



How Can Nutrition and Physical Activity Interventions Help Promote Self-Efficacy of Health and Wellness Constructs in Adults with Intellectual Disabilities?- A Pilot Study

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Introduction

- 13.9% of adults in the United States have a cognitive disability that impacts their ability to perform various executive functioning tasks. (CDC, 2024)
- Adults with IDD often lack the proper education or care regarding health and wellness promotion, and there are gaps in the literature indicating a need for intervention programs that target health and wellness promotion with these adults. (Anderson et al., 2013)
- Low self-efficacy surrounding one's ability to successfully participate in physical activity and nutrition tasks can often be seen as a barrier to participation in these activities. The rise of the prevalence of adults with IDD combined with the lack of education regarding health and wellness in that specific population indicates a clear need for an intervention to help promote self-efficacy in health and wellness.
- Intellectual and Developmental Disabilities (IDDs) are a set of disabilities that limit independence and result in impairments in learning, life skills, and other everyday tasks.
- The prevalence of individuals living with an intellectual or developmental disability continues to rise, with recent data demonstrating the increasing amounts of those with IDD in the United States (US) (Huff, 2021).
- Physical activity is defined by the World Health Organization (WHO) as any bodily movement that is produced by skeletal muscle and requires energy expenditure. Physical activity is tremendously beneficial to overall health and well-being, while contrarily, physical inactivity can increase the risk for poor health outcomes (WHO, 2024). WHO also describes nutrition as a critical component to overall health and wellness (WHO, 2024). The current US dietary guidelines emphasize the importance of selecting nutrient-dense food and following a healthy diet pattern at every life stage (DGA, 2020).
- Self-efficacy refers to an individual's ability to confidently control their motivation, social environment, and behavior. Self-efficacy was introduced by Albert Bandura as a theory that has contributed greatly to research surrounding health behaviors such as alcohol use, diet, and physical activity participation (APA, 2009).
- In individuals with disabilities, self-efficacy is a tremendously important construct that promotes intrinsic motivation for participation in occupation. Self-efficacy allows individuals with IDD to navigate and overcome various internal or external environmental limitations (Jo, Rossow-Kimball, and Lee, 2018).

Project Aim: to examine the effects of combined physical activity and nutrition interventions on the self-efficacy of adults with intellectual and developmental disabilities surrounding the health management occupations of physical activity and nutrition management.

Methods

- This research was evaluated and approved following procedures set forth by the University of Alabama at Birmingham's IRB protocol for research involving human subjects.
- The population included in this study consisted of attendees of the adult day program at the Exceptional Foundation in Birmingham, AL. The adult day program at the Exceptional Foundation is a structured program consisting of different groups of adults with intellectual and developmental disabilities (IDD) who participate in various activities such as exercise, social skills, and life skills.
- The following inclusion criteria was established: Participants must be 1.) at least 18 years of age, 2.) diagnosed with an intellectual disability (IDD), 3.) native English speakers, and 4.) able to ambulate independently and functionally without the use of an assistive device.
- The Montreal Cognitive Assessment (MoCA) was administered during screening for the program to ensure cognitive abilities to safely participate in the program. Individuals who scored less than or equal to 17/30 on the MoCA were not considered for participation, because this indicates a cognitive impairment greater than "mild" according to the MoCA scoring system.
- Recruitment**
- Recruitment was completed over several weeks and consisted of flyers displayed at the Exceptional Foundation facility, e-mails to caregivers of potential participants, and word of mouth to participants deemed appropriate for the program by the principal investigator following observation of behaviors.
- Informed consent was signed by caregivers of those who wished to participate in the program. Once informed consent was obtained, screening occurred for each participant.
- The MoCA was administered and those who received a score higher than 17 completed the Self-Efficacy for Exercise (SEE) Scale (Resnick & Jenkins, 2000), and the Self-Efficacy for Diet Behaviors Scale (Sallis et. al, 1988). The SEE Scale is a reliable and valid scale that assesses an individual's confidence in their ability to participate in various forms of exercise under a set of given circumstances. The Self-Efficacy for Diet Behaviors Scale contains 4 subsets of questions pertaining to the following categories: "Sticking to it", reducing calories, reducing fat, and reducing salt. Each scale has specific instructions for scoring, and the data was assessed according to each scale's numeric legend.
- All data pertaining to this program was collected in person, on-site at the Exceptional Foundation.

Results

Screening

- 10 potential participants were screened for possible participation in the program.
- Out of these 10 individuals, 2 of them were not included for participation in the program due to scores of 17 or lower on the Montreal Cognitive Assessment (MoCA).
- At baseline, the average composite score for the Self Efficacy for Exercise Scale was 53/90, and the average composite score for the Self-Efficacy for Diet Behaviors Scale was 50/75 (5 questions were omitted when calculating the total score due to lack of relevance to participants' routines).

Program

- The program lasted 8 weeks and consisted of 4 nutrition-centered sessions and 4 physical activity-centered sessions.
- Each session was 30 minutes long and took place during regularly scheduled activities at the Exceptional Foundation.
- The 4 nutrition sessions covered topics surrounding the basic tenets of a balanced diet. Topics included: using myPlate (USDA, 2025) to build a balanced meal, macronutrient education, and healthy snack prep.
- The 4 physical activity sessions focused on varying forms of exercise including: strength exercises, aerobic exercise, balance, and flexibility. After each exercise session, home exercise programs with photos for accessibility and modification options were distributed to each participant for promotion of carryover at home.

Post-Test Surveys

- Of the eight participants, three (37.5%) demonstrated a decrease in exercise self-efficacy, four (50%) demonstrated an increase in exercise self-efficacy, and one (12.5%) demonstrated no change in exercise self-efficacy. The total change in the average score on the SEE scale demonstrated an increase of 2.7 points from baseline, with an overall average score of 55.7/90.
- Based on post-test results of the EHCS, out of the eight participants, two (25%) displayed a decrease in nutrition self-efficacy scores and six (75%) displayed an increase in nutrition self-efficacy scores. The overall average post-test composite score between all participants was 55/75, indicating a five-point increase from the average baseline score of 50/75.

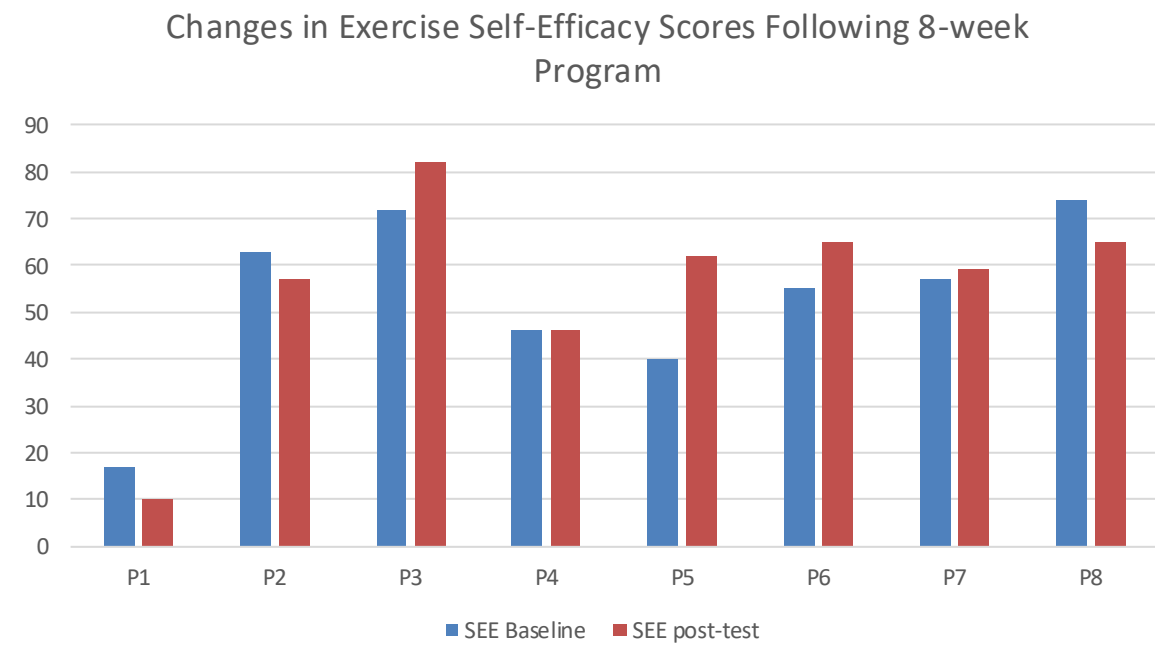


Chart 1- changes in SEE scores

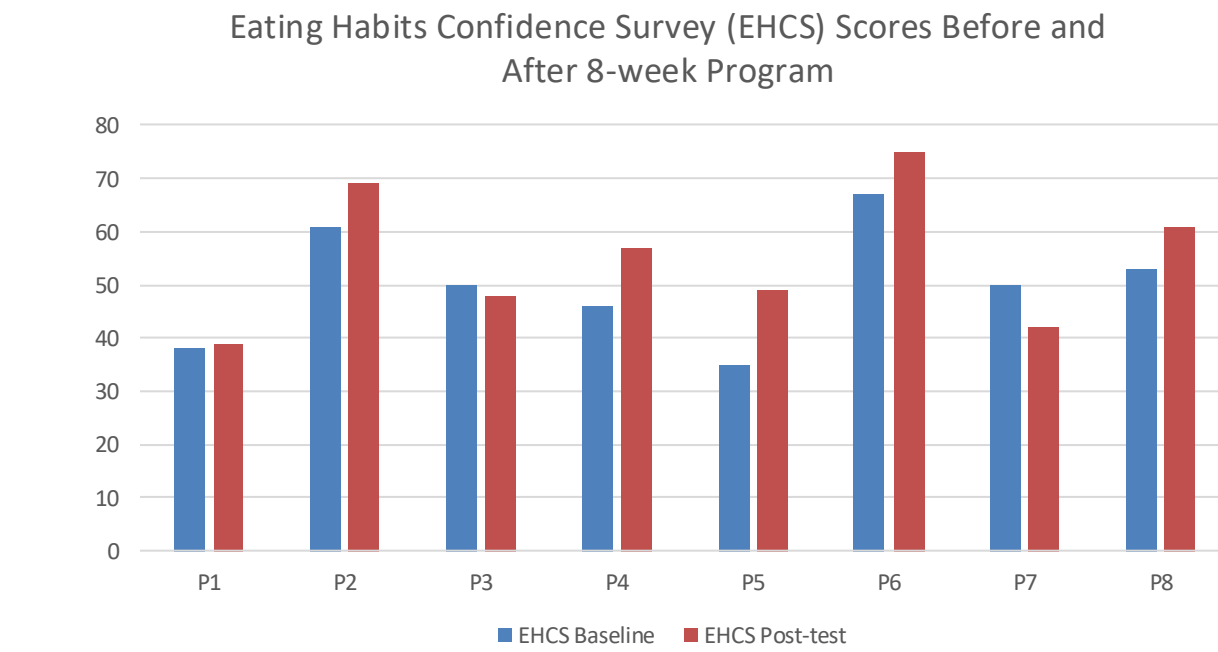


Chart 2- changes in EHCS scores

Discussion

Motivation of Participants

- It is important to note that participant motivation throughout the eight-week program varied considerably, which was reflected in the results.
- Some participants required frequent motivation throughout the program to participate in the activities but responded well to the social aspect of the activities.
- Other participants appeared to be influenced heavily by the deliverables given at the end of each session, demonstrating the desire for a tangible reward.
- Finally, some participants seemed to participate more when asked if they would like to demonstrate what they learned to their caregivers or other staff at the Exceptional Foundation.

Level of Independence of Participants

- The level of independence among participants played a role in both program participation and results following the program.
- All participants were required to ambulate independently without the use of an assistive mobility device and demonstrate mild cognitive impairment or higher on the MoCA.
- Differences in daily living skills and routines of the participants, such as cooking or meal preparation, influenced the relevance of certain nutrition-related tasks. For example, questions related to recipe modification in the Eating Habits Confidence Survey (EHCS) were omitted because many participants did not prepare meals independently.

Implications for the Exceptional Foundation

- By incorporating regular physical activity and nutrition education into the facility's programming, the Exceptional Foundation can provide ongoing opportunities for participants to build self-efficacy surrounding these health promotion behaviors and therefore increase independence with these occupations.
- Staff involvement proved to be an important factor and motivator throughout the program's duration, as co-occupation with staff members enhanced engagement and meaning for participants.
- Additionally, including caregiver education surrounding health promotion behaviors could assist in sustaining positive health changes in participants who rely heavily on caregiver support for daily routines.

Discussion continued

Limitations

- The small sample size (n=8) may not be representative of the entire IDD population.
- All participants were attendees of the day program at the Exceptional Foundation and are provided with resources and activities in their daily routines that may not be accessible to other members of the IDD population.
- The program was conducted in one area and carryover of concepts was not assessed outside of the Exceptional Foundation. Participants reported participating in exercises and nutrition habits introduced in the program at home, but this participation was not recorded or monitored.
- Finally, a fourth limitation of this study is that participant attendance varied throughout the program. Some participants missed sessions throughout the program due to prior commitments or opportunities. All participants attended at least six out of eight of the sessions in the program.

Implications for Occupational Therapy Practice

- Individuals with Intellectual and Developmental Disabilities (IDD) are one of the many populations that occupational therapy practitioners (OTPs) evaluate and treat across a variety of settings.
- According to the Occupational Therapy Practice Framework (OTPF-4), occupational therapy services are provided for promotion of health and wellness for clients with disability and non-disability related needs (AOTA, 2020). Physical activity and nutrition management are listed in the OTPF-4 as occupations under the health management category.
- Since OTPs are expected to deliver interventions to promote participation and engagement in occupations, it is important for them to understand essential factors that influence occupational engagement. This study focused on the impact of physical activity and nutrition interventions on self-efficacy of health promotion behaviors.
- The results demonstrated that collaborative participation in physical activity and nutrition interventions can increase the respective self-efficacy of participation in both physical activity and nutrition in a population of clients with IDD. Because of the increase in self-efficacy scores for exercise in nutrition in this study, OTPs can deliver interventions focusing on increased physical activity levels and understanding and improved nutrition management to increase a client's perceived ability to complete these health management tasks.

Implications on Future Research

- This study demonstrates the need for further research into the relationship between physical activity, nutrition, and self-efficacy in adults with IDD.
- Future research should include larger sample sizes, longer intervention periods, and increased weekly frequency of sessions to better capture sustained changes in self-efficacy.
- Examining the role of caregiver involvement and environmental supports, such as day program staff, could provide insight into how external factors influence outcomes.
- Finally, longitudinal studies could help determine whether improvements in self-efficacy translate into long-term behavioral and lifestyle changes surrounding physical activity and nutrition.

Conclusion

This pilot program aimed to examine the effects of combined physical activity and nutrition interventions on the self-efficacy of adults with intellectual and developmental disabilities surrounding the health management occupations of physical activity and nutrition management. The program aimed to enhance participants' confidence in managing health and wellness behaviors through structured exercise sessions and interactive nutrition education. The results demonstrated small improvements in exercise self-efficacy and stronger gains in nutrition self-efficacy as an overall group, although individual results varied. These findings demonstrate both the benefits and the challenges of implementing health promotion interventions within this population, specifically given the individual motivation for participation and varying levels of independence of each participant. This study demonstrates the potential role of occupational therapy practitioners in designing accessible and meaningful interventions that can empower adults with IDD to engage in healthier routines and improve their confidence to increase participation in these routines. Increasing self-efficacy through integrated wellness programming can serve as a pathway toward improved long-term health outcomes and enhanced quality of life.

References

For a comprehensive list of references that guided this research, please scan the QR code:



Acknowledgement & Contact information

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