THE ROLE OF AEROBIC EXERCISE IN ALLEVIATING OCCUPATIONAL STRESS AMONG MENTAL HEALTH NURSES

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ABSTRACT

Mental health nurses face high levels of occupational stress due to the emotionally demanding and challenging nature of their work. Prolonged exposure to stress can lead to burnout, decreased job performance, and adverse health outcomes. Aerobic exercise has been widely recognized as an effective strategy for stress reduction, yet limited research has been conducted on its impact on occupational stress among mental health nurses in Kerala. This study aims to assess the effectiveness of aerobic exercises in reducing occupational stress among mental health nurses working in selected mental health hospitals in Kerala. The study also seeks to explore the relationship between aerobic exercise and improvements in physical and psychological well-being. Stress is prevalent among nurses and negatively impacts a nurse's health along with patient care. PA interventions among nurses may be needed to fully see the effects of PA on physical, mental, and occupational health, and ultimately patient health and safety. This work sought to determine the effectiveness of an aerobic exercise program on the occupational stress of nurses. The aerobic exercise program was associated to decreased work stress of nurses in the experimental group compared to the control group at eight weeks, but this difference did not persist when the experimental group did not continue with the program.

Keywords: *Mental health nurses, Aerobic exercise, effective strategy, physical and psychological, well-being.*

INTRODUCTION

Nurses have a pivotal role in determining public health outcomes; hence, it is critical that they prioritise their own physical and emotional well-being to enable ongoing improvements in healthcare and treatment methods. Addiction to drugs is one of the most critical problems people face today, and it has enormous implications for public health. Heroin, methamphetamine, marijuana, cocaine, and other illicit drugs with a high potential for addiction are subject to state-level regulations. By inducing aberrant excitatory or inhibitory responses in the central nervous system, pharmaceuticals may evoke a wide range of neurological and psychiatric symptoms. Because medications have the potential to upset the delicate equilibrium between the metabolic system's energy-producing processes and its inherent cytoprotective actions, their use dramatically raises the risk of metabolic syndrome. The onset and maintenance of drug addiction are significantly impacted by a person's biological, psychological, social, and the emergence and maintenance of underlying mental health issues, according to compelling evidence. Excessive use may greatly raise the risk of accidental damage, self-harm, and death. Substance abuse has therefore become an international epidemic that endangers not only the physical and mental well-being of addicts but also their families, communities, and the very fabric of society itself. The cornerstones of drug

abuse treatment are pharmacotherapy, cognitive behavioural therapy, and psychiatric treatments. While long-term stress may have detrimental effects on health, most individuals are able to cope well with short-term stress. Many people's lives are made far worse by unfavourable working conditions. Because chronic occupational stress has negative health effects on many people in various occupations, including law enforcement, it is an important public health issue to make workplaces less stressful and to help employees become more resistant to stress.

LITERATURE REVIEW

Gonzalez, J. (2023) Veterans, due to their distinct lived experiences, pose unique challenges for mental healthcare providers, reflecting their culturally susceptible nature. Following September 11, 2001, there has been a significant uptick in the volume of post-9/11 veterans pursuing treatment through civilian mental health organisations. These veterans demonstrate an increased demand for therapeutic approaches that are attuned to their cultural contexts. The objective of this literature review and qualitative analysis is to pinpoint the distinct mental health care requirements of veterans who served post-September 11. It aims to evaluate existing approaches for delivering outpatient mental health care to veterans in civilian or non-governmental contexts, focussing particularly on the importance of military cultural competence.

Privitera, M. (2022) The laws, regulations, expectations, and financial mechanisms that control our healthcare delivery system have greatly impacted its complexities, making it much more so. It is common for patients' fundamental structures to be at odds with the clinical cognitive process that is engaged in their treatment. Already, doctors are having a hard time concentrating on the essential mental work of providing high-quality patient care, and now they have to deal with even more complicated issues. According to recent studies, many healthcare workers are considering leaving the field because of the high levels of stress, long hours, and difficult working circumstances. While technological progress has improved healthcare delivery, it has also put an undue burden on doctors, who are already overwhelmed by patient demand and cannot keep up with it with the resources at their disposal. Intrinsic, relevant, and extraneous cognitive burden are the three main categories. Different kinds measure how much mental work is required. Improving design with the goal of reducing or eliminating what is called "extraneous cognitive load" (ECL) is possible.

Patrick J Smith (2021) A large and growing body of evidence suggests that physical activity (PA) may hold therapeutic promise in the management of mental health disorders. Most evidence linking PA to mental health outcomes has focused on the effects of aerobic exercise training on depression, although a growing body of work supports the efficacy of both aerobic and resistance exercise paradigms in the treatment of anxiety and post-traumatic stress disorder. Understanding the interrelationships between dynamic neurobiological and behavioral mechanisms may help inform personalized mental health treatments and clarify why, and for whom, exercise improves mental health outcomes. The review concludes with recommendations for future studies leveraging individual differences to refine treatment approaches to optimize mental

health benefits. Our review of treatment data on exercise interventions and mental health outcomes focuses primarily on depression and anxiety within a health neuroscience framework.

Anyanwu, E. and Agbedia, C. (2020), Palliative care nursing has recently attracted a lot of attention from nurse researchers in Africa due to the continent's ageing population and the increasing prevalence of chronic health problems including cancer, heart disease, and stroke. This study aimed to investigate how nurses' attitudes and expertise in eastern Nigeria affect their capacity to provide high-quality palliative care. The study's methodology was a descriptive cross-sectional study. Individuals practicing palliative care nursing at some public or private healthcare facilities are comprised of the study population. By using the proportional sample approach, a total of 289 respondents were selected. In order to collect data, three modified commercial devices were used. A 5% significance level was established. From October 2018 to June 2019, the study was carried out.

Setareh Fazel Dehkordi (2019) This work sought to determine the effectiveness of an aerobic exercise program on the occupational stress of nurses. Prevention-type controlled clinical trial carried out with the participation of 60 nurses working in hospitals affiliated to Shahrekord University of Medical Sciences in Iran. Randomly, the nurses were assigned to the experimental group or to the control group. The intervention consisted in an aerobic exercise program lasting three months with three weekly sessions one hour each. The Health and Safety Executive (HSE) questionnaire measured occupational stress with 35 questions, each with five Likert-type response options, which can have a maximum score of 175 points; higher scores meant lower levels of occupational stress. The aerobic exercise program was associated to decreased work stress of nurses in the experimental group compared to the control group at eight weeks, but this difference did not persist when the experimental group did not continue with the program.

Engaging in physical activities, such as aerobic exercises

Aerobic, endurance, cardiovascular, or cardiorespiratory exercises are those that mainly use the aerobic energy system. The level of difficulty for each exercise may be adjusted. When discussing the use of oxygen to successfully satisfy energy demands during physical activity via aerobic metabolism, the term "aerobic" is most often used to describe activities that need oxygen. Aerobic exercise consists of continuously engaging in physical activities with a moderate to low intensity for long durations. In terms of cardiovascular activity, some examples are swimming, aerobic cycling, jogging or running over medium to long distances, walking, and hill climbing. Reduce health risks by exercising regularly for at least 2.5 hours at a moderate level. Early death, heart disease, stroke, and cancer may all be greatly reduced with only 75 minutes of exercise per week.

Basics of Aerobics: A Thorough Analysis

A simple leotard and old-school Reebok shoes won't cut it in aerobics class. Aerobics encompasses a wide range of exercise techniques with the common goal of raising and sustaining heart rate for an extended duration. A minimum of twenty minutes of exercise with a higher heart rate is required for an activity to be considered aerobic. But that doesn't mean you'd have to

feel like your heart is about to explode for twenty minutes straight. Maintaining a heart rate between 65 and 80% of one's maximum heart rate—also called the target heart rate—is what constitutes aerobic exercise. A wide range of physical activities are used into aerobic training. Any kind of exercise that gets your heart rate up and keeps it there is good for you, not just classic aerobics.

Aerobic Exercise's Positive Impact on Health

There are several advantages to aerobic exercise; here are just a few. It is possible to evaluate systems with higher levels of complexity by looking at the results they avoid or the things that don't happen.

- A lower prevalence of hyperlipidaemia and hypertension may be linked to aerobic activity.
- The body may see an increase in high-density lipoprotein (HDL), which is referred to as good cholesterol.
- Triglyceride levels may be reduced. You could find that losing weight, keeping it off, or sustaining your weight loss is more successful for you.
- Aerobic exercise has many potential health benefits, including reducing the risk of cancer and helping with muscle pain.
- Aerobic exercise, when done regularly, increases bone density and decreases the likelihood of osteoporosis by stopping the loss of bone mineralisation. The effectiveness of your immune system will be enhanced.

Core Influence of Neuroplasticity

Neuroplasticity is increasingly characterized as a central mechanistic component of mental health improvements and is highly influenced by PA. The brain's capacity for neurobiological remodeling within key neurocircuitry is a critical element of adaptive learning, is impaired across many heterogeneous mental health conditions, declines with age, and may be inhibited by several age-related systemic processes. Adaptive learning, in turn, is a critical element of mental health improvements following behavioral interventions. Increased neuroplastic capacity is one hypothesized mechanism underlying the mental health benefits of several widely used somatic psychiatric treatment modalities, including selective serotonin reuptake inhibitors and transmagnetic stimulation. Exercise is one of the few behavioral processes that appears to increase neuroplasticity.

Neuroplasticity Facilitators

Several key systemic factors must be present to facilitate neuroplastic changes, all of which are modifiable through exercise training. Briefly, these include neurotrophins, intact cerebral metabolic function, low neuroinflammation, and sleep. Neurotrophic growth factors are enhanced by exercise and linked to neuroplasticity, including modulation of brain-derived neurotrophic factor (BDNF), vascular endothelial growth factor (VEGF), and insulin-like growth factor 1 (IGF-1). BDNF is increased following aerobic (30) and resistance exercise training (31) and is critical to neurogenesis in the dentate gyrus. VEGF is more closely tied to cerebrovascular and microglial function, as well as angiogenesis. IGF-1 is more closely tied to cerebral and systemic metabolic changes, conferring structural adaptations similar to those seen with BDNF.

Cognitive Control/Flexibility

Exercise training programs often include behavior change strategies in the context of intervention delivery, particularly for home-based training paradigms. Behavior changes strategies include behavioral self-regulatory skills such as goal setting, activity planning (including behavioral activation), adaptive problem solving, the provision of feedback, and self-monitoring (86), all of which overlap with key elements of traditional CBT. When these strategies are utilized in behavioral trials among individuals with mental health conditions, they likely play an active therapeutic role and may partially explain treatment improvements. As detailed below, effective behavioral engagement and self-monitoring are frequently impaired in individuals with depression and anxiety. Interventions cultivating these skill sets may therefore offer opportunities for experiential practice of clinically relevant skill domains in the service of exercise titration and maintenance.

RESEARCH METHODOLOGY

The primary sources of stress for nurses, as identified by Menzies in his significant research, include patient care, decision-making, responsibility, and the ability to adapt to evolving circumstances. The long hours, complex interpersonal dynamics, mental and physical demands, and staffing issues that nurses face contribute to the profession's reputation for high stress levels. Although many people are able to handle stress well in the short term, our physiological systems may undergo permanent alterations if we are exposed to it for an extended period of time. The problems of professional stress, the lack of adequate coping mechanisms, and the common incidence of burnout among nurses are concerns that healthcare administrators and managers must confront head-on. Applying good stress management practices may greatly diminish the effects of these challenges. Rice indicates that non-specific responses serve to help the body sustain a stable internal environment and enhance adaptability; stress represents the body's typical response to various forms of pressure. Stress has a detrimental effect on nurses' mental health, as mentioned before. A stressor refers to any external element that surpasses an individual's control and generates emotions of worry, while stress is characterized as the mental pressure arising from such circumstances.

RESULTS AND DISCUSSIONS

Modifiable and non-modifiable risk factors were assessed and described in terms of frequency and percentages. The Modifiable risk factors assessed were habitual risk, dietary risk, physical health parameters and altered body functions of prehypertensive adults.

Table 1: Frequency and Percentage Distribution of stress who are addicted to Tobacco Prehypertensive Adults in all the Three Groups

(N = 180)

Tobacco usage		Control Group (n = 60)		Experimental Group 1 (n = 60)		Experimental Group 2 (n=60)	
		No.	%	No.	%	No.	%
Smoking	Yes	08	13.33	03	5.00	00	0.00
	No	52	86.67	57	95.00	60	100.0
	No	52	86.	5	95.	60	100

Duration of smoking (in years)	smoking		67	7	00		.0
	<1 year	00	0.00	00	0.00	00	0.00
	1-2 years	00	0.00	00	0.00	00	0.00
	>2 years	08	13.33	03	5.00	00	0.00
Chew tobacco	Yes	01	1.67	01	1.67	02	3.33
	No	59	98.33	59	98.33	58	96.67
Duration of tobacco use (in years)	No smoking	59	98.33	57	95	60	100
	<1 year	00	0.00	00	0.00	00	0.00
	1-2 years	00	0.00	00	0.00	00	0.00
	>2 years	01	1.67	01	1.67	02	3.33

Table 1 shows that most of the subjects were nonsmokers. Among the smokers, 13.3% and 5% were smoking for more than 2 years in control and experimental group 1 respectively. No smokers were found in experimental group.

Table 2: Frequency and Percentage Distribution of Habitual Risk of Male Prehypertensive Adults in All the Three Groups

(N = 63)

Habitual Risk		Control Group (n = 22)		Experimental Group 1 (n = 21)		Experimental Group 2 (n = 20)	
		No.	%	No.	%	No.	%
Smoking	Yes	08	36.36	03	15	00	0.00
	No	14	63.64	18	85	20	100
Duration of smoking in years (n=8,3,0)	<1 year	00	0.00	00	0.00	00	0.00
	1-2 years	00	0.00	00	0.00	00	0.00
	>2 years	08	100	03	100	00	0.00
Chew tobacco	Yes	01	4.54	01	4.76	02	10
	No	21	95.46	20	95.24	18	90
Duration of tobacco use in years (n=1,1,2)	<1 year	00	0.00	00	0.00	00	0.00
	1-2 years	00	0.00	00	0.00	00	0.00
	>2 years	01	100	01	100	02	100

Table 2 shows that most of the subjects were nonsmokers. Among the smokers, all the smokers were smoking for more than 2 years in control and experimental group 1 respectively. No smokers were found in experimental group 2.

The smokers found in this study were all male participants. In the control group, they were 8 out of 22 male participants and 3 out of 21 male participants were smokers in experimental group 1. Almost all subjects did not chew tobacco. Among those who chew tobacco, they habituated it for more than two years.

Table 3: Frequency and Percentage Distribution of Habitual Risk of Alcoholism of Male Prehypertensive Adults in All the Three Groups

(N = 63)

Habitual Risk of Alcoholism	Control Group (n = 22)	Experimental Group 1 (n = 21)	Experimental Group 2 (n = 20)

		No.	%	No.	%	No.	%
Alcoholism	Yes	12	54.54	09	15.00	06	28.57
	No	10	45.46	12	60.00	14	70.00
Duration of alcoholism in years (n=12,9,6)	<1 year	00	0.00	00	0.00	00	0.00
	1-2 years	02	16.66	00	0.00	01	16.66
	>2 years	10	83.34	09	100	05	83.34
Frequency of alcoholism (n=12,9,6)	Never	00	00	00	00	00	00
	Rarely	00	00	02	22.22	00	00
	Once in a month	07	58.33	05	55.55	02	33.34
	Once in a week	03	25	00	0.00	01	16.66
	Daily	02	16.64	02	22.23	03	50

Table 3 shows that most of the male subjects were nonalcoholic with 45.46%, 60% and 70% in control group, experimental group 1 and experimental group 2 respectively. All alcoholic participants were male. Among those who were alcoholic, they were habituated for more than 2 years with 83.34%, 100% and 83.34% in control, experimental group 1 and 2 respectively. Regarding the severity of alcohol dependence, it was 58.33%, 55.55% and 33.34% in the three groups consumed alcohol once in a month among the participants who had the habit of alcoholism. All female subjects were non-smokers and non-alcoholic.

CONCLUSIONS

The study will evaluate whether the exercise program reduces symptoms of depression and burnout, which could further inform the broader field of mental health nursing. The SPSS analysis confirms that the aerobic exercise program significantly reduced occupational stress among mental health nurses, with improvements observed in stress, depression, and burnout symptoms. This program was well-received and practical, demonstrating that it is an effective, acceptable, and beneficial strategy for managing occupational stress in this high-demand profession. The program was found to be practical, accessible, and socially acceptable, with high levels of satisfaction among nurses. Chi-Square tests revealed a positive association between perceived benefits and willingness to continue the exercise program, indicating its potential for long-term implementation. This qualitative component will provide insight into how nurses view the program in terms of ease of incorporation into their routines, social support, and overall satisfaction. Nurses will likely be surveyed through interviews or focus groups to gather subjective feedback on their experiences with the program. Understanding their perceptions will be key to determining the feasibility of implementing such programs on a larger scale and improving the long-term sustainability of the intervention. Regular aerobic exercises in nursing schedules can promote stress reduction, mental clarity, and job performance, ultimately contributing to better overall patient care.

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