Validation of the tunisian version of the oswestry disability index for low back pain in the zawia

Thuraia Athwair and Safa A. Koushada

Department of Physiotherapy, Faculty of Medical Technology,University of Zawia, Zawia, Libya

Abstract: Lower back pain appears a major problem worldwide, accounting for many days of lost work, huge expense, and much suffering from the people affected by it. Incidence of it appears high in the West, but, to date, no studies have determined its incidence in many non-Western countries, including Libya. To help remedy this problem, and to help people with LBP, one needs to measure it. However, this too is a problem. The major method of measuring LBP is use of the Oswestry Disability Index. This was first produced in English, but has now been translated into several other languages, including Tunisian Arabic and Saudi Arabian Arabic. The problem concerns using such Arabic translations for people living in Arab-speaking areas other than Tunisia and Saudi Arabia. Arabic has several dialects, and not all are mutually intelligible. The present study seeks to validate the Tunisian Arabic version of the ODI for Libyans living in the Zawia region of the country. Sixty participants were recruited from patients receiving medical help for LBP in the region. They then had to complete the Tunisian Arabic version of the ODI, and report whether they found it intelligible. The participants were also given Arabic versions of the SF-36 and the PVAS. Scores on these tests were used to validate the Tunisian version for Zawia Libyans. Results suggested that the Tunisian version of the ODI is a valid measure for this particular Arab sub-population.

*Keywords***:** Low back pain, oswestry disability index, pain visual analog scale, short form-36

Introduction

The present research seeks to validate Tunisian Arabic version of the Oswestry Disability Index (ODI) for Libyans suffering from low back pain (LBP). The ODI is a measure of how much back or leg pain impairs normal living. People who score highly on the ODI cannot manage routine day-to-day activities. Originally produced in English, the questionnaire has been shown to be both reliable and valid for English speaking people (1, 2). It has also been translated into and validated in a number of languages other than English, including Greek (3), Turkish (4) and Tunisian Arabic (5) LBP is pain originating from, or in or around, the lumbar region of the back. The pain may be acute (lasting less than 4 weeks), sub-acute (lasting 4-12 weeks), or chronic (lasting more than 12 weeks). The degree of pain varies according to patient (6). Pain may arise from two related areas: the coccyx, or base of the spine, and the sacroiliac joint, the joint that attaches the spinal column to the pelvis.

LBP is a common musculoskeletal condition. In USA, back pain is the second most common reason for visits to physicians (7), the fifth most common

reason for hospital admission, and the third most common reason for surgery (8). In the UK, during the period 1988-1989, LBP was the most important cause of days off work, accounting for 12.5% of the total of sick days off work (9). Swedish statistics are similar, with, in 1961, some 11-19% of days off work attributable to back pain; in 1987, 8% of the insured Swedish population were reported as away from work, at some time during the year, because of back pain. Overall prevalence of LBP, at least in Western countries, appears to be at least 12% and may be over 35% (10). As indicated, there appears to be no data on the incidence of LBP within Libya, and, in general, the incidence within Middle Eastern and North African countries appears uncertain. However, such evidence as exists suggests incidence within Arab countries is high (11), for example, in a study of health care providers in a Kuwait hospital, found a lifetime incidence of LBP of 70.9%. The point prevalence was 21.5%. The study also found that low levels of job satisfaction and self-reported health were associated with LBP. In addition, (11) reports LBP is a common problem in Arabian Gulf and North African countries.

Materials and methods

Three measures were used. The Pain Visual Analogue Scale (PVAS), the Short form SF-36, and the Tunisian Arabic oswestry disability index TAODI.

Data collection: Sixty Libyans from Zawia region were recruited. All were suffering from LBP. Care was taken to ensure the LBP varied from mild to severe and from acute to chronic. Care was also taken that participants came from both urban and rural areas and that roughly equal numbers of males and females were represented. All were aged 18-65 recruitment of the participants within Zawia hospital was by informal approach to patients within the physiotherapy department. The researcher has worked in the department, and ethics and practical approval for the research had been verbally granted. In recruiting the patients, patients were asked to sign a consent form. On completion of the TAODI, they were then asked verbally to indicate how easy it was for them to understand and complete the TAODI. Some participants were illiterate or had poor general education (they had attended only primary schools). For these participants, the questions were asked verbally by the proxy researcher, who completed the questionnaire for them. Participants had their diagnosis of LBP (acute or chronic) verified by a medical practitioner or a physiotherapist. In this regard, the medical practitioners helped determine the validity of the TAODI for Zawia Libyan Arabic speakers.

Statistical analysis All analyses were conducted using SPSS for Windows (Version 14). Alpha was set at $p \leq 0.05$ for all comparisons.

Results

Participants comprised 25 men and 35 women. The mean age was 42.17 (SD = 14.45, range: 18-64). Their mean BMI (uncorrected for age or gender) was 26.94 (SD = 4.55). Thus, on average, they were overweight. Eleven were obese (BMI □ 30), though 21 had BMIs in a healthy range (between 18 and 25). None was underweight (BMI < 18).

Table 1: Means and standard deviations of the 14 measures

Measure	Mean	SD
GH1	3.233333	1.031153
GH2	2.983333	1.185958
PF	2.12	0.452788
RP	2.7625	0.854233
ER	3.205556	0.788552
SF1	2.883333	1.059128
P1	4.033333	1.024557
P2	3.133333	0.98233
MH	3.31	0.321912
VIT	3.3375	0.522431
SF2	2.75	1.144256
GH3	3	0.828517
TAODI	2.291667	1.157068
PVAS	5.25	2.191084

The importance of the table is only that it demonstrates that participants varied on all measures, and that many had severe problems. Because the direction of each SF-36 item varies, Table 1 shows a code for each measure and the expected correlation (positive or negative).

Table 2: Meaning of low scores for each measure

Code	Low score	Expected correlation with TAODI
PVAS	Good health	Positive
GH1	Good health	Positive
GH2	Good health	Positive
PF	Poor health	Negative
RP	Poor health	Negative
ER	Poor health	Negative
SF1	Good health	Positive
P1	Good health	Positive
P2	Good health	Positive
VIT	Good health	Positive
MH	Poor health	Negative
SF2	Poor health	Negative
GH3	Poor health	Negative

Because the direction of the measures varies, if the TAODI is valid, correlations between it and other measures should be positive or negative according to the individual measure. Table 3 shows the correlation coefficients for all measures with the TAODI.

Table 3: Correlations between TAODI and each of the measures.

Measure	Correlation	Significance	Direction of correlation
GH1	0.597	< 0.0005	Correct
GH2	0.523	< 0.0005	Correct
PF1	- 0.557	< 0.0005	Correct
RP	- 0.409	< 0.0005	Correct
RE	- 0.195	0.0132	Correct
SF1	0.454	< 0.0005	Correct
P1	0.557	< 0.0005	Correct
P2	0.466	< 0.0005	Correct
MH	0.085	0.517	N/A
VIT	0.497	< 0.0005	Correct
SF2	- 0.509	< 0.0005	Correct
GH3	- 0.264	0.039	Correct
PVAS	0.672	< 0.0005	Correct

In the table, the direction of correlation (positive or negative) is deemed correct if the correlation is in the predicted direction. Clearly, all correlations are in the predicted direction save mental health, but this correlation is insignificant. Equally clearly, all significant correlations, save those for emotional responsiveness and the third measure of general health, are extremely significant. Table 4 shows the adjusted correlations for each of the eight measures mentioned in the SF-36. From the adjusted correlations, one can derive the measures of physical and mental health measured in the SF-36. The derived correlations are, respectively, 0.485 and 0.315.

Table 4: Adjusted correlations for each of the SF-36 measures

Measure	Adjusted correlation
General health	0.461
Pain	0.511
Social functioning	0.482
Physical functioning	0.557
Physical role	0.409
Emotional role	0.195
Mental health	0.085
Vitality	0.497

Discussion

The SF-36 measures vitality in the other four questions within Section 9. Each is answered in the same manner as the mental health questions. The correlation between the TAODI and vitality, at r = 0.497 was highly significant (p < 0.0005). The questions in the measure all concern feeling tired or lacking energy. It is to be expected that, the more serious the LBP, the more tired the participants would feel. So, again, the result corroborates the view than the TAODI is valid for Zawia Libyans. If the TAODI is a valid measure, results of the present study suggest people with LBP have the profile of problems suggested by the following Figure (1).
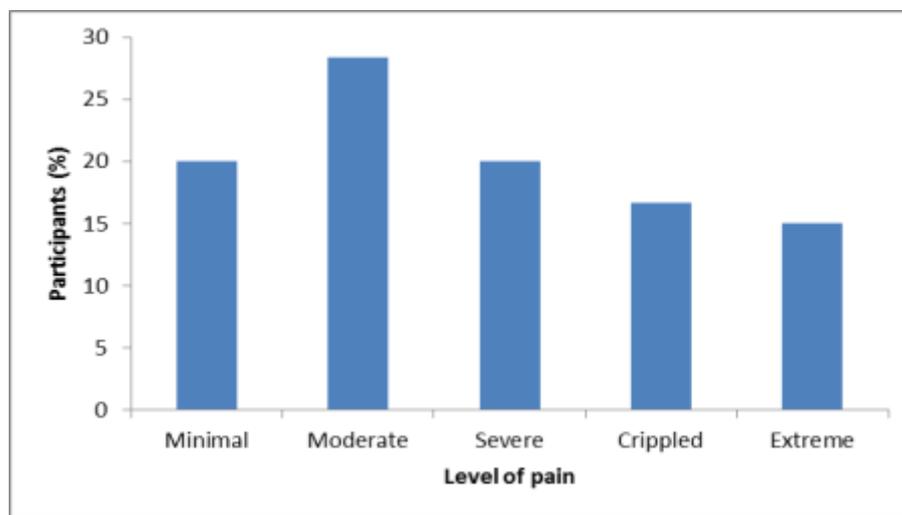
Figure 2: Profile of problems of people suffering from LBP as suggested by results of the present study

The figure suggests that the major problems (left in the figure) are physical problems and pain. This, as indicated, is plausible. The most common symptoms of LBP are pain and tension of stiffness in the lower back (12); the latter two equate to physical disability, albeit mild. Other common symptoms include muscle spasms and a reduced range of motion that involves any use of the back (13) - that is, almost any gross physical movement. Again, these equate to physical disability.

This, of course, is in addition to LBP caused by injury or disease. The finding that the next most common associates of LBP social problems and a lack of vivacity accord with common sense and with the

literature. It is likewise unsurprising that the least important associate, but still significant, associate of LBP was emotional role (14). One would expect some impairment of emotional role caused by LBP, but perhaps not as much impairment as in physical activities. Thus,

the overall pattern of results suggests the TAODI is a valid measure. Finally on this issue, as indicated, all participants indicated they had no difficulty using the TAODI. This not only in itself suggests that the questionnaire is valid, it also accords with results of the pilot study.

References

1. Davidson M and Keating J (2001) A comparison of five low back disability questionnaires: Reliability and responsiveness. Physical Ther. 82: 8-24.
2. Fairbank, JCT and Pynsent, PB (2000) The Oswestry Disability Index. Spine. 25: 2940-2953.
3. Boscainos PJ, Sapkas G, Stilianessi E, Prouskas K and Papadakis, SA (2003) Greek Versions of the Oswestry and Roland-Morris Disability Questionnaires. Clinical Orthopaedics.
4. Yakut E, Düger T, Öksüz Ç et al. (2004) Validation of the Turkish version of the Oswestry Disability Index for patients with low back pain. Spine. 29: 581-585.
5. Ramzy R (2008) Validation of the Arabic version of the Oswestry Disability Index developed in Tunisia for low back pain patients in the UAE. Master's Thesis, University of Stellenbosch.
6. Hart LG, Deyo RA and Cherkin DC (1995) Physician office visits for low back pain. Spine. 20: 11-19.
7. Taylor VM, Deyo RA, Cherkin DC and Kreuter W (1994) Low-back pain hospitalization: Recent United States trends and regional variations. Spine. 19: 1207-1213.
8. Al Faraj S and Al Mutairi K (2003) Vitamin D deficiency and chronic low back pain in Saudi Arabia. Spine. 28: 177-179.
9. Landry MD, Raman SR, Sulway C, Golightly YM and Hamdan E (2008) Prevalence and risk factors associated with low back pain among health care providers in a Kuwait hospital. Spine. 33: 539-545.
10. NHS Choices (2010) Back pain. Retrieved 28 August 2011 from http://www.nhs.uk/Conditions/Back-pain/Pages/Introduction.aspx.
11. Greenough CG (1993) Recovery from low back pain. 1–5 year follow-up of 287 injury-related cases. Acta Orthopaedics Scandinavia. 64 (254S): 1-64.
12. Sander RA and Meyers JE (1986) The relationship of disability to compensation status in railroad workers. Spine. 11: 141-143.
13. Pengel LHM, Herbert, RD, Maher, CG and Refshauge KM (2003) Acute low back pain: systematic review of its prognosis. Br Med J. 327: 323-327.
14. Wortsman J, Matsuoka LY, Chen TC, Lu Z and Holick MF (2000) Decreased bioavailability of vitamin D in obesity. Amer J Clin Nutr. 72: 690-693.