



# QUALITY OF LIFE IN PATIENTS OF OBSTRUCTIVE SLEEP APNEA

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# QUALITY OF LIFE

- ◉ WHO defines Quality of Life as **Individual's perception** of their position in life in the context of the culture and value systems in which they live and in relation to their **goals, expectations, standards and concerns.**

# QUALITY OF LIFE

It is a broad concept. Multiple factors effect it:

- ◉ **Physical health**
- ◉ Psychological state
- ◉ Level of independence
- ◉ Social relationships
- ◉ personal beliefs etc

# HEALTH RELATED QUALITY OF LIFE

- ⦿ All determinants of Quality of Life are not health related e.g. Poverty, Low education or social status.
- ⦿ Health professionals are interested in only that part of QoL which is affected by health status.

# WHY MEASURE (HR)QOL

QoL measurement basically started in 1980s

Main factors which led on to use of QoL were

- 1) Shift of focus towards chronic diseases
- 2) Cancer posed unique challenges
- 3) Stress on patients point of view

# SHIFT OF FOCUS TOWARDS CHRONIC DISEASES

- In western world a shift of health care resources from acute infectious diseases to chronic diseases prevention and treatment took place.
- Rx of chronic diseases was associated with long term Rx with its side effects.
- So there was need to study the overall impact of disease and Rx on life not just the effect of disease.

# CANCER

- ◉ Donovan et al. (1989) noted that the emotional suffering produced by cancer exceeds the physical suffering it causes, while at the same time pointing out that QOL measures have generally not been included in clinical trials of cancer therapy.
- ◉ It was soon recognised that at times treatment of cancer is as troubling as disease itself so just prolongation of life by few months is not sufficient but Quality of life must improve.

# STRESS ON PATIENT'S POINT OF VIEW

- ⦿ Patient does not want normalization of physical/ Biochemical parameters from doctor. Patients want improved Quality of life.

# WHY MEASURE QOL IN OSA

- ◉ AHI has failed to adequately measure the rather broader impact of the disorder on human life.
- ◉ Being tied to a machine 8-10 hours out of total 24 hours is also something unique and had its own problems.
- ◉ Surgery and other therapeutic modalities are also associated with significant consequences important for the patient.

# WHY MEASURE QOL IN OSA

- ◉ Helps in early detection of comorbid illnesses like depression
- ◉ Newer studies suggest that decision to start Rx in OSA patients may be based on impairment of QoL.

# OSA IN INDIA

- Awareness is low in India but the magnitude of problem seems to be large according to prevalence studies in India
- Prevalence of OSA in India 3.5-15.5%

# MEASURING QOL IN OSA

- ◉ QoL is subjective perception of the person so no physical/chemical parameter can gauge it.
- ◉ QoL is measured with the help of Questionnaires. These Questionnaires have separate domains and each domain has many questions. Physical health, mental health and social health domains are present in almost all questionnaires

# MEASURING QOL IN OSA

- ⦿ Answers are usually in form of likert scale.  
e.g. How much of a problem have you had from not being involved in family activities?
- ⦿ A very large problem = 7
- ⦿ A large problem = 6
- ⦿ A moderate to large problem = 5
- ⦿ A moderate problem = 4
- ⦿ A small to moderate problem = 3
- ⦿ A small problem = 2
- ⦿ No problem = 1

# MEASURING QOL IN OSA

- Answer to the Q is in form of graded response and each response is given score according to the magnitude of response
- All scores are counted to get the domain score and the total QoL score

# TYPES OF QUESTIONNAIRES

- ◉ Generic Questionnaires - Can be used for any disease/condition
- ◉ OSA specific Questionnaire

# GENERIC QUESTIONNAIRES

- ◉ MOS (Medical Outcome Survey)
- ◉ SF-36 (Short form-36)
- ◉ NHP (Nottingham Health Profile)
- ◉ EuroQoL

# GENERIC QUESTIONNAIRES

- ◉ Permit comparisons across interventions and diagnostic conditions, which is particularly important for policy makers [resource allocation].
- ◉ Allow dysfunction to be quantified for an individual experiencing several disease conditions

# OSA SPECIFIC QUESTIONNAIRES

- ◉ Calgary SAQLI ( Sleep Apnea Quality of Life Questionnaire)
- ◉ FOSQ (functional outcome of sleepiness questionnaire)
- ◉ QSQ (Quebec Sleep Questionnaire)

# OSA SPECIFIC QUESTIONNAIRES

- ◉ More powered to detect subtle changes in Quality of life
- ◉ More responsive to effect of treatment
- ◉ Have questions relevant to patient's illness so more acceptable.

# WHICH ONES ARE BETTER

- ◉ Depends on research Question
- ◉ Recent studies of QoL increasingly using OSA specific Questionnaires
- ◉ As patient acceptability is high and detect minor changes in QoL.

# QOL IN OSA

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Sleep. 1993 Dec;16(8 Suppl):S59-61.

**Quality of life in mild obstructive sleep apnea.**

Gall R, Isaac L, Kryger M.

Department of Medicine, University of Manitoba, Winnipeg, Canada.

PMID: 8178027 [PubMed - indexed for MEDLINE]

- ◉ **First study of Quality of life in OSA was published in 1993**
- ◉ **Study observed significant Quality of life impairment in OSA patients**
- ◉ **Interestingly in some severe OSA patients there was little Quality of life impairment**

# Quality of Life in Patients with Obstructive Sleep Apnea\*

## Effect of Nasal Continuous Positive Airway Pressure—A Prospective Study

Carolyn D'Ambrosio, MD; Teri Bowman, MD; and Vahid Mohsenin, MD

**Background:** Obstructive sleep apnea (OSA) is a common condition and is associated with excessive daytime sleepiness and neuropsychological dysfunction. There is limited evidence on

### SLEEP APNEA AND HEALTH-RELATED QUALITY OF LIFE IN AFRICAN-AMERICAN ELDERLY<sup>1,2</sup>

**Carl Stepnowsky, Ph.D.**

San Diego State University/University of California, San Diego Joint Doctoral Program in Clinical Psychology

**Sherella Johnson**

University of California, San Diego and Veterans Affairs San Diego Healthcare System

**Joel Dimsdale, M.D.**

University of California, San Diego

**Sonia Ancoli-Israel, Ph.D.**

University of California, San Diego and Veterans Affairs San Diego Healthcare System

#### ABSTRACT

*The relationship between health-related quality of life (HRQOL) and sleep apnea was examined in a sample of elderly*

*studied in some disease populations including cardiopulmonary disease and human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) (3,4). Like cardiopulmonary disease, sleep apnea is a condition that can impair an individual's*

J Sleep Res. 1997 Sep;6(3):199-204.

## Comparison of three measures of quality of life outcome in the evaluation of continuous positive airways pressure therapy for sleep apnoea.

Jenkinson C, Stradling J, Petersen S.

Health Services Research Unit, University of Oxford, Headington, UK.

#### Abstract

Treatment of obstructive sleep apnoea (OSA) with nasal continuous positive airway pressure (NCPAP) has become a standard treatment since its introduction in 1981. Following such treatment the apnoeas disappear, sleep quality improves as apparently do daytime symptoms of sleepiness. Sleepiness is an unusual symptom and its impact on conventional indices of quality of life has rarely been measured. To allow comparison of NCPAP therapy with treatments for other conditions, measurements of quality of life before and after treatment using standard techniques are required. It is not clear which of the standard measures is most suited to measuring the health gain from nasal NCPAP, and indeed whether the disability of

# QOL IN OSA

- These early studies used generic Questionnaires to measure QoL e.g. SF-36, Euro QoL, NHF
- Most studies found significant impairment of Quality of Life in OSA

# QOL IN OSA

## **Development of a Disease-specific Health-related Quality of Life Questionnaire for Sleep Apnea**

W. WARD FLEMONS and MARLENE A. REIMER

Faculties of Medicine and Nursing, University of Calgary, Calgary, Alberta, Canada

The Calgary Sleep Apnea Quality of Life Index (SAQLI) was developed to record key elements of the disease that are important to patients. All items felt to influence the quality of life of these patients were identified. Final questionnaire items were selected by interviewing 113 patients with sleep apnea and 50 snorers who rated each item on whether it was a problem and the importance of it to their overall quality of life. Items for the final questionnaire were selected based on the rank order of the frequency  $\times$  importance product. The rank ordering was similar across strata of disease severity

**In 1998 Flemons and Reimer developed Calgary Sleep Apnea Quality of Life Index (SAQLI)- An OSA specific QoL Questionnaire**

# ASSOCIATION OF QOL WITH OSA SEVERITY

Sleep. 2000 Jun 15;23(4):535-41.

## **Sleep apnea and quality of life.**

Yang EH, Hla KM, McHorney CA, Havighurst T, Badr MS, Weber S.

Johns Hopkins Hospital Department of Medicine, USA.

### **Abstract**

**OBJECTIVE:** To investigate the effects of sleep apnea (SA) on the quality of life (QOL).

**DESIGN:** A prospective study of QOL in patients with and without SA as defined by an apnea-hypopnea index (AHI) >5.

**SETTING:** University-based outpatient clinics.

**Most studies have not found any association of QoL impairment with OSA severity. There is no clear evidence that severe OSA patients have more impairment of QoL as compared to mild or moderate OSA patients.**

# Quality of life impairment in patients of obstructive sleep apnea and its relation with the severity of disease

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*Department of Pulmonary Medicine, All India Institute of Medical Sciences (AIIMS), Jodhpur, Rajasthan, <sup>1</sup>Department of Pulmonary Medicine, Government Medical College and Hospital, Chandigarh, <sup>2</sup>All India Institute of Medical Sciences (AIIMS), Bhubaneswar, Orissa, India, <sup>3</sup>Department of Internal Medicine, Unity Hospital, Rochester, New York, USA*

## ABSTRACT

**Background:** Several studies have demonstrated considerable impairment of quality of life (QOL) in obstructive sleep apnea (OSA) patients, but its relation with severity of OSA is yet unclear. **Study Objectives:** To investigate the effects of OSA on the QOL and its association with the disease severity. **Design and Setting:** Observational, prospective case-control study. **Materials and Methods:** QOL of 69 OSA patients and 41 healthy controls were assessed using the Calgary sleep apnea quality of life index (SAQLI) on the morning following the polysomnography (PSG) study.

**All the domains of Calgary SAQLI showed impaired QoL in patients of OSA**

**Impairment was not proportional to severity of disease**

# EFFECT OF CPAP ON QOL

Lung. 2008 May-Jun;186(3):131-44. doi: 10.1007/s00408-008-9079-5. Epub 2008 Mar 14.

**Effect on quality of life of continuous positive airway pressure in patients with obstructive sleep apnea syndrome: a meta-analysis.**

Jing J, Huang T, Cui W, Shen H.

Department of Respiratory Disease, Second Affiliated Hospital of Zhejiang University Medical School, 88# Jiefang Road, Hangzhou, Zhejiang Province 310009, China. jiyong\_jing@163.com

## **Abstract**

Continuous positive airway pressure (CPAP) is the standard treatment for obstructive sleep apnea syndrome (OSAS). However, the impact of CPAP on quality of life (QOL) is controversial. The aim of this study was to systematically review and determine whether CPAP improves QOL in patients with OSAS. We performed a comprehensive literature search to identify studies published between 1966 and 2007 comparing values of CPAP with control. Weighted mean difference (WMD) was used to analyze the data. The pooled WMD was calculated by using a fixed or random-effect model. The outcomes for 1,256 patients from 16 studies, of whom 656 patients underwent CPAP and 600 were controls, were included. CPAP led to significant improvements in the Nottingham health profile part 2 (WMD=1.657; 95% CI=3.005, -0.308; p=0.016), but there was no difference in other general QOL scores. Patients undergoing CPAP scored better in physical function (WMD=3.457; 95% CI=0.144, 6.771; p=0.041), body pain (WMD=4.017; 95% CI= -0.008, 8.042; p=0.05), energy vitality (WMD=6.984; 95% CI = 0.557, 13.411; p=0.033) and physical component summary (PCS) (WMD=2.040; 95% CI=0.045, 4.035; p=0.045) using the SF-36 tool. This meta-analysis shows that CPAP does not improve general QOL scores but does improve physical domains and vitality. Study design and QOL questionnaire tools are important to capture and evaluate information efficiently. However, generic QOL instruments may not be adequate in detecting important changes in quality of life in patients with OSAS.

**Cochrane review (2006) observed that CPAP improves Quality of life measures in OSA patients.**

**A meta-analysis(2008) which studied only QoL concluded that CPAP did not improve general quality of life score but did improve physical domains and vitality.**

# EFFECT OF CPAP ON QOL

*Sleep*. 2011 Jan 1;34(1):111-9.

**The effect of CPAP in normalizing daytime sleepiness, quality of life, and neurocognitive function in patients with moderate to severe OSA.**

Antic NA, Catcheside P, Buchan C, Hensley M, Naughton MT, Rowland S, Williamson B, Windler S, McEvoy RD.

Adelaide Institute for Sleep Health, Repatriation General Hospital, Daw Park, South Australia, Australia. nick.antic@health.sa.gov.au

## **Abstract**

**STUDY OBJECTIVES:** The study aimed to document the neurobehavioral outcomes of patients referred to and treated by a sleep medicine service for moderate to severe obstructive sleep apnea (OSA). In particular, we aimed to establish the proportion of patients who, while appearing to have optimal continuous positive airway pressure (CPAP) adherence, did not normalize their daytime sleepiness or neurocognitive function after 3 months of CPAP therapy despite effective control of OSA.

**DESIGN:** Multicenter clinical-effectiveness study.

**SETTING:** Three academic sleep centers in Australia.

**PARTICIPANTS:** Patients referred to a sleep medicine service with moderate to severe OSA (n = 174).

**INTERVENTION:** CPAP.

**MEASUREMENTS AND RESULTS:** Participants were assessed pretreatment and again after 3 months of CPAP therapy. At the beginning and at the conclusion of the trial, participants completed a day of testing that included measures of objective and subjective daytime sleepiness, neurocognitive function, and quality of life. In patients with symptomatic moderate to severe OSA (i.e., apnea-hypopnea index > 30/h), we found a treatment dose-response effect for CPAP in terms of Epworth Sleepiness Scale scores (P < 0.001). Several key indexes of neurobehavior (e.g., Functional Outcomes of Sleep Questionnaire, Epworth Sleepiness Scale) currently used to assess treatment response failed to normalize in a substantial group of patients after 3 months of CPAP treatment, even in those who were maximally compliant with treatment. Forty percent of patients in this trial had an abnormal Epworth Sleepiness Scale score at the conclusion of the trial. In addition, we showed no dose-response effect with the Maintenance of Wakefulness Test, raising doubts as to the clinical utility of the Maintenance of Wakefulness Test in assessing treatment response to CPAP in patients with OSA.

**CONCLUSIONS:** Our study suggests that a greater percentage of patients achieve normal functioning with longer nightly CPAP duration of use, but a substantial proportion of patients will not normalize neurobehavioral responses despite seemingly adequate CPAP use. It is thus crucial to adequately assess patients after CPAP therapy and seek alternate etiologies and treatments for any residual abnormalities.

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# EFFECT OF CPAP ON QOL

- Large multicentric study presented in ATS-2011(341 patients from 10 medical centers)
- Patients had proven OSA but insufficient current symptoms to justify CPAP therapy
- Patients randomized for 6 months CPAP trial or no treatment



## News Release

**FOR RELEASE May 15, 2011, 8:15a.m. MDT**

### FOR MORE INFORMATION, CONTACT:

Keely Savoie or Brian Kell

[ksavoie@thoracic.org](mailto:ksavoie@thoracic.org) or [bkell@thoracic.org](mailto:bkell@thoracic.org)

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Location: Room 201-203 (Street Level), Colorado Convention Center

### CPAP Improves Daytime Sleepiness Even in Patients with Low Levels of Symptoms

ATS 2011, DENVER – Continuous positive airway pressure, or CPAP, can increase alertness and even improve quality of life for sufferers of obstructive sleep apnea (OSA), even if their symptoms are minimal, according to a study conducted by researchers in Europe. Patients enrolled in the study reported an improvement in daytime sleepiness within six months of beginning CPAP treatment.

The study will be presented at the ATS 2011 International Conference in Denver.

# EFFECT OF CPAP ON QOL

- Quality of life scores were also significantly higher in the CPAP group compared to standard care patients
- “It appears clinical assessment of patients with OSA does not reliably identify all patients likely to benefit from treatment with CPAP”.
- In other words authors suggested impairment of QoL may be an indication for starting Rx.



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# TAKE HOME MESSAGE

- Its important to measure Quality of Life in your OSA patients.
- Patient doesn't expect us to decrease their AHI but expect us to improve their Quality of Life.
- AHI improvement with CPAP is not adequate. Post CPAP Quality of life should be measured. In many patients neurobehavioural conditions and QoL do not improve after CPAP. Alternate etiologies must be looked for in such patients.

# TAKE HOME MESSAGE

- Recent researches suggest that impaired QOL may be an indication for starting treatment in OSA patients.

The image shows the exterior of a large, modern building with a distinctive architectural style. The building is constructed from reddish-brown stone blocks and features a series of rectangular openings and windows. A sign is mounted on the facade, displaying the name of the institution in both Hindi and English. The text "Thank you" is overlaid on the image in a large, orange, 3D-style font. The building has a central entrance with a glass door and a large window above it. The sky is clear and blue.

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**Thank you**