

Vocal and depressive benefits of choral singing

Benefícios do coral nos sintomas vocais e depressivos

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Difficulties on verbal communication are associated to loss of self-confidence and decrease in social participation.¹ Thus, quality of life in older adults may be affected by the quality of their voice. Presbyphonia is the scientific term used to describe age related changes in voice (dysphonia). The etiology of Presbyphonia is multifactorial as it is not only related to the molecular effects of normal aging on the laryngeal tissues, but also different morbidities may affect phonation.¹ However, changes observed in the voice of the older adults are not age specific since they are similar to those observed in some diseases and also in voice disused status. As phonatory functions can be rehabilitated after vocal diseases and long periods of disuse, and if the changes observed are similar to the senescence, we should invest in the rehabilitation of oral communication of the elderly.² Thus, the authors present in this paper the background on the association between voice and depressive symptoms and their experience in a successful intervention using choral singing participation of a group of older adults.

DEPRESSION AND VOICE

Depression is the leading psychiatric disorder among the older adults and depressive symptoms are present in almost half of this population.³ Depression is associated with social isolation, higher mortality, and lower quality of life and self-esteem, mainly in the elderly.^{4,5,6} In addition, elderly patients tend to have higher prevalence of chronic degenerative diseases related to depressive symptoms.⁷ Depression is associated with obesity, higher prevalence of hypertension, osteoarthritis, urinary incontinence, and Parkinson disease.^{8,9}

It is known that singing has beneficial effects on emotional status, resulting in well-being and improvement in depressive symptoms.¹⁰ Choir singing has also positive effects on immunologic and stress markers.¹¹ Significant positive effect of voice training on vocal capabilities, mostly singing voice, is shown in several studies mainly in younger population.

THE CHORAL SINGING INTERVENTION

The authors of this publication had the opportunity to follow a Choral Singing Group during almost two years at the Pontifical Catholic University of Rio Grande do Sul (PUCRS), Brazil. The group consisted of 44 older-adults (60 + y.o.), 8 male and 36 female, ranging from 60 to 80 years of age, with an average of 67 years. The participants had diverse occupations throughout their professional lives, having worked as teachers, businesspersons, salespersons, civil servants, secretaries, nurses and orderlies, homemakers, lawyers, and they had never been part of a choir group. No participant referred any neurological diseases, previous brain or neck surgery and depression diagnosis, nor referred the use of drugs for depression. During the follow-up period there was no indication of pharmacological treatment for depression. The program comprised 2-hour weekly choir rehearsals. The meetings, organized by an experienced choral

conductor, consisted of relaxing exercises, posture guidelines, vocal technique, social reintegration, and self-esteem and motivation training.

The beginning of the follow-up coincided with the beginning of the choir activities at the University. All members of the choir received the same vocal training. The total follow-up time was 21 months with a three-month vacation intermission. There were four evaluations: the first took place before the beginning of the choir activity; the second 8 months later; the third 3 months afterwards; and the fourth after 21 months.

ASSESSMENT TECHNIQUES

Depression symptoms and voice quality were measured on each of the four evaluations. Depression symptoms were measured using Yesavage Geriatric Depression Scale (GDS), which consists of 15 questions with simple answers (yes/no). Each depressive answer is graded 1 point. Using this scale, individuals with 10 or more depressive answers are severely depressed, while between 5 and 10 they are mildly depressed, or bearers of a mild depression¹².

The perceptual-auditory vocal quality analysis was performed in a silent environment, requesting the vowel /a/ sustained, and were recorded using a Sony digital voice recorder and a microphone Shure. A group of five voice specialists blinded to the sample evaluated the auditory data. The voice specialists received a form with items for evaluation and the voice recordings randomly

assigned. The evaluations assessed, was used GRBAS scale¹³, international considered as the gold standard in voice quality assessing. This scale are evaluated changes in voice (Roughness, breathiness, asthenia, strain) and attributed a score of 0 to 3, considered zero degree without voice disorders, 1 mild, 2 moderate, and three severe dysphonia.

THE INTERVENTION RESULTS

Figure 1 shows the graphic representation of the mean GDS and VQS in each step of the evaluation. The average GDS at initial evaluation was significantly higher than each other following evaluation ($p < 0.05$). The figure also shows a gradual and significant improvement in VQS in connection with choir singing. Mean of VQS at first evaluation were significantly higher than the other evaluations ($p < 0.01$). Among vocal parameters only roughness was significantly correlated with depressive symptoms ($p < 0.05$). The lower the roughness degree the least depressive symptoms were reported.

In the initial evaluation, 86% of the elderly stated were satisfied with their lives. As the evaluations progressed, the rate gradually increased until the end of the study when all participants seemed to be satisfied with their lives. A particular important decrease between the first and second evaluation periods happened in the number of elderly who had given up activities and interests, with a mild increase

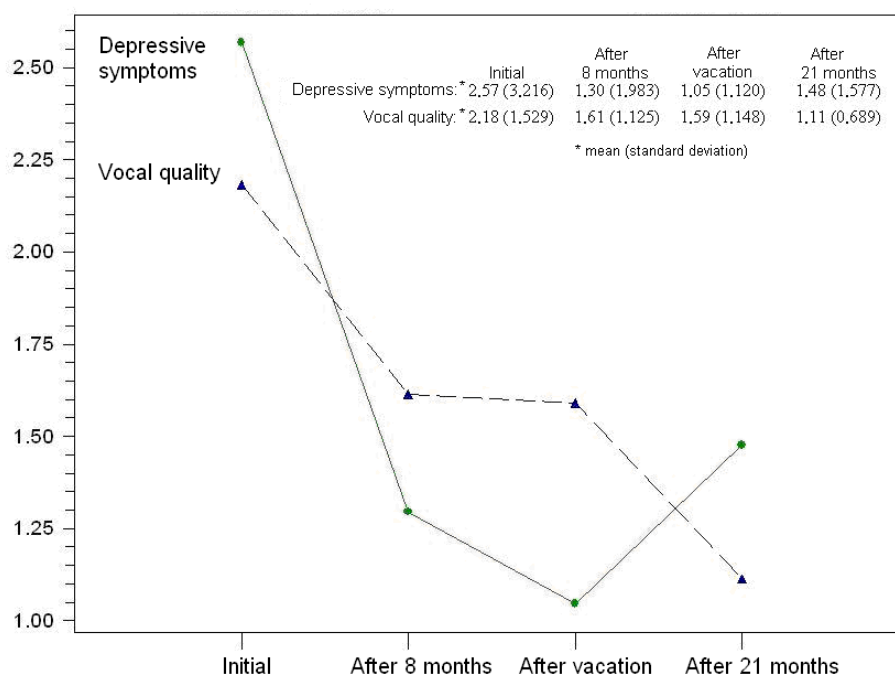


Figure 1. Depressive Symptoms (GDS) and vocal quality in each stage of the study.

as the study progressed. We also observed an important initial decrease in the number of elders who felt their lives were empty, showing little variation later. The complaint about often feeling bored, reported by 18% of the elders, displayed a decline during their choir practice, then an increase after the vacation followed by a decline after 21 months. The number of elders who were in good mood most of the time increased at the beginning of the activities and remained the same throughout the study, 24% of the elders were afraid something bad might happen to them, and in the final evaluation, only 19% experienced that fear.

WHAT WE LEARN

Group singing is probably one of the best exercises of social gathering. We observed a positive relationship between choir singing and the decrease of depressive symptoms within the improvement voice quality in participants. The musical activity can, therefore, have beneficial effects on the treatment of emotional problems associated with affective relations and be responsible for behavior changes. There was an important and significant initial improvement in the total number of depressive symptoms. After three months vacation, some individuals passed to demonstrate depressive symptoms again, leading to a light and not significant relapse in comparison to the second evaluation. This fact may result from the absence of social contact during the vacation period and corroborate the association between the exposure to the choral singing and the decrease in depressive symptoms.

The feeling of being helpless decreased after the beginning of the choir singing activities. Other aspects observed were that the number of elders who talked about feeling empty decreased after they joined the choir, and that the elders began to have a greater joy of living. It is important to point out that, at the end of evaluations (after 3 months of vacation and 21 months), no elderly in this study reported the feeling that most people had lives better than theirs. To have self-esteem, it is fundamental to value positive feelings, be optimistic, and face obstacles in a good mood.¹⁹ The authors observed a significant improvement of voice. For the perceptual evaluation, significant differences in grade of dysphonia, breathiness, and strained vocal quality were found.

Scientific studies have proved that music stimulates fundamental areas of the brain, such as those responsible for memory, muscle control and language. Some recovery from memory problem usually follows the improvement in depressive conditions.¹⁴

The participants of this study began to use more voice intensely after entering the choir in several activities such as volunteering, theater groups and lecturing. It was possible to observe a significant change between baseline and the final assessment. In the literature, there are reports on best vocal results in physically active individuals, it can be inferred that the exercises help minimize the effects of age on voice.¹⁵

The results of this study show that choir improves depressive symptoms and vocal quality in elderly. The study showed a gradual reduction of the symptoms initially detected during the choir singing activities. The elders began to enjoy their lives better, experiencing a decline in boredom, fears over the future, feelings of desertion and helplessness, embarrassment and inferiority. They said they felt more lively, full of energy and happy with their lives, and made their activities and interests a priority. The choral singing is an important exercise for voice quality in elderly and to recover the effects of changes in the vocal folds caused by the aging process as the loss of collagen and elastin on the layers of the vocal folds. Additional research is needed; with a case-control study for confirm these hypotheses.

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