The mini-rhino-conjunctivitis quality of life (qol) questionnaire (mrqlq) – self administered

Asha Pherwani · Gauri Mankekar · Kashmira Chavan · Gaurav Bansode

Abstract

Objective Our aim was to administer the MRQLQ Questionnaire in Indian adults with allergic rhino-conjunctivitis (ARc).

Criteria for inclusion in the study Adults with chronic ARc, with sufficiently troublesome current symptoms, attending The Allergy Clinic of The Hinduja Hospital, Mumbai, during March-August 2006 were selected.

Results The five highest PS were seen with sneezing 290, irritation 238, running nose 228, stuffy nose 220, anxiety 203 and interrupted working 203. The 5 lowest PS were seen with disturbed sleep 83, dry throat 98, affected walking for ½ kilometre 98, do not sleep deeply 103 and phlegm 105.

Discussion The five highest PS were due to symptoms of rhinitis, general irritation, anxiety & interruption of work. Thus rhinitis itself affects QOL. The 5 least PS were mainly sleep-related.

Conclusion We have applied the MRQLQ on Indian patients with ARc. We could obtain a product score for every item in it, on the basis of which we could classify the degree of its effect on his QOL. PS was highest in rhinitis-related symptoms. 2 Emotions related and 1 Role limitation item gave moderate PS, while all PS in eye related, Physical functioning, Social functioning, Sleep-related & Other Symptoms items were in the mild range. Larger data sample is needed to validate and show its discriminatory power.

Keywords Quality of life questionnaire · Rhinitis

Introduction

The MRQLQ is a disease-specific QOL Questionnaire which measures the functional (physical, emotional, social) problems troublesome to adults with allergic rhino-conjunctivitis (ARc). It has been rigorously tested for reproducibility (repetition in stable subjects), validity (really measures QOL in ARc) and response to change. Bunnag et al further modified this questionnaire to detect small but important changes.

The term quality of life (QOL) is nebulous, as, many factors contribute to it e.g. finance, spirituality and health. We are mainly concerned with health related QOLs: physical, emotional and social. Using the French version of the validated F-36 “General Questionnaire”, Bousquet [1, 2] designed “Disease specific QOLs” in 1994. Juniper 1st developed the “Health related QOL (HRQLQ) for adults with allergic rhinoconjunctivitis. She concluded that patients with Allergic Rhino-conjunctivitis (ARc) had a significantly impaired QOL similar to those with moderate to severe asthma or even greater [3]. Today it is extensively used in clinical studies and practice [3]. Bunnag [4] pointed out that the above questionnaire lacked depth of focus, and

A. Pherwani · G. Mankekar · K. Chavan ·
G. Bansode
Department of Allergy and Asthma and ENT,
The P.D. Hinduja National Hospital and The Medical Research Centre,
Veer Savarkar Marg, Mahim,
Mumbai - 400 016, India

A. Pherwani (✉)
303, Samudra Mahal,
Dr. Annie Besant Road, Shiv Sagar Estate,
Worli, Mumbai - 400 018
India
Ph: +91 22 98211 41636

may not sufficiently detect small but important changes [4]. Her questionnaire initially had 63 items, graded from 1–5, of importance to the patient, who were also involved in the formulation. The questionnaire was grouped into five dimension symptoms (rhinitis, ear/ throat, eye and other symptoms (41 items), role limitations (4 items), sleep (3 items), social functioning (3 items), and emotions (7 items). The number of items were then minimized to 36, while retaining the validity of the questionnaire. The Mini-RQLQ was validated and shown to have strong discriminative and evaluative measurement properties, can be used with confidence in both cross-sectional and longitudinal studies and could determine a minimal important change in a disease-specific QOL [5, 6].

The *aim of our study* was to verify the use of the mini-questionnaire in Indian adults with ARc. The objective of the Questionnaire was to formulate a scale by which we can judge the QOL in an individual with ARc before and after treatment or in relapse state. It can also be used in situations like field surveys

Criteria for inclusion in the study

Adults were selected from those attending the Allergy clinic of the Hinduja Hospital, Mumbai, during the period March-August 2006 with symptoms of chronic ARc, with symptoms that were currently sufficiently troublesome to require medications. Patients were excluded based on psychiatric symptoms, language or cognitive difficulties. Skin allergy testing for ten common allergens was performed on all. Only those who were positive for at least one allergen reaction were included.

Only those who gave a positive skin test for at least 1/10 common allergens tested and did not have psychiatric symptoms, language or cognitive difficulties were included.

The Data sample comprised of 40 (Male = 22, female = 18) with an average age 32 (15–66) years. A detailed history & X-ray sinuses and PFTs were performed on all and they were instructed to fill the Questionnaire, identify troublesome items and indicate the importance of each, using a scale from 1–5 (1 = does not bother, 5 = bothers very much).

The data was computerised. The percentage of people identifying an item as a problem was multiplied by the mean importance given, to give a 'Product score' (PS) e.g. (possible Maximum product score of all the patients (100 x 5 = 500) and Minimum product score possible (100 x 1 = 100). Scores of 100 and below were excluded. Scores of 101–200 were considered mild, 201–300 moderate, 301–400 moderately severe and >400 severe. The details of the items included in the study are given in the appendix attached.

Results

The various PS were as follows: 1) Highest PS for rhinitis-related symptoms: sneezing 290, running nose 228, stuffy nose 220 and mild for itchy nose-195. 2) Mild for all eye-related items. 3) Mild for Other Symptoms: getting easily tired, cough, fatigue, headache, inability to focus, body ache, sleepy, phlegm, dry throat. 4) Moderate for 1 role limitation items: work interrupted 203 & mild for unable to concentrate & work affected. 5) Physical functioning related PS were mildly troublesome in all the 3 items. 6) Mild for disturbed sleep, difficulty in sleeping, does not sleep deeply. 7) Mild PS for all social functioning items: does not feel like going out, loss of confidence and remains secluded. 8) Moderate for 2 Emotions related items: getting irritated 238, anxious/worried 203 and mild for frustrated 183, annoyed with self 160 and annoyed to carry tissues 175. 9) Overall health was graded as moderate by 37.5% patients, Good and Poor by 20% each, Very poor by 12.5% & Very Good by 10%. Sneezing had the maximum PS of 290 and sleep disturbance had the minimum PS of 83.

Table 1 gives the mean PS calculated for each item in each of the dimensions of Rhinitis, Conjunctivitis and Other Symptoms. Amongst Rhinitis related symptoms, Sneezing had the maximum PS of 290 and itchy nose the minimum PS 195. Amongst eye-related symptoms itchy eyes had the maximum PS 145 and tired eyes the minimum PS 118. Amongst other symptoms getting easily tired had the highest PS 165 and dry throat had the least PS of 98.

Table 2 gives the mean PS obtained for each item in each of the dimensions of Role Limitation, Physical functioning, Sleep, Social functioning and Emotions. Amongst Role Limitation items, work interruption had the highest PS of 203 while affected work had the least PS of 140. In Physical functioning affected average strength activity had the maximum PS 148 and affected walking for ½ km had the minimum PS 98. Difficulty in sleeping had the maximum PS 110 and Disturbed sleep had the minimum PS 83 in Sleep related items. In Social functioning, not feeling like going out had the maximum PS 178 and reduced meeting with others had the minimum PS 113. Amongst Emotions related items, general irritability had the highest PS 238 while annoyed with self had the least PS of 160. Amongst all symptoms, sneezing had the maximum PS of 290 and sleep disturbance had the minimum PS of 83. The five highest PS were seen with sneezing 290, irritation 238, running nose 228, stuffy nose 220, anxiety 203 and interrupted working 203. The 5 lowest PS were seen with disturbed sleep 83, dry throat 98, affected walking for ½ kilometre 98, do not sleep deeply 103 and phlegm 105.

Overall health was graded as moderate by 37.5% patients, Good and Poor by 20% each, Very poor by 12.5% & Very Good by 10%.

Table 1 Mean product scores for each symptom in the dimensions of rhinitis, eye symptoms and other symptoms

Dimension	Item	N	Frequency	Mean $\pm$ 2SD	PS	Grade
Rhinitis	Sneeze	33	83%	3.52 $\pm$ 1.09	290	Mod
	Runny nose	27	68%	3.37 $\pm$ 1.15	228	Mod
	Stuffy nose	25	63%	3.52 $\pm$ 1.16	220	Mod
	Itchy nose	25	63%	3.52 $\pm$ 1.01	195	Mild
Eye symptoms	Itchy eyes	21	53%	2.81 $\pm$ 1.12	148	Mild
	Watery eyes	22	55%	2.64 $\pm$ 0.97	145	Mild
	Eye imitation	17	43%	3.06 $\pm$ 1.14	130	Mild
	Tired eyes	18	45%	2.61 $\pm$ 0.98	118	Mild
Other Symptoms	Easily tired	20	50%	3.30 $\pm$ 1.03	165	Mild
	Cough	21	53%	2.90 $\pm$ 1.09	153	Mild
	Fatigue	19	48%	3.16 $\pm$ 1.21	150	Mild
	Headache	18	45%	2.94 $\pm$ 0.87	133	Mild
	Inability to focus	17	43%	3.06 $\pm$ 0.97	130	Mild
	Body ache	17	43%	3.06 $\pm$ 1.03	130	Mild
	Sleepy	17	43%	3.00 $\pm$ 0.94	128	Mild
	Phlegm	15	38%	2.80 $\pm$ 0.94	105	Mild
	Dry throat	14	35%	2.79 $\pm$ 0.97	98	

Ps=Product score, SD=Standard deviation, Mod=Moderate, N=No. of patients having symptom

Table 2 Mean Product Scores for each symptom in the dimensions of Role Limitation, Physical functioning, Sleep, Social functioning and Emotions related symptoms

Dimension	Item	N	Frequency	Meant $\pm$ 2SD	PS	Grade
Role Limitation	Work interrupted	26	65%	3.12 $\pm$ 1.24	203	Mod
	Unable to concentrate	24	60%	3.25 $\pm$ 1.22	195	Mild
	Work affected	19	48%	2.95 $\pm$ 1.13	140	Mild
Physical Functioning	Affected average strength activity	22	55%	2.68 $\pm$ 0.89	148	Mild
	Affected lot of strength activity	19	48%	2.95 $\pm$ 0.97	140	Mild
	Affected walking 1/2 km	15	38%	2.60 $\pm$ 1.06	98	
Sleep	Difficulty sleeping	15	38%	2.93 $\pm$ 1.10	110	Mild
	Do not sleep deeply	13	33%	3.15 $\pm$ 0.99	103	Mild
	Disturbed sleep	11	28%	3.00 $\pm$ 1.18	83	
Social functioning	Don't feel like going out	21	53%	3.38 $\pm$ 1.20	178	Mild
	Loss of confidence	14	35%	3.21 $\pm$ 1.07	113	Mild
	Reduced meetings with others	15	38%	3.00 $\pm$ 1.07	113	Mild
Emotions	Imitated	28	70%	3.39 $\pm$ 1.13	238	Mod
	Anxious/worried	25	63%	3.24 $\pm$ 1.23	203	Mod
	Frustrated	22	55%	3.32 $\pm$ 1.29	183	Mild
	Annoyed about having to carry hanky & blowing nose	21	53%	3.33 $\pm$ 1.06	175	Mild
	Annoyed with self	19	48%	3.37 $\pm$ 1.34	160	Mild

PS=Product Score, SD=Standard deviation, Mod=Moderate, N=No. of patients having symptom

Discussion

The *five highest PS* were due to symptoms of rhinitis, general irritation, anxiety & interruption of work. Thus rhinitis itself affects QOL. The *5 least PS* were mainly sleep-related. Sleep is individual based and as such the same amount of rhinitis may cause different degrees of sleep problems in individuals. The PS was mild in eye-related symptoms probably because patients primarily having rhinitis were included.

The patients were troubled most with sneezing (PS 290), general irritability (PS 238), running nose (PS 228), stuffy nose (PS 220), anxiety (PS 203) and interrupted working (PS 203), which had the highest PS. Thus rhinitis itself affects QOL. Sneezing was the most bothersome amongst rhinitis related as well as overall symptoms. Itchy nose with a PS of 195 does not seem as bothersome while anxiety (PS 203) & general irritability (PS 238) seem to be amongst the highest scores. Patients were less bothered (mildly) due to disturbed sleep PS 83, dry throat PS 98, affected walking for ½ kilometre PS 98, inability to sleep deeply PS 103 and phlegm PS 105 which had the 5 least PS. Sleep disturbance was not very bothersome amongst patients. The importance of sleep is individual based and as such the same amount of rhinitis may cause different degrees of sleep problems in individuals. Eye related symptoms were less troublesome and were all of mild degree because probably patients primarily having rhinitis were included.

There was moderate involvement of interrupted working (PS 203) amongst Role Limitation items, and general irritation (PS 238) and Anxiety/Worry (PS 203) amongst Emotions related items. Amongst the emotional symptoms, PS for general irritability and anxiety were amongst the top 5 PS. These factors are very important in QOL. The rest of the items in Role Limitation and Emotions related as well as in Physical functioning, Sleep and Social functioning dimensions showed mild involvement. All Other symptoms: getting easily tired, cough, fatigue, headache, inability to focus, body ache, sleepy all the time, phlegm and dry throat had mild scores. 37.5% patients graded their Overall Health as Moderate, while 20% graded it as Good or Poor each and only 10% graded it as Very good. Sinusitis was observed in 12/40 (30%), urticaria in 11/40 (27.5%) and asthma in 11/40 (27.5%). We have as yet not determined the QOL separately in these patients.

Conclusions

We have applied the MRQLQ on Indian patients with ARc. We could obtain a “Product score” for every item in it, on the basis of which we could classify the degree of the effect of each item on his QOL in an adult patient with chronic Arc. The symptoms of allergic rhinitis were themselves

very troublesome and were associated with irritability, anxiety, disturbed sleep, affected vitality and social behaviour. The psychosocial problems significantly affected the QOL. Eye symptoms were of mild nature. Further larger studies are needed to come to a definite conclusion. We plan to study these patients after treatment to document improvement in the above items and prove that this questionnaire is discriminative. Our patients could not understand the word phlegm. We would also like to make some changes in the numbering of the severity of symptoms as patients found it easy to write 0 rather than 1, when they had no symptoms.

Appendix

Rhinoconjunctivitis Quality of Life Questionnaire (RcQ-36)

This questionnaire is designed to find out how your health and well-being has been affected by rhinoconjunctivitis. The aim is to learn how your health and general life is affected in order to develop a treatment which can alleviate these problems or symptoms, in the future. It should not take you long to complete the form.

Please answer each question by putting a check mark in the space provided on the right. If you are uncertain, please give the answer that best describes your condition.

Response options for items 1-7 : Not at all = 1, Slightly = 2, Moderately = 3, A lot = 4, Extremely = 5

- 1 and 2. During the past 2 weeks, how much have you been bothered by the following symptoms?
 - 1.1 Runny nose
 - 1.2 Itchy nose
 - 1.3 Stuffy (congested) nose
 - 1.4 Sneezing
 - 1.5 Cough
 - 1.6 Dry throat / dry mouth
 - 1.7 Phlegm
 - 1.8 Itchy eyes
 - 1.9 Irritated eyes
 - 1.10 Watery eyes
 - 1.11 Tired (heavy) eyes
 - 1.12 Hard to think (Can't stay focussed on idea)
 - 1.13 Fatigue
 - 1.14 Tired easily
 - 1.15 Body aches (all over)
 - 1.16 Headaches
 - 1.17 Sleepy all the time
3. During the past 2 weeks, have the symptoms in 1 and 2 caused the following problems?
 - 3.1 Must stop work or studies
 - 3.2 Unable to concentrate on work or studies
 - 3.3 Causes a disturbance in work, such as interrupted working

4. In the past 2 weeks, how much have the symptoms in 1 and 2 caused you problems in the following activities?
 - 4.1 When playing sports or doing a heavy work or participating in an activity that requires a lot of strength or energy
 - 4.2 When playing sports or having a regular work or participate in an activity that requires average strength or energy
 - 4.3 When walking ½ kilometre
5. In the past 2 weeks, how have the symptoms in 1 and 2 affected your sleep?
 - 5.1 Sleep and wake up often during the night
 - 5.2 Difficulty getting to sleep
 - 5.3 Do not sleep deeply
6. In the past 2 weeks, how much do the symptoms in 1 and 2 cause problems when you are with others or meeting with others?
 - 6.1 Loss of confidence when meeting others
 - 6.2 Reduced the meetings or activities with others
 - 6.3 Feel like you do not want to go out
7. In the past 2 weeks, how much have the symptoms in 1 and 2 caused you to feel the following?
 - 7.1 Annoyed with self
 - 7.2 Worries (anxious)
 - 7.3 Frustrated
 - 7.4 Irritated
 - 7.5 Annoyed to have to carry tissue papers or handkerchief more than usual / blowing nose
8. What do you think of your general health right now (Please mark only one answer)

Response options: Very Good Good Moderate Poor Very poor

9. How many days per month are you absent from work or school because of the symptoms in 1 and 2, that you have now?

References

1. Bousquet J, Bullinger M, Fayol C, Marquis P, Valentin B, Burtin B (1994) Assessment of quality of life in patients with perennial allergic rhinitis with the French version of the SF-36 health status questionnaire. *J Allergy Clin Immunol* 94: 182–188
2. Bousquet J, Knani J, Dhivert H, Richard A, Chikoye A, Wari JE, et al (1994) Internal consistency and validity of the FS-36 and the RQLQ questionnaires. *AM J Respir Crit Care Med* 149:371–375
3. Juniper EF (2000) *clinical & Experimental allergy* 30: 132–140
4. Bunnag C, Leurarnkul W, Jarconcharsri P, Tunsuriyawong P, Assanasen P, Pawankar R. Quality of life assessment in Thai patients with allergic rhinitis using the FS-36 questionnaire (Thai version) for publication in *Rhinology*
5. Juniper EF, Guyatt GH (1991) Development and testing of a new measure health status for clinical trials in rhinoconjunctivitis. *Clin Exp Allergy* 21:77–83
6. Juniper EF, Guyatt GH, Jaeschke R (1996) How to develop and validate a new health-related quality of life instrument. In Spilker B, ed. *Quality of life and Pharmacoeconomics in Clinical Trials*, 2nd edition Lippincott-Raven, pp. 49–56