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**ORIGINAL ARTICLE** 

# Rhinitis as an associated factor for anxiety and depression amongst adults<sup>\*</sup>

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#### **KEYWORDS**

Anxiety; Depression; Allergic rhinitis; Adults

#### Abstract

*Introduction*: Anxiety and depression are frequent disorders of chronic diseases, yet there is no conclusive information to their association with rhinitis.

*Objective*: The objective is to determine the frequency of anxiety and depression and its possible association to allergic rhinitis (AR) and non-allergic rhinitis (NAR).

Methods: This is a cross-sectional study in which procured subjects with AR (n=111), NAR (n=34) and a control group (n=96) from the university hospital. The presence of anxiety and depression was considered when it reached a score > 13 based on The Beck Anxiety Inventory Test and The Beck Depression Inventory II Test, respectively. The association between AR and NAR with anxiety and depression was adjusted with the Mantel-Haenszel Method and logistic regression.

Results: The frequency for anxiety in AR, NAR and the control group was 45.9%, 52.9%, 10.4%, respectively (p < 0.001); depression frequency was 38.7%, 47.1%, 16.6% (p = 0.0003), respectively. Both AR and NAR were associated to anxiety and depression in women, but not to men. After adjusting the sex: AR was associated to anxiety (OR = 5.7, p < 0.001) and depression (OR = 2.5, p = 0.015), while NAR was also associated to anxiety (OR = 7.8, p < 0.001) and depression (OR = 3.3, p < 0.014). In multivariate analysis it was identified that AR, NAR and the

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individual's sex (women) were factors associated to anxiety and depression. Results showed that age was only associated to anxiety.

Conclusion: AR and NAR are diseases associated to anxiety and depression, at least in women. © 2016 Associação Brasileira de Otorrinolaringologia e Cirurgia Cérvico-Facial. Published by Elsevier Editora Ltda. This is an open access article under the CC BY license (http://creativecommons.org/licenses/by/4.0/).

#### PALAVRAS-CHAVE

Ansiedade; Depressão; Rinite alérgica; Adultos

#### Rinite como fator associado para ansiedade e depressão entre adultos

#### Resumo

Introdução: Ansiedade e depressão são distúrbios frequentes em doenças crônicas, embora não haja nenhuma informação conclusiva à sua associação com a rinite alérgica.

Objetivo: O objetivo do estudo é determinar a frequência de ansiedade e depressão e sua possível associação a rinite alérgica (RA) e rinite não alérgica (NRA).

Método: Estudo transversal, no qual indivíduos com RA (n = 111), NRA (n = 34) e um grupo controle (n = 96) foram recrutados a partir do hospital universitário. A presença de ansiedade e depressão foi considerada quando atingiu uma pontuação > 13 no Teste do Inventário de Ansiedade de Beck e no Teste II do Inventário de Depressão de Beck, respectivamente. A associação entre a RA e RNA com ansiedade e depressão foi ajustada com o Método de Mantel-Haenszel e regressão logística.

Resultados: A frequência de ansiedade na RA, RNA e grupo controle foi de 45,9%, 52,9%, 10,4%, respectivamente (p < 0,001); a frequência de depressão foi de 38,7%, 47,1%, 16,6% (p = 0,0003), respectivamente. Tanto a RA como a RNA foram associadas a ansiedade e depressão em mulheres, mas não para os homens. Depois de ajustar o sexo: RA foi associada à ansiedade (OR = 5,7, p < 0,001) e depressão (OR = 2,5, p = 0,015), enquanto a RNA foi associada a ansiedade (OR = 7,8, p < 0,001) e depressão (OR = 3,3, p < 0,014). Na análise multivariada identificou-se que a RA, RNA e o sexo do indivíduo (mulheres) foram fatores associados a ansiedade e depressão. Os resultados mostraram que a idade só foi associada à ansiedade.

Conclusão: RA e RNA são doenças associadas a ansiedade e depressão, pelo menos em mulheres. © 2016 Associação Brasileira de Otorrinolaringologia e Cirurgia Cérvico-Facial. Publicado por Elsevier Editora Ltda. Este é um artigo Open Access sob uma licença CC BY (http://creativecommons.org/licenses/by/4.0/).

#### Introduction

By definition, rhinitis is an inflammatory alteration of the nasal mucus; which is also characterized by the presence of two or more of the following symptoms: nasal congestion, rhinorrhea, itchiness, sneezing, and daily alterations in a patients sense of smell for over an hour. By classifying the presence or absence of allergic sensibilization, it is possible to differentiate between allergic rhinitis (AR) and non-allergic rhinitis (NAR).

Amongst the long evolution rhinitis, highlights the AR, disorder causing significant morbidity and disability, which affects the quality of life in social, school and workplace; causes a high economic impact as well as an increase in the consumption of alcoholic beverages and sedatives.<sup>2-6</sup> Additionally, this disrupts sleep patterns, along with cognitive and productive capacities.<sup>3,5</sup> Up to 43% of AR patients wake up feeling tired, this is reflected in matters such as their mood and sexual appetite, furthermore, it has been reported as a risk factor for depression and anxiety.<sup>5,7,8</sup>

The mood disorder characterized by sadness, feelings of uselessness, self-depreciation, and social isolation, are known as depression; anxiety is the feeling of restlessness or apprehension that acts as a defense mechanism and aids

in managing potential danger, this appears to have an adaptive function as it produces bodily reactions that can prepare an individual for the 'fight or flight' response.9

The disorder characterized by anxiety and mood changes are common in patients with chronic diseases, <sup>10–13</sup> however, in the case of rhinitis, these side effects have not yet been researched thoroughly. For a more in-depth understanding of these associations, more clinical evidence is needed; thus far, most studies concerning anxiety and depression as possible consequences of rhinitis have been epidemiological. <sup>14–17</sup>

The objectives in this study consisted of determining the levels of anxiety and depression from a group of patients with AR and another group with NAR; thereafter, we compared our results with a group of control subjects. This was carried out in order to obtain a greater understanding of the association that rhinitis has to anxiety and depression.

#### **Methods**

#### **Ethics**

The Hospital's Ethical Research Committee approved this study (number: 1226/12). Each subject signed a written

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