



Factors Associated With Increased Anxiety in the MRI Waiting Room

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ABSTRACT: The purpose of this study was to examine the effect of waiting room time on patient stress. The wait for patients undergoing diagnostic imaging tests, such as magnetic resonance imaging (MRI), can vary significantly. However, the impact of MRI waiting room time on patient stress has not been determined. The study had a prospective nonrandomized design. One hundred ninety-two of 200 enrolled subjects completed self-report State-Trait Anxiety Inventory assessments to measure levels of anxiety on arrival to the waiting room and entering the MRI suite. Scores from the Trait and State anxiety tests were compared to understand how waiting times impacted patient anxiety. Data were analyzed using a multivariate model, which demonstrated that sex (female), baseline anxiety, and the length of waiting time were predictive of increased anxiety. These results support the correlation between high levels of anxiety with longer waiting times, particularly in females who arrive to the waiting room feeling anxious. Longer waiting room times had no effect on patients who were not anxious when they arrived. (*J Radiol Nurs* 2015;34:170-174.)

KEYWORDS: Nursing care; Anxiety; Stress; Waiting; Anticipation.

INTRODUCTION

Background

The waiting room has long been described as a place of isolation and boredom (Jones, 1986). Patients may wait

indeterminate periods in anticipation of tests, results, or procedures. Waiting is common for patients undergoing diagnostic testing, particularly diagnostic imaging such as computerized tomography or magnetic resonance imaging (MRI). Similarly, stress and feelings of anxiety are common for patients awaiting diagnoses. A recent study found that at least 20% of patients experience some form of emotional distress while in a waiting room (Catania et al., 2011), likely because of being suspended from knowledge of their health, which leads to feelings of uncertainty. Mishel (1988) directly links uncertainty with changes in both psychological and physical health. Waiting may be directly linked to the exacerbation of stress associated with uncertainty (Nie, 2000). Hence, it is relatively well established that waiting may be associated with stress and anxiety. However, what is not understood is how the length of waiting times, specifically for diagnostic imaging, impacts patient stress and anxiety.

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Anxiety

According to the National Institute of Mental Health (2014), approximately 18% of persons in the United States experience an anxiety disorder. Anxiety has been described as a physical and emotional state of being. Objectively, anxiety is "... defined as a trait, a state,

a stimulus, a response, a drive, and as a motive” (Endler & Kocovski, 2001). Anxiety manifests in two ways, through emotional symptoms, such as fear, dread, and worry, and through physical symptoms, such as dry mouth, dizziness, increased heart rate, sweating, rapid breathing, and possibly fatigue. Although some anxious symptoms are a normal reaction to stress, for some it remains uncomfortable and unbearable at times.

In 1970, Spielberger, Gorsuch, and Lushene (1970) proposed a dichotomization of anxiety into two conceptually different levels: trait and state. Trait anxiety refers to the overarching reaction to life situations that could provoke a certain level of anxiety (Endler & Kocovski, 2001) and is therefore a reflection of the general level or tendency toward anxiety of a person. In contrast, State anxiety refers to the level of anxiety of a person after a stimulus or given a certain situation (Endler & Kocovski, 2001). Based on these concepts, Spielberger, Gorsuch, Lushene, Vagg, and Jacobs (1983) developed the State-Trait Anxiety Inventory (STAI) as a tool to measure and is one of the most commonly used instruments to measure anxiety in both clinical and research settings (Flory & Lang, 2011).

The original STAI consists of two sets of 20 questions to assess State anxiety and Trait anxiety levels in adults. Out of 20 questions, State anxiety questions (STAI-S) has 10 positively worded items compared with 7 in Trait anxiety (STAI-T) (Fioravanti-Bastos, Cheniaux, & Landeira-Fernandez, 2011). A study conducted in Brazil demonstrated that using six questions in each part of the STAI was as effective as using the 20 original questions (Fioravanti-Bastos et al., 2011). Each item in the STAI is scored from 1 to 4, and scores are summed (inverse scoring is used for negatively worded items). STAI-Trait scores can range from 20 to 80 (STAI-State scores range from 6 to 24), and higher scores are associated with a higher level of anxiety.

Magnetic Resonance Imaging

A wide variety of patients require diagnostic imaging studies for different reasons. Historically, the diagnosis of a brain tumor, broken bone, or even an intra-abdominal abscess could only be confirmed through invasive procedures. MRI, developed in the late 1970s, has been demonstrated to be effective in diagnosing a broad range of medical diseases including neurologic diseases (Shellock & Spinazzi, 2008; Vaughan, 1989).

Waiting Time

Waiting is part of modern life, and most patients certainly expect that some amount of waiting will be

required when they receive medical care or diagnostic testing. In the MRI suite, patients usually have three separate times when they have to wait. First, they wait to check-in on arrival to the MRI suite. Next, they wait to be called to the back for an intravenous (IV) placement and MRI safety screening questions. Finally, they wait for the MRI scanner to become available. Most of the time, MRI suite staff are busy with their daily routine and overlook checking on patients' needs and anxiety levels. As the waiting time for the patient increases, their anxiety levels are likely to increase, which may lead to compromised image quality and repetition of the MRI sequence. In addition, dealing with anxious patients usually adds more time and stress for staff. According to a health care industry study conducted in Belgium, longer waiting time decreased service satisfaction scores and negatively impacted the loyalty relationship between health care providers and patients (Bielen & Demoulin, 2007).

Given the lack of evidence in the literature, this study aims to establish a better understanding of the impact of waiting room time on levels of patient anxiety. To determine how waiting room time impacts patient anxiety in the MRI suite, this study examined if a shorter waiting time, compared with a longer waiting time, was associated with lower levels of anxiety by the completion of their MRI study. Additionally, findings from this study may provide clinicians, researchers, and health care providers the evidence to change practice when assisting patients with waiting room anxiety.

AIM

The aim of this study was to examine how waiting room time impacts patient anxiety in the MRI suite.

METHOD

This was a prospective nonrandomized study of waiting time and anxiety of patients undergoing diagnostic MRI studies for cancer or neurologic disorders. Participants were asked to complete self-report surveys of anxiety on arrival and immediately before the MRI procedure. The study protocol was approved by the Institutional Review Board of the University of Texas Southwestern Medical Center, in accordance with the US Code of Federal Regulations, Title 45, Part 46.

Setting

All MRI scans were performed in the cancer, neurology, or multiple sclerosis clinics of the University of Texas Southwestern Medical Center (Dallas, TX) using three different commercially available MRI machines.

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