

A Cross Sectional Study on Quality of Life Measurements for Patients with Chronic Suppurative Otitis Media in a Tertiary Care Centre - A Chronic Ear Survey

G Nivedha Kumari¹, Manoj²

ABSTRACT

Introduction: Chronic suppurative otitis media (CSOM) is a chronic suppurative inflammation of mucoperiosteal layer of the middle ear cleft appreciated by perforation of the tympanic membrane. CSOM can severely impact quality of life (QoL) of patients. QoL is the latest indicator of health care. The aim was to assess the quality of life in CSOM (Chronic suppurative otitis media) patients in a tertiary care centre.

Materials and methods: It was a descriptive epidemiological study and sample size is approximately 60 using a Questionnaire by interview method - the CES questionnaire (Activity Restriction, Symptom and Medical Resource).

Results: In the end we came to know QoL is not affected in CSOM patients ($p < .05$) in terms of age, gender with activity restriction, symptom and medical resource.

Conclusion: Hence concluded that quality of life is not affected in csom patients and though the health seeking behavior has increased, the knowledge about the disease is minimum. We have to promote health education about the disease. Further studies with larger sample size necessary to get significant correlation in QoL of csom patients.

Keywords: Chronic Suppurative Otitis Media, QoL, Chronic Ear Survey

INTRODUCTION

Chronic suppurative otitis media (CSOM) is a chronic suppurative inflammation of mucoperiosteal layer of the middle ear cleft. appreciated by perforation of the tympanic membrane.¹ Symptome include profuse mucopurulent non odorous discharge and a conductive type of deafness along with tinnitus.^{3,4} Severity of deafness depends upon the size and site of perforation and underlying middle ear ossicular involvement. Chronic suppurative otitis media affects around 2% of people in India where southern part contributes to the maximum.² Early diagnosis and treatment will prevent the disability. Clean environmental practices as such helps in prevention of the disease. It acts as a barrier to communication thereby impeding social interaction and professional life. Withdrawal from the surroundings is noted in patients with profound hearing loss

In the recent years the incidence of CSOM has significantly decreased in developed countries⁵ because of improvements in housing, hygiene, and antibiotic use. But still it is a severe life threatening disease with many extratemporal and intratemporal complications. Medical and surgical options are definitely necessary to cure this condition. CSOM can severely impact quality of life (QoL) of patients. QoL is

the latest indicator of health care.⁶ Quality of life (QOL) is an important subjective measure of one's condition. QOL encompasses several domains of subjective experience including physical ability, psychological well-being, social interactions and school or work performance.⁷ Quality of life is defined by Felce and Perry⁶ as overall well-being described by objective indicators and subjective evaluation of physical, material, social, productive, emotional and civic well-being. It can be seen as a multidimensional construct that reflects one's self-perceptions of enjoyment, satisfaction with life and general health.^{8,9}

The World Health Organization (WHO) defines the QoL as the individual's perception of his/her position in life, in the context of the culture and value system in which he/she is inserted and in relation to his/her goals, expectations, patterns and worries.¹⁰ So in this present study our aim is to assess the quality of life in patients with csom in a tertiary care centre.

MATERIAL AND METHODS

It was a descriptive epidemiological community based cross sectional study and sampling was by Convenient sampling method. The study population selected was CSOM patients both IP and OP who comes to department of ENT in Saveetha medical college and hospital, Thandalam. Study period extended from September 2017 to November 2017. Study tool used was a standard questionnaire CES Chronic ear survey.²

Inclusion criteria includes diagnosed csom patient, Should be a patient of saveetha medical college hospital and those who give informed consent.

Exclusion criteria includes Postoperative csom patient,

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those not willing to participate in the study and those who could not communicate

Sample size:

Sample size is calculated using the Following formula¹⁴

$$N = \frac{N = Z_{\alpha}^2 PQ}{L^2}$$

Where, N= minimum desired sample size

$Z_{\alpha} = 1.96$ (at 95% CI)

P = Prevalence of csom patients with hearing impairment in a tanzania study = 54%¹

Q = 100-6 = 100- 54= 46%

Relative error = 20% of 54%= 13

$$N = \frac{1.96 \times 1.96 \times 46 \times 54}{13 \times 13}$$

N = 56

Therefore calculated sample size is approximately 60

Data collection procedure and Instruments used: The study initiated after presentation of the proposal to and obtaining clearance from the Institutional review board of Saveetha Medical College & Hospital. Information sheet with pertinent information was given to all the participants invited to participate in the study. Written informed consent obtained from all participants of the study. After selecting the study population by convenient sampling method, the purpose of the study was explained to the individuals. A standard questionnaire CES were given to the study population. Following the data collection, analysis done using SPSS and ANOVA.

Tools:

Chronic ear survey

The CES score has the aim of calculating objective discomforts in patients and the effects of medical and surgical management of CSOM patients. To calculate the total score of the CES questionnaire, it is necessary to apply a definite value from 0 to 100 for every answer. The total values obtained from each section (Activity Restriction, Symptom and Medical Resource) are then divided by the number of the questions (i.e. in the Activity Restriction section the values obtained are added and divided by 3; in the Symptom section are divided by 7). Total values for the three sections (A+S+M) are summed and then divided by 3, resulting in the final value of the questionnaire (Fig 1).

The CES questionnaire has been shown by Nadol et al. 13 to be a valid, disease-specific health measure that can be used to evaluate adult patients with CSOM.

STATISTICAL ANALYSIS

Data entered in Microsoft excel and data analysis done using SPSS 16. Three domains A,S,M and total score were compared. Independent t- test has been used to see the difference in all these domains with respect to gender. Since age has been disseminated into three categories ANOVA was to compare the differences in all these with respect to age. p value <.05 will be considered as significant values.

Potential risks and benefits: There was no potential risk included in this study.

RESULT

60 patients were enrolled in the study, 38(68.33%) were females and males. CSOM was diagnosed in these patients. Most of the patients were in the age group of 18 to 50 (Tab 1).

Activity restriction (A1+A2+A3) / 3 = A	
A1	0-25-50-75-100
A2	0-20-40-60-80-100
A3	0-20-40-60-80-100
Symptoms (S1+S2+S3+S4+S5+S6+S7) / 7 = S	
S1	0-20-40-60-80-100
S2	0-20-40-60-80-100
S3	0-20-40-60-80-100
S4	0-25-50-75-100
S5	0-20-40-60-80-100
S6	0-25-50-75-100
S7	0-20-40-60-80-100
Medical resource (M1+M2+M3) / 3 = M	
M1	0-25-50-75-100
M2	0-25-50-75-100
M3	0-25-50-75-100
Figure-1:	

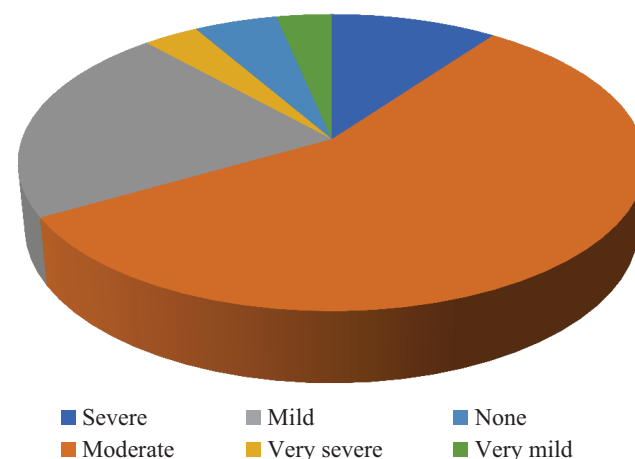


Figure-2: At the present time, how severe a limitation is the necessity to keep water out of your ears

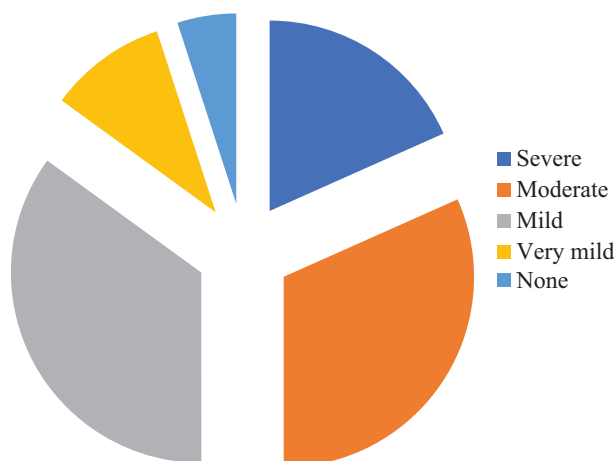


Figure-3: Hearing loss

Variable	Categories	N	%
Age (in years)	1(18-30)	28	46.6
	2(31-50)	26	43.33
	3(51-70)	5	8.33
	4(>70)	1	1.66
Gender	Male	22	36.66
	Female	38	63.33

Table-1: Profile of study population n=60

Question	Response	Total	
		N	%
A1. Because of your ear problem, you don't swim or shower without protecting your ear	Definitely true 0	3	5
	True 25	12	20
	Don't know 50	31	51.66
	False 75	11	18.33
	Definitely false 100	3	5
A2. At the present time, how severe a limitation is the necessity to keep water out of your ears?	Very severe 0	2	3.33
	Severe 20	6	10
	Moderate 40	34	56.66
	Mild 60	13	21.66
	Very mild 80	2	3.33
	None 100	3	5
A3. In the past 4 weeks, has your ear problem interfered with your social activities with friends, family, or groups?	All of the time 0	0	0
	Most of the time 20	12	20
	A good bit of the time 40	33	55
	Some of the time 60	10	16.66
	A little of the time 80	1	1.66
	None 100	4	6.66

Table-2: Activity restriction - based subscale

51.66% (31 patients) told that because of their ear problem they don't swim or shower without protecting their ears and 34 (56.66%) told that there was moderate discomfort and there is limitation to keep water out of their ears (fig 2). 20 respondents answered that their ear problem is interfering with their social activities with family, friends, or groups (Tab 2). 19 patients respondents said that their hearing loss is moderate (fig 3) and 22% people said that drainage from their ear is only moderate. Odor is bothersome to 11 (18.33%) patients (Tab 3). 36 (60%) respondents told that in the past 6 months their ear has drained for more than 3 to 4 times. 50% people said that more than 3-4 times they have visited physician specifically about their ear problem (Tab 4). About 51% patients said that in the past 6 months they used more than 3 to 4 times oral antibiotics to treat their ear infection.

DISCUSSION

Chronic suppurative otitis media (CSOM) is a chronic suppurative inflammation of mucoperiosteal layer of the middle ear cleft. appreciated by perforation of the tympanic membrane.¹ Symptom include profuse mucopurulent non odorous discharge and a conductive type of deafness along with tinnitus.^{3,4} 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.¹² This leads to a reduced health-related QOL in different dimensions (physical, functional, social,

psychological, familial).¹³⁻¹⁴ Health-related quality of life (HR-QOL) has an ever increasing importance as an outcome parameter. For the proof of the success of medical and surgical interventions, the evidence of an improvement of HR-QOL in addition to an improvement in objectively measurable parameters is required.¹⁵ To demonstrate this evidence, the availability of validated disease-specific instruments is an essential prerequisite.¹⁶ So far, studies on HR-QOL with validated instruments have focused on otitis media in children.¹⁷⁻¹⁹ In adults, studies have been carried out with non-validated measurement tools only.²⁰ Other studies were focused on the influence of reduced hearing on HR QOL, but did not pay attention to the symptoms. These studies include validated instruments like the Hearing Handicap Inventory for Adults (HHIA) and the (modified) Amsterdam Inventory Auditory Disability and Handicap Score.^{12,14} Measurements of all aspects of HR-QOL in patients with CSOM with validated measurement tools were, however, to date, only rarely carried out systematically.²¹ This is the first study to detect whether QOL is affected in CSOM patients or not. Previous study of an Italian study showed chronic ear survey validation and proved it as a disease specific instrument in measuring quality of life in CSOM patients. There is no study which assessed quality of life in chronic suppurative otitis media patients to the best of our knowledge. Numerous studies have investigated association between social aspects and health. More

Question	Response	Total	
		N	%
S1. Your hearing loss is:	Very severe 0	0	0
	Severe 20	11	18.33
	Moderate 40	19	31.66
	Mild 60	21	35
	Very mild 80	6	10
	None 100	3	5
S2. Drainage from your ear is:	Very severe 0	2	3.33
	Severe 20	5	8.33
	Moderate 40	22	36.66
	Mild 60	19	31.66
	Very mild 80	4	6.66
	None 100	8	13.33
S3. Pain from your ear is:	Very severe 0	3	5
	Severe 20	6	10
	Moderate 40	23	38.33
	Mild 60	16	26.66
	Very mild 80	7	11.66
	None 100	5	8.33
S4. Odor from your ear is very bothersome to you and? Or others:	Definitely true 0	0	0
	True 25	11	18.33
	Don't know 50	20	33.33
	False 75	22	36.66
	Definitely false 100	7	11.66
	S5. The hearing loss in your affected ear bothers you:	All of the time 0	1
Most of the time 20		9	15
A good bit of the time 40		35	58.33
Some of the time 60		9	15
A little of the time 80		3	5
None 100		3	5
S6. In the past 6 months, please estimate the frequency that your affected ear has drained:	Constantly 0	2	3.33
	>5 times, but not constantly 25	8	13.33
	3-4 times 50	36	60
	1-2 times 75	7	11.66
	Not at all 100	7	11.66
	S7. The odor from your affected ear bothers you and/ or others:	All of the time 0	1
Most of the time 20		9	15
A good bit of the time 40		29	43.33
Some of the time 60		8	13.33
A little of the time 80		2	3.33
None 100		11	18.33

Table-3: Symptom subscale

information on social aspects among people with chronic illness could increase our understanding of the processes involved in the wide variety of situations.¹¹ In the Italian study², 54 patients were enrolled in the study, 26 (48.1%) were females and 28 (51.9%) males, with a median age of 42 (range 24-61) years. Bilateral CSOM was diagnosed in 18% of subjects. In our study, the 60 patients were enrolled in the study, 38(68.33%) were females and males. CSOM was diagnosed in these patients. Most of the patients were in the age group of 18 to 50. Poor socioeconomic circumstances leads to increased prevalence of CSOM compared to that in more affluent population groups²²⁻²⁵ QOL is not affected in these study group which needs more sample size to get significant correlations.

CONCLUSION

Chronic suppurative otitis media (CSOM) is characterised by an evident and definite perforation of the tympanic membrane and by constant or intermittent middle ear inflammation often associated to a chronic or intermittent otorrhoea.¹ Chronic suppurative otitis media (CSOM) affects approximately 2% of the population.² There is only limited studies which used chronic ear survey to measure quality of life in chronic suppurative otitis media patients. In this study we have used CES questionnaire and calculated the symptom subscale, restriction activities and frequency of visits. There is no correlation between age and CES scores and also there is no correlation between gender variations and CES scores. The quality of life is not significantly affected in these study

Question	Response	Total		
		N	%	
M1. In the past 6 months, how many separate times have you visited your physician, specifically about your ear problem?	>6 times	1	1.66	
	>5 times, but not constantly	25	8	13.33
	3-4 times	50	30	50
	1-2 times	75	14	23.33
	Not at all	100	7	11.66
M2. In the past 6 months, how many separate times have you used oral antibiotics to treat your ear infection?	>6 times	0	2	3.33
	>5 times, but not constantly	25	4	6.66
	3-4 times	50	31	51.66
	1-2 times	75	14	23.33
	Not at all	100	9	15
M3. In the past 6 months, how many separate times have ear drops been necessary to treat your ear condition?	>6 times	0	3	5
	>5 times, but not constantly	25	7	11.66
	3-4 times	50	21	35
	1-2 times	75	16	26.66
	Not at all	100	13	21.66

Table-4: Medical resource utilisation subscale

population. Hence concluded that though the health seeking behavior has increased, the knowledge about the disease is minimum. We have to promote health education about the disease and to increase the health seeking behavior. Further studies with larger sample size necessary to get significant correlation in qol of csom patients.

REFERENCES

- Ralli G. Chronic suppurative otitis media. Edizioni Minerva Medica 2004;1:1-2
- Nadol JB Jr, Staecker H, Gliklich RE: Outcomes assessment for chronic otitis media: the Chronic Ear Survey. *Laryngoscope* 2000;110: 32–35.
- Demir UL, Akyildiz MY, Alpay M. The factors which affect disease-specific quality of life in patients with chronic otitis media. *Int Adv Otol* 2012;8:371-8.
- Sheppard A, Hayes SH, Chen GD, Ralli M, Salvi R. Review of salicylate-induced hearing loss, neurotoxicity, tinnitus and neuropathophysiology. *Acta Otorhinolaryngol Ital* 2014;34:79-93.
- Vartiainen E. Changes in the clinical presentation of chronic otitis media from the 1970s to the 1990s. *J Laryngol Otol* 1998;112:1034-7.
- Armstrong D, Caldwell D. Origins of the concept of quality of life in health care: a rhetorical solution to a political problem. *Social Theory & Health* 2004;2:361-71.
- Naughton MJ, Shumaker SA. The case for domains of function in quality of life assessment. *Qual Life Res* 2003; 12: 73–80.
- Varri JW, Burnwinkle TM, Seid M: The PedsQL 4.0 As a school population health measure: feasibility, reliability, and validity. *Qual Life Res* 2006, 15:203–215.
- Zhang L, Fos PJ, Johnson WD, Kamali V, Cox RG, Zuniga MA, Kittle T: Body mass index and health related quality of life in elementary schoolchildren: a pilot study. *Health Qual Life Outcomes* 2008, 6:77.
- World Health Organization (WHO). International classification of impairments, disabilities and handicaps: a manual of classification relating to the consequences of disease. Proceedings of World Health Organization 1980 Geneva.
- Dibb B, Yardley L. Factors important for the measurement of social comparison in chronic illness: a mixed-methods study. *Chronic Illn* 2006;2:219-30.
- Newman CW, Weinstein BE, Jacobson GP, Hug GA. The Hearing Handicap Inventory for Adults: psychometric adequacy and audiometric correlates. *Ear and hearing*. 1990;11:430-3.
- Korsten-Meijer AG, Wit HP, Albers FW. Evaluation of the relation between audiometric and psychometric measures of hearing after tympanoplasty. *European Archives of Oto-Rhino-Laryngology and Head & Neck*. 2006;263:256-62.
- Meijer AG, Wit HP, Albers FW. Relation between change of hearing and (modified) Amsterdam Inventory for Auditory Disability and Handicap Score. *Clinical Otolaryngology & Allied Sciences*. 2004;29:565-70.
- Koller M, Lorenz W. Survival of the quality of life concept. *British journal of surgery*. 2003;90:1175-7.
- Fitzpatrick R, Davey C, Buxton MJ, Jones DR. Evaluating patient-based outcome measures for use in clinical trials.
- Lee J, Witsell DL, Dolor RJ, Stinnett S, Hannley M. Quality of life of patients with otitis media and caregivers: a multicenter study. *The Laryngoscope*. 2006;116:1798-804.
- Richards M, Giannoni C. Quality-of-life outcomes after surgical intervention for otitis media. *Archives of otolaryngology-head & neck surgery*. 2002;128:776-82.
- Rosenfeld RM, Goldsmith AJ, Tetlus L. Quality of life for children with otitis media. *Archives of Otolaryngology-Head & Neck Surgery*. 1997;123:1049-54.
- Baba S, Yagi T, Fujikura T. Subjective evaluation and overall satisfaction after tympanoplasty for chronic simple suppurative otitis media. *Journal of Nippon Medical School*. 2004;71:17-24.
- Bhattacharyya N. Outcomes research in otology. *ORL*. 2004;66:214-20.
- Ologe FE, Nwawolo CC. Identifiable risk factors for chronic suppurative otitis media (CSOM) in a

- rural community in Nigeria. *Nig Q J Hosp Med.* 2000;10:239–242.
23. Ologe FE, Nwawolo CC. Prevalence of chronic suppurative otitis media (CSOM) among school children in a rural community in Nigeria. *Niger Postgrad Med J.* 2002;9:63–66.
 24. Ologe, FE, Nwawolo CC. Chronic suppurative otitis media in school pupils in Nigeria. *East Afr Med J.* 2003;80:130–4
 25. Okafor BC. The chronic discharging ear in Nigeria. *J Laryngol Otol.* 1984;98:113–119

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