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Student Research Report

Effectiveness of Nature Prescriptions on Improving Human Health: Painting

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Phase 1 Clinical Review:
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I. Human Health Outcomes

There are a variety of human health outcomes examined in the articles that were used in this clinical review. Outcomes were differentiated into categories of mental and physical health. The research describes the relationship between different nature prescriptions on this range of human health outcomes.

The mental health outcomes include stress, mental health, psychological well being, mood and self-esteem. The literature examines the relationship between these human health outcomes and nature prescriptions. Pretty (2004) looks into the evidence of human interaction with nature. It is stated that simply being present in and viewing nature, creates reduced amounts of stress and increased mental well-being (Pretty, 2004). Furthermore, Barton, Griffin and Pretty (2011) describe the benefits of physical fitness for mental health in clinical populations, especially outdoor physical exercise experiences. The studies found that mental health outcomes improved in all of these health-promotion initiatives that involved physical activity and interaction with nature (Barton et al. 2011). Zhang et al. (2014) examine the relationship between connectedness with natural beauty and psychological well-being. Psychological well-being was examined to determine whether being emotionally attuned to natural beauty was correlated with life satisfaction, gratitude, materialism, and extraversion (Zhang et al. 2014). Ulrich et al. (1991) analyzed individual stress and the processes of stress recovery when exposed to natural environments versus urban environments. Stress was defined as "the process by which an individual responds psychologically, physiologically, and often with behaviors, to a situation that challenges or threatens well-being" and the study examined how exposure to different everyday environments may help or hinder recovery from stress (Ulrich et al. 1991). Aerts et al. (2018) examined nature and its positive influence on mental health. Findings include decreased stress, improved mood and increased self-esteem. In addition, Clatworthy et al. (2013) studied gardening intervention as an engagement method to test for improvement of mental health. Results showed that gardening reduced depression and anxiety and notably increased self-esteem level and attention capability (Clatworthy et al. 2013).

The physical health outcomes that were discussed in the literature were diseases and physical well-being. Zarr et al. (2017) and James et al. (2016) both examined the correlation between doctors prescribing patients to spend time outdoors to combat physical health diseases. Zarr et al. (2017)

study focuses on how these prescriptions thereby increased physical activity can help prevent chronic diseases, along with decreasing obesity levels. While James et al. (2016) investigates how prescriptions can aid marginalized people that are more susceptible to diseases such as premature mortality, cardiovascular disease, diabetes mellitus, cancer. Aerts et al. (2018) similarly focuses on physical health and preventing obesity and diabetes, but draws a correlation between varying physical effects on humans depending on the duration of exposure to the natural environment.

II. Effects of Nature Prescriptions on Outcomes

The following part of the clinical review examines the studies mentioned above in greater detail by exploring the impact different nature prescriptions have on physical and mental health outcomes.

Zhang et al. (2014) found a positive relationship between individual tendency to perceive nature's beauty and well-being. Zhang et al.'s research concluded that the Engagement with Beauty Scale developed by Diessner, Solom, Frost, Parsons and Davidson (2008) has a strong correlation with well-being. This scale contains a subscale that measures the extent that individuals perceive natural beauty and are emotionally aroused by nature's beauty (Zhang et al. 2014). Two of the strongest predictors of subjective well-being, extraversion and gratitude, were both positively correlated with the degree to which individuals perceive natural beauty (Zhang et al. 2014). Furthermore, the tendency to engage with natural beauty moderates the positive relationship between nature connectedness and well-being, which is further depicted as life satisfaction and self-esteem (Zhang et al. 2014). In order to understand the the constructs of connectedness with nature and engagement with nature's beauty, further research will aid in determining both their unique components and commonality.

Pretty (2004) found that there is increasingly well established research that natural and built features of the environment affect and influence not only behaviour, but interpersonal relationships and actual mental states. It is seen that the presence of living things, not just other humans, creates positive feelings. Increased exposure to nature, such as forests and gardens, has shown a positive correlation to creating decreased signs of stress (Pretty, 2004). The paper looked into how increasing

interactive activities with nature affected the health outcomes in people. Pretty (2004) describes three levels of engagement with nature; the first level of engagement is viewing nature (whether through a window or through a painting), the second level of engagement is being in the presence of nearby nature through incidental exposure, and the final level of engagement with nature is an active participation and involvement with nature (Pretty, 2004). It was found that in the levels of engagement examinined, all of them demonstrated having strong evidence to deliver mental health benefits, specifically the reduction of stress (Pretty, 2004).

Barton et al. (2011) link the benefits of physical outdoor experiences on improvements in mental health outcomes and mood. The study found that mental health outcomes improved in all of these health-promotion initiatives that involved physical activity/interaction with nature (Barton et al. 2011). It was noted that not only was mood rated higher after experiencing these activities, but self-esteem ratings also increased and overall the paper was able to conclude that outdoor physical exercise experiences and social interactions in nature were rated as more restorative (Barton et al, 2011).

Ulrich et al. (1991) analyzed the correlation between stress and views of natural environments versus urban environments. It was hypothesized that "exposures to unthreatening natural environments would foster greater recuperation from stress than contacts with various urban settings" (Ulrich et al. 1991). City views in this case were conceptualized as a variable that created stress for individuals, while nature was a refresher that aided stress recovery. Findings from this study indicated that the natural environment holds attention more efficiently and "foster[s] greater recovery as indicated by higher levels of positive effects and greater reductions in fear" (Ulrich et al. 1991). What is meant by this is that views of the natural environment stimulate positive feelings in comparison to the urban environments that stimulate feelings of stress. In ties with the first level of engagement that is offered by Pretty (2014), this article talks about how in most urban countries the encounters with nature are sometimes limited to viewing it through a window, or a park as you drive by, due to the busy schedules of most individuals (Ulrich et al. 1991).

Aerts et al. (2018) stated that nature provides improved mental health among participants by examining the duration of exposure to the natural environment. For instance, short-term exposure to forest, parks and gardens brings decreased stress, reduces symptoms of depression, helps to recover attention fatigue, and increased self-esteem. Moreover, Aerts et al. (2018) found staying in nature

improves physical health while reducing obesity and diabetes. For long term exposure, dwelling in areas surrounded by various natural backgrounds could reduce the chance of contracting serious diseases related to respiratory, cancer and mental health (Aerts et al. 2018). Clatworthy et al. (2013) stated gardening intervention has been highlighted due to its large potential to be considered as a therapeutic method to restore mental health. According to Clatworthy et al. (2013), research had found that gardening-based intervention provides helpful effects for people who have mental health illness including reduced depression and anxiety. Clatworthy et al. (2013) also identifies the physical benefits of engagement with nature such as improved sleep. The benefits of nature related approaches were emphasized emphasized in terms of human well-being.

Zarr et al. (2017) investigates the correlation between doctors prescribing patients to spend time in nature and how this could help increase daily physical activity for patients. The participants in this study were children from “ethnically diverse, low-income, urban families”, who are more prone to be less physically active due to limited access to “safe outdoor space and structured recreational programs” (Zarr et al. 2017). As a result of this, the study draws a correlation between minority and low-income groups being more susceptible to developing obesity from an early age. It continues on by explaining the potential long-term health outcomes, stating that a limited amount of physical activity at a young age increases the risk of several diseases, such as; premature mortality, cardiovascular disease, diabetes mellitus, cancer, depression, and anxiety. Zarr et al. (2017) presents the results as successful in proving that increased levels of physical activity could be attained when doctors prescribed this to children (along with providing guided activities to overcome the barrier of accessibility to physical activities). The study further highlights the importance of pediatricians prescribing children as supposed to doctors doing so with adults, on the basis that “healthy habits learned in childhood persist into adulthood”. Further studies are needed to see the long-term effects of pediatricians prescribing this at a young age to see if this promotes not only the decrease of obesity in children, but also helps decrease the risks of future negative health outcomes.

James et al. (2016) article further explores this by testing if the risk for chronic diseases can be prevented at an early age through the same method of pediatricians prescribing children and adolescents to increase physical activity. The study investigates this through prescribing patients a set amount of time to spend in the park in effort to encourage both time spent outdoors and increase the amount of physical activity. The results prove that the prescription was successful in three areas:

increasing both the amount of physical activity in children and likely-hood of children returning to the park, along with parents acknowledging the increased health benefits observed on their children after the prescribed park times. James et al. (2016) concludes with stating that future studies would have to be performed on a larger scale to determine if park prescriptions are actually beneficial when introduced at a young age to combat chronic diseases.

III. Mechanisms

This Clinical review is concluded with an assessment of some mechanisms that were created through the different nature prescriptions from the above mentioned studies. And accordingly an explanation of why these mechanisms are beneficial towards improving human health.

Newman et al. identify five psychological mechanisms that leisure activity triggers to promote subjective well-being which include detachment-recovery, autonomy, mastery, meaning, and affiliation. By analyzing the role that these mechanisms play in associating leisure time with subjective well-being, the relationship between nature and human health outcomes can be more thoroughly understood because spending time in nature is often practiced as a leisure activity. Detachment-recovery describes the primary function of leisure, to produce psychological detachment from work, "which is a precursor to the restoration of psychological and physical resources required for continued functioning and well-being" (Etzion et al. 1998). Newman et al. describe autonomy as "the perception of individuality, choice, and freedom in leisure" while mastery "describes the overcoming of challenges and betterment of skill in leisure activities." The meaning mechanism illustrates the manner through which individuals gain something important or valuable in the practice of their leisure activities (Newman et al. 2013). Finally, social leisure activities fulfill the affiliative mechanism. Newman et al. reference Maslow's hierarchy of needs and his proposition that love and belongingness is an essential human need after physiological and safety needs are fulfilled. When engaging in social leisure activities, a connection or sense of belonging is the mechanism of affiliation in practice (Newman et al. 2013). The identification of these five psychological mechanisms will persist through our study of the relationship between nature prescriptions and human health outcomes.

Detachment-recovery, autonomy, mastery, meaning, and affiliation (DRAMMA) can all be utilized to further study the relationship between nature and well-being.

The mechanism of producing psychological detachment from work, called detachment recovery as stated above, offers a multitude of possibilities when exploring the different ways in which one can increase wellness through nature (Etzion et al. 1998). For the purpose of our project, this mechanism would be in line with our painting workshop as it is a leisure activity aimed to let individuals detach from the stresses of everyday life. Daykin (2019) discusses the role of art in improving many of the human health outcomes that we have categorized earlier under physical and mental health. It has been determined that art has positive effects on individuals in mental healthcare, as this leisure activity promotes recovery (Daykin, 2019). Art, along with nature, can be applied as a mechanism to increase well being and mental health. With the different levels of engagement discussed in Pretty (2004), the best possible outcomes for individual wellness would be full immersion in nature as active participants. With this being said, painting (a form of art) in nature (such as a park) or of nature (a sunset), can be hypothesized to create even greater feelings of wellness.

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