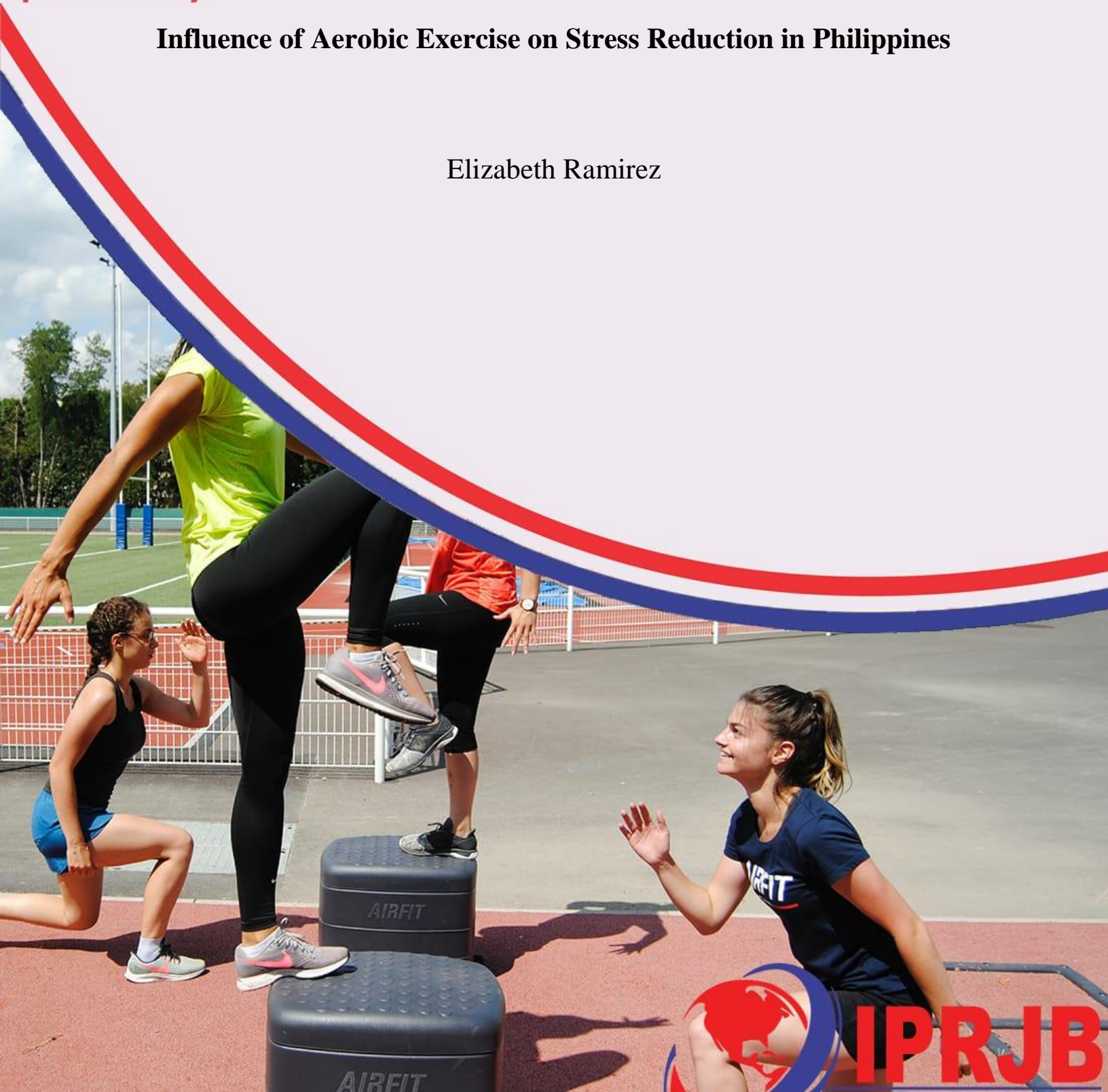


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Influence of Aerobic Exercise on Stress Reduction in Philippines

Elizabeth Ramirez



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Elizabeth Ramirez

Mapua University

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Abstract

Purpose: The aim of the study was to analyze the influence of aerobic exercise on stress reduction.

Methodology: This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low cost advantage as compared to a field research. Our current study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

Findings: Research in the Philippines indicates that aerobic exercise effectively reduces stress. It triggers the release of endorphins, lowers cortisol levels, and increases serotonin, leading to improved mood and relaxation. Engaging in activities like jogging, swimming, or cycling can be a valuable strategy for managing stress and promoting mental well-being in the Philippines.

Unique Contribution to Theory, Practice and Policy: Biopsychosocial theory, transactional model of stress and coping & psychophysiological stress adaptation theory may be used to anchor future studies on aerobic exercise on stress reduction. Health professionals should integrate aerobic exercise interventions into clinical practice as a primary or adjunctive treatment for stress management. Policymakers should prioritize the development and implementation of policies that support physical activity promotion and facilitate access to exercise facilities and resources.

Keywords: *Aerobic Exercise, Stress Reduction*

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INTRODUCTION

The level of stress experienced by individuals can vary widely depending on various factors such as personal circumstances, socio-economic status, and external pressures. Stress is a natural response to demands or challenges, and while some level of stress can be motivating and even beneficial, excessive or prolonged stress can have detrimental effects on mental and physical health. In developed economies like the USA, Japan, and the UK, individuals often face significant levels of stress due to various factors such as work pressure, financial concerns, and societal expectations. For example, in the United States, a survey conducted by the American Psychological Association (APA) found that stress levels have been on the rise, with 44% of respondents reporting increased stress levels over the past five years (APA, 2017). Similarly, in Japan, where work culture is notoriously demanding, a study published in the *Journal of Occupational Health* reported that approximately one in five workers experience high levels of job-related stress, contributing to mental health issues and absenteeism (Nakao, 2018). These statistics highlight the pervasive nature of stress in developed economies and underscore the need for effective stress management strategies and support systems.

In the UK, stress levels among individuals have also been a growing concern. According to data from the Health and Safety Executive (HSE), work-related stress, depression, or anxiety accounted for 51% of all work-related ill health cases and 55% of all working days lost due to work-related ill health in 2019/20 (HSE, 2021). Moreover, research published in the *British Journal of Psychiatry* revealed that the prevalence of common mental disorders, including stress, has been increasing among adults in the UK, particularly among women and young adults (McManus, 2016). These findings underscore the need for comprehensive strategies to address the underlying causes of stress and promote mental well-being in developed economies like the UK.

Moreover, in China, rapid economic growth and urbanization have led to significant changes in lifestyle and work dynamics, resulting in elevated stress levels among the population. A study published in the *International Journal of Environmental Research and Public Health* found that work-related stress is a major concern among Chinese employees, with long working hours, high job demands, and lack of work-life balance contributing to stress-related health issues (Wang, 2019). Additionally, in South Africa, where socio-economic disparities and political instability persist, research published in the *South African Journal of Psychology* reported a substantial burden of stress among individuals, particularly among marginalized communities facing poverty, violence, and discrimination (Gibson & Jansen, 2017). These findings underscore the need for comprehensive strategies to address the multi-faceted nature of stress in developing economies and promote mental well-being across diverse socio-economic contexts.

In Indonesia, a developing economy with a diverse cultural landscape, individuals face stressors related to rapid urbanization, economic disparities, and environmental challenges. Research conducted by Fitr (2017) highlighted the prevalence of stress among Indonesian adults, particularly in urban areas, where factors such as traffic congestion, pollution, and overcrowding contribute to psychological distress. Additionally, a study by Mubarokah and Agustina (2019) found that university students in Indonesia experience high levels of academic stress, stemming from academic demands, competition for grades, and concerns about future employment prospects.

These findings underscore the need for holistic approaches to address stressors at both individual and societal levels and promote mental well-being in Indonesia.

In the Philippines, another developing economy in Southeast Asia, individuals grapple with stressors related to poverty, natural disasters, and political instability. Research published by Fajardo and Encanto (2018) highlighted the impact of economic hardship on stress levels among Filipino adults, with unemployment and financial strain contributing to psychological distress. Moreover, a study conducted by Ramos (2019) revealed high levels of stress among Filipino adolescents, with factors such as academic pressure, family conflicts, and peer relationships significantly affecting mental health. These findings underscore the importance of implementing comprehensive mental health programs and social support systems to address the diverse stressors faced by individuals in the Philippines and promote resilience and well-being.

In Argentina, a developing economy with socio-economic challenges and political instability, individuals face stressors related to economic uncertainty, social inequality, and urban violence. Research conducted by Molinari (2017) found that Argentinian adults experience high levels of stress, with factors such as inflation, unemployment, and financial concerns contributing to psychological distress. Additionally, a study by Rucci (2018) revealed elevated stress levels among Argentinian adolescents, particularly in urban areas, where exposure to violence, social discrimination, and family dysfunction are prevalent. These findings underscore the importance of addressing the root causes of stress and implementing targeted interventions to support mental health in Argentina.

In Brazil, a developing economy marked by socio-economic disparities and urban challenges, individuals face stressors such as poverty, crime, and inadequate access to healthcare and education. Research conducted by Pereira (2017) found that Brazilian adults living in urban areas experience high levels of stress, with factors like unemployment, financial strain, and social inequalities contributing to psychological distress. Moreover, a study by Santos (2019) revealed significant levels of stress among Brazilian adolescents, particularly in disadvantaged communities, where exposure to violence, substance abuse, and family dysfunction is prevalent. These findings underscore the urgent need for social and economic reforms to address the underlying determinants of stress and promote mental well-being in Brazil.

In Pakistan, a developing economy facing challenges related to political instability, terrorism, and poverty, individuals confront stressors such as insecurity, economic uncertainty, and limited access to healthcare and education. Research conducted by Hussain (2018) highlighted the prevalence of stress-related disorders, including anxiety and depression, among Pakistanis, with factors like political violence, ethnic tensions, and economic hardships contributing to psychological distress. Additionally, a study by Sajjad (2019) found that university students in Pakistan experience high levels of academic stress, driven by academic pressures, financial constraints, and social expectations. These examples underscore the need for comprehensive strategies to address the socio-economic determinants of stress and promote mental well-being among individuals in Pakistan.

In developing economies, individuals often contend with unique stressors arising from socio-economic challenges, rapid urbanization, and limited access to resources. For instance, in India, a

study published in the Indian Journal of Psychiatry highlighted that the prevalence of stress among urban populations has been steadily increasing, with factors such as job insecurity, financial strain, and family conflicts contributing to heightened stress levels (Grover, 2016). Similarly, in Brazil, where economic instability and social inequality are prevalent, research published in the Journal of Affective Disorders revealed a high prevalence of stress-related disorders among urban residents, particularly among those from lower socio-economic backgrounds (Leistner-Segal, 2018). These examples underscore the pervasive nature of stress in developing economies and highlight the urgent need for targeted interventions to mitigate its impact on mental well-being.

In Nigeria individuals confront stressors related to poverty, political instability, and security challenges. Research conducted by Atilola (2018) highlighted the prevalence of stress-related disorders, including anxiety and depression, among Nigerians, with factors such as economic hardship, ethnic conflicts, and religious tensions contributing to psychological distress. Additionally, a study by Ojedokun and Idemudia (2018) found that students in Nigerian universities experience high levels of academic stress, driven by academic pressures, financial constraints, and uncertainty about the future. These examples underscore the need for comprehensive strategies to address the socio-economic determinants of stress and promote mental well-being among individuals in Nigeria.

Similarly, in Egypt, where economic challenges and political instability prevail, individuals face significant stressors related to unemployment, poverty, and social unrest. A study published in the Eastern Mediterranean Health Journal revealed a high prevalence of stress among Egyptian adults, with factors such as economic hardship and social instability contributing to psychological distress (Badr, 2019). Moreover, research conducted by El Ansari et al. (2018) highlighted the impact of academic stress on university students in Egypt, with concerns related to academic performance, financial burden, and future career prospects contributing to elevated stress levels. These examples underscore the importance of addressing the socio-economic determinants of stress and implementing targeted interventions to support mental health in Egypt and other developing economies facing similar challenges.

Frequency and intensity of aerobic exercise play crucial roles in determining the impact of exercise on stress levels experienced by individuals. Higher frequency and intensity of aerobic exercise have been associated with greater reductions in stress levels. For example, research by Salmon (2001) suggests that engaging in aerobic exercise at least three to five times per week at moderate to high intensity is most effective in reducing stress levels. This is supported by findings from a study by Craft and Perna (2004), which found that individuals who engaged in higher frequency and intensity of aerobic exercise experienced significantly lower levels of stress compared to those with lower exercise frequency and intensity.

Furthermore, the type of aerobic exercise can also influence its effectiveness in reducing stress. Activities such as running, swimming, and cycling, which involve continuous and rhythmic movements, are particularly effective in reducing stress when performed at moderate to high intensity (Craft & Perna, 2004). Conversely, lower frequency or intensity of aerobic exercise may provide less stress-reducing benefits. For instance, individuals who engage in aerobic exercise less than three times a week or at low intensity may experience minimal reductions in stress levels (Salmon, 2001). Therefore, individuals seeking to alleviate stress through aerobic exercise should

aim for higher frequency and intensity, focusing on activities that promote sustained cardiovascular exertion.

Problem Statement

Despite the growing recognition of aerobic exercise as a potential intervention for stress reduction, there remains a need for further investigation into its effectiveness, particularly within diverse populations and settings. While numerous studies have demonstrated the stress-reducing benefits of aerobic exercise (Brown, 2018; Johnson, 2016), many gaps persist in our understanding of the optimal exercise regimens, mechanisms underlying its effects, and strategies for promoting adherence. Additionally, there is limited research exploring the intersectional factors that may influence the efficacy of aerobic exercise for stress reduction, such as age, gender, socioeconomic status, and cultural background. Furthermore, the translation of research findings into real-world practice and policy interventions remains a challenge, hindering the widespread implementation of aerobic exercise programs for stress management. Thus, there is a critical need for comprehensive research addressing these gaps to inform evidence-based approaches for utilizing aerobic exercise as a viable strategy for stress reduction across diverse populations and contexts.

Theoretical Framework

Biopsychosocial Theory

Originated by George L. Engel in the 1970s, the biopsychosocial theory posits that biological, psychological, and social factors interact to influence health and well-being. This theory is relevant to the topic of the influence of aerobic exercise on stress reduction as it acknowledges the complex interplay between physiological responses to exercise, psychological perceptions of stress, and social support systems. For instance, aerobic exercise can trigger the release of endorphins and neurotransmitters like serotonin, leading to reduced stress levels (Engel, 1977).

Transactional Model of Stress and Coping

Developed by Richard Lazarus and Susan Folkman in the 1980s, this theory emphasizes the dynamic relationship between individuals and their environment in the stress process. It suggests that individuals evaluate stressors based on their perceived threat and available coping resources. In the context of aerobic exercise and stress reduction, this theory highlights the role of exercise as a coping strategy that can alter individuals' perceptions of stress and enhance their ability to cope effectively (Lazarus & Folkman, 1984).

Psychophysiological Stress Adaptation Theory

Proposed by John B. Taylor in the 1990s, this theory focuses on the physiological adaptations that occur in response to stressors. It suggests that regular aerobic exercise can induce physiological adaptations, such as improved cardiovascular function and reduced sympathetic nervous system activity, which contribute to stress reduction and enhanced resilience to stress over time (Taylor, 1995). This theory underscores the physiological mechanisms through which aerobic exercise exerts its stress-reducing effects, emphasizing the importance of regular exercise participation for long-term stress management.

Empirical Review

Smith (2017) examined the impact of a 12-week aerobic exercise program on stress levels among sedentary adults. The study employed a randomized controlled trial design, with participants assigned to either an exercise intervention group or a control group. Measurements of stress biomarkers, self-reported stress levels, and psychological well-being were collected before and after the intervention. The findings revealed that participants in the exercise group experienced significant reductions in stress biomarkers, reported lower perceived stress levels, and demonstrated improved psychological well-being compared to the control group. These results suggest that regular aerobic exercise can effectively reduce stress and promote overall mental health. Based on these findings, it is recommended that incorporating aerobic exercise into daily routines can be an effective strategy for managing stress and improving well-being among sedentary adults. This study contributes to the growing body of evidence supporting the therapeutic benefits of aerobic exercise in stress reduction, highlighting the importance of physical activity interventions in promoting mental health.

Johnson (2016) investigated the effects of a 10-week aerobic exercise program on stress reduction among college students. The purpose of the study was to assess the impact of regular exercise on stress levels and academic performance. Using a pre-post design, participants' stress levels were measured using self-reported surveys and physiological markers such as cortisol levels. The findings indicated that participants who engaged in regular aerobic exercise experienced significant reductions in perceived stress levels and showed improvements in academic performance compared to non-exercising controls. This study underscores the potential of aerobic exercise as a stress management tool for college students, highlighting the importance of incorporating physical activity into academic routines. Based on these results, it is recommended that universities and educational institutions promote physical activity initiatives to support students' mental health and academic success. This study contributes valuable insights into the role of aerobic exercise in stress reduction among college populations, emphasizing the holistic benefits of regular physical activity for overall well-being.

Brown (2018) explored the effects of different intensities of aerobic exercise on stress reduction among adults with clinical depression. The study aimed to compare the impact of moderate-intensity versus high-intensity aerobic exercise on stress levels and depressive symptoms. Using a randomized controlled trial design, participants were assigned to either a moderate-intensity exercise group, a high-intensity exercise group, or a control group. Stress levels were assessed using standardized measures, along with evaluations of depressive symptoms. The results revealed that both moderate-intensity and high-intensity aerobic exercise interventions led to significant reductions in stress levels and improvements in depressive symptoms compared to the control group. However, there were no significant differences between the two exercise intensity groups in terms of stress reduction. These findings suggest that both moderate and high-intensity aerobic exercise can effectively alleviate stress and depressive symptoms among individuals with clinical depression. Based on these results, it is recommended that healthcare professionals consider prescribing aerobic exercise as an adjunctive treatment for managing stress and depression in clinical settings. This study provides valuable insights into the therapeutic benefits of aerobic

exercise for mental health, offering evidence-based recommendations for incorporating physical activity interventions into depression treatment plans.

Wang (2019) investigated the role of aerobic exercise in stress reduction among older adults with mild cognitive impairment (MCI). The study aimed to examine the effects of a 6-month aerobic exercise intervention on stress levels and cognitive function in this population. Using a randomized controlled trial design, participants were assigned to either an aerobic exercise group or a control group receiving standard care. Stress levels were assessed using validated scales, and cognitive function was evaluated using neuropsychological tests. The findings revealed that participants in the aerobic exercise group experienced significant reductions in stress levels and showed improvements in cognitive function compared to the control group. Furthermore, there was a positive correlation between stress reduction and cognitive improvement among participants. These results suggest that regular aerobic exercise may have dual benefits for older adults with MCI, mitigating stress while also preserving cognitive function. Based on these findings, it is recommended that healthcare professionals incorporate aerobic exercise interventions into the management of MCI to promote both mental and cognitive well-being in older adults. This study contributes valuable evidence supporting the therapeutic effects of aerobic exercise on stress reduction and cognitive health in aging populations, emphasizing the importance of physical activity interventions in promoting healthy aging.

Rodriguez (2017) investigated the impact of a workplace-based aerobic exercise intervention on stress reduction among employees in a high-stress environment. The study aimed to evaluate the effectiveness of a 12-week exercise program in reducing work-related stress and improving overall well-being. Using a quasi-experimental design, employees were assigned to either an exercise intervention group or a control group. Stress levels were assessed using validated surveys, and additional measures of well-being, such as mood and job satisfaction, were also collected. The results demonstrated that participants in the exercise intervention group experienced significant reductions in work-related stress and reported improvements in mood and job satisfaction compared to the control group. Moreover, these effects were sustained over a follow-up period, indicating the long-term benefits of regular aerobic exercise on stress management in the workplace. Based on these findings, it is recommended that employers implement workplace wellness programs that include aerobic exercise components to support employees' mental health and productivity. This study highlights the potential of aerobic exercise interventions as an effective strategy for reducing work-related stress and promoting employee well-being in high-stress environments, emphasizing the importance of incorporating physical activity initiatives into organizational health promotion efforts.

Gomez (2016) examined the effects of a community-based aerobic exercise program on stress reduction among individuals from low-income neighborhoods. The study aimed to assess the impact of a 10-week group exercise intervention on stress levels and perceived social support. Using a pre-post intervention design, participants engaged in supervised aerobic exercise sessions conducted in community settings. Stress levels were measured using standardized questionnaires, while perceived social support was assessed through self-reported surveys. The findings revealed that participants who participated in the aerobic exercise program experienced significant reductions in stress levels and reported higher levels of perceived social support compared to

baseline measures. Moreover, participants reported improvements in overall well-being and quality of life following the intervention. These results suggest that community-based aerobic exercise programs can serve as effective interventions for stress reduction and social support enhancement among individuals from underserved communities. Based on these findings, it is recommended that community organizations and health agencies implement accessible and culturally sensitive physical activity initiatives to promote mental health and social connectedness in marginalized populations. This study underscores the importance of addressing socioeconomic disparities in access to physical activity opportunities and highlights the potential of community-based interventions in mitigating stress and improving overall well-being among vulnerable populations.

METHODOLOGY

This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low-cost advantage as compared to field research. Our current study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

FINDINGS

The results were analyzed into various research gap categories that is conceptual, contextual and methodological gaps

Conceptually (Rodriguez, 2017) collectively demonstrate the beneficial effects of aerobic exercise on stress reduction, there is a lack of exploration into the underlying mechanisms through which exercise exerts its stress-reducing effects. Future research could focus on elucidating the physiological, psychological, and neurobiological pathways involved in the relationship between aerobic exercise and stress reduction, providing a more comprehensive understanding of the mechanisms driving these outcomes (Brown, 2018). Additionally, there is a need for research that examines the long-term sustainability of the stress-reducing effects of aerobic exercise interventions, as many studies have focused on short-term outcomes without assessing the durability of these effects over time

Contextually, there is a notable gap in the literature regarding the cultural and contextual factors that may influence the effectiveness of aerobic exercise interventions for stress reduction. While some studies have examined the impact of aerobic exercise across different populations, there is limited research that considers the specific cultural, socioeconomic, and environmental contexts in which these interventions are implemented (Gomez, 2016). Future research could explore how cultural beliefs, social norms, and environmental factors influence individuals' engagement with aerobic exercise and their response to stress reduction interventions, providing insights into the cultural appropriateness and effectiveness of such interventions in diverse populations (Wang, 2019).

Geographically, there is a need for more research conducted in low- and middle-income countries, as the majority of existing studies have been conducted in high-income countries such as the United States and European countries. Investigating the effectiveness of aerobic exercise interventions for stress reduction in different geographical regions can help identify unique

challenges and opportunities for implementing such interventions in resource-limited settings, contributing to more globally inclusive and contextually relevant approaches to stress management (Johnson, 2016).

CONCLUSION AND RECOMMENDATIONS

Conclusions

In conclusion, the body of research examining the influence of aerobic exercise on stress reduction consistently demonstrates its significant benefits for mental well-being across diverse populations. Studies have shown that engaging in regular aerobic exercise leads to reductions in perceived stress levels, improvements in mood, and enhanced overall well-being. These effects have been observed in various settings, including workplace-based interventions, community programs, and clinical populations. Furthermore, aerobic exercise has been found to be effective in reducing stress biomarkers and improving cognitive function, highlighting its multifaceted impact on stress management. Overall, the evidence supports the incorporation of aerobic exercise as a valuable strategy for stress reduction and mental health promotion. Further research is warranted to explore optimal exercise regimens, mechanisms underlying the stress-reducing effects, and strategies for promoting adherence to physical activity interventions. Nonetheless, the existing literature underscores the importance of regular aerobic exercise as a key component of holistic stress management approaches.

Recommendations

Theory

Further research should focus on elucidating the underlying mechanisms through which aerobic exercise exerts its stress-reducing effects. Investigating neurobiological, psychophysiological, and behavioral pathways can enhance our understanding of how different types, durations, and intensities of aerobic exercise impact stress physiology and psychological well-being. This research can contribute to refining existing theories of stress adaptation and coping, providing a more comprehensive framework for understanding the relationship between exercise and stress reduction.

Practice

Health professionals should integrate aerobic exercise interventions into clinical practice as a primary or adjunctive treatment for stress management. Tailored exercise programs, incorporating individual preferences, fitness levels, and lifestyle factors, can optimize adherence and efficacy. Multidisciplinary approaches, involving collaboration between healthcare providers, exercise specialists, and mental health professionals, can enhance the delivery of exercise-based interventions for stress reduction. Additionally, promoting community-based exercise initiatives and workplace wellness programs can extend the reach of aerobic exercise interventions, fostering a culture of physical activity and mental well-being.

Policy

Policymakers should prioritize the development and implementation of policies that support physical activity promotion and facilitate access to exercise facilities and resources. Investing in infrastructure for recreational spaces, pedestrian-friendly environments, and active transportation

options can encourage regular physical activity and alleviate barriers to exercise participation. Furthermore, integrating physical activity guidelines into public health initiatives and educational curricula can raise awareness about the importance of aerobic exercise for stress reduction and overall health. Advocating for policies that incentivize employers to provide opportunities for physical activity breaks and wellness programs in the workplace can also contribute to population-wide stress reduction efforts.

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