

Effectiveness of Coloring as a Technique to Reduce Physiological and Psychological
Stress

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A Doctoral Project Submitted in Partial Fulfillment of the
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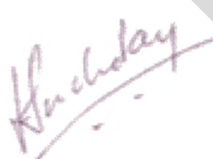

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1. Graphic representation of procedures

PREVIEW

Abstract

Coloring pre-drawn mandalas has been proposed as a brief, inexpensive, accessible distraction technique to reduce stress. The aim of the proposed study was to evaluate the effectiveness of coloring as a technique to reduce the both the physiological (i.e. blood pressure and heart rate) and psychological (i.e. negative affect) indicators of stress; the study also aimed to take into account the potential moderating effect of individual differences in ruminative response tendency. The goal was to help clarify some of the inconsistencies and gaps in the literature regarding the effectiveness of coloring for both physiological and psychological stress reduction.

Keywords: coloring, mandala, stress, distraction, rumination

Effectiveness of Coloring as a Technique to Reduce Physiological and Psychological Stress

Introduction

Overview

The aim of the current study was to evaluate the effectiveness of coloring as a technique to reduce the both physiological and psychological indicators of stress, while also taking into account the potential moderating effect of individual differences in ruminative response tendency. The goal was to help clarify some of the inconsistencies and gaps in the literature regarding the effectiveness of coloring for both physiological and psychological stress reduction.

Literature Review

Stress and health.

In modern society, people are exposed to a large amount of psychosocial stressors (American Psychological Association, 2018; Everly & Lating, 2013). Psychosocial stressors are events, circumstances, or other stimuli within an individual's psychological or social environment, which are appraised and perceived as aversive, taxing, or threatening, and which elicit a stress response (Everly & Lating, 2013). For example, stimuli related to occupational or academic demands, social relationships, and finances, can all be experienced as psychosocial stressors (American Psychological Association, 2018). The human stress response is a series of physiological and psychological changes aimed at optimizing safety and increasing the chance of survival in reaction to a perceived stressor (Goetsch & Larkin, 2018). When the human brain detects a stressor, a

series of generally unconscious changes occurs in order to prepare the body to fight or flee (Goetsch & Larkin, 2018). These changes include increased heart rate, blood pressure, and respiration, changes in blood flow and blood glucose levels, depression of immune function, and enhanced processing and reaction time (Goetsch & Larkin, 2018). The brain initiates these physiological changes through the activation of two main pathways in the body, the Sympathetic Nervous System (SNS) of the Autonomic Nervous System (ANS), and the hypothalamic-pituitary-adrenal (HPA) axis (Goetsch & Larkin, 2018). Both pathways work by adjusting the body's neurological and hormonal activity in order to heighten levels of arousal and prepare the body to respond to the stressor (Goetsch & Larkin, 2018). By contrast, the Parasympathetic Nervous System (PNS) of the ANS, acts to calm and restore the body after a stress response, and facilitates rest, digestion, and recovery to baseline functioning through stimulation of the vagus nerve (Olshansky et al., 2008). Psychologically, stress is subjectively experienced by an individual when the demands of a stressor exceed or strain the individual's resources for coping, which causes distress and can engender negative affect (Cohen et al., 1995, 2007; Folkman, 2013; Lazarus, 1966).

While the human stress response is adaptive in many ways, it can also be a threat to human health in and of itself (Goetsch & Larkin, 2018). In particular, excessive, repeated, and/or prolonged stress has been found can be a risk factor for multiple physical and mental health problems (Cohen et al., 2007; Everly & Lating, 2013; Goetsch & Larkin, 2018). Physiologist Hans Selye first introduced this idea with his concept of general adaption syndrome, to describe how the human stress response could result in

disease (Goetsch & Larkin, 2018; Selye, 1978). Selye (1978) proposed three stages of the general adaptation syndrome: alarm, resistance, and exhaustion. Alarm refers to the initial detection of the stressor and activation of the stress response (Goetsch & Larkin, 2018; Selye, 1978). Resistance, refers to the process of counterbalancing the stress response and attempting to restore the body to baseline functioning (Goetsch & Larkin, 2018; Selye, 1978). Selye (1978) proposed when the resistance stage is prolonged, exhaustion occurs, which he thought led to illness or diseases of adaption. While there have been some criticisms of Selye's theory, such as that it does not take into account individual differences, it still provides a useful grounding for understanding the basic relationship between the human stress response and negative health outcomes (Goetsch & Larkin, 2018). Aside from the negative health outcomes potentially caused by extended activation of the physiological aspects of the stress response, it has also been suggested that the negative affect induced by stressors may directly affect various biological processes and behavioral patterns, which further contribute to the risk of physical and mental health problems (Cohen et al., 1995, 2007).

The scientific community has increasingly explored the connections between stress and health, and has found evidence supporting the idea that relationships exist between stress and the development and/or maintenance of various physical and mental health problems (Goetsch & Larkin, 2018). Physically, chronic stress has been found to be associated with increased risk of gastrointestinal disorders, diabetes, pain, respiratory problems, and immune dysfunction (Cohen et al., 2007; Everly & Lating, 2013; Goetsch & Larkin, 2018; Kiecolt-Glaser et al., 2002). Particular emphasis has been placed on