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Hospital noise and patients´ wellbeing

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Abstract

Noise can produce an undesired physiological or psychological response in an individual and it has implications in chronic mental and physical health.

This study´s purpose was to confirm the relationship between hospital noise and patients´ wellbeing, trough a descriptive design. It was performed in 84 patients (59.5 % male and 40.5 % female) admitted in three medical/surgical care units of a Portuguese hospital (CHBV, EPE). The questionnaire was composed by three parts: one regarding to socio-demographic and clinical data, other assessing the patient´s noise perception - the *Environmental Comfort Questionnaire* from Cunha and Silva (2012) - and the *Positive and Negative Affect Schedule* (PANAS) by Watson, Clark and Tellegen (1988), Portuguese version from Galinha and Pais-Ribeiro (2005).

The results showed that: *Clinical Sources of Noise* (r=-0269, p=0.013), the *Sum Score of the Environmental Comfort* (r=-0254, p=0.020) and *physiological and psychological effects caused by noise* (r=-0362, p=0.001) are statistically significant related with patients´ subjective wellbeing.

It is confirmed that subjective wellbeing is influenced by the hospital noise in general and, more specifically, the noise from clinical sources (e.g. monitors, infusion pumps and other equipments).

It is also confirmed that some physiological and psychological disturbances in patients are related to hospital noise.

Facing the results, it is imperative to promote the wellbeing of admitted patients by lowering the noise levels.

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Keywords: Noise; Hospital noise; Subjective wellbeing.

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1. Introduction

Sound is a sensory perception, and depending on the pattern of the sound waves generated, it is recognized as music, speech or any of the myriad of environmental noises to which we are continuously exposed (Pope 2010).

According to Choiniere (2010), noise is often defined as unwanted sound; however, it is also recognized as an environmental pollutant, which causes workplace disruption and has implications for chronic mental and physical health. Bistrup (2001) adds that noise, independent of loudness, may produce an undesired physiological or psychological response in an individual and that may interfere with the social activities of an individual (Gerhardsson & Nilsson, 2013). Negative health effects are documented by many studies published over the last 30 years. Numerous studies have linked hospital noise to a variety of negative physiological outcomes (Pope, 2010).

Wellbeing is considered a subjective concept that expresses a feeling or belief that life is going well (Lucas & Diener, 2009 as cited in Ribeiro, 2009) and according to Fiquer (2006) its study is justified by the fact that subjective wellbeing has proved to be a good index of health related benefits and because it can measure the quality of life in different societies, when considered together with socio-economic indexes (Martins, 2011).

Hospital noise is often underestimated, which justifies this study´s importance, in order to understand how the noise has impact on patients´ wellbeing.

2. Problem Statement

Hospitals are noisy and they are getting noisier. Several studies performed by the WHO (World Health Organization) reveals that hospital noise levels have been increasing consistently since 1960 (Ryherd, Waye & Ljunkvist, 2008). WHO have recommended that noise levels should not exceed 35 dB(A) in rooms where patients are treated or observed (Berglund et al. 1999 as cited in Richardson et al., 2009) and 30 dB(A) in ward rooms (Ryherd, Okcu ,Hsu, & Mahapatra, 2011).

In 1974, the United States Environmental Protection Agency (EPA) suggested that the peek sound level of noise in a hospital should not be more than 45 decibels (dB) during the day and 35 dB at night. The noise level in hospitals is usually higher than these recommendations and even higher in intensive care units (Li et al., 2011).

Researchers have concluded that all hospitals, regardless of their size, type of patients they care for, at all times of day, every day of the week, exceed recommended noise levels put forth by EPA and WHO (Choiniere, 2010).

We can assume that, with the constant evolution of technology, the number of sources of noise will also increase because some patients´ lives are depending on it.

Hospitals have several sources of noise such as alarms, paging systems, telephones, computer printers, ice machines, staff conversations, televisions, delivery carts, clipboards (Joseph & Ulrich 2007, MacKenzi & Galbrun 2007 as cited in Pope, 2010), heating and cooling systems, overhead fluorescent lights, computer monitors, noise-generating beds, ventilators and other medical equipment, high intensity alarms to signal medical emergencies, staff and patient conversations, doors opening and closing, housekeeping and linen carts rolling on linoleum floors, overhead paging, sink faucets running, and items being dropped (Lawson, et al., 2010).

Noise can stimulate the pituitary gland and the sympathetic nervous system, which produces endocrine and sympathetic effects commonly seen in response to a stressful situation. Stress theories have been used to explain the negative reactions individuals have in response to their environment, commonly associated with negative health outcomes. Human effects regarding to noise-induced stress, according to Topf and Dillon (1988) are: decrease in sustained attention, rapid detection, multiple single tasks, and incidental memory. Noise-induced stress also has a negative effect on sensitivity to others and is linked to extreme and premature judgments (Choiniere, 2010).

One of the main goals of scientific research in the field of subjective wellbeing has been to identify the main predictors of human happiness.

Wilson, in 1967, characterized a happy individual as young, regardless the gender, healthy, well-educated, well paid, extroverted, optimistic, with no worries, religious, married and satisfied with his work, among other characteristics (Galinha, 2010).

Subjective wellbeing is composed by two dimensions: the cognitive - revealing Satisfaction with Life - and the affective one - which consists in two concepts: Global Happiness and Positive Affect/Negative Affect (Galinha, 2011).