

The Persian version of the Cardiff Acne Disability Index

Reliability and validity study

Shahin Aghaei, MD, Nazila Mazharinia, MD, Peyman Jafari, PhD, Zahra Abbasfard, BS.

ABSTRACT

Objective: The Cardiff Acne Disability Index (CADI) assesses the impact of acne on a patient's life. The aim of the present study was to translate the CADI into Persian language and to validate the Persian version.

Methods: Using standard forward-backward translation, 2 bilinguals translated the CADI into Persian language. We back translated it into English and the final version was provided. We conducted this study from February through December 2004 on 100 patients with acne attending the Department of Dermatology, Jahrom Medical School, Jahrom, Iran who completed the Persian version of the CADI questionnaire. We carried out all statistical analyses using the Statistical Package for the Social Sciences version 11 for Windows.

Results: A total of 100 patients (15 men, 85 women) with acne participated in this study. The mean age of the patients was 20.76 ± 2.94 years. Scores of the CADI ranged from 2-14 (7.57 ± 2.58). Reliability analysis showed a satisfactory result (Cronbach's α coefficient = 0.79). Moreover, Pearson's correlation coefficient of 0.72 demonstrated the good internal consistency of the scale.

Conclusions: The Persian version of the CADI questionnaire is a reliable, valid, and valuable tool for assessing the impact of acne on a patient's life.

Saudi Med J 2006; Vol. 27 (1): 80-82

Acne vulgaris, more commonly referred to as Acne, is a chronic inflammatory disorder of the pilosebaceous unit that affects at least 85% of adolescents and young adults.^{1,2} Acne has been implicated in psychiatric and psychological processes more than most other dermatological conditions. Adolescence is a time of significant physical, emotional, and social development, which may

predispose individuals to psychiatric or psychosocial complications.

The interaction of acne and psychosocial issues is complex and, in adolescence, can be associated with developmental issues of body image, socialization and sexuality. Previous studies on the psychosocial impact of acne have documented dissatisfaction with the appearance, embarrassment, self-consciousness,

From the Department of Dermatology (Aghaei), Jahrom Medical School, Private Clinic (Mazharinia), Jahrom, Department of Biostatistics (Jafari), Shiraz University of Medical Sciences and from the Moradi Skin Laser Clinic (Abbasfard), Shiraz, Iran.

Received 25th June 2005. Accepted for publication in final form 24th October 2005.

Address correspondence and reprint request to: Dr. Shahin Aghaei, Department of Dermatology, Jahrom Medical School, Jahrom, Iran. Tel. +98 (791) 3331682. Fax. +98 (711) 2296439. E-mail: shaninaghaei@yahoo.com

and lack of self-confidence in acne patients. Social dysfunction has also been observed, including concerns regarding social interactions with the opposite gender, appearances in public, interaction with strangers, and reduced employment opportunities. The development of psychometric scales to measure the impact of disease on abstract concepts and the notion of Quality of Life (QoL) has facilitated greater understanding of the impact of acne on psychological well-being and socialization.³

The Cardiff Acne Disability Index (CADI) evaluates the impact of acne on the patient's life. The aim of the present study was to translate the CADI into Persian (or Farsi, which is the Iranian official language) and to validate the Persian version.

Methods. Using standard forward-backward translation, the CADI was translated into Persian by 2 bilinguals. It was back translated into English by 2 other translators, and then the final version was provided. One hundred patients with acne attending the Department of Dermatology, Jahrom Medical School, Jahrom, Iran, completed the final Persian version in 2004. All the patients were asked to give informed consent before completion of the questionnaire. There were no restrictions on patient selection with regard to age, gender, or other characteristics. Data were collected within a 6 months period. All statistical analyses were carried out using the Statistical Package for Social Sciences version 11 for Windows. However, to test the reliability, the internal consistency of the questionnaire was measured using Cronbach's alpha coefficient and an alpha equal to or greater than 0.70 was considered satisfactory.⁴ Validity of the instrument was performed using the convergent analysis. The Pearson's correlation coefficient of 0.40 or above was considered satisfactory.

All patients with acne were divided in 3 categories with regard to acne severity: Mild acne: comedones present with relatively few inflammatory lesions; Moderate acne: pustules and other inflammatory lesions are evident with or without mild scarring; and Severe acne: there is evidence of major inflammatory lesions such as nodules, cysts that affect most of the sebaceous glands. Scarring is likely to present with psychological and social difficulties.

Results. A total of 100 patients (15 men, 85 women) with acne participated in this study. The mean age of the patients was 20.76 ± 2.94 years, most were unmarried (74%), and had completed primary or secondary education (51%). Scores of the CADI ranged from 2-14 (7.57 ± 2.58). The higher the CADI scores indicate greater effect on the quality of life.

Table 1 - Rotated factor loading.

Question	Factors	
	Emotional well-being	Social life
Q1	0.471*	0.325
Q2	0.331	0.432*
Q3	0.185	0.67*
Q4	0.853*	0.219
Q5	0.405*	0.332

Rotation method - Varimax with Kaiser Normalization, Q - question (item), *items included in every dimension

Reliability analysis showed a satisfactory result (Cronbach's alpha coefficient = 0.79). Cronbach's alpha coefficient for men was 0.73 and for women 0.75. With regard to acne severity, 16 (16%) out of 100 patients had mild acne. Seventy-eight (78%) patients were in moderate grade and only 6 (6%) patients suffered from severe acne. Cronbach's alpha coefficient for the patients with mild acne was 0.69 versus moderate-to-severe acne 0.76. The coefficient in patients with only facial acne (0.77) was greater than the patients with facial/truncal acne (0.71). Also, reliability coefficient in married patients was higher (0.79) than unmarried patients with 0.72. Moreover, the good internal consistency of the scale was demonstrated with a Pearson's correlation coefficient of 0.68. Mann-Whitney U test showed that there was no significant difference on total CADI score with regard to gender ($p=0.6$), but it was statistically significant in married versus unmarried group (8.8 versus 7.15) ($p=0.01$), facial or truncal acne versus only facial (6.8 versus 7.9) ($p=0.049$), and moderate-to-severe acne versus mild type (8.2 versus 4.3) ($p<0.001$).

Spearman's correlation coefficients with the total score were the following: Q1 - 0.69, Q2 - 0.66, Q3 - 0.62, Q4 - 0.73 and Q5 - 0.71, ($p<0.001$). Factor analysis revealed the presence of 2 dimensions underlying the quality of life. The first dimension consisted of 3 items and addressed the emotional well-being, while the second dimension consisted of 2 items and addressed the social impact of acne (Table 1).

Discussion. Several studies using validated instruments that are either generic or disease specific have been completed evaluating the quality of life in patients with acne. Generic instruments are beneficial as they allow direct comparison to other populations,

but they are limited by lack of disease specificity and great length, which can lead to logistical difficulties.⁵ Disease specific instruments measure variables relevant to people with skin conditions and may be more sensitive, but they do not allow comparison with non-dermatological populations.⁶ One study compared health-related quality of life in patients with acne using both generic and disease-specific instruments.⁶ Both instruments shows a significant deficit in health-related quality of life before treatment when compared with a population sample. However, the disease-specific instrument was more responsive to change after treatment, presumably as this measures variables relevant to individuals with dermatological conditions.⁷

A study using only generic instruments to measure quality of life found substantial deficits reported by acne patients.⁸ The deficits in quality of life are as great as those reported by patients with chronic disabling asthma, epilepsy, diabetes, or arthritis.⁸ The deficits in quality of life are significant enough to be detected by an instrument not designed with skin in mind. Therefore, we may find greater deficits using a disease-specific measure.

Another study using a disease-specific validated instrument also found that acne vulgaris significantly affects quality of life.⁹ In addition this measure determined that regardless of acne severity, older adults with acne reported greater deficits in quality of life than their younger counterparts. This finding may reflect the duration of disease, poor response to treatment, social implications of acne in an adult population, or a small sample size.

Our study was a validation study of one of the disease-specific instruments, Persian version of the CADI to measure acne impact on a patient's life. However, patients indicated that some questions were difficult to answer, especially items 2 and 3. Perhaps this was the reason why we found a weaker correlation for these items with the total CADI score. It seems that weaker correlation of items 2 and 3 would also be due to some problems of translation that might not be reached cross-cultural comparability with the original version of the questionnaire.

We found that the CADI score correlated with the severity of acne ($p < 0.001$), which is in agreement with Salek et al¹⁰ and Clark et al,¹¹ but in contrast with Oakley,¹² correlated poorly with the clinical severity of acne. In another study with translation of the CADI into French,¹³ demonstrated the reliability coefficient of 0.90 and Cronbach's alpha coefficient of 0.87,

which was higher than our results. The mean CADI score in our study was 7.57 ± 2.58 , which is higher than some other studies,¹¹ with mean score of 5.9.

In summary, the findings of the present study indicate that the Persian version of the CADI is a reliable and valid measure of acne impact on quality of life in patients with this condition. Dermatologists need to become more adept at diagnosing and treating causative, concomitant, and resultant psychiatric disturbances in patients with acne. Acne vulgaris significantly affects patients' quality of life.

Acknowledgment. The authors wish to express their gratitude to Professor Andrew Y. Finlay for the formal permission to use the CADI in this study. The Persian version of the CADI is under copyright and can be reached via internet <http://www.ukdermatology.co.uk>

References

1. Weiss JS. Current opinions for the topical treatment of acne vulgaris. *Pediatr Dermatol* 1997; 14: 480-488.
2. Krowchuck DP. Managing Acne in adolescents. *Pediatr Clin North Am* 2000; 47: 841-857.
3. Tan JK. Psychosocial impact of acne vulgaris: evaluating the evidence. *Skin Therapy Lett* 2004; 9: 1-9.
4. Nunnally JC, Bernstein IH. Psychometric Theory. 3rd ed. New York: McGraw-Hill, 1994.
5. Layton AM. Psychosocial Aspects of Acne Vulgaris. *J Cutan Med Surg* 1998; 2: S19-S23.
6. Klassen AF, Newton JN, Mallon E. Measuring quality of life in people referred for specialist care of acne: Comparing generic and disease-specific measures. *J Am Acad Dermatol* 2000; 43: 229-233.
7. Hanna S, Sharma J, Klotz J. Acne vulgaris: More than skin deep. *Dermatol Online J* 2003; 9: 8.
8. Mallon EM, Newton JN, Klassen A, Stewart-Brown SL, Ryan TJ, Finlay AY. The quality of life in acne: a comparison with general medical conditions using generic questionnaires. *Br J Dermatol* 1999; 140: 672-676.
9. Lasek RJ, Chren MM. Acne Vulgaris and the Quality of Life of Adult Dermatology Patients. *Arch Dermatol* 1998; 134: 454-458.
10. Salek MS, Khan GK, Finlay AY. Questionnaire techniques in assessing acne handicap: reliability and validity study. *Qual Life Res* 1996; 5: 131-138.
11. Clark SM, Goulden V, Finlay AY, Cunliffe WJ. The psychological and social impact of acne: a comparison study using three acne disability questionnaire. *Br J Dermatol* 1997; 137: 41.
12. Oakley AM. The Acne Disability Index: usefulness confirmed. *Australas J Dermatol* 1996; 37: 37-39.
13. Dreno B, Finlay AY, Nocera T, Verriere F, Yaieb C, Myon E. The Cardiff Acne Disability Index: cultural and linguistic validation in French. *Dermatology* 2004; 208: 104-108.