



Short communication

Design and methods of a multi-component physical activity program for adults with intellectual disabilities living in group homes

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Abstract

Adults with intellectual disabilities (ID) often live a sedentary lifestyle and have higher rates of overweight and obesity. The purpose of this report is to describe the design and methods of a multi-component physical activity (PA) intervention program that aims to increase PA levels in adults with ID who live in group homes. The study employed a multi-component delayed treatment control group design involving adults with ID who lived in two group homes. Interventions included 30 exercise sessions in groups over a 10-week period and three educational lessons based on social cognitive theory that aimed to improve self-efficacy and social support for PA in the participants. In addition, staff training in exercise and advice on institutional PA policies were provided to the caregivers working in the group homes. Outcome measures on three aspects were collected: (1) physical fitness, (2) PA as assessed by an ActiGraph accelerometer, and (3) self-efficacy and social support for PA. Our major objective was to develop the intervention protocol, and the successful completion of this study will provide valuable evidence on how to promote active lifestyles in adults with ID.

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Introduction

Adults with intellectual disabilities (ID) have low levels of physical activity (PA) and high levels of sedentary behavior.¹ It is well documented that adults with ID tend to have higher rates of morbidity and mortality associated with hypoactive diseases,² low fitness levels and high obesity rate^{1,3} when compared with the general population. PA is an important factor in improving health outcomes because of its association with reduced risk of heart diseases, hypertension, cancer, diabetes, and obesity.⁴ The World Health Organization (2010) recommends that adults aged 18–64 should do at least 150 minutes of moderate-intensity aerobic PA throughout the

week.⁵ However, most studies in adults with ID have found that this population subgroup has very low PA levels. In a review paper, researchers found that only 17.5–33.0% of individuals with ID engaged in the recommended amount of PA.⁶ Past studies determined the steps taken by adults with ID in Hong Kong and concluded that they led sedentary lifestyles.^{7,8}

Because of the well documented low PA levels and high overweight and obesity rates of adults with ID, researchers have advocated for an urgent need in offering health promotion and PA intervention programs for such adults.^{6,9,10} However, there is a paucity of studies on interventions that aim to improve PA among adults with ID. For example, only 11 relevant studies were included in a published scoping review that focused on PA promotion.⁶ A recent review found only six PA intervention studies targeting adults with ID that met the inclusion criteria.⁹ Nevertheless, Heller et al.⁶

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concluded that there was some evidence that community-based PA and exercise programs for adults with ID improved physical fitness (e.g., lower body mass index) and had psychosocial benefits (e.g., better attitude towards PA, improved life satisfaction). Similar conclusions were drawn from a more recent review on lifestyle interventions for youths with ID that revealed successful changes in weight, body mass index, and fat mass.¹¹ More specifically, a meta-analysis showed a moderate effect (0.41) of exercise programs on individuals with ID.¹² The subgroup analysis in this meta-analysis further indicated that the effectiveness of exercise interventions were more profound in improving cardiovascular fitness, balance and self-esteem. As suggested by the previous review,⁶ future studies on PA interventions for adults with ID should address the issues of staff training, knowledge and motivation of people with ID, formulate ways to increase organizational capabilities to promote healthy behaviors, and use representative samples with objective measures of PA. Furthermore, the addition of a resistance training component seemed to be beneficial for improving strength, balance and flexibility among adults with mild to moderate ID.¹³

Developing effective PA intervention requires better understanding of the factors that either facilitate or prohibit PA participation in this population. By using focus group interviews, researchers have identified barriers for older people with mild to moderate ID; multitude variables including social support (from staff and peers), adequate self-efficacy, and physical environment factors (such as transportation) have certain impacts on PA participation.¹⁴ These findings are in line with what the social cognitive theory (SCT) has postulated.¹⁵ Originating in psychology, SCT posits a reciprocal relationship between individual, environment and behavior; self-efficacy is the core construct in the theory. In accordance with this theory, two sets of beliefs are implicated in behavioral change. Firstly, they need beliefs about the desired behavior; that habituated behaviors are appropriately reinforced and that any consequence associated with the desired behavior is rewarded. Secondly, there needs to be beliefs about themselves in relation to the behavior—that they have the necessary capabilities to perform the desired behavior as well as the confidence to successfully perform that behavior.¹⁶ The theory has been widely applied in behavioral interventions (including those that aim to increase PA) in the general population; however, the application of SCT in people with ID is very limited. Recently, one study reported a theory (mainly the SCT)-driven intervention protocol for promoting PA among seniors with ID.¹⁷ Various behavioral techniques were applied in developing the interventions, e.g., tailoring, education, and modeling. Its effectiveness remains unknown.

According to data published in January 2015, there were 71,000–101,000 people with ID in Hong Kong, representing a prevalence rate of 1.0–1.4% for ID.¹⁸ Adults with ID may live independently in the community, with family members at home, or in residential group homes (e.g., supported hostel) within the Department of Social Welfare system with services provided and managed by non-governmental agencies. To our

knowledge, there are a very limited number of studies related to the PA of adults with ID in Hong Kong. Local scholars have conducted studies of youth with fundamental skill development problems and children with ID and with cerebral palsy,¹⁹ and studies that examined PA levels of children attending special schools.²⁰ Intervention programs have been reported for young children in special school²¹ and for adults with ID.⁷ However, Chan's study⁷ only provided a 12-week period of PA education to the experimental group that aimed to improve their PA levels during out-of-work hours and had no exercise intervention component. Therefore, the purpose of the present paper was to describe the design and methods of a multi-component PA intervention program for adults with ID who lived in group homes.

Methods

Study design

This study used a delayed treatment control group design consisting of a multi-component PA intervention program. The intervention program lasted for 10 weeks. After participants from the first group home completed the program, intervention was then provided to participants from the second group home who formed the delayed treatment control group. Participants in the delayed treatment control group were asked to carry on with their normal daily routines, while PA intervention was provided to participants from the first group home.

Participants

Adults with ID who were residents from two selected group homes that pair with shelter workshops offering at least 30 residential places were recruited as participants. Inclusion criteria were: (1) aged 18–55 years; (2) either mildly or moderately mentally handicapped (information provided by the group homes, and degree of mental handicap was diagnosed before or at the age of 18; http://www.lwb.gov.hk/eng/advisory/rac/rpp_report.htm); (3) have the ability to understand basic information about the intervention and to give consent; and (4) be able to participate in aerobic exercises involving mostly walking. Exclusion criteria were: (1) presence of contraindications to participating in exercise programs as advised by the service provider or care staff including those with a variety of other physical disorders (such as congenital heart defects and cerebral palsy), or judged to be at risk of self-harm by the service provider or care staff, such as being autistic; and (2) any known chronic diseases that may prevent them from participating in exercise, including those who are wheelchair bound.

Ethics approval for conducting the study was obtained from Hong Kong Baptist University's Human Ethics Committee and from the directors of the two selected group homes. Informed consent forms were distributed to the parents or guardians of all eligible residents of the group homes.

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