

# Correlates of Coping in Individuals with Tinnitus

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**Abstract**—Tinnitus is commonly defined as an aberrant perception of sound without external stimulus. It's a chronic condition with consequences on the QOL. The coping strategies used were not always effective and coping was identified as a predictor of QOL in individuals with tinnitus, which reinforces the idea that in health the use of effective coping styles should be promoted. This work intend to verify relations between coping strategies assessed by BriefCope in subjects with tinnitus and variables such as gender, age and severity of tinnitus measured by THI and the Visual Analogue Scale and also hearing and hyperacusis. The results indicate that there are any statistically significant relationships between the variables assessed in relation to the results of BriefCope except in the Visual Analogue Scale. These results, indicating no relationship between almost all variables, reinforce the need for further study of coping strategies use by these patients.

**Keywords**—BriefCope, Coping strategies, Quality of Live, THI, Tinnitus.

## I. INTRODUCTION

HEINECKE, Weise, Schwarz and Rief (2008) tried to find physiological and psychological aspects associated with stress responses [1]. Individuals with tinnitus had a lower suitability in the evaluation of exposure to stressful situations; however, the physiological reactivity was only slightly affected. For these authors, intervention programs should consider tinnitus intervention in these evaluation processes, as well as the mechanisms of coping in stressful situations.

Coping is defined by Lazarus and Folkman as a dynamic set of behavioral and cognitive efforts, used in order to adapt the response to specific external or internal demands that exceed the capabilities of the individual [2]. It is necessary to distinguish between coping styles, more related to personality traits, and coping strategies associated with cognitive and behavioral actions taken in the course of a specific situation of stress [3].

Pais-Ribeiro (2005) states that psychological variables are closely related to health and disease, even in areas that are not directly related to psychological mechanisms, such as the perception of tinnitus (ringing in the ear), these variables may be causing agents, shock absorbers or even the result of the disease or symptoms, as is the case of the example cited above [4].

The ANSI (American National Standards Institute) defines tinnitus as "the sensation of sound without external stimulation" [5]. Dauman (1997) argues that the tinnitus is defined as the perception of a sound that is not generated by any external vibration, is not audible for others and being characterized as a psycho-sensorial phenomenon based on the

Central Nervous System [6]. The tinnitus complaints have a difficult approach, mainly by the ignorance of the mechanisms that causes their presence, by the difficulty of the approach in therapeutic terms which are nor quit effective, and also demonstrated by the difference in the emotional valuation that several patients have for complaints that are similar into psychoacoustic measurements.

Approximately 4% of individuals older than 10 years reported having had a sense of tinnitus, and more than half of them reported some sort of difficulty in their daily lives as a result of this tinnitus [7]. Sissons presents five major complaints associated with tinnitus: emotional problems sleep disturbances, difficulties in auditory perception, interference with work and leisure activities, as well as effects on general health [8]. Thus, anxiety and depression are two psychological aspects, among others, and closely related with the presence of tinnitus disturbance, resulting in the need to understand which psychological characteristics that more influence the perception of its gravity [9]. The bibliography consulted stand out coping strategies, self-efficacy, optimism and social support as aspects to investigate. In this context, the results obtained by Oliveira (2007) and Oliveira and Meneses (2009) show that the Quality of Life (QOL) of Portuguese people with tinnitus measured by the SF-36v2, is decreased relative to the norm for all dimensions, with higher expression in the Social Function and General Health [10], [11]. Also being considered as an important dimension of quality of life, spirituality is also another aspect mentioned in the literature, particularly the relationship with religious coping [12].

With regard to coping strategies, Budd and Pugh (1996) used the Tinnitus Coping Style Questionnaire and found that there is a relationship between maladaptive coping and subjective perception of the tinnitus severity, something that does not exist when coping strategies used are effective, which appears to confirm the usefulness of psychological therapy, particularly with regard to intervention in coping strategies used by the patient [13]. Additionally, Dineen, Bench and Doyle (1997) found that the coping strategies used to deal with tinnitus were not always effective and were related with beliefs about tinnitus [14].

The relationship between QOL and coping has been found in several clinical samples, leading the authors to argue that health professionals should support the use of effective coping styles [15]. In the case of patients with tinnitus, Roggerone (2010) identifies coping as a predictor of QOL [16].

With this work, we sought to explore the existence of relationships between coping strategies that individuals with tinnitus complaints relate to use, assessed through the Portuguese translation of the BriefCope instrument and some biopsychosocial variables.

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## II. METHODOLOGY

This study was developed in the ENT consultation of Military Hospital in Porto/Portugal, as part of a larger study.

We contacted all patients who went to this consultation, and complained of tinnitus. Were established some exclusion factors such as not having tinnitus less than six months, age over 70 years, hearing loss greater than 40 dB, pathology, cognitive and / or psychiatric pathologies somehow interfere with the assessment that was being carried out and other factors that would not allow the collection of the results.

Thus, the sample consists of 46 individuals, 20 females (43.5%) and 26 males (56.5%), with 57.83 years old (SD = 9.01; 27-70) mostly married (n = 39, 86.7%), with average education of 6.74 years (SD = 3.69, 3-17), and perceived tinnitus for about 5 years (n = 4.99, SD = 7.67; 0.5 - 40).

Patients began the evaluation by audiological testing prescribed by their ENT doctor's, and after that they were asked to collaborate on the study, verifying the absence of exclusion factors. If they agreed, they were explained the purpose of it, and asked to sign the informed consent. They were then given questionnaires, including the Tinnitus Handicap Inventory and BriefCope, used in auto-fill, with some exceptions, like visual difficulties, for example.

## III. RESULTS

The results indicate that there are not statistically significant relationships between the results of BriefCope and sex (Table I), age (Table II), the duration of tinnitus perception (Table III) and the values obtained in the Tinnitus Handicap Inventory (Table IV), an instrument that aims to assess the degree of severity associated with tinnitus.

TABLE I  
CORRELATIONS BETWEEN SEX AND BRIEFCOPE

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6,644	29	.229	.793	.713
Within Groups	4,333	15	.289		
Total	10,978	44			

TABLE II  
CORRELATIONS BETWEEN AGE AND BRIEFCOPE

	Total Brief Cope	Age
Total BriefCope	Pearson Correlation	1
	Sig. (2-tailed)	.835
	N	45
Age	Pearson Correlation	-.032
	Sig. (2-tailed)	.835
	N	45

TABLE III  
CORRELATIONS BETWEEN TIME WITH TINNITUS AND BRIEFCOPE

	Total Brief Cope	How long did you feel the tinnitus
Total Brief Cope	Pearson Correlation	1
	Sig. (2-tailed)	.076
	N	45
How long did you feel the tinnitus	Pearson Correlation	-.267
	Sig. (2-tailed)	.076
	N	45

TABLE IV  
CORRELATIONS BETWEEN TINNITUS PERCEPTION (THI) AND BRIEFCOPE

	Total Brief Cope	Total THI
Total Brief Cope	PearsonCorrelation	1
	Sig. (2-tailed)	.139
	N	45
Total THI	PearsonCorrelation	.224
	Sig. (2-tailed)	.139
	N	45

We also realize, the lack of statistically significant relationships between hearing (Table V), and hypersensitivity to sound (Table VI) with respect to the results of BriefCope.

TABLE V  
CORRELATIONS BETWEEN HEARING LEVEL AND BRIEFCOPE

	Hearing	Total Brief Cope
Hearing	PearsonCorrelation	1
	Sig. (2-tailed)	.144
	N	45
Total Brief Cope	PearsonCorrelation	-.144
	Sig. (2-tailed)	.346
	N	45

TABLE VI  
CORRELATIONS BETWEEN HYPERACOUSIS AND BRIEFCOPE

	Total hyperacusis	Total Brief Cope
Total hyperacusis	PearsonCorrelation	1
	Sig. (2-tailed)	.503
	N	7
Total Brief Cope	PearsonCorrelation	.503
	Sig. (2-tailed)	.250
	N	7

Only in the assessment of discomfort tinnitus measured by Visual Analogue Scale, has been found statistically significant relationships (Table VII). In the Visual Analogue Scale the patient must rate the discomfort resulting from the presence of tinnitus on a scale from 0 (no distress) to 10 (unbearable).

TABLE VII  
CORRELATIONS BETWEEN TINNITUS VISUAL ANALOGIC SCALE AND  
BRIEFCOPE

		Total Brief Cope	Tinnitus Visual Analogic Scale
Total Brief Cope	PearsonCorrelation	1	.405**
	Sig. (2-tailed)		.007
	N	45	43
Tinnitus Visual Analogic Scale	PearsonCorrelation	.405**	1
	Sig. (2-tailed)	.007	
	N	43	44

\*\* Correlation is significant at the 0.01 level (2-tailed).

It can be assumed that individuals who have a more burdensome perception of their tinnitus complaints, and rate that higher in the Visual Analogue Scale, also try to use more strategies for deal with tinnitus, but with doubtful efficacy, what we can see for the persistency of the complaints.

#### IV. CONCLUSION

These results support the need to complement the study of coping strategies that these individuals use. Moreover, it is assumed that the use of a physical instrument such as a small manual may be useful in enabling these patients to be more and more confident and with more support that what is provided in therapy sessions used until now. Is this one of the steps for a future work, to realize the usefulness of an instrument to give information to the patient, with the objective to making more effective the coping strategies they use to deal with the problem.

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