

Purpose and Relevance

The purpose of this project was to evaluate the effectiveness of the initiative (Group Exercises- Neuro Walks) on mood and general well being among Neuropsychiatry inpatients with complex brain injury.

Background

An acquired brain injury (ABI) includes any injury to the brain which occurs after emergence is born. Headway (2023) reported that almost 350,000 people were admitted to hospital with an ABI in 2023 in the UK. ABIs have different effects on different people but common difficulties after a brain injury relate to a person's mobility, communication, behaviour, cognition, and mood (McAllister et al., 2011).

Exercise and other forms of physical activity are extremely important for human health. For example, benefits include chronic disease prevention and increasing life expectancy (Warburton et al., 2006). These benefits apply to all people, including those with a disability such as an ABI. In fact, there may be more advantages of exercise for people with an ABI, including increased mobility (Charette et al., 2016; Saunders et al., 2016), cardiovascular fitness (Chin et al., 2014), cognitive functioning (Chin et al., 2015; Vanderbeken et al., 2017), and reduced risk of depression (Adamson et al., 2015; Schwandt et al., 2012). Barriers to exercising after a brain injury are significant and include factors such as lack of equipment, low energy, cost, and interest (Pinto et al., 2018). Secure rehabilitation centres can provide other barriers which further decrease physical activity levels post-ABI (Robertson et al., 2000).

The benefits of exercise post-ABI are substantial, however, most ABI survivors do not participate in the minimum recommended amount (Hamilton & Williams, 2015; Reavenel & Blake, 2010). The UK government recommend that people do 150 minutes of moderate-to-vigorous physical activity per week (UK Government). Kjeldsen (2020) and Hassett et al. (2018) found patients in secure ABI rehabilitation were sedentary up to 98.5% and 83% of the time respectively.

Group exercise is a form of physical activity in which multiple people partake in the same activity. Popular examples include sports teams, walking groups, and exercise classes. One of the benefits of exercising in a group is that it can increase adherence through social cohesion (Kwak et al., 2006). Research by Dam and Rhind (2017) on a community-based group exercise programme found other self-reported benefits included increased confidence, motivation, physical ability, interpersonal relationships, and knowledge. This is consistent with previous research into group exercise post-ABI which has found that it has both a positive effect on both physical and mental health (Saunders et al., 2014; Norris et al., 2013). Despite an abundance of evidence indicating physical and mental health benefits, current research does not consider the restrictions of a secure inpatient rehabilitation setting. Much of the literature surrounding the role of exercise interventions for individuals with a mental illness is conducted using outpatient and community-based populations. As a result, the current body of research is unclear whether the same association between exercise and increased physical and mental health outcomes that is apparent throughout research using community and outpatient populations, will be reflected in a secure rehabilitation inpatient population.

Method

Neuro Walks –group exercise was introduced on 3 inpatient wards in Neuropsychiatry Division at St. Andrew's Healthcare, Northampton. Neuro Walks were delivered by assistant psychologist (AP), Psychology Student and Technical Instructor (TI) and consisted of group based low level walking sessions for the duration of approximately 30 minutes offered on a weekly basis.

Measures

This project uses a quantitative method. Changes in mood were measured by comparing self-reported data on Ottawa mood scale prior and post each Neuro Walk session.

Changes in participants' general well being will be measured by comparing session attendance and amount of leave before and after the introduction of the Neuro Walks initiative.

References (further information available upon request)

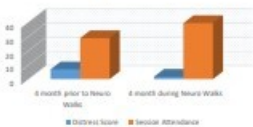
- Headway. Statistics Available at: <https://www.headway.org.uk/about-brain-injury/further-information/statistics/> [Accessed 27 February 2024].
- McAllister T.W. Neurological consequences of traumatic brain injury. *Dialogues Clinical Neuroscience*. 2011;13(2):267–300.

Results

The repeated measures ANOVA revealed a significant main effect of exercise on mood scores. Post-hoc tests using Bonferroni correction indicated that mood scores significantly improved following group walk.

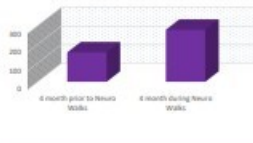
Following the intervention patients rated themselves as less distressed or overwhelmed. Patients also attended more scheduled sessions when compared to 4 months prior to the introduction of Neuro Walks initiative (see Figure 1).

Figure 1. Changes in Distress Score and Session Attendance following the introduction of the Intervention



The paired sample t-test revealed a significant increase in session attendance and significant increase in amount of patient leave. Figure 2 shows a significant improvement among patients in terms of the amount of leave off the ward.

Figure 2. Patient Leave following the Intervention



Conclusions

The findings suggest that engaging in low-intensity group exercise leads to immediate improvements in mood. Furthermore it has an effect of increased session attendance and increase in patient leave off the ward. This is consistent with previous research into group exercise post-ABI which has found that it has both a positive effect on both general and mental health. Previous studies have identified significantly distinct outcomes for mood and positive affect in men and women following exercise. Glavin et al. (2022), for instance, concluded that more frequent exercise led to less depressive mood and daytime dysfunction for women compared to men, admittedly in a younger and non-clinical sample.

Limitations and Future Direction

Limitations of the project include the lack of a control group and the use of self-report measures for assessing mood. This study only assessed two female participants. While this alternative hypothesis emphasised investigating ABI patients living in a secure rehabilitation setting, rather than specifically controlling for gender, the findings still represent a positive outcome. Future research could explore the long-term effects of exercise on mood and investigate potential moderators of the exercise-mood relationship.