

Independent Project Research Proposal BMSS6007– Assignment 1

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Topic: The Impacts of Physical Activity/Exercise on Physical and Mental Health in Natural and Indoor Environments

Introduction

Exercise and physical activity are widely acknowledged as effective ways to improve psychological and physical health. Physical activity is any bodily movement produced by skeletal muscles that requires energy expenditure (Caspersen, Powell and Christenson, 1985a). On the other hand, exercise is a part of physical activity with the end or intermediate goal of maintaining or improving physical fitness, it is organised, structured, and repetitive (Caspersen, Powell and Christenson, 1985b). Hu et al. (2020) state that participating in physical activity and exercise provides immediate positive effects on mood, reduces depression and anxiety, and offers physiological benefits such as lower risks of chronic diseases and improved body composition (Ruegsegger and Booth, 2018).

Despite the recognition of how important it is to engage in both physical activity and exercise, Physical inactivity is a growing concern. It is responsible for one in every six deaths in the United Kingdom (UK). Moreover, it is predicted to cost the UK £7.4 billion per year including £0.9 billion for the National Health Service (GOV.UK, 2022). The adverse effects that physical inactivity can impose on both physical and mental well-being are becoming increasingly apparent as inactivity rates continue to rise.

Furthermore, researchers are now exploring the potential differences between exercising in natural, green environments instead of indoor environments (Shanahan et al., 2016).

According to Calogiuri and Chroni (2014), a natural environment is any open area outside where a person can be close to natural features like trees, plants, grass, mountains, and water bodies. On the other hand, an indoor environment is situated inside an enclosed area with man-made features (Gomes, Delazari and Schmidt, 2021). Outdoor activities such as running, jogging, trail walking, biking, or gardening can bring numerous benefits, as the natural environment can impact an individual's well-being through variables such as fresh air and natural scenery.

Despite the benefits of exercising outside, some people may hesitate to do so due to perceived impediments. However, personal characteristics and cognitive processes might substantially define an individual's choice for a specific environment (Bandura, 2006). In addition, people are migrating to urban areas more than rural areas which is leading to an increase in

urbanisation, resulting in a lack of access to green and blue spaces which may create a nature deficit (Grigoletto et al., 2021). According to Focht (2009), regular physical activity and exercise in a natural environment may have a greater psychological impact than in an indoor environment. In addition, Gladwell et al. (2013) state that participating in physical activity/exercise in the natural environment has many benefits such as an immediate positive effect on mood and reducing depression and anxiety.

During the COVID-19 pandemic, individuals had to stay indoors as part of government restrictions (Brown, Ferguson and Barber, 2022). Research found that the level of physical activity during that time decreased which was worrisome since physical inactivity was an issue already. Ugolini et al. (2020) state that although there were restrictions during the COVID-19 pandemic physical activity in urban green spaces was still important. In addition, Schweizer et al. (2021) carried out a study based in Germany which found an increase in outdoor cycling in urban green spaces due to benefits compared to being indoors during COVID-19. According to Das and Gailey (2022), green exercise had a greater impact on mood this was measured using a 4-item Patient Health Questionnaire (PHQ-4). The scores of those who exercise outdoors were greater compared to those who exercise indoors.

Recent research has found that combined training (aerobic and resistance training) in a natural environment brings out immediate physiological benefits such as improved blood pressure, which correlates with better cardiovascular health (De Moraes et al., 2022). Due to the many research papers and various opinions on the topic, a literature narrative review will be conducted.

The purpose of this narrative review is to investigate and discuss the existing evidence about the impact of participating in exercise or physical activity in natural environments and indoor environments which may promote a healthier lifestyle and overall well-being. Also, to summarise the data while identifying the gaps in the pieces of literature. Most importantly, the findings gathered from this review could immensely benefit mental health advocates or practitioners by helping persons or clients choose the right environment to engage in regular exercise or physical activity to lower the chance of developing a mental health disorder while also enhancing their mood. The findings may also aid policymakers to help them decide which public infrastructure projects such as parks and outdoor leisure areas facilities for the public to have access to. Finally, the practical implications would be determined by the specific results of the review and how they are perceived and implemented by various parties.

As a result, the aim and objectives of this narrative review are the following:

Discuss the impact of physical activity and exercise in indoor and natural environments.

Explore if chronic and acute exercise influence the impact of exercise and physical activity in indoor environments compared to natural environments.

Method

To provide a preliminary overview of the literature on the effects of exercise and physical activity in natural environments, compared to indoor environments, a narrative literature review will be conducted. This review will consider the duration of activity and intensity. The following questions were formulated for the review: What are the physiological and psychological benefits of engaging in exercise or physical activity in natural environments? Are there more benefits to exercising or being physically active in natural environments compared to indoor environments? Does the level of exercise and physical activity contribute to the benefits of exercising in natural environments?

Research strategy

The following electronic databases were searched for studies: GreenFile, Science Direct, Academic Search Premier (EBSCOhost), PubMed (National Library of Medicine and National Institutes of Health), Google Scholar, Sports Discus and MEDLINE. An electronic database will be used since there are vast amounts of credible journal articles especially related to the topic (Hamilton, Shephard and Stapley, 2011).

While looking for journal articles, the main terms used were the effects of exercise/physical activity in natural environments compared to indoor environments. The words outdoor and indoor may be shown in some articles but those articles would still be accepted due to the words meaning the same. Also, the term green exercise will be used in some articles which will be accepted during data analysis. After finding the relevant studies associated with the title, A few questions were addressed to find out what the research paper is about. The authenticity of all research papers will be checked by doing additional background checks on the publisher and author. The main words that will be used are associated with the environment (natural environment or indoor environment) and physical activity (green exercise, exercise).

Eligibility criteria

To be selected for inclusion, studies must be original articles written in English and fall into one of three categories:

Cross-sectional studies involve the researcher or investigator assessing the participant's exposure and outcome simultaneously (Setia, 2016).

Randomised Control Trials, on the other hand, are prospective studies that determine the effectiveness of treatment and interventions. These studies can also be costly but are used to reduce bias (Hariton and Locascio, 2018).

Non-randomised clinical trials are observational, the participants are not assigned randomly to intervention and control groups. This type of study (non-randomised clinical trials) usually compares one or more strategies to increase participation maintenance. Examples include before and after studies and cohort studies. This can help provide the evidence of effects whether beneficial or harmful (El Feky et al., 2018).

Lastly, any duplicated research will be removed. Only relevant and high-quality research will be included because of this screening process.

Data analysis

The method for gathering data entails using articles that comply with particular criteria. All the articles' texts must be accessible and examined, ensuring that the data collected is extensive and detailed. After the selection of studies, the data found will be collected and recorded to critically review the information collected. This narrative review will be divided according to the main findings of the impacts of physical activity and exercise on natural environments versus indoor environments along with the factors that may contribute to the effects found.

Ethical considerations:

The nature of this study is a review of multiple literature which means that no contact will be made with people. Therefore, there is no need to conduct an ethics form (Moyers, Abildso and Kelley, 2022).

Research Timetable

Step 1 - Organisation and Preparation

The purpose of this step is to select an interesting topic and plan how the project can be carried out. For example, creating a research proposal showing the relevance of the chosen topic and choosing and stating what type of research and methods of collecting data would be used. This step will be carried out from October 1 - October 31, 2023.

Step 2 - Literature review

The literature review step will begin on November 1, 2023, and end on December 20, 2023. In this process, extensive research will be undertaken using the various electronic databases that were mentioned. All studies found will be reviewed and included or excluded based on the criteria.

Step 3 - Data Extraction

The data extraction process will begin on January 2, 2024, and end on January 22, 2024. The relevant information will be extracted from the studies found and organised in a thematic structure.

Step 4 - Writing

the process of writing the narrative review will commence on January 25, 2024, and be completed on March 1, 2024.

Step 5 - Edit and Proofread.

During March, the editing and proofreading process will begin. The process would be carried out and given to a supervisor to proofread. Editing will be completed by March 31, 2024, after proofreading.

Step 6 - Final Revision and Submission

On April 1, 2024, the final revision process will begin. Once revision is completed, the Dissertation assignment will be submitted at an early date which is before April 19, 2024, avoiding late submission.

Word count: 1653

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