# Reliability and Validity of Gujarati Version of SF-12 in Geriatrics

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**Abstract:** _Background: Quality of life is been very important in geriatrics. Health is described as physical and mental well being. It is very important that nowadays people can lookout their own health in their own words and in native language. Most commonly used scale in this is Reliability and Validity of English Version of SF-12, has been translated in various languages except Gujarati. So the aim of study is to translate and find out reliability and validity of SF-12 in geriatrics. Aim: The aim of the study is to find out reliability and validity of SF-12 in geriatrics. Methods: The Study done is three phases i. e. from English to Gujarati, again Gujarati to English Version by translators. A harmonized scale is formed with correction. Reliability of scale is done by using SPSS software. Validity of scale is done by using face validity and content validity. Results: Results calculated by using SPSS. N= 81 mean =72.38 & SD±8.26. For reliability of the scale intraclass correlation coefficient used and valued 0.724, correlation matrix was ranging between 0.61 to 0.381. Validity was calculated by Face Validity and Content Validity. Scale content validity calculated 0.986. Conclusion: The Gujarati-version of SF-12 is a reliable and valid tool to assess quality of life in geriatrics for Gujarati population._

**Keywords:** SF-12, quality of life, reliability, validity, Geriatrics

## 1. Introduction

Quality of life (QOL) is defined as subjective well-being in various aspects of an individual's life such as cognitive wellbeing or physical health. It is a broad and subjective rather than specific and objective. Health related Quality of life includes resources, conditions, policies, and practices having influences on health perceptions, functional status in community level.1

Elderly population is going to be increased by 21.1% by 2021 from 9.2% in year 1990.2 Elderly population has physical [4]and mental factors which ultimately affects quality of life.3 There are many scales used to assess quality of life in geriatric population. Most commonly used is SF-12 in many diseased and healthy population.5

It is translated in many different languages to make easier its application and people can filled scale easily.6 It has two components physical and mental component. There are 8 domains in the scale-physical functioning, role physical, bodily pain, general health, energy, fatigue, social functioning, role emotional, mental health. SF-12 is widely used in many countries and for many different conditions to evaluate quality of life. The scoring of SF-12 is into two components physical and mental components. Currently scale translated into Bengali, Turkish, Chinese, Indonesian languages.7 Scoring format of scale is widely used to asses health-related quality of life in mental illness[8], low back pain[8], rheumatoid arthritis, diabetes[10], stroke[9]. Despite scale has been used in many different languages, different population but yet not used for Gujarati population. Therefore the aim of the study is to assess the reliability and validity of Gujarati version of SF-12 in geriatrics.

## 2. Research Designs and Methods

An Observational Study was conducted in geriatrics aged 60 and above 60 years. Inclusion criteria age of 60 years or above, both male and female included, able to write, speak, understand Gujarati language. Exclusion criteria those are not able to understand or write Gujarati language have severe musculoskeletal problems.

Study is carried out in 3 phases:

**Forward Translation:** first stage is to translate the scale from English to Gujarati language by translators. Translators were kept blinded and Translators were known to both English and Gujarati languages.

**Backward translation:** After the Gujarati scale translation, it was again translated back into English by translators who aware about English and Gujarati language. Back translation into original language was done by translator and a harmonized scale was formed. Both translators were unaware about study and from non medical background.

**Finalized scale:** Once the scale been translated into both languages, harmonized scale formed. Committee included health professional, language professional, research methodologist develops original questionnaire. Final scale was formed.

| Members | Years of Experience |
|---|---|
| 1 Clinical Physiotherapist | 4 years |
| 2 Academician | 5 years |
| 2 language Professional (English & Gujarati) | Both having more than 8 years exp. |
| 1 Research | 5 years |

81 subjects were included in the study to find out reliability and validity of Gujarati Version of SF-12. They have been asked to filled Consent form prior to study. Ethical Committee approved the study. Subjects were divided equally depending upon their age groups.

**Scoring of SF-12:**

The scale is used to assess quality of life. There are 12 questions in the scale. Scoring format of the scale is divided into 2 components i. e. PCS-12 and MCS-12. To calculate the score of the scale **Orthotool kit** was used, as it required software to measure the final outcomes of the scale. The manual calculation of the scale is not possible because it calculates the average of 50 samples with standard deviation[5].

**Reliability and validity**

Reliability was assessed by intraclass coefficient correlation. Reliability is a measure of how each item relates with other item in the scale and its score. It is measure by cronbach's alpha, have cutoff score 0.7 or more represents scale is reliable.
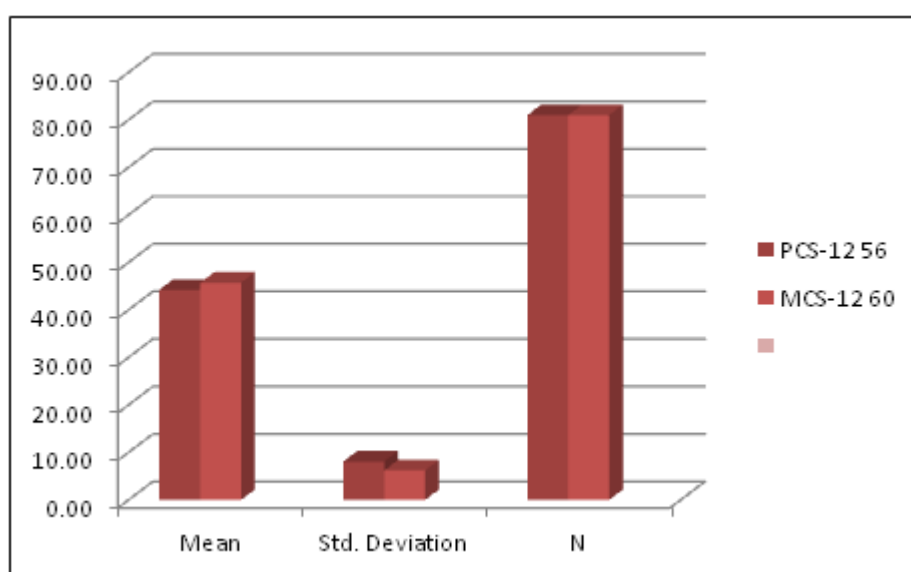
To assess Validity, Content Validity and Face Validity is used. Face validity assessed by asking question to each whether they think this question is relevant to condition. Content validity (CVI) was calculated at both item level (I-CVI) and scale level (S-CVI). To compute I-CVI, relevancy of the experts for each item divided number of experts included for study. Average calculation method is used to calculate S-CVI. Least value for I-CVI IS 0.78 (lynn 1986), and S-CVI/Ave ≥0.90.

## 3.Results

All the statistical analysis was done by SPSS version 20.0.

Sample size 81, Mean and Standard deviation 72.38 ± 8.26 respectively.

Means value of PCS12 and MCS12 is 41.65 & 43.36 respectively. Showed in graph 1



Reliability of gujarati version of sf-12 was assessed by intraclass coefficient correlation, cronbach's alpha value was 0.703.

**Table 1:** shows inter-item correlation matrix of all the components of the scale

| Inter-Item Correlation Matrix | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | GEN. HEALTH | PHYSICAL FUNCTION | ROLE PHYSIO | ROLE EMOTION | BODY PAIN | MENTAL HEALTH | ENERGY FATIGUE | SOCIAL FUNCTION |
| GEN. HEALTH | 1.000 | .383 | .061 | .155 | .284 | .145 | .210 | .142 |
| PHYSICAL FUNCTION | .383 | 1.000 | .416 | .213 | .381 | .220 | .176 | .175 |
| ROLE PHYSIO | .061 | .416 | 1.000 | .470 | .342 | .240 | .223 | .093 |
| ROLE EMOTION | .155 | .213 | .470 | 1.000 | .280 | .161 | .227 | .092 |
| BODY PAIN | .284 | .381 | .342 | .280 | 1.000 | .269 | .341 | .382 |
| MENTAL HEALTH | .145 | .220 | .240 | .161 | .269 | 1.000 | .142 | .444 |
| ENERGY FATIGUE | .210 | .176 | .223 | .227 | .341 | .142 | 1.000 | .122 |
| SOCIAL FUNCTION | .142 | .175 | .093 | .092 | .382 | .444 | .122 | 1.000 |

Validity:

For validity face validity and content validity was done. Content validity was calculated using item – content

validity and scale – content validity index. Table 1 shows item-content validity for each item used in scale. Scale content validity index is 0.986 which showed scale has high content validity.

| Item | Relevant | Non relevant | I-CVI |
|------|----------|--------------|-------|
| 1 | 6 | 0 | 1 |
| 2 | 6 | 0 | 1 |
| 3 | 6 | 0 | 1 |
| 4 | 6 | 0 | 1 |
| 5 | 6 | 0 | 1 |
| 6 | 6 | 0 | 1 |
| 7 | 6 | 0 | 1 |
| 8 | 4 | 2 | 0.83 |
| 9 | 6 | 0 | 1 |
| 10 | 6 | 0 | 1 |
| 11 | 6 | 0 | 1 |
| 12 | 6 | 0 | 1 |

Table 2 shows item content validity index for each item in the scale and scale content validity index is 0.986.

## 4. Discussion

The aim of the present study is to find out reliability and validity of gujarati version of sf-12 in geriatrics.81 geriatric who understood and write gujarati language were included in the study. The reliability was done intra-class coefficient and result was 0.703 and item matrix for each item in the scale was also calculated. To calculate validity, face validity and content validity index was done. Content Validity Index include item-content validity index and scale-content validity index values 0.986. Content validity index for sf-12 was also done by Gould et al [12] had used sf-12 to evaluate measure anxiety in older adults.

In the present study population included those who stayed in old age shelters and residential with their family members however should el at [13] has calculated reliability in older adults those who stayed at hospital and their value was 0.908. Studies has also been done on quality of life associated with different conditions related to health related quality of life[14]. In present study quality of life is taken only with elder population irrespective of their co morbid conditions and other factors. They had also calculated their PCS and MCS cronbach's alpha value which is not calculated in present study. The scale validity index in the present study is 0.986 where shah and brown[14] has calculated validity by convergent validity and confirmatory factory analysis which resulted into goodness of fit 0.958.

Quality of life can be defined as Health related quality of life, World health organization has health related quality of life questionnaire which includes environment component whereas SF-12 has physical, mental and social component. Suarez et al[14] showed in his study WHOQOL-BREIF questionnaire where there is comparison of all components of the scale. They have also included population with disabilities, other conditions which is not included in present study.

## 5. Conclusion

The study showed that Gujarati Version of SF-12 is Reliable and valid in geriatric population. Hence, Gujarati Version of SF-12 is consider a good tool to screen quality of life in geriatrics.

### Conflict of Interest

No conflict of interest.

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