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Validation of The Cardiff Acne Disability Index Questionnaire in Patients with Acne in Morocco

Research Article

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Abstract

Background: Acne is a common distressing disease that can affect quality of life (QoL). The aim of the study was to translate and adapt the original version of the Cardiff Acne Distability Index (CADI) questionnaire from English to Moroccan Arabic language.

Methods: After translation and cross-cultural adaptation, the questionnaire was tested on patients with acne. The participants' number for the test and the retest were 120 and 60 respectively. Internal consistency was tested using Cronbach's α coefficient, the test–retest reliability using intraclass correlation coefficient (ICC). Construct validity was assessed by examining correlation between severity through Acne Lesion Score Scale (ECLA) and QoL through Moroccan version of CADI.

Results: The questionnaire was administered to 120 patients. The mean age of patients was 24 years (SD: 4), 85 % of all participants had a middle socio-economic level and only 2.3% patients who had a psychiatric history. The average time to complete the CADI questionnaire was 3 minutes. Questionnaire reliability was assessed using Cronbach's α coefficient, in which the values were all > 0.7. The ICC was satisfactory 0.97 (CI 95% [0.95-0.98]). There was no correlation between overall scores en ECLA and CADI (r=0, 008, p<0, 05).

Conclusion: The findings of this study indicated that we have developed a semantically equivalent translation of CADI into Moroccan Arabic to measure the effects of acne on the QoL in Moroccan patients.

KeyWords: Acne; CADI; Moroccan Version; Quality of Life; Validation.

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Introduction

Acne is a common distressing disease that can affect all aspects of an individual's health-related quality of life, in particular psychosocial abnormalities including depression, suicidal ideation, anxiety, psychosomatic symptoms, embarrassment and social inhibition [1]. Acne is a chronic inflammatory disease of the pilosebaceous unit with a multifactorial etiology. It is one of the most common cutaneous diseases [2]. Independent of its clinical severity, this disease has a great impact on patients' lives [2]. Acne frequently affects the face, is difficult to hide, and the scars can persist for years or for life, which aggravates the psychological impact of acne. Moreover, when acne was compared with other diseases, acne patients reported levels of social, psychological and emotional problems that were as great as those reported by patients with chronic disabling asthma, epilepsy, diabetes, back pain or arthritis [3].

Severity of acne can be assessed by the physician with multiple scales as ECLA (Acne Lesion Score Scale) [4]. Moreover, evaluation of the pschycological impact of acne can be facilitated by the use of disease-specific psychometric instruments, as they have greater sensitivity than more general measures[5]. For acne, several have been developed like the Cardiff Acne Distability Index (CADI). It is an American instrument to measure the effects of acne on patients' QoL[6].

This instrument has been validated to classical Arabic [7]. However, classical Arabic is not usually used by the Moroccan population, many of whom speak only the Moroccan dialect. At the same time, there are socio-cultural customs specific to each country. Translation and validation of the original version of the CADI into the Moroccan dialect was therefore necessary.

The aim of the study was to translate and adapt the original version of the CADI questionnaire from the English to the Moroccan Arabic language, to refine its terminology and to adapt it to the Moroccan culture.

Materials and Methods

Characteristics of the CADI original version

The CADI is an abbreviated questionnaire consisted of five questions each with four graded alternative responses. The questions were derived from the longer Acne Disability Index [5]. Questions 1 and 2 address the psychological and social consequences of acne in general, question 3 is targeted at those with acne of the chest or back, question 4 enquires about the patient's psychological state and question 5 asks for the patient's (subjective) assessment of current acne severity. The response to each question was scored from 0 to 3.

The ECLA is a French semi-quantitative grid that has been previously validated and it is completed by the physician; it consists of three factors who can determine the severity, type of acne (Factor 1), extent of the lesions (Factor 2) and scars (Factor 3). The total score is the sum of all the factor scores with minimum score of 0 and a maximum score of 36 [4]. Acne was considered as mild to moderate for an ECLA score ≤ 12.

Translation and cultural adaptation of the CADI

The CADI was translated into local Moroccan Arabic; the following steps were carried out according to the published guidelines for cross-cultural adaptation of health-related QoL measurement [8, 9].

The questions in the original version of the CADI were initially translated into Moroccan Arabic by two bilingual translators, followed by review by a committee of professionals composed of dermatologists, epidemiologists and medical researchers, in order to obtain the first Arabic version. This first Arabic version of this translation was underwent to a back-translation into English by two other translators with a good knowledge of English but who were not familiar with the CADI. This intermediate Moroccan Arabic version was applied to volunteer persons with acne (15 patients) in the Diagnosis Center of the University Hospital of Fez that agreed to participate and to present their opinion if the translated version was comprehensible; two researchers had to register the comments, doubts and suggestion. The resulting version was written after this initial assessment. Thereafter, a comparison with the original version was performed by a committee of professionals and translators to check whether it contained literal differences. The translation was then reviewed and adjusted by the committee. In the process of translating the questionnaire from English into Arabic, several items were substituted to adapt the terminology to the local culture. A final version of the CADI Moroccan language was elaborated.

Samples recruitment

The final Moroccan Arabic version was administered to 120 patients based on the reliability curve of Streiner and Norman [12]. Between September and fever December 2011, subjects were recruited from the dermatology outpatient in the University Hospital of Fez. Patients who were in clinical remission; those who refuse to participate; acne child and induced acne were excluded.

Instruments and procedures

The questionnaire was administered by two interviewers: at baseline and after a maximum 2 weeks by the same interviewers and by another interviewer 30 minutes after the first administration. The participants' number for the retest was 60.

For illiterate patient, the task of these interviewers was to read out the questions and mark the chosen answers for this category of patients without providing any input.

Beside, participants provided socio-demographic and clinical data.

Scoring

As with the American version, scores for the CADI are expressed in a linear scale, varying from 0 (no effect on QoL) to 15 (maximum effect on QoL).

Statistical analysis

Descriptive statistics were used to summarize the demographic and clinical characteristics of the patient sample. The reliability, acceptability and validity of the CADI were examined in the study. Data analyses were performed using SPSS 17 (SPSS Inc., Chicago, IL, USA). A p value <0.05 was considered statistically significant.

- **Reliability**

The reliability was estimated by measuring the internal consistency, the inter-observer reliability and the test–retest reliability of the questionnaire. The internal consistency of the Moroccan Arabic versions of CADI questionnaire was assessed for the multi-item questionnaire scales using Cronbach's α coefficient.

Internal consistency of a magnitude of 0.70 or greater was sought, test–retest reliability and inter-observer reliability were estimated by calculating the intraclass correlation coefficient (ICC) for each of the score components of the CADI.

- **Acceptability**

The acceptability of the CADI was assessed with the response rate, percentage of missing data and time required to complete the questionnaire.

- **Validity**

Construct validity was assessed by examining correlation between severity through ECLA and QoL through Moroccan version of CADI. A good correlation means a good construct validity.

Results

Patient characteristics

The main patient sample consisted of 120 patients. The male/ female ratio was 0.21 in the study. The age of the study population ranged from 16 to 39 years, with a mean (standard deviation) age of 24.4 ± 4, 1 year; 85 % of all participants had a middle socioeconomic level, 75.8 % of patients had a family history of acne and only 2.5% of patients had a psychiatric history (depression). The majority of lesions were on face (95.8%) and scars (93.3%). All those variables are summarized in Table 1.

Concerning acne severity, ECLA score was 7.4 ± 4, 6. Acne was mild to moderate in 89 % of patients (ECLA ≤ 12).

Table 1. Sociodemographic and clinical characteristics of 120 patients who completed CADI questionnaire

	Number	%
Sex		
Female	99	82.5
Male	21	17.5
Socio-economic level		
Low	10	8.3
Medium	102	85
High	8	6.7
Reason for consultation		
Acne	108	90
Other reason	12	10
Family history of acne		
yes	91	75.8
no	29	24.2
Psychiatric history		
yes	3	2.5
no	117	97.5
Clinical presentation of acne		
face	115	95.8
out face	56	46.6
scars	112	93.3

Table 2. Subscale scores and floor and ceiling effect

	Nember	Median	Mean	Standard deviation	Floor effect (%)	Ceiling effect (%)
Item 1	120	1	0.6917	0.8381	49.2%	5.8%
Item2	120	1	0.9750	0.8547	30.8%	6.7%
Item3	120	0	0.2667	0.6703	82.5%	3.3%
Item4	120	1	10.417	0.9203	29.2%	10.8%
Item5	120	1	12.167	0.8011	15.8%	7.5%

Acceptability

The time taken by most patients to complete the questionnaire, on average, was 3 minutes. There was no missing response. Most patients reported all questions to be clear and easy to understand. The mean CADI score was 4.1 ± 2.9 and the scores for different responses ranged from 0 to 13. High floor effect was observed for "the seeking avoidance behavior" scale and the high ceiling effect was observed for "the feelings of anxiety". Subscale scores and floor and ceiling effect are summarized in Table 2.

Reliability

Internal consistency was higher than the recommended threshold. The Cronbach's α was 0.75.

To determine the inter-observer and test–retest reliability of the CADI, the ICC was calculated. The test-retest ICC was 0.97 (95% CI [0.95-0.98].

Validity

There was no correlation between CADI and ECLA (r=0, 008, p< 0, 05)

Discussion

The original CADI was developed in 1992 by R.J.Motley and A.Y.Finlay [6] to quantify the impact of the acne on patients' QoL. They are many others questionnaires to quantify this QoL [5], but we had chose CADI because it is a specific psychometric instruments with short questions.

The purpose of this study was to assess the reliability and validity of the CADI translation for use in Morocco. This evaluation of the measurement properties of the Moroccan Arabic version of CADI shows that it is a reliable and valid measure of QoL in Moroccan patients with acne. The CADI has been translated into many languages and has been validated for use in several languages and cultures, including classic Arabic, French, Cantonese, Czech, Filipino, Portuguese, Persian, Serbian and Ukrainian lan-

Table 3: CADI

Moroccan Version	English Version

Moroccan Version

مؤشر كارديف للخلل اللي كيسبب حب الشباب

١. فالشهر اللي فات واش حسيتي براسك عنيف مأزم ولا حشمان بسباب حب الشباب ؟
  أ. صراحة بزاف بزاف
  ب. بزاف
  ت. شوية
  ث. لا والو

٢. واش كان لحب الشباب فالشهر اللي داز تأثير على حياتك اليومية ولا علاقتك مع المجتمع ولا الجنس الاخر؟
  أ. كيأثر عليا بزاف فكل المناسبات
  ب. كيأثر عليا شوية فأكثر المناسبات
  ت. مرة مرة فبعض المناسبات
  ث. لا والو

٣. واش حزلتي تبعد فالشهر اللي داز على نبلايص اللي تتبدل فيهم حوايجك حدا الناس ولا مقدرتيش تلبس المايو ديال العومان بسباب حب الشباب؟
  أ. ديما
  ب. بزاف
  ت. مرة مرة
  ث. لا والو

٤. كيف يمكن ليك توصف الإحساس ولا الحالة النفسية الي وصلتيها بسباب الحالة ديال الجلد ديالك الشهر اللي داز؟
  أ. مأزم بزاف أو ميؤوس
  ب. هاد المشكل كيعنيني ديما
  ت. هاد المشكل كيعنيني مرة مرة
  ث. ما كنخمش فيه

٥. علاش شحال كضن خايب حب الشباب اللي فيك دابا؟
  أ. أقبح ما كاين
  ب. مشكل كبير
  ت. مشكل صغير
  ث. ماشي مشكل

English Version

The Cardiff Acne Disability Index

1. As a result of having acne, during the last month have you been aggressive, frustrated or embarrassed?
(a)   Very much indeed
(b)   A lot
(c)   A little
(d)   Not at all

2. Do you think that having acne during the last month interfered with your daily social life, social events or relationships with members of the opposite sex?
(a)   Severely, affecting all activities
(b)   Moderately, in most activities
(c)   Occasionally or in only some activities
(d)   Not at all

3. During the last month have you avoided public changing facilities or wearing swimming costumes because of your acne?
(a)   All of the time
(b)   Most of the time
(c)   Occasionally
(d)   Not at all

4. How would you describe your feelings about the appearance of your skin over the last month?
(a)   Very depressed and miserable
(b)   Usually concerned
(c)   Occasionally concerned
(d)   Not bothered

5. Please indicate how bad you think your acne is now:
(a)   The worst it could possibly be
(b)   A major problem
(c)   A minor problem
(d)   Not a problem

Source: © Cardiff Acne Disability Index. R J Motley, A Y Finlay 1992

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guages [7]. Besides CADI, they are others dermatological questionnaires translated and validated in Moroccan Arabic [10, 11], but Moroccan CADI is de first Moroccan version of specific instruments acne's (table III).

The CADI instruments have been translated into local Moroccan Arabic, after having the consent of the author questionnaire (Mr.A.Y.Finlay), according to procedures documented elsewhere [8, 9].

In the translation stage, we followed the international guidelines for cross-cultural adaptation of health-related QoL measures [8, 9]. Then we supplemented a pilot test in Moroccan patients who were asked to identify words and sentence structures that were problematic for the target population. Next, a conceptual adaptation in the final version was performed.

The necessary number of subjects used was calculated based on the reliability curve of Streiner and Norman [12] and was considered sufficient to evaluate psychometric properties. The time between test and retest was 2 week on average. Streiner and Norman indicated that expert opinions regarding the appropriate interval vary from 1 hour to 1 year, depending on the task, but generally, a retest interval of 2–14 days is usually used [12] .

The internal consistency coefficients of most scales in the Moroc-

can Arabic version of the CADI were also satisfactory.

This is confirmed by the Cronbach's α values that exceeded 0.70 for all scales. These results were consistent with other studies [13, 14, 15] : Persian (Cronbach's α coefficient = 0.79), Chinese (= 0.76) and Serbian (=0.79). Also as the others study, the result of test–retest reliability of the Moroccan Arabic version of the CADI was good. Pearson's correlation coefficient was 0, 97 (IC 95% [0, 95-0, 98].

Another implication of this work is that it is rather an adaptation of the original to our Moroccan culture than just translation questionnaire. For example, item 3, where the notion of crowding out public locker rooms or wearing bathing suit was sought, it was necessary to find other equivalent activities adapted to the Moroccan culture eg "attend the traditional bath." This method of cross-cultural adaptation was based on the preservation of the semantic equivalence, idiomatic and conceptual event [16]. This issue has already been raised by a study in Morocco [17].

The correlation of QoL of acne (CADI) and clinical severity (ECLA) in our results was low, which was incongruent with the Persian validation study. This, however, should not be regarded as aweakness of the CADI validation process, since all other statistical tests were satisfactory. In fact, the dissociation of clinical severity and impact of acne has been reported in many other

studies [18, 19].

A limitation of the study is the fact that there are some other regional languages such as "Tarifit", "Tamazight" and "Tachel-hit" that are more popular in some Moroccan regions. But, the majority of these people speak also Moroccan Arabic. Further validation should be specifically performed in these regions because inclusion in these patient groups in local or national clinical studies is essential.

In conclusion, based on the findings of this study, the authors developed a semantically equivalent translation of CADI into Moroccan Arabic. It is a reliable and valid measure of the effects of acne on the QoL in Moroccan patients with acne.

Declaration of interest: The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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