

Translation And Cultural Adaptation Of SIO Obesity-Related Disability Test (TSD-OC) For Gujarati Population (TSD-OC-Test SIO Disabilita`Obesita` Correlata, SIO-Italian Society For Obesity)

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Abstract: Background: Obesity is a health condition that, through a complex interaction of biopsychosocial and environmental factors, is associated with mobility disability. SIO Obesity-Related Disability Test (TSD-OC) is a valid instrument for measuring self-reported disability in subjects with obesity. The Questionnaire consists of 36 items distributed in 7 dimensions (pain, stiffness, functionality and autonomy in daily activities, housework, outdoor, occupational activities, and social life). The aim of the study was to translate & test the validity of the Gujarati version of the SIO Obesity-Related Disability Test. Material And Methods: The TSD-OC was translated into Gujarati from English after taking authors permission according to the guidelines using forward-backward-forward method. An expert committee of 7 members including physiotherapists and physiologists evaluated the Gujarati version. Changes suggested were made and a final draft was prepared by mutual consensus. Twenty-two subjects with obesity (BMI ≥ 25 kg/m²) were enrolled. Each question was examined by the group of 22 subjects knowing both English and Gujarati language and analysed for content, meaning, wording, format, ease of administration and scoring. Spearman's correlation coefficients were used to assess the strength of association between the measures of both the versions. Result: Data of 22 subjects was analysed. Fifteen Female and Seven Male with mean age 47.9 ± 6.8 years were taken. In validation process of Gujarati version of TSD-OC, Mean total score for Gujarati version was 57.45 ± 51.75 and Mean Percentage was 15.96 ± 14.38 and English version was 55.23 ± 54.94 and Mean Percentage was 15.34 ± 15.26 . The total score was significantly and positively correlated ($\rho=0.92$) where $p < 0.001$ between the TSD-OC Gujarati and original English version of TSD-OC. Conclusion: Gujarati version of TSD-OC for disabilities in obesity has a good validity to be used in Gujarati population. [Bhatt C Natl J Integr Res Med, 2023; 14(4):27-31, Published on Dated: 08/07/2023]

Key Words: Obesity, Disability, Validity, TSD-OC.

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Introduction: Obesity is a complex, multi-factorial chronic disease. Obesity is defined as abnormal accumulation or excessive body fat that causes negative effects on health (WHO). Overweight and obesity are emerging health problems in India. Once it was thought as a problem of high income countries now the problem of overweight and obesity are increasing in low income and middle income countries especially in urban areas¹.

Overweight and obesity are the fifth leading risk for global deaths. In India, according to National family health survey India-4 (NFHS-4), 20.6% women & 18.9% men were overweight or obese².

In Gujarat, according to NFHS-4, 23.7% women & 19.7% men were overweight or obese³. More than 1.9 billion adults aged 18 years and older were overweight in 2016. Of these over 650 million adults were obese. 39% of adults aged 18

years and over (39% of men and 40% of women) were overweight in 2016. In 2016, overall, about 13% of the world's adult population (11% of men and 15% of women) were obese. Prevalence of obesity nearly tripled between 1975 and 2016 worldwide⁴.

Obesity is a key risk factor in the natural history of non-communicable diseases like hypertension. Overweight and obesity kills more people than underweight and act as a predisposing factor for non-communicable diseases such as cardiovascular diseases (heart attack and stroke), diabetes, musculoskeletal disorders (osteoarthritis), some cancers (including breast, ovarian, prostate, liver, gallbladder, kidney, and colon). Obesity represents one of the major health hazards since it severely affects morbidity, psychological status and physical functionality, quality of life, and mortality⁵. Obesity is a health condition that, through a complex interaction of

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biopsychosocial and environmental factors, is associated with mobility disability. Obesity is not only characterized by significant clinical implications as co-morbidity and somatic fragility, but it is also a serious factor negatively affecting the levels of independence, the psychological well-being and the overall quality of life, at all ages. International Classification Functioning, Disability and Health (ICF), developed by WHO defines Disability as an umbrella term for impairments, activity limitations and participation restrictions⁶.

Obesity impairs the interaction between the individual and the environment, reduces independence in activities of the daily living and participation in social life⁷. SIO Obesity-Related Disability Test (TSD-OC) developed by Italian Society of Obesity (SIO) is a new scale for assessing disability related to obesity in adult population. TSD-OC is a valid instrument for measuring self-reported disability in subjects with obesity.

The Questionnaire consists of 36 items distributed in 7 dimensions (pain, stiffness, functionality and autonomy in daily activities, housework, outdoor, occupational activities, and social life)^{8,9}. The Gujarati version is still not available. So, this study was carried out to translate and culturally adapt TSD-OC. The aim of the study was to translate & test the validity of the Gujarati version of the SIO Obesity-Related Disability Test.

Material & Methods: The TSD-OC was translated into Gujarati from English version after taking authors permission according to the WHO guidelines using forward-backward-forward method¹⁰. Ethics approval was taken from the institutional review board. The TSD-OC is composed of 36 items divided into seven sections (pain: 5 items; stiffness: 2 items; ADL and indoor mobility: 7 items; housework: 7 items; outdoor activities: 5 items; occupational activities: 4 items and social life: 6 items), which reflect the domains in which individuals experience the most common problems.

For translations one translator who knew both English and Gujarati language was asked to participate. Translator converted the English version of TSD-OC Questionnaire into the Gujarati version. Translated version was given to expert committee of 7 members who evaluated the

Gujarati version. Expert committee included physiotherapists having expertise in Rehabilitation (3) and Physiology (4). Changes suggested were incorporated and a final draft was prepared by mutual consensus. The translators then converted the Gujarati Version into English version seeing that no word meaning has changed. At the end of a mutual consensus, a final Gujarati version of TSD-OC was obtained. Validity was assessed for the Gujarati translated version of TSD-OC.

Individuals were requested to provide a subjective assessment of their disability for each item on a 0–10 visual analogue scale (VAS), where 10 indicates the highest level of disability and 0 no difficulties in performing the task.

‘Disability score’ is calculated as the sum of each item’s raw score divided by the maximum possible score, expressed as a percentage according to the following linear transformation: $(\text{raw score}/\text{maximum score}) * 100$. For example, a raw score of 90, being 25% of the total possible score (which corresponds to 360), results in a final disability score of 25%.¹¹ In this way, disability score is calculated for each subsection, thus enabling a section-by-section comparison.

Twenty-two subjects with obesity (Body Mass Index ≥ 25 kg/m²) were enrolled from the community and explained about the study. Each question was examined by the group of 22 subjects knowing both English and Gujarati language. Those who weren’t willing to participate were excluded.

Statistical Analysis: Data was analysed for content, meaning, wording, format, and ease of administration and scoring. For statistical analysis SPSS version 16 was used. Spearman’s correlation coefficients were used to assess the strength of association between the measures of both the versions.

Results: Data of 22 subjects was analysed. Fifteen Female and Seven Male with mean age 47.9±6.8 years. Translated version was given to expert committee of 7 members (Female=6, Male=1). In validation process of Gujarati version of TSD-OC, Mean total score for Gujarati version was 57.45±51.75 and Mean Percentage was 15.96±14.38 and English version was 55.23±54.94 and Mean Percentage was 15.34±15.26. Spearman’s correlation coefficients were used to

assess the strength of association between the measures of both the versions. The total score was significantly and positively correlated ($\rho=0.92$) where $p<0.001$ between the TSD-OC Gujarati and original English version of TSD-OC. Internal Consistency was analysed where, Cronbach's alpha 0.983 showed excellent Internal Consistency. Tables 1 shows the demographic data of Participants and Table 2 shows the field

of expertise of Expert committee. Table 3 shows correlation between English and Gujarati version and Cronbach's alpha.

Graphs 1 and 2 show the Mean total scores and percentage of the scores of English and Gujarati versions. Graph 3 shows the Correlation of Percentage of Total Score of English (Y axis) and Gujarati (X axis) version of TSD-OC Scale.

Table 1: Demographic Data Of Participants

Gender	N	Age (Years) Mean \pm SD	B.M.I (kg/m ²) Mean \pm SD
Male	7	46.71 \pm 7.18	32.34 \pm 4.06
Female	15	48.46 \pm 6.02	31.785 \pm 3.22
Total	22	47.58 \pm 6.6	32.06 \pm 3.64

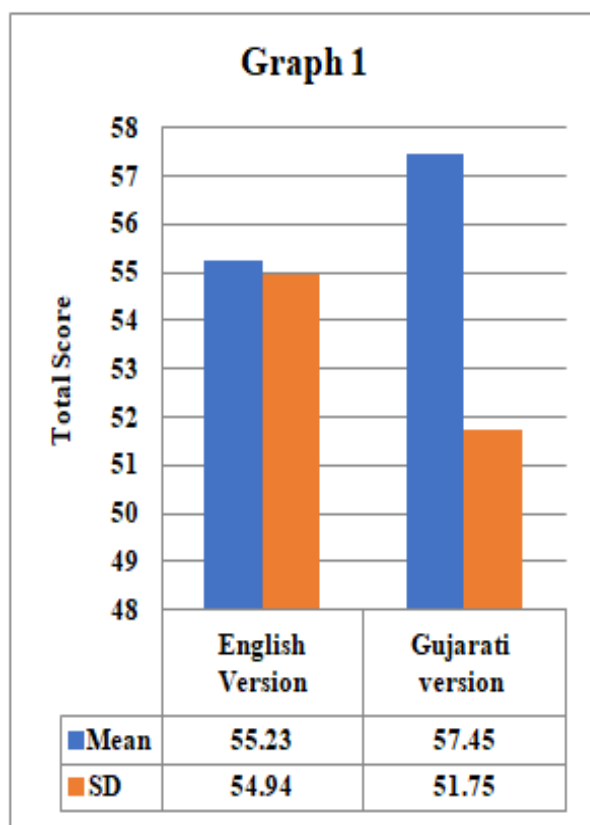
Table 2: Field Of Expertise Of Expert Committee

Field Of Expertise	N	Experience (In Years) Mean \pm SD
Physiology	4	18.0 \pm 10.45
Rehabilitation	3	14.0 \pm 3.46
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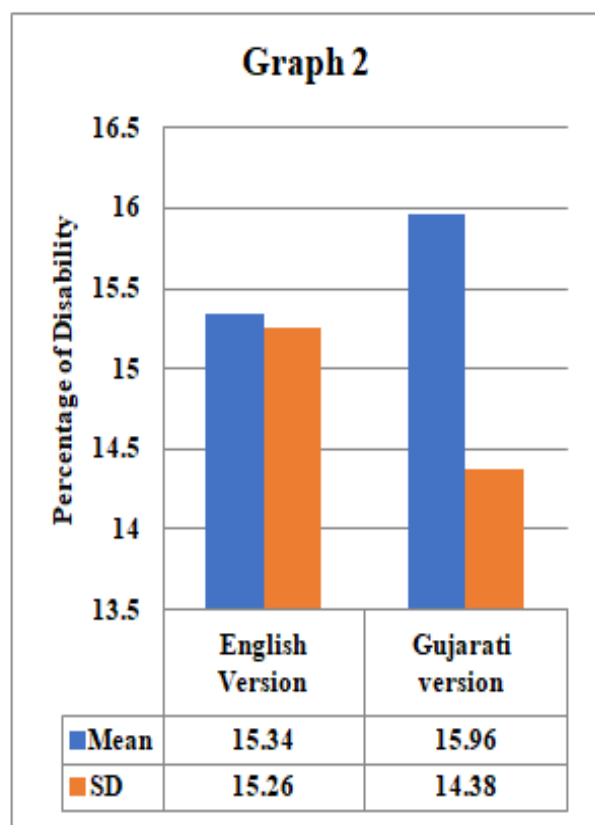
Table 3: Correlation Between English And Gujarati Version And Cronbach's Alpha

Correlation Co- Efficient	P- Value
0.92	<0.001
Cronbach's Alpha	0.983

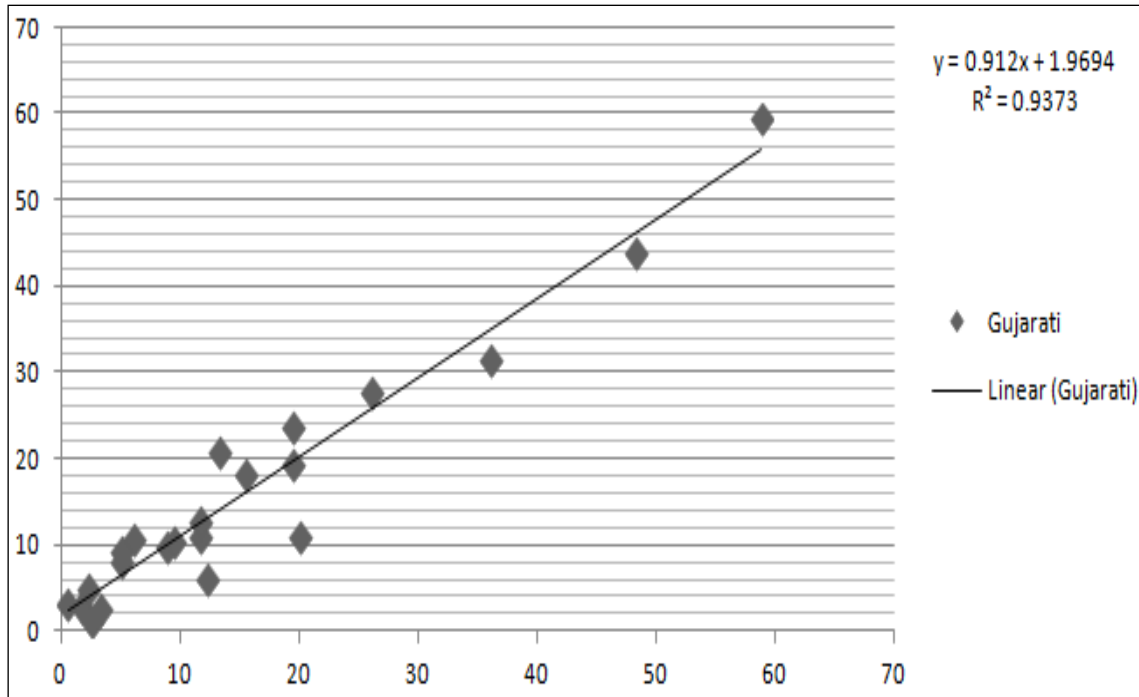
Graph 1: Mean Total Scores Of English And Gujarati Versions



Graph 2: Mean Percentage Of The Scores Of English And Gujarati Versions



Graph 3: Correlation Of Percentage Of Total Score Of English (Y Axis) And Gujarati (X Axis) Version Of TSD-OC Scale



Discussion: Disability is a condition that limits an individual’s interaction with the environment, independence in performing ADL and in participating in social life activities. The TSD-OC scale is composed of 36 items is validated to assess self-reported obesity related disability in subjects with obesity. TSD-OC scale was translated in Gujarati and Correlation Co-efficient was analysed in the present study.

The Scale TSD-OC is available in Italian and English version. In the present study, during translating TSD-OC scale into Gujarati no changes were made in the content of the scale. In the pain domain of questionnaire, questions only ask for reporting VAS Score of pain and pain while activity.

It does not ask reporting for any specific site of pain but many patients reported specific sites of pain while doing activity those were Back, Neck and Heel. Similarly, patients have reported specific sites of stiffness in the domain stiffness even though it was not asked in the questionnaire. So, we have allowed participants to mention their specific sites of pain and stiffness in those domains.

In the Housework domain, words like dusting, arranging utensils, arranging clothes were used to denote Light household activities. Words like sweeping, mopping, cleaning utensils, washing clothes, cleaning bathrooms were used to denote

heavy activities. Few subjects reported zero scores in the domains like Function and Autonomy in Housework and at Work. Female subjects who were all housewives/homemaker have reported zero in all the questions mentioned in Function and Autonomy at Work.

Male subjects have reported zero scores in Function and Autonomy in Housework because in Indian scenarios this practice is not routinely done by them.

But it doesn’t hold so in all cases. So, removing such items from domains may mean ignoring some daily life situations that are difficult to cope with and thus lead to underestimating the disability level of the obese population. So, the present authors decided to retain these questions because every single item in the TSD-OC relates to an aspect that has the potential to unveil the subject’s difficulty in coping with everyday situations. Donini et al also have discussed in their study about not removing such items from the scale⁸.

In the last domain Function and Autonomy in the social life, how they access the surrounding environment and society were assessed. This assesses the Psycho-social aspect of Participating in Society. Donini et al linked TSD-OC scale to ICF categories and showed a wide coverage in particular, related to two categories from Body Functions and eight from Activities and

Participation⁸. Donini et al also showed in their data that disability in obesity is not only a physical issue, but one which also brings about relevant psychological consequences that also affect QoL¹². Hence, assessing disability is one such important aspect in rehabilitation of the obese. Therefore, Gujarati version of TSD-OC scale helps to assess all the categories of ICF in obese Gujarati population.

Future studies can be done using Gujarati version of TSD-OC for multidisciplinary assessment of Obese patients, focusing on disability, to define the cut-off values of the TSD-OC by comparing it with sensitive performance tests in the obese population of Gujarat, to assess its sensitivity to change of scores pre and post rehabilitation.

Conclusion: Gujarati version of SIO Obesity-Related Disability test (TSD-OC) for disabilities in obesity has a good validity to assess disability related obesity in Gujarati population.

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