

Editorial



Understanding the Impact of Chronic Cough on the Quality of Life in the General Population

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► See the article “Impact of Chronic Cough on Health-Related Quality of Life in the Korean Adult General Population: The Korean National Health and Nutrition Examination Survey 2010–2016” in volume 12 on page 964.

Cough is a physiological reflex that protects the lower airways against aspiration and irritation. This reflex can be upregulated by irritants or stimuli, which are mostly self-limited. However, some individuals experience prolonged cough, and a cough lasting more than 8 weeks in an adult is defined as chronic cough. The prevalence of chronic cough was about 10% worldwide but varied widely, and its prevalence in Korea was reported to be 3.5%–4.6%.¹⁻³ Chronic cough can be caused by various conditions such as asthma, upper airway cough syndrome, and gastroesophageal reflux diseases; however, the cause of cough experienced by 10%–40% of patients visiting referral clinics remains unexplained. The concept of chronic cough is now changing from a consequent symptom due to underlying diseases to a clinical entity called cough hypersensitivity syndrome (CHS), which usually shows a long-lasting course that is refractory to currently available treatments.^{4,5}

Although parameters such as mortality and morbidity are widely-used health outcomes, measuring the quality of health has been emphasized in recent years. With regard to the quality of health, the subjective perception of the patient is as important as the objective assessment of medical personnel. Therefore, the importance of health-related quality of life (QoL) is particularly emphasized in medical practice.⁶ Chronic cough, though not fatal or serious, can affect not only physical health but also mental health and social well-being, thus lowering the QoL and becoming a social burden.

It is well known that chronic cough has a negative impact on health-related QoL.^{1,4,7,8} Chronic cough was significantly associated with impairments in daily activities and personal relationships and with emotional reactions.^{7,8} The number of cough triggers and laryngeal sensations are correlated with cough-related health status and cough severity in patients with CHS.⁴ However, previous QoL studies have mostly focused on outpatients in cough clinics; thus, it is difficult to generalize the results.^{1,4,7,8} Health-related QoL is affected by various demographic and clinical confounding factors, including comorbidities. Chronic cough is common in middle-aged and elderly people, and patients frequently have confounding conditions such as asthma, chronic obstructive pulmonary disease (COPD), or depression.^{2,9} These comorbid diseases could affect health-related QoL, making it difficult to interpret the

impact of chronic cough on the QoL. Although a few studies have examined the impact of chronic cough on the QoL in the general population, they have not studied these interactions and associations with comorbidities. Therefore, there is insufficient data regarding the disease burden and social effects of chronic cough in the community.

In this issue of the *Allergy, Asthma & Immunology Research*, Won *et al.*¹⁰ reported the association of chronic cough with health-related QoL in a nationwide, large, general population. The authors analyzed 30,021 adults aged ≥ 40 years using Korean National Health and Nutrition Examination Survey 2010–2016 data and assessed QoL using the 3-level EuroQoL 5-dimension component (EQ-5D-3L) index score. They excluded confounding factors to evaluate the effect of chronic cough alone on QoL by using various methods of analysis, which is a new and interesting approach. They showed that the overall EQ-5D-3L index score was significantly lower in subjects with chronic cough than in those without. Interestingly, the EQ-5D-3L index score did not differ between subjects with cough durations of ≤ 1 year and > 1 year. Furthermore, the greatest impact of chronic cough on QoL was observed in women aged ≥ 65 years. Chronic cough was significantly associated with QoL, independently of confounders including depression, arthritis, asthma, and COPD. The authors also compared the EQ-5D-3L index scores of chronic cough with those of other chronic diseases. The index score for chronic cough was similar to the scores for diabetes mellitus, dyslipidemia, and hypertension but was higher than the scores for depression, arthritis, asthma, COPD, and myocardial infarction (MI). However, the EQ-5D-3L index scores of chronic cough in women aged ≥ 65 years were comparable with those of patients with arthritis, stroke, asthma, and MI.

Won *et al.*¹⁰ reported that chronic cough was more strongly associated with anxiety/depression than with self-care or mobility. Chronic cough and symptoms of depression are reported to be closely related, and improvement of cough was correlated with improvement in depression scores.^{1,11,12} Depression comorbidity is important for the QoL; thus, the impact of chronic cough on the QoL should be assessed after completely excluding the effects of depression. However, it is very difficult to achieve this in reality. In addition to performing multivariate regression analyses, Won *et al.*¹⁰ also analyzed the data after excluding patients with depression to rule out the effects of depression and showed the same results. Therefore, chronic cough can directly affect the QoL regardless of depression. Many patients with chronic cough could become socially isolated due to their fear of coughing severely in public places. The patient's distress may be further exacerbated by the negative effects on their relationships with family members and coworkers.^{1,7,8,11} In particular, coughing during the recent coronavirus disease 2019 pandemic created major constraints on social life, which could have resulted in further psychological anxiety and stress. Between 2010 and 2016, when the survey in this study was conducted, the 2009 H1N1 pandemic and the Middle East Respiratory Syndrome outbreak occurred in Korea. Patients who experienced cough during that period were psychologically and socially affected, which may have further degraded their health-related QoL.

In a recent multi-center study, psychosocial impacts were more pronounced in patients with unexplained cough despite detailed assessment than in patients newly referred for assessment.⁸ Ineffectiveness of treatment and unclear diagnoses are major unmet needs related to chronic cough. These factors may be responsible for the low QoL in patients with chronic cough. A chronic disease with poorly treated troublesome symptoms may have a greater impact on health-related QoL than the severity of that disease. For example, patients with chronic urticaria showed similar limitation for energy, social isolation, and emotional

reactions to patients with ischemic heart disease.¹³ The health-related QoL increased with improvement in urticaria control and decreased with urticaria severity in patients with chronic urticaria.¹⁴ Therefore, improvements in the management of chronic cough may decrease its negative impact on the QoL.

Finally, the findings of this study will be helpful in understanding the relationship between chronic cough and health-related QoL in the general population. These associations are independent of demographic factors and confounding conditions. As the greatest impact was observed in women aged ≥ 65 years, women over 65 years of age can be considered as the most important target treatment group for chronic cough. However, the reason why this age/gender group was the most affected by chronic cough is not clear. Heightened cough sensitivity in women may be one of the reasons, but we do not have sufficient evidence on this possibility yet. To what extent the impact on QoL actually becomes a social burden is also unknown. It is so far questionable whether the results of this study can be generalized as a common status in Korea. Further studies are needed to address these issues, establish effective treatment strategies, and improve the QoL.

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