

Validity and Reliability of Shoulder Disability Questionnaire and General Health Questionnaire 12 Following Open Heart Surgery

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Abstract: Background: The Open heart surgery where chest is opened and surgery is done on the heart muscles, valves, arteries. It is the only method of treatment in cardiovascular diseases. After this surgery many postoperative complications occurs like pulmonary complications. Physiotherapy may have positive impact on cardiovascular surgeries. It may be beneficial for patient who has undergone Open heart Surgery. following open heart surgery patient often report feeling of depression, a lack of patience, a loss of general well being, and an inability to function at the same level it affect the general health of patient. The general health questionnaire 12 is assessing the all over general health of patients. After this surgery patient is having musculoskeletal complications like shoulder dysfunction is common. The shoulder disability questionnaire is assessing the shoulder dysfunction. These two scales are available in English version there is no Gujarati version of these scale so if the validity and reliability will be good it may helpful for our community and further research purpose also. Aim and Objective: To check the Validity and Reliability of Gujarati translation of Shoulder disability questionnaire & General Health Questionnaire 12. Method: 55 patients following open heart surgery was included in the study. The age groups between 35-70 years were included. The English version of shoulder disability questionnaire and general health questionnaire12 was forward and backward translated into Gujarati version. Written consent form was obtained from the patient after explanation. After that patient is fill this questionnaire. Same group of people is again taken & given the same questionnaire at 48hour interval. The data was collected and statistical analysis has been done. Result: Data was analyzed in SPSS version 20. The Mean age of patients was (37.226) with involvement of 38% males and 62% females. The test retest reliability of the shoulder disability questionnaire & general health questionnaire12 was excellent ICC is GHQ12 (0.969-0.779) & SDQ (0.92-0.96). Conclusion: The shoulder disability questionnaire and general health questionnaire12 is having excellent test retest reliability and validity

Keywords: Open heart surgery, shoulder disability questionnaire, general health questionnaire12, shoulder dysfunction, general well being

1. Introduction

cardiothoracic surgery is a field of medicine involved in surgical treatment of the internal structures of the thoracic cavity especially heart condition and lung diseases⁽¹⁾ the incidence and prevalence of cardiothoracic disease continue to increase globally, especially in developing countries cardiothoracic surgery is also growing despite limited access, availability of surgical centers and cost issues⁽²⁾ Open heart surgery remains the only method of treatment in selected cases of cardiovascular disease⁽¹⁾ The first successful open heart operation performed with the use of heart-lung machine⁽³⁾ Open heart surgery (OHS) is one of the most important procedures that can resolve many cardiac problems. The most important of which are myocardial revascularization, valve repair or replacement, repair of congenital or acquired structural abnormalities, placement of a mechanical assist device, and heart transplantation⁽⁴⁾. In prospective studies of Egyptian patients after open heart surgery, 86% of the patients had postoperative complications with morbidity and mortality rates of 23% and 1.7% respectively⁽⁵⁾. The incidence of postoperative cardiovascular complications was 28.1% (dysrhythmia). The shoulder disability questionnaire is a measure covering 16 items designed to evaluate functional status limitation in patients with shoulder dysfunction it is the self Administered by the patients.⁽¹¹⁾ Following open heart surgery patient often report feeling of depression, a lack of patience, a loss

9.9%, sudden stroke 3.3%, bleeding 3.3%, thrombus 11.7%). Other complications included: pulmonary (4.5%), infections (4.6%) renal impairment and also musculoskeletal disorders are more common⁽⁶⁾. In Iran, more than 39.3% of deaths are caused by ischemic heart diseases⁽⁷⁾, and coronary artery bypass grafting comprises 60% of all open heart surgeries⁽⁸⁾. Pain, especially in the chest, is the most important complication occurring after Open heart surgery. Pain causes protective spasms in the chest muscles and difficulty in taking deep breaths⁽¹⁰⁾. Low-volume breathing is a predisposing factor for atelectasis. Pain also disrupts the effectiveness of coughing; mucus, therefore, accumulates in the lungs, and pulmonary infections may develop. Shoulder pain is another post-operative complication. Upper limb movements often help patients increase mobility, perform breathing exercises, and increase lung capacity⁽⁹⁾. Nevertheless, due to the risk of sternal nonunion or malunion, patients are recommended to avoid movements that stretch the sternum, including shoulder horizontal abduction and shoulder extension. Together, these factors can limit the range of motion of the shoulder joint and lead to permanent movement limitations in the elderly. It leads to shoulder pain in patient who has undergone open heart surgery. of general well being, and an inability to function at the same level it affect the general health of patient. The general health questionnaire 12 is assessing the all over general health of patients. GHQ12 consists of 12 items with each item measuring the severity of general health. Each item was

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assessed on a four-point scale (less than usual, no more than usual, rather more than usual, much more than usual).⁽¹²⁾ The shoulder disability questionnaire and general health questionnaire¹² are available in English version there is no Gujarati version of these scale so if the validity and reliability will be good it may helpful for our community and further research purpose also.

2. Methodology

- **Source of data:** different hospitals of Ahmedabad & Gandhinagar district
- **Study type:** Observational analytical study
- **Sample size:** 55
- **Study duration:** 3 month
- **Sampling technique:** Convenience sampling

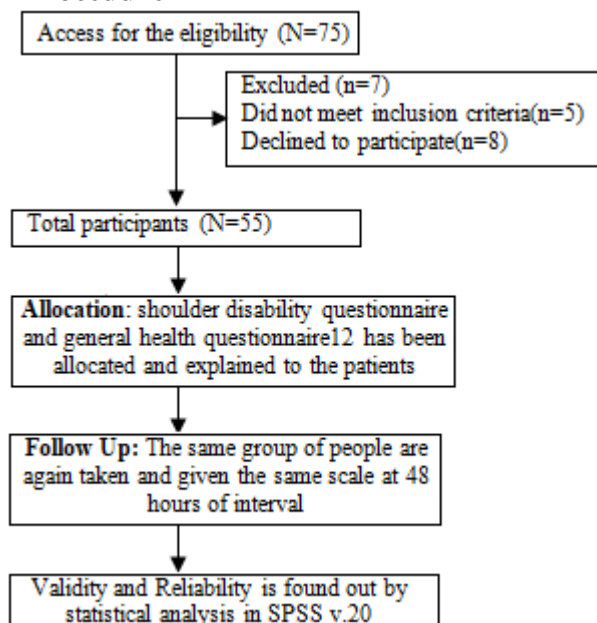
Inclusion Criteria

- Open heart surgery patients
- Age group 35 to 70 years
- Both male and female
- Two weeks after surgery
- Lack of emergency medical conditions
- Full awareness during the study
- Adequate literacy to fill in the questionnaire

Exclusion Criteria

- Mental or physical disabilities
- Patient having any history of psychological or psychiatric disorders.
- Patients with cognitive and perceptual deficits
- Presence of systemic disorders
- Preoperative respiratory conditions
- Patient having past history of cardiothoracic surgery, or abdominal surgery within 1 year
- Patient undergone orthopedic surgery within 1 year
- Post major surgical complications with physical impairment and prolong stay in ICU

3. Procedure



- 55 patients were taken from the different hospitals of the Ahmedabad and Gandhinagar district Informed consent was taken from the patients in the beginning of the questionnaire..Shoulder dysfunction was evaluated by the shoulder disability questionnaire and general health status was evaluated by general health questionnaire 12 (GHQ12). 55 patients aged between 35-70years are taken according to the inclusion and exclusion criteria & the demographic data has been taken and shoulder disability questionnaire and general health questionnaire 12 (GHQ12) has been given to the patient. The scale has been properly explained and responds to all questions, Limitations or symptoms may vary over time. Same group of people is again taken & given the same scale at 48 hours of interval.
- The Shoulder Disability Score & General Health Questionnaire 12 will be analyzed and translated into the Gujarati version the translation and retranslation translation was done
- The validity and reliability was found out by reliability analysis

4. Outcome Measure

Shoulder disability questionnaire

The Shoulder Disability Questionnaire (SDQ) is a measure covering 16 items designed to evaluate functional status limitation in patients with shoulder disorder. The SDQ focuses on how symptoms and complaints of patients with shoulder disorders affect their ability to perform daily activities. The selection of items was based on functional status limitations most frequently reported to, and judged crucial in the evaluation of treatment outcome by relevant health care professionals. SDQ is convenient for patients since it is easy to complete, taking only a little time, while the chosen answer options are easily quantifiable and interpretable, both on item level and as a summary score

Yes-no answer options were used, where yes meant that the patient was restricted with respect to the particular activity. To improve accuracy, the recall period in the patient instructions was limited to the previous 24 hours. The answer option not applicable (NA) was added to focus patients on the actual execution of activities, rather than on the desire or the perceived possibility to perform them. A NA response meant that the activity of the particular item (e.g., carrying something) had not been performed in the previous 24 hours. The ratio of the number of items with an affirmative answer over the number of applicable items was multiplied by 100. This ratio was used as summary score and ranged from a maximum of 100 (i.e., affirmative answer to all applicable items) to 0 (no functional status limitation)

General health questionnaire12 (GHQ12)

The general health questionnaire 12 (GHQ12) is a well known an efficient tool for measuring the general health of the patients. The general health questionnaire consists of 12 items it has been extensively used as a short screening instrument it is self Administered by the patients. Each item was assessed on a four-point scale (less than usual, no more than usual, rather more than usual, much more than usual). The minimum possible total score is 12 and maximum, 48. The positive items are recoded from 1 (not at all) to 4 (much

more than usual) and negative items from 4 (not at all) to 1 (much more than usual).

5. Result

Data were analyzed using SPSS version 20 with level of significance 5%. The Mean age of participants was (37.226 ± 4.27) with involvement of 38% males and 62% females. Fig 1 shows gender distribution. The test retest reliability of the shoulder disability questionnaire was SDQ(r 0.92 to 0.96) excellent and GHQ 12(0.969-0.779)

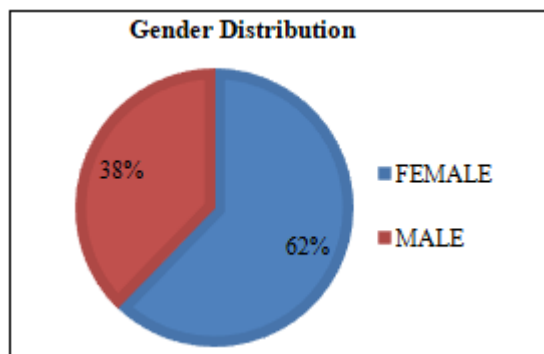


Figure 1: shows gender distribution

Male	94(38%)
Female	57(62%)
Total	75(100%)

Shoulder Disability Questionnaire

Interclass correlation	Lower bound	Upper bound	Value
0.96	0.422	0.933	8.542

General Health Questionnaire

Interclass correlation	Lower bound	Upper bound	value
0.96	0.422	0.935	8.522

Validity is a multifaceted concept and established by different different methods. face validity of an instrument is what it purpose to measure on face. Content validity of an instrument is a degree to which it measures subject of interest. both content validity and face validity were found to be good.

6. Discussion

We made efforts to translate the English version of shoulder disability questionnaire and general health questionnaire 12 into Gujrati version using a standardized tool and to assess Gujrati version of shoulder disability questionnaire and general health questionnaire 12 SDQ Gujrati version and GHQ12 Gujrati version was self administered by patient to avoid potential examiner's bias. Two days of short interval was kept between test and retest to minimize the possibility of change in general health status of patient. The face and content validity was found out good. open heart surgery is the major operative surgery after this surgery Severe damage to the soft tissue, bones in the chest wall, and the anterior-upper arms and shoulders are likely to happen after open heart surgery.⁽¹³⁾ The most important cause of shoulder pain in patients who have undergone open heart surgery is the position of the upper limbs, especially on the left, during

surgery, through median sternotomy, and through their severe retraction to create enough space for the execution of open heart surgery⁽¹⁴⁾. According to the *Ali montazeri et al* the GHQ12 is a well known instrument for measuring minor psychological distress and has been translated into a variety of languages. According to these study mental health in young similar studies among young adolescents reported that the GHQ12 is a particularly useful measure with adolescents where there are likely to be a number of different threats to their psychological health, such as poor self esteem, that may not necessarily constitute a formal psychiatric condition⁽¹⁵⁾. According to the *HEUN et al* have shown that the GHQ12 is not suitable instrument for some special population such as elderly patients. Recovery after open-heart surgery is a complex process that presents psychosocial and physical challenges that continue well after discharge. (16) *María del Pilar et al* suggests that the GHQ-12 has multidimensional properties that are not captured by a single severity score. The results of this work allow us to affirm that the GHQ-12 can be used effectively to assess the Spanish population's overall psychological well-being and to detect non-psychotic psychiatric problems. The GHQ-12 displays adequate reliability and validity for use in the Spanish population (17).

In this study we found excellent reliability of SDQ and GHQ12 and also the face and content validity was found out good. So it is used for the clinical implication, and it is used for our community also.

7. Conclusion

According to the result of our study we concluded that reliability of Gujrati version of shoulder disability questionnaire and general health questionnaire 12 was excellent 0.96 and also the face validity and content validity was found out good

Limitation

Study has a smaller sample size.

Convenience

Sampling has less of generalizability of results.

Conflict of interest

Nil

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