



Research Article

**STUDY OF GENERAL QUALITY OF LIFE OUTCOME AFTER SURGICAL INTERVENTION IN PATIENTS WITH CHRONIC SUPPURATIVE OTITIS MEDIA USING GLASGOW BENEFIT INVENTORY (GBI)-TERTIARY HOSPITAL BASED STUDY**

**Rauf Ahmad., Jasif Nisar and ARSHED ALI**

Department of ENT AND HNS, GMC Srinagar

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**ABSTRACT**

**Background:** Chronic Suppurative Otitis Media (CSOM) affects approximately 2% of the population, in South East Asia CSOM has a prevalence of approximately 5.2% in the general population. Hearing loss is the world's most common disability, affecting more than 5% of the global population (360 million people), with over half of these patients resident in low- and middle-income nations. Therefore, it is important to have effective measures of quality of life (QoL) and health status to evaluate the burden of disease and effectiveness of treatments.

**Objective:** To compare the General-Quality of life at 6 months and 1 year using GBI questionnaires after surgical intervention in case of CSOM patients.

**Materials And Methods:** This prospective study was conducted in the department of Otorhinolaryngology, Head and Neck, Srinagar. All those patients who were treated at the Department and fulfilling the inclusion criteria were included in the study. The measurement of general health-related QOL life was performed using the instrument GBI-Glasgow Benefit Inventory. Data was collected at two times of measurement (TM): at 6, 12 months post-operatively using GBI questionnaire. Tympanoplasty, Canal wall-up, canal wall-down mastoidectomy, and ossicular reconstruction was done.

**Results:** Our study group comprised of 213 patients with majority of patients 157 (73.70%) were in the age group 18 to 30 years. Of 213 patients 129 (60.56%) were females and 84 (39.43) were males. Comparison at 6 months and at 1 year postoperatively using GBI values also showed improvement in total mean, general and social domain.

**Conclusion:** Based on the observations made in the study, General health related quality of life measured with GBI showed improvement, total as well as sub-scale wise.

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**INTRODUCTION**

Chronic Suppurative Otitis Media (CSOM) affects approximately 2% of the population,<sup>1</sup> in South East Asia CSOM has a prevalence of approximately 5.2% in the general population.<sup>2</sup> The World Health Organization has indicated that a prevalence rate of CSOM greater than 4% in a defined population of children is indicative of a massive public health problem requiring urgent attention.<sup>3</sup> It is associated with significant functional limitations of hearing that frequently results in communication problems impeding social interaction and professional life. In patients with severe hearing loss even a withdrawal from social activities can be observed frequently. Hearing loss is the world's most common disability, affecting more than 5% of the global population (360 million people), with over half of these patients resident in low- and middle-income nations.<sup>4</sup>

Half of cases are preventable<sup>4</sup>. There is usually a restriction on the ability to communicate because of the hearing loss. This often causes depression, anxiety and social withdrawal.<sup>5</sup> This leads to a reduced health-related QOL in different dimensions (physical, functional, social, psychological, familial).<sup>6,7</sup> Health-related quality of life (HR-QOL) has an ever increasing importance as an outcome parameter. For the proof of the success of surgical interventions, the evidence of an improvement of HR-QOL in addition to an improvement in objectively measurable parameters is required.<sup>8</sup> To demonstrate this evidence, we used GLASGOW BENEFIT INVENTORY (GBI) questionnaire to study the general quality of life outcome after surgical intervention in patients with chronic suppurative otitis media.

**Aim and Objective**

To compare General quality of life in patients with CSOM at 6 months and at 1 year after ear surgery using Glasgow Benefit Inventory (GBI) Questionnaire.

\*Corresponding author: **Jasif Nisar**

Department of ENT AND HNS, GMC Srinagar

**MATERIALS AND METHODS**

This prospective hospital based study was conducted in the department of Department of Otorhinolaryngology, Head and Neck, SMHS Hospital Srinagar. All those patients who were treated at the Department of Otorhinolaryngology, Head and Neck Surgery at SMHS hospital Srinagar and fulfilling the inclusion criteria were included in the study from July 2014 to oct 2016.

**Inclusion Criteria**

CSOM. All patient with age group 18 or above Having full legal capacity.

**Exclusion Criteria**

Age below 18, Loss of full legal capacity, Gravidity

Medical or surgical treatments or conditions having the potential to influence the outcome of the study.

Data was collected at two times of measurement (TM): 6 months (TM1), and 12 months after surgery (TM2) using Glasgow Benefit Inventory (GBI) questionnaire. Tympanoplasty was performed in all patients. In most of the cases a retroauricular incision with a tympanomeatal flap was made. In cholesteatoma cases canal wall up and canal wall down procedures were performed according to the extension of the disease. For reconstruction of the tympanic membrane, temporalis fascia was used mostly in primary surgery cases with inactive CSOM. In cases with active disease and in revision surgery compound grafts from cartilage and perichondrium or perichondrium alone harvested from the tragus were used. For ossicular reconstruction was done using incus interpositioning or titanium made total and partial ossicular replacement prostheses (TORP and PORP). In the latter cases a cartilage sheet of a size just a bit larger than the prosthesis head to overlap it was prepared and put on top to prevent migration of the prosthesis through the tympanic membrane. The measurement of general health-related QOL life was performed using the instrument Glasgow Benefit Inventory (GBI) questionnaire. Glasgow Benefit Inventory contains 18 changes in health status questions which assess how the ear surgery has altered the quality of life of the person. The response to each question is based on a five-point Likert scale ranging from a large deterioration in health status through to a large improvement in health status.

**Statistical Analysis**

Data was entered in a Microsoft excel spreadsheet. Categorical variables were summarized as frequency and percentage. Continuous variables were summarized as mean and standard deviation. Relationship between two continuous variables was evaluated using Pearson’s correlation coefficient. Paired samples t-test was used to compare GBI score at 6 months versus 1 year. Two-sided p-values were reported and a p-value of <0.05 was considered statistically significant.

**OBSERVATIONS AND RESULTS**

This prospective hospital based study was conducted in the Department of Otorhinolaryngology, Head and Neck, Government Medical College and Associated SMHS Hospital Srinagar. A total of 213 patients were included with following details.

**Table 1** Age distribution in relation with gender

Age Group (years)	Male	Female
18 - 20	24	41
21 - 30	38	54
31 - 40	10	25
41 - 50	11	8
51 - 60	1	0
71 - 80	0	1

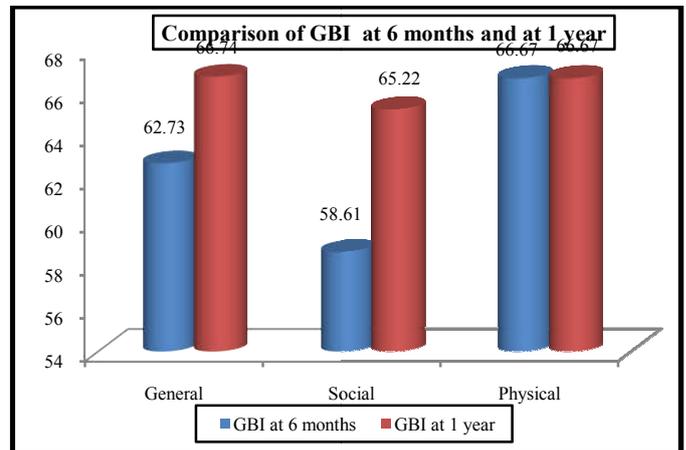
Table 1 showing that 157 (73.70%) patients were in the age group 18 to 30 years of age. Of 213 patients 129 (60.56%) were females and 84 (39.43) were males.

**Table 2** Comparison of GBI at 6 months and at 1 year

GBI	6 months		1 year		p-value*
	Mean	SD	Mean	SD	
General	62.73	2.64	66.74	1.53	<0.001
Social	58.61	6.13	65.22	7.07	<0.001
Physical	66.67	0.00	66.67	0.00	—
Total	62.70	2.52	66.47	1.89	<0.001

\*Paired samples t-test

Table 2 showing comparison at 6 months and at 1 year postoperatively using GBI. It shows improvement in total mean, general and social domain.



**Figure 1** showing comparison at 6 months and at 1 year postoperatively using GBI. It shows improvement in general and social domain.

**DISCUSSION**

Chronic suppurative otitis media (CSOM) is characterized by the clinical symptoms of hearing loss, otorrhoea, fullness of the ears, ear pain, headaches, and often tinnitus. In addition, there is usually a restriction on the ability to communicate because of the hearing loss. This often causes depression, anxiety and social withdrawal<sup>5</sup>. This leads to a reduced health-related quality of life (QOL) in different dimensions (physical, functional, social, psychological, familial).<sup>6,7</sup> In more recent times, health-related quality of life (HR-QOL) measurements have formed an important part of assessing the quality of routine care in general practice.<sup>10</sup> Answering the dimension of the Health related quality of life in the management of diseases is ever increasing in all specialties.<sup>11</sup> It is now being taken as a parameter to express the outcome treatment applied to cure or control the disease. Hence the evidence of an improvement of HR-QOL in addition to an improvement in objectively measurable parameters is required. Patient - based outcome measurements evaluate QOL as a result of surgery using validated instruments. Because subjective outcome measures do not always correspond to objective outcome measures,<sup>12</sup> a comprehensive outcome assessment of both measures is

required. Recently, the importance of health-related QOL measures has been underscored in the clinical literature. There is general consensus among ENT specialists that surgical intervention should be judged not only on quantitative measures such as graft failure, disease recurrence, post-operative infections and audiological thresholds, but also by assessing patients, subsequent quality of life.<sup>13</sup> In the study group of 213 patients, 157 (73.70%) patients were in the age group 18 to 30 years of age. Of 213 patients 129 (60.56%) were females and 84 (39.43) were males.

In the present study the measurement of General health-related quality of life (QOL) life was performed using Glasgow Benefit Inventory (GBI) questionnaire. The Glasgow Benefit Inventory (GBI)<sup>9</sup> is an 18-item post-intervention questionnaire. It is designed to evaluate change in QoL following an intervention for disease. The results of present study using GBI for General HR-QOL suggest that patients benefitted from surgery. The mean Total GBI values were 62.70, 66.47 at 6 months and at 1 year respectively. Robinson *et al.*<sup>9</sup> who found that of 138 patients who underwent middle ear surgery for CSOM, those who experienced ear discharge following surgery had a GBI of -21, but patients without ear discharge reported a GBI of +17. Dornhoffer JL *et al.*<sup>14</sup> conducted a study of 23 patients undergoing revision mastoidectomy and mastoid obliteration surgery for a chronically discharging mastoid cavity, the average GBI score was 28.9, with the most positive effects found for self confidence and social situations<sup>9</sup>, which reflects the results of our study. George Kurien *et al.* (2013)<sup>15</sup>, in their retrospective observational study conducted to determine if mastoid obliteration following mastoidectomy improves quality of life (QOL). Patients with cholesteatoma who had mastoidectomy with primary or secondary mastoid obliteration by a tertiary otologist were surveyed using the validated Glasgow Benefit Inventory (GBI). Overall GBI scores were improved, with average scores of 22. Average general subscale scores were 23, physical health scores were 25, and social health scores were 22. This study showed that mastoidectomy with obliteration offers a significant General HR- QOL benefit.

## CONCLUSION

Comparison of GBI questionnaire values (mean) at 6 months and at 1 year Follow-up using GBI showed improvement in total mean, general and social domain. Total mean GBI improved from 62.70 to 66.47. GBI Domains showed improvement except physical domain. Thus, general quality of life improved after surgical intervention in patients with CSOM.

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