



Factors associated with voice-related quality of life among teachers with voice complaints



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ABSTRACT

This study evaluates whether the scores on the voice-related quality of life (V-RQOL) and voice activity and participation profile (VAPP) instruments show similar associations with socio-demographic characteristics, voice complaint characteristics, work-related factors, health conditions and consequences of voice complaints; and to assess agreement between V-RQOL and VAPP. In 12 primary and secondary public schools in Bogotá, we conducted a cross-sectional study among 438 Colombian school teachers with voice complaints. Participants filled out a questionnaire on socio-demographic characteristics, voice complaint characteristics, work-related factors, health conditions, economic consequences of voice complaints, and voice-related quality of life, which was assessed using the V-RQOL and the VAPP. The factors associated with the scores on the V-RQOL and VAPP were analysed using multiple linear regression. Assessment of agreement between the V-RQOL and VAPP scores was performed using the Bland–Altman plot. Simple linear regression analysis was used to examine the relationship between VAPP and V-RQOL. Results showed that individual and work-related factors that were associated with the scores derived from the questionnaires were similar for the two instruments, namely severity of voice complaints, auditory symptoms, hearing impairment, class size, and poor acoustics in the workplace. The associations between the score and the economic consequences of voice complaints were also similar for the two instruments. The V-RQOL and VAPP scores were strongly associated with one another and showed high agreement with regard to teachers' perception of quality of life. These findings suggest that factors identified as being associated with the scores on the V-RQOL and VAPP are shared by the two instruments, showing that their approaches to quality-of-life assessment are similar. Both scales were strongly associated with one another and showed high agreement.

Learning outcomes: Identify factors associated with scores on voice-related quality of life (V-RQOL) and voice activity and participation profile (VAPP). Identify whether the scores on V-RQOL and VAPP show similar associations with individual and work-related factors. Explain agreement between the scores on V-RQOL and VAPP.

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1. Introduction

Teachers have been recognised as one of the largest group of “professional voice users” (Williams, 2003). Previous research has shown that voice complaints are more prevalent among teachers than in other occupational groups (Cantor Cutiva, Vogel, & Burdorf, 2013), with reported prevalence ranging from 9% (Angelillo, Di Maio, Costa, Angelillo, & Barillari, 2009) to 94% (Roy, Merrill, Thibeault, Gray, & Smith, 2004). Since teachers use their voice as a primary tool of work, voice complaints may have a greater impact on their quality of life (Bermudez de Alvear & Martínez-Arquero, 2009; De Jong et al., 2006; Grillo & Penteadó, 2005; Hanschmann, Lohmann, & Berger, 2011; Niebudek-Bogusz, Woznicka, Zamysłowska-Szmytko, & Sliwinska-Kowalska, 2010).

To assess the impact of voice complaints on quality of life, several health-related questionnaires have been developed. Two of the most commonly used questionnaires are the voice-related quality of life (V-RQOL) and the voice activity and participation profile (VAPP). Three studies in teachers have reported using the V-RQOL (Grillo & Penteadó, 2005; Jardim, Barreto, & Assunção, 2007; Merlin Servilha & França Roccon, 2009) and two have reported using the VAPP (Bassi et al., 2011; Bermudez de Alvear & Martínez-Arquero, 2009); only one publication expressed a preference for one of them (VAPP) (Bassi et al., 2011). With regard to the results of these studies, one of the studies that used the V-RQOL reported the perception of quality of life to be 23% higher among teachers without voice complaints than in those with voice complaints (Merlin Servilha & França Roccon, 2009). Another study using the VAPP showed that teachers with voice complaints reported much higher summary scores than those without voice complaints, reflecting a 41% reduction in quality of life (Bermudez de Alvear & Martínez-Arquero, 2009). From these two examples we can see that the scoring systems and interpretation of the scores are different for the V-RQOL and the VAPP. However, these two instruments have been used interchangeably to assess quality of life among teachers with voice complaints (Martinello, Lauris, & Brasolotto, 2011; Tutya, Zambon, Oliveira, & Behlau, 2011).

These differences may originate in the conceptual definition adopted by each questionnaire. The V-RQOL is focused on an integrated assessment of functioning in relation to individual and environmental factors, whereas the VAPP addresses primarily specific limitations in activities and participation. For example, the V-RQOL includes mental and physical functioning (e.g. “I have trouble speaking loudly or being heard in noisy situations”); whereas the VAPP will ask for the consequences of reducing functioning for social participation (e.g. “Does your voice problem affect your communication in noisy environments?”). The International Classification of Functioning makes a clear distinction between the two, whereby associations between functioning, limitations and participation may be modified by environmental and personal characteristics (WHO, 1997). Hence, although both instruments assess functioning, they may present different outcomes with respect to the environmental and individual factors that are associated with the impact of voice complaints on quality of life.

Nevertheless, little has been published on the associations between the scores of the V-RQOL and the VAPP instruments and the socio-demographic characteristics, voice complaint characteristics and consequences of voice complaints. Furthermore, the few studies that have looked at these relationships have shown ambiguous results. While some researchers have shown similar relationships between the scores of the V-RQOL or the scores of the VAPP and socio-demographic characteristics, voice complaint characteristics or consequences of voice complaints (Bermudez de Alvear & Martínez-Arquero, 2009), other studies have failed to corroborate these relationships (Grillo & Penteadó, 2005). Bermudez de Alvear and Martínez-Arquero (2009) suggested that voice-related quality of life in teachers with voice complaints differed according to socio-demographic characteristics (such as gender) ($\chi^2 = 7.80$; $p < 0.01$), voice symptoms characteristics (e.g. duration of voice symptoms) ($\chi^2 = 22.56$; $p < 0.01$) and consequences of voice symptoms (e.g. voice-related absenteeism) ($\chi^2 = 8.62$; $p < 0.01$). In contrast, Grillo and Penteadó (2005) showed that the scores of the V-RQOL were not associated with age ($r = -0.03$; $p > 0.05$), nor with work-related factors such as years of teaching ($r = -0.17$; $p > 0.05$) and working hours per day ($r = -0.08$; $p > 0.05$). To the best of our knowledge, there is a lack of research examining determinants of voice-related quality of life, research that is important for a better understanding of the perspective of teachers with regard to their voice complaints.

With respect to the instruments used in such research, since questionnaires to assess quality of life among teachers are health related but not occupation related (Tutya et al., 2011), it is important to know which questionnaire best reflects the impact on quality of life in teachers with voice complaints or whether they are interchangeable. This requires an analysis of whether the scores on both instruments are influenced by the same factors, and an assessment of agreement between the two instruments.

To address these issues, we conducted a cross-sectional study of 438 Colombian teachers with self-reported voice complaints. Our aims were to evaluate whether the scores of the V-RQOL and the VAPP show similar associations with socio-demographic characteristics, voice complaint characteristics, work-related factors of voice complaints, health conditions, and economic consequences of voice complaints, and to assess agreement between the V-RQOL score and the VAPP score.

2. Methods

2.1. Design and participants

We conducted a cross-sectional study in public schools in Bogotá, Colombia in February and March 2012 (at the start of the school year). The initial power calculations showed that a prevalence ratio of 1.5 between teachers and non-teachers

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