childish							-.49	
5 Dentists are often incapable							-.39	
35 This treatment fails							-.39	
32 I can't stand this treatment for long								.69
34 The filling will certainly fall out and has to be made again								.59
14 I am someone with very long roots								-.44
Eigen-value	7.84	2.50	2.20	1.50	1.46	1.38	1.22	1.12
% of variance	20.6	6.59	5.78	3.95	3.85	3.64	3.21	2.94
Total % of variance	50.59							

Table 4. The Dental Cognitions Questionnaire scale items and pattern matrix obtained after oblique rotation for females (n=918)

<i>Item</i>	<i>Item Description</i>	<i>F1</i>	<i>F2</i>	<i>F3</i>	<i>F4</i>	<i>F5</i>	<i>F6</i>	<i>F7</i>	<i>F8</i>
11	I can't stand pain	.65							
29	I will panic during the treatment	.65							
27	I have no control over what happens	.63							
21	I can't control myself	.62							
33	I will certainly have pain afterwards	.57							
22	I can't escape, I'm locked in	.56							
19	It never runs smoothly	.52							
12	I am helpless	.49							
32	I can't stand this treatment for long	.42							
20	I am helpless	.37							
13	I am a difficult person	.36							
15	Everything goes wrong		.75						
35	This treatment fails		.72						
18	Something surely will go wrong		.64						
16	This treatment will hurt		.64						
7	Treatments often fail		.51						
34	The filling will certainly fall out and has to be made again		.42						
4	Dentists do not understand you			.71					
3	The dentist does not care if it hurts			.65					
2	I will suffocate during treatment			.62					
1	Dentists are often incapable			.62					
6	Dentists think you act childish			.60					
38	The filling will certainly fall out and has to be made again			.51					
10	The nerve will be touched				.74				
9	The sound of the drill frightens me				.67				
17	The dentist will drill into my tongue, gums or cheek				.61				
8	I am someone with very long roots				.54				
25	Anesthetics often do not work					.52			
26	The nerve will be touched					.55			.75
37	The dentist will lose control over his drill					.53			.64
24	Something surely will go wrong						-.42		.53
28	I will die during treatment						-.71		
30	I will faint during treatment						-.71		
31	I will suffocate during treatment						-.63		
36	I become sick						-.43		
14	I am someone with very long roots							.71	
23	Anesthetic often does not work							-.54	
5	Dentists are often incapable								.62
Eigen-Value		7.3	2.4	1.8	1.5	1.4	1.3	1.15	1.12
% of Variance		19.19	6.31	4.74	4.07	3.76	3.51	3.03	2.95
Total = % of Variance		47.54							

with varimax rotation was performed on the six scales extracting one factor with Eigen-value chart, which exceeded unity and accounted for 66% and 71% of the total variance (Table 5).

Norms of the Arabic DCQ

The mean and standard deviation of the Arabic DCQ, and the t-test for the group means for gender are presented in Table 6. A significant gender difference between males and females was found in 16 items of DCQ, and in the total items, females showed greater DCQ believability than males in general (Dentists do as they please; The dentist does not care if it hurts; Dentist think you act childish; I can't stand pain; I am a tense person; I am a difficult person; I can't control myself; The sound of

the drill frightens me; The dentist will drill into my tongue, gums or cheek; I will panic during treatment; I will faint during treatment; The dentist will lose control over his drill). Males, on the other hand, showed greater DCQ believability scores than females as regards such items as; I should be ashamed about my teeth, my teeth might break, I am someone with very long roots and this treatment will hurt. Overall there was a significant difference between males and females, with the females showing greater DCQ believability than males, in general (Table 6).

Discussion

This study presents the psychometric properties of the Arabic version of the Dental Cognitions Questionnaire.

Table 5. Correlations among scales and extracted factors among male and female undergraduates.

Scale	Males (n=348) Correlations *							Female (n=918) Correlations *						
	1	2	3	4	5	6	Factor 1	1	2	3	4	5	6	Factor 1
Dental Cognitions Questionnaire (DCQ)	--						.79	--						.85
Corah Dental Anxiety Scale (CDAS)	.53	--					.75	.53	--					.78
Dental Anxiety Self Test (DAST)	.59	.55	--				.79	.66	.62	--				.83
Dental Opinion (DO)	.63	.52	.51	--			.80	.69	.46	.59	--			.79
Arabic Dental Fear Inventory (ADFI)	.49	.52	.57	.66	--		.84	.69	.63	.64	.63	--		.89
Dental Fear Scale (DFS)	.61	.63	.67	.62	.79	--	.89	.70	.68	.68	.60	.56	--	.90
Eigen – Value							3.96							4.26
% Variance							66							71

* p < .001

The results of the reliability analysis show that the Arabic version of the DCQ is quite reliable in terms of Cronbach's alpha (.87). Furthermore, the item-total correlations ranged from .13 to .53 denoting a moderate internal consistency. The data suggested that in general the DCQ terms are relatively homogeneous, and measure the same psychological construct (except for items 2, 9, 10, 13, 14, and 24. These items appeared to be weak. Further research on a larger group of subjects from different cultures is required to confirm these findings.

The results of the factor-analysis of the Arabic DCQ obtained in our study reveal eight meaningful interpretable factors for both males and females. The item-loading pattern on factors demonstrated high clarity in factor structure, facilitating the interpretation of extracted factors. These findings suggest that the Arabic DCQ merits recommendation on the basis of its effective applicability to Kuwaiti college students populations, as well as to compatible groups. However, the factor structure of the Arabic DCQ did not produce an identical pattern of factors, as obtained in the original DCQ study by DeJongh *et al.*, (1995a). The main methodological differences, such as population characteristics, language version, factor- extraction, and cultural differences are aspects that might explain the variability of finding in the structural analysis of the DCQ.

The present study yielded a significant correlation between scores on DCQ and CDAS ($r = .53$). This coefficient was higher than that obtained in the original study ($r = .36$) (De Jongh *et al.*, 1995b). The correlation between DCQ and DAST ranged from .59 to .66, with an average .of 63, which was stated to be an overlap between DCQ and dental anxiety measure by DeJongh *et al.*, (1995b) . The DCQ correlation ($r=.49$ to .89) was found to have an average of .69. This may suggest that the DCQ is correlated with dental fear more than with dental anxiety. This confirms that the major construct of dental fear is the cognitive component, and when we

look into the extracted factors (Dental Fear and Dental Anxiety) from the above scales (Table 5), it can be seen that the dental cognitive questionnaire correlate scores ranged from .79 to .85 with an average of .82, further confirming that the DCQ is closely related to Dental Fear Factor. It remains unclear whether this may be a good measure of dental fear, or has some robust overlap with dental anxiety. This result can be considered as a predictive validity of the DCQ in terms of its relation to dental anxiety and dental opinion. With regard to the measures included in this study, it is remarkable that DCQ mainly shows a significant correlation with all measures, a finding which supports interpretations that DCQ is closely related to dental fear and dental anxiety. The analysis of gender difference demonstrated that female subjects scored higher DCQ believability on this scale than the male subjects. This is not surprising, and the results agree with earlier findings in which females reportedly tend to have greater dental anxiety and dental fear than males (Schuurs and Hoogstraten, 1993; Kaufman *et al.*, 1991; Gale, 1972; Alansari, 2003).

Since the dental cognition questionnaire is written in modern standard Arabic, it is usable with literate subjects in any given Arabic speaking country without any stylistic or phrasing modification. The recent findings have highlighted the need to investigate their psychometric properties in another sample and another Arab country to ensure the feasibility of cross cultural comparisons. An important next step in the validation process would be to use the Arabic DCQ with different groups in Kuwait (clinical and non-clinical samples), as well as in other Arabic countries. Since, normative values in different age groups are needed, research with the DCQ must ascertain the psychometric characteristics with patients under the categories of neurosis or anxiety disorder. Meanwhile, the prediction validity of the Arabic and the English DCQ needs to be investigated, and the limitations of non-clinical populations in the questionnaire construction

Table 6. Means and standard deviations of Arabic DCQ-believability, both items and total scores for undergraduate male and female students from Kuwait University. T-test and p values pertaining to gender group differences are given

Item	Male (n = 348)		Female (n = 918)		T-value	P-level	
	M	SD	M	SD			
	Beliefs about oneself and dentistry in general						
1	Dentists do as they please	.28	.49	.44	.50	2.05	0.05
2	Dentists are often impatient	.24	.43	.28	.45	1.32	-
3	The Dentists does not care if it hurts	.37	.48	.51	.50	4.43	0.001
4	Dentists do not understand you	.28	.45	.30	.46	.72	-
5	Dentists are often incapable	.33	.47	.36	.48	.80	-
6	Dentists think you act childish	.36	.48	.53	.50	5.39	0.001
7	Treatments often fail	.26	.44	.25	.44	.42	-
8	My teeth can't be saved	.12	.33	.12	.33	.04	-
9	I should be ashamed about my teeth	.39	.49	.25	.44	4.36	0.001
10	My teeth might break	.47	.50	.34	.48	4.09	0.001
11	I can't stand pain	.46	.50	.61	.49	4.74	0.001
12	I am a tense person	.34	.48	.62	.49	9.01	0.001
13	I am a difficult person	.30	.46	.57	.48	2.37	0.05
14	I am someone with very long roots	.40	.49	.30	.46	3.24	0.001
Self statements during treatment							
15	Everything goes wrong	.10	.31	.08	.27	1.47	-
16	This treatment will hurt	.13	.34	.09	.28	2.21	0.05
17	My teeth will break	.22	.42	.23	.42	.18	-
18	Something surely will go wrong	.26	.44	.24	.43	.77	-
19	It never runs smoothly	.58	.49	.56	.50	.73	-
20	I am helpless	.29	.45	.29	.45	.07	-
21	I can't control myself	.23	.42	.35	.48	4.39	0.001
22	I can't escape, I'm locked in	.30	.46	.36	.48	1.87	-
23	Anesthetics often do not work	.34	.48	.39	.49	1.64	-
24	The sound of the drill frightens me	.57	.50	.78	.68	6.04	0.001
25	The dentist will drill into my tongue, gums or cheek	.30	.46	.41	.71	2.97	0.01
26	The nerve will be touched	.53	.50	.59	.49	1.86	-
27	I have no control over what happens	.51	.50	.50	.50	.26	-
28	I will die during treatment	.08	.27	.10	.30	1.19	-
29	I will panic during treatment	.34	.47	.47	.50	4.41	0.001
30	I will faint during treatment	.10	.30	.15	.35	2.44	0.05
31	I will suffocate during treatment	.22	.41	.27	.44	1.95	-
32	I can't stand this treatment for long	.52	.94	.46	.50	1.13	-
33	I will certainly have pain afterwards	.66	.47	.67	.47	.39	-
34	The filling will certainly fall out and has to be made again	.47	.50	.47	.50	.09	-
35	This treatment fails	.14	.35	.15	.35	.37	-
36	I become sick	.18	.38	.16	.36	.90	-
37	The dentist will lose control over his drill	.17	.37	.24	.43	2.90	0.01
38	The dentist believes that I am a difficult patient and act childish	.33	.47	.34	.48	.49	-
DCQ – 38 Total Score		.32	.45	.36	.45	2.2	.01

need to be addressed.

Our future focus will be to study the correlation of the DCQ with measures of personality and psychopathology. In general, the psychometric results for the Arabic DCQ version indicated that the DCQ could be used as a research tool; however, some revision of the DCQ items appears necessary for future research.

Acknowledgements

This study was supported by Kuwait University, Research Administration through Research Grant # OP02/00.

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