

AN ABSTRACT OF THE DISSERTATION OF

Alicia Mae Dixon-Ibarra for the degree of Doctor of Philosophy in Exercise and Sport Science presented on April 25, 2014.

Title: Development of a Physical Activity Health Promotion Program for the Group Home Setting

Abstract approved: _____

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Background: A particular health inequity that has drawn national attention is obesity in persons with disabilities (CDC, 2011). Estimates suggest that as many as 80% of adults with mild to moderate intellectual disability (ID) are overweight or obese (Stanish & Draheim, 2005). Despite the benefits of being active (e.g. controlling body weight, improving functional and mental health status, and reducing cardiovascular disease) (CDC, 2011), only 30% of adults with ID are meeting recommended guidelines, many of which are also demonstrating preferences for sedentary behaviors (Stanish et al., 2006; Frey et al., 2005; Dixon-Ibarra, et al., 2013). Caregivers play an important role in the activity behaviors of those with ID, especially in the group home setting, where an increasing number of people with ID live. However, there are currently no health promotion programs that focus on changing the way caregivers in the group home setting facilitate physical activity (PA) for residents. Thus, the purpose of this project was to develop a specially designed health promotion program using community engagement and established health promotion guidelines for persons with disabilities (Drum et al., 2010).

Methods: Phase I of program development involved focus group discussions with an ‘Advisory Group’ of group homes stakeholders (i.e., program coordinators, staff, and

residents) to obtain insider knowledge about PA in the group home setting and suggestions for program development. Based on 'Advisory Group' feedback and established guidelines, the *Menu-Choice Physical Activity Program* was created. Phase II, program implementation, included a 10 week pilot intervention with one month follow-up. Program coordinators, staff, and residents from one group home agency were included in program implementation. Data collection for the pilot intervention included training evaluations, program fidelity surveys, evaluation of program materials, health outcomes (i.e., PA and body weight), and face to face interviews with staff and residents.

Results: Phase I 'Advisory Group' focus groups resulted in the following themes that aided in program design: 1) Nature of residents' PA, 2) Facilitators to PA, 3) Barriers to PA, 4) Personal Factors, 5) Organizational Factors, and 6) Solutions to increase PA. Phase II pilot intervention determined the most and least frequently used program materials and provided insight to the types and amount of activity scheduled during the intervention. The group home sites only used basic program components and discontinued use from post to one month follow up. Physical activity and body weight did not change from baseline to post intervention. Qualitative interviews conducted, as part of the program evaluation, identified the following themes: 1) Program training, 2) Program Implementation, 3) Program Physical Activity, 4) Program Barriers, 5) Program Facilitators, and 6) Program Feedback.

Conclusion: During Phase I, community engagement was critical in understanding how PA is or is not included in the group home setting. The 'Advisory Group' provided needed feedback for the design of the program. For Phase II, the pilot intervention was essential for determining how the program would work in the real world setting. The quantitative and qualitative findings from the pilot will be used to refine the current program materials, program name, training, and implementation in an effort to create a program designed to meet the needs of individuals with ID residing in the group home setting.

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Development of a Physical Activity Health Promotion Program for the Group Home
Setting

By

Alicia Mae Dixon-Ibarra

A DISSERTATION

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I understand that my dissertation will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my dissertation to any reader upon request.

Alicia Mae Dixon-Ibarra, Author

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CONTRIBUTION OF AUTHORS

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Manuscript 2:

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Chapter 1: General Introduction

I. Chronic Disease in Persons with Intellectual & Developmental Disabilities

As the majority of our society ages, it is important to evaluate factors affecting health outcomes, especially in disability populations. One reason to explore health outcomes is because those with disabilities start life with a “thinner margin of health” (Pitetti & Campbell, 1991). This includes having more frequent use of health care, exhibiting more unhealthy lifestyle behaviors, and having lower access to health promotion (HP) programs (Drum et al., 2009). This increases the risk for a widened health gap between adults with and without disabilities as they age. It has only been recently that the focus on chronic conditions and lifestyle behaviors of those with disabilities has been included in public health initiatives. Public health in the past has focused on the prevention of disability in the traditional perspective of avoiding the negative outcome of having a disability. Those with disabilities were often referred to as failures of public health efforts and left out of HP programs. As a result, individuals with disabilities are currently one of the largest underserved groups of Americans with evident health disparities (Drum et al., 2009). The more contemporary approaches to disability and public health have begun to examine health disparities and the primary prevention of secondary conditions. As described in Drum, et al. (2009), public health has started to look at disability as a result of social factors impacting health. This perspective provides a pathway to fill in the gaps of inequities in subpopulations of disability by further examining social determinants of health. In order to design appropriate HP interventions, determinants of health and risk factors for chronic conditions need to be further examined in subpopulations of disabilities.

Understanding the health behaviors of adults aging with intellectual disability (ID) is an area within public health where little is known. With increases in life expectancy over the past century, adults with ID are going to be a visible part of the aging community. Although today’s older population with ID still have a shorter life span than the general population (approximately 65 years), the current younger generation of adults with ID are expected to have comparable longevity to the general population (approx.

76.9 years) (Bigby, 2004;Fisher & Ketti, 2005;Torr & Davis, 2007). With increases in life expectancy, adults aging with ID are developing chronic conditions such as cardiovascular disease, diabetes, heart disease, and cancer at similar rates to the general population (Bigby, 2004;Bittles et al., 2002;Fisher & Ketti, 2005).

It is documented that those with ID are 2.2 times more likely to have health problems compared to the general population. Those with more severe ID have even greater risk (Temple, 2010). With potential for longevity, an explanation is needed to why those with ID are experiencing premature aging and poor health. One determinant of health is genetic factors contributing to higher rates of associated conditions. For instance, individuals with Down syndrome (DS) experience higher rates of Alzheimer disease and thyroid conditions. Another reason for decreased health is social circumstances. Those with ID are characterized by having lower income, increased social isolation, vulnerability to abuse, and decreased attention for health care needs. Inadequate health care access is another contributor to decreased health through poor management of associated health conditions and late diagnosis of comorbid and secondary conditions. Comorbid conditions are health problems unrelated to underlying disease or disability that also have an adverse impact on health. For instance, cancer and hypertension are considered comorbid conditions. Secondary conditions are conditions that persons with certain preexisting disabilities experience at a higher rate than the general population and are often preventable. Common secondary conditions for those with ID are bowel obstructions and depression. Lastly, individual behaviors contribute to poor health. For those with ID, this is in part due to the lack of acquired knowledge about healthy choices, residential facilities supporting poor nutrition and physical inactivity, and inaccessible HP programs for high risk behaviors like smoking, sexual activity, alcohol abuse, and physical inactivity (Krahn, Hammond, & Turner, 2006). Thus, HP research and efforts are needed to reduce health inequities in this population.

The lifestyle of those with ID raises huge concerns, especially as the natural aging process is compounded by years of negative lifestyle behaviors. One major health risk for

those with ID is the development of cardiovascular disease (CVD). Similar to the general population, CVD is one of the leading causes of death for those with ID. Another health risk for those with ID is digestive problems including high prevalence of helicobacter pylori, gastroesophageal reflux disease, constipation, and diarrhea. With these being some of the top health risks for those with ID, healthier lifestyles including better nutrition and physical activity (PA) could improve the overall health status of this population (Haveman et al., 2010).

II. Health Risks of those with Intellectual Disabilities

Mortality and Cardiovascular Disease. The following section will examine the literature related to chronic conditions and causes of mortality for those with ID. There has been one study that examined case-specific mortality rates for those with ID within a prospective cohort. A Finnish study conducted a 35 year follow-up on 2,319 persons with ID between the ages of 2-97 years. The study determined the three most common causes of mortality being cardiovascular diseases, respiratory diseases, and cancer. Cause-specific mortality differed significantly from the Finnish general population, with those with ID having fewer deaths from cancers and external causes. According to the Finnish study, differences in health between younger people with ID and the general population decrease with advancing age, with older populations with ID having similar health risks to the general population (Patja, Mölsä, & Iivanainen, 2001). Similar causes of death for those with ID were determined in the United States, with CVD, respiratory disease, and cancer leading the list (Haveman et al., 2010). Many studies demonstrate an increased risk of CVD for those with ID over time. One possible explanation for the increase in the prevalence of CVD for those with ID is due to the increasing life expectancy. Since CVD starts earlier in life and progresses with age, individuals with ID are now living long enough for CVD to present itself (Haveman et al., 2010; Draheim, 2006).

Cardiovascular disease has increased in this population; however, the studies on CVD risk factors are inconclusive. For instance, lower rates of hypertension, hyperlipidemia, and adult onset diabetes have been shown in numerous studies (Janicki et

al., 2002; Draheim, 2006; Merrick et al., 2004). In an Australian study in 2008, adults with ID over the age of 40 who visited an aging clinic, 5% had CVD, 18% had hypertension, 8% elevated glucose levels, 27% elevated total cholesterol, 70% were overweight or obese, 11% were current or ex-smokers, and 96% had inadequate daily exercise. Surprisingly, the authors overall impression of CVD risk profile for this group were more favorable compared to their age-matched general population (Wallace & Schluter, 2008). Merrick et al., (2004) and Janicki et al., (2002) both describe how these lower rates could potentially be due to under diagnosis of risk factors in this population and cohort effects. On the other hand, a 2006 Danish cross-sectional study (n=436) demonstrated after adjusting for level of ID, sex, and DS, those aging with ID in a residential facility were more likely to have hypertension and cardiovascular diseases compared to their younger counterparts with ID. Higher cases of cardiac diseases were also found in women, older adults with ID, and those with mild to moderate ID (Van Den Akker, Maaskant, & Van Der Meijden, 2006).

Draheim (2006) describes that those with DS have fewer elevated risk factors for CVD due to low blood pressure and endocrine abnormalities (Draheim, 2006). In a recent study, community residents with DS (n=52) had intima-media thickness of the carotid artery measured as a predictor of atherosclerosis. Those with DS had more desirable measurements of intima-media thickness than those without DS. This demonstrates that having the diagnosis of DS is a potential protector of atherosclerosis despite elevated body mass index and other elevated cardiovascular disease risk factors (Draheim, Geijer, & Dengel, 2010). Despite potential protection for atherosclerosis, those with DS have various medical conditions that can be exacerbated by inactivity and poor nutrition such as cardiac abnormalities, muscle weakness, hypothyroidism, and arthritis. In conclusion, the risk factors related to CVD risk are inconclusive; however, the rise in cardiovascular disease and modifiable risk factors like obesity rates, low PA, and insufficient nutrition should not be ignored. Improving these factors could be the key to increase longevity for those with ID (Mahy, Shields, Taylor, & Dodd, 2010).

Health Risk: Obesity. Overweight and obesity is an independent health risk that increases the chance of cardiovascular, pulmonary, metabolic, and neoplastic disease, osteoarthritis, impaired fertility, and complications with anesthetics and surgery (Haveman et al., 2010). Health behaviors like consuming high-fat foods and low PA play a major role in obesity rates. Long periods of obesity could lead to diabetes, hypertension, and CVD. In fact, Draheim, Williams, and McCubbin (2002) determined that individuals with ID that have abdominal obesity were 3-10 times more likely to have elevated biological risk factors than those who were not overweight or did not have abdominal obesity (Draheim et al., 2002). More alarming is the role environment plays in obesity rates. In a 2006 research review on obesity and ID, it is apparent those with ID living in smaller, less supervised settings (group homes/ family homes) have significantly higher rates of obesity compared to those living in supervised settings (institutions) (Rimmer & Yamaki, 2006).

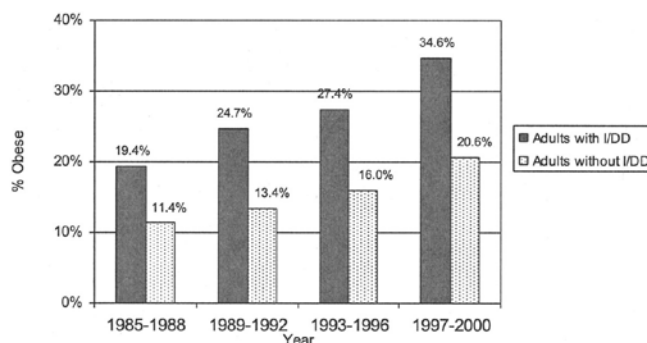
According to Rimmer and Yamaki (2006), environment and socioeconomic factors play a role in the obesity epidemic in this population. The philosophy of least restrictive environments has provided those with ID freedom of choice, which has unintentionally resulted in poor food selection and sedentary behaviors. HP programs have shown that with proper health education, those with ID can learn the benefits of a healthy diet and PA (Heller, Hsieh, & Rimmer, 2004; Mann, Zhou, McDermott, & Poston, 2006). Unfortunately, individuals with ID have limited opportunities to obtain knowledge and HP strategies to improve these areas. Additionally, low income status for those with ID limits their access to healthy food options and exercise facilities. The attitudes of caregivers also strongly influence health behaviors. Positive, healthy, role models are critical in order to promote PA (Rimmer & Yamaki, 2006).

Furthermore, rates of obesity are higher in adults with ID compared to the general population in many countries, but even more exaggerated in the United States (Haveman et al., 2010). In the literature, a wide range of obesity rates have been reported for those with ID from 2% to 80%. Janicki et al. (2002) conducted a survey with 1,371 adults with

ID ages 40-79. The findings suggest lower rates of exercise, higher rates of dietary insufficiency, and over half of the participants in the study were classified as obese according to body mass index (BMI). According to Stanish and Draheim (2005), 80% of adults with mild to moderate ID in the community setting are overweight or obese (including 45% obese and 8% severely obese). These studies also indicated that the prevalence of obesity increases with age (Draheim, 2006). Another study conducted in Chicago, Illinois (n=306), determined that 70.7% of adults with DS were obese and 60.6% of adults with other etiologies of ID were obese, compared to 30.5% of the general population (Rimmer & Wang, 2005). In a group of Special Olympics World athletes (n=443), 26% were obese (BMI >30), and 6% were morbidly obese (BMI >40). Participants from the United States had significantly higher obesity rates than other countries (Harris, Rosenberg, Jangda, O'Brien, & Gallagher, 2003).

Obesity rates for those with ID have been increasing over the past few decades. Yamaki (2005) estimated obesity prevalence among adults with ID by reviewing cross-sectional data from the *National Health Interview Survey* (n=3499) (See Figure 1). He concluded, based on statistically weighted national estimates that the prevalence of obesity (BMI > 30) among those with ID was significantly higher than the general population at four observation periods (1985-88, 1989-92, 1993-96, 1997-00) (Yamaki, 2005).

Figure 1: Comparison of Obesity from the *National Health Interview Survey* 1985-2000



The vast differences in obesity rates in the literature are in part due to population sampling. For instance, those with DS are more at risk of being overweight or obese (Haveman et al., 2010). Additionally, individuals with mild to moderate ID living in the less restricted community settings tend to have higher CVD risk profiles, including obesity (Draheim, 2006). According to Bhaumik et al., (2008) the following are particular risk factors associated with obesity for those with ID: those living independently or with family members (three times more likely to be obese than those in residential care), women (three times more likely to be obese), adults with DS, those with hypertension, and adults with cerebral palsy were less likely to be obese. Study findings related to obesity should be stratified by these characteristics in order to see true estimates of risk for those with ID.

Adults with ID are also at risk of malnutrition. Malnutrition includes both overnourishment and/or undernourishment (ADA, 2004). In Bhaumik et al., (2008) study reported significant differences in BMI to the general population in England, but the differences were found in underweight categories (19% of men with ID were underweight versus 2% of men in general population; 12% of women underweight versus 5% in general population) (Bhaumik et al., 2008). It is noted that adults with more profound ID (due to feeding problems), and persons with ID living in developing countries have more prevalence of underweight verse overweight (Humphries, Traci, Seekins, 2009). Overall, it can be concluded that those with ID have unhealthy body weight, which could lead to adverse health conditions as they age. HP efforts to encourage proper nutrition and PA could prevent unhealthy weight in this population.

III. Modifiable Risk Factor: Physical Activity

Physical activity can control risk factors associated with CVD, by altering cholesterol, LDL levels, HDL levels, obesity, and diabetes. Adults aging with ID can continue to see benefits from PA later in life. PA has the capability to change the progression of physical decline associated with age (Hogan, 2005). Studies have shown that with PA and exercise, older adults can increase their strength, increase functional

performance, and lose weight. Additionally, PA allows older adults to maintain their independence and perform activities of daily living; thus, leading to an improved quality of life (Mazzeo & Tanaka, 2001). Physical inactivity is described as a risk factor for physical decline. It is estimated that half of the decline in older adults, in general, is due to their physical/mental disuse and lack of exercise rather than to illness or biological change (Bigby, 2004).

The vast majority of those with ID are not getting the recommended amount of PA to receive health benefits and prevent secondary conditions. The Healthy People 2010 report noted that more individuals with disabilities, 56%, reported no leisure-time PA than 36% of the general population. The report suggests that environmental factors like architecture, knowledge barriers, social support, and policies/procedures may be the reasons for the differences in PA (US Department of Health and Human Services, 2000).

Not only are those with ID not meeting national recommendations for PA, they are also demonstrating preferences for sedentary behaviors (Frey, Buchanan, & Rosser Sandt, 2005). This is a concern because large amounts of sedentary behavior can be detrimental to health. Despite meeting recommended guidelines for PA, sedentary behaviors have independent side effects on health (Healy et al., 2007). Current research demonstrates that sedentary behavior is a predictor of chronic disease, especially for type II diabetes and cardiovascular disease (Owen, Healy, Matthews, & Dunstan, 2010).

To further understand the PA patterns of adults with ID, the following eight studies examined PA according to current published recommendations of 30 minutes of moderate activity on most days of the week or 10,000 steps per day guideline (Draheim, Williams, & McCubbin, 2002; Stanish & Draheim, 2005a; Stanish & Draheim, 2005b; Temple, Anderson, & Walkley, 2000; Temple & Walkley, 2003; Frey, 2004; Draheim, McCubbin, Williams, 2002; Draheim, Williams, McCubbin, 2003). According to Stanish, et al. (2006) review article, there are large variability in the following eight studies. Based on limited findings, they concluded that less than one-third of the population with ID engages in sufficient enough PA to receive health benefits.

The studies using accelerometer technology determined frequency, intensity, and duration of PA behaviors for adults with ID. Temple and Walkey (2003) study included 37 adults with mild to moderate ID ages 19-60 years. Data from the accelerometer and a PA diary recall from a proxy were collected for three days. The results showed that 32% of the participants in the study met the recommended 30 minutes of moderate intensity PA per day (Temple & Walkey, 2003). Frey (2004) found similar results when using the accelerometer. Participants wore the PA device for 22 days and were compared to age and gender matched controls. Two groups of controls were used in this study as comparisons, an active control group and a sedentary control group. The results showed that those with ID accumulated less minutes of moderate to vigorous PA than both the sedentary and active controls. The results in average minutes per day of moderate to vigorous PA are as follows: ID =19.7 minutes; sedentary control =31.6 minutes; active control =55.9 minutes. The proportions of each group achieving 30 minutes of moderate intensity PA were: ID 28%; sedentary controls 47%; active controls 89% (Frey, 2004).

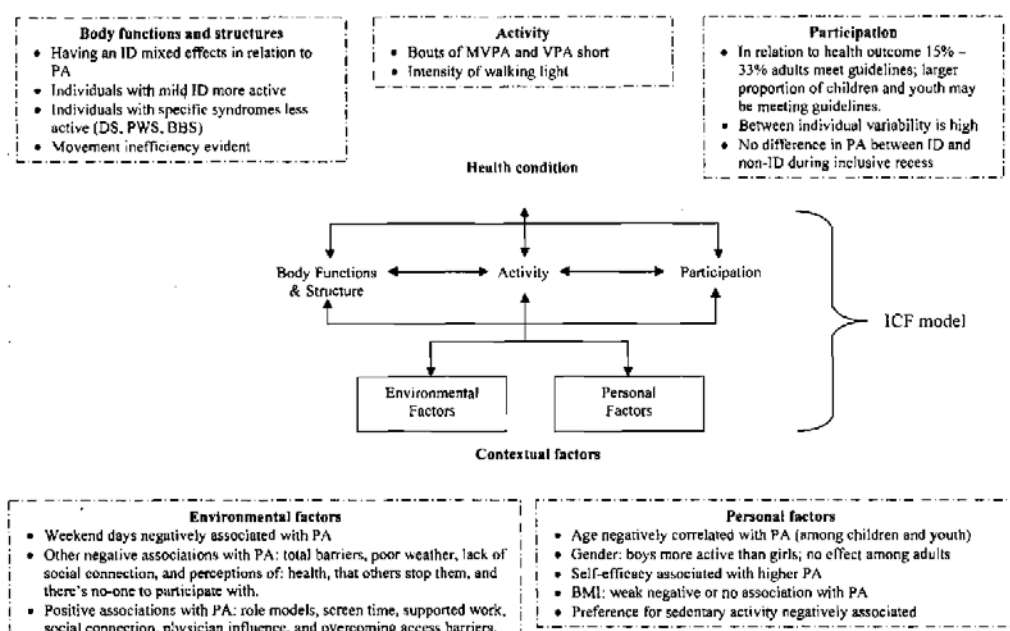
Other studies have evaluated walking behaviors of adults with ID with the use of pedometers. Walking is the primary mode of transportation for many individuals with ID (Finlayson et al., 2009; Stanish, Temple, & Frey, 2006), making pedometers an obvious measure of PA in this population. According to Stanish et al. (2006) article, individuals who accumulate over 10,000 steps per day have less body fat and lower blood pressure than less active individuals. In the Stanish and Draheim (2005a) study, walking patterns were examined in 103 adults with ID. The results showed those with ID walked an average of 7,832 steps per day, with only 21% meeting the 10,000 steps per day guideline. Stanish's (2004) study of 20 adults with mild ID, showed significantly less walking steps on the weekends, than weekdays with only 20% reaching the 10,000 criteria on weekends and 45% of the participants reaching the criterion on weekdays. In a review of the literature, Temple (2010) estimated that the walking behaviors of those with ID would average around 6,000-8,000 steps per day with those with DS being at the lower range.

Since the 2006 *Review of Health-Promoting Physical Activity of Adults with Mental Retardation*, the exploration of PA behavior for those with ID has continued. Peterson, Janz, and Lowe (2008) used time-stamped technology to measure PA across weekdays, weekends, and hours of the day. The study consisted of a large sample of 131 adults with mild to moderate ID who wore an Omron720 piezoelectric pedometer for seven consecutive days. The results showed only 20 participants (15.3%) achieved PH guidelines of 10,000 steps per day. Adults with ID were more active during weekdays versus weekend days, with more steps during morning and afternoon time periods. One explanation given for these walking patterns were fewer work and organized activity options in the evenings and on the weekends (Peterson, Janz, & Lowe, 2008). Furthermore, the importance of evaluating PA in older adults with ID is an apparent gap in the literature. In a 2011 master's thesis (n=119), older adults with ID (50 years and older) had significantly fewer walking steps (3864 ± 2061) than comparative groups; older adults without ID (6109 ± 3031) and younger adults with ID (5926 ± 2975). Accelerometer data from this study determined that older adults with ID had significantly less moderate to vigorous PA than their younger counterparts with ID (Dixon-Ibarra et al., 2013).

In Temple's (2010) review of PA literature for those with ID, the author used the *International Classification of Functioning for Disability and Health* (ICF) model to map out the current literature on PA and ID (see Fig 2). The use of the ICF model to describe PA behavior is useful to facilitate understanding of how this health-related state fits within all areas of the life including environment, personal factors, body functions and structures, activity, and participation. The ICF model is part of the World's Health Organization's family of International classifications, so it also useful to provide a standard language when discussing PA for those with ID (Temple, 2010). Temple (2010) expresses that overall; studies including PA for those with ID may underestimate the true picture of activity in this population. Some of the objective measured PA has been examined on a small scale, without examining individuals with more severe ID, and excluding those with co-morbid, associated, or secondary conditions. It is recommended

that larger well-controlled epidemiological studies with a wide range of population sub-groups should be done for accurate estimates of PA in this population. Additionally, future studies should control for covariates such as age, level of ID, gender, and secondary conditions (Temple, 2010).

Figure 2: Temple (2010) Physical Activity Study Findings Mapped against *International Classification of Functioning for Disability and Health*



IV. Determinants of Physical Activity Participation

Social Environment. PA participation for those with ID is based on an interplay of various factors. One essential determinant of health for those with ID is the social environment. Social support is included as one of the World Health Organization's ten social determinants of health (Drum et al., 2009). The social environment plays a role in PA behavior for many with ID, because these individuals depend on their supports for routine activities of daily living (Krahn et al., 2006). Rimmer and Rowland (2008) further emphasized that the environment can exacerbate secondary conditions through discouraging or preventing participation in health promoting activities. This is true of those with ID whose environments are often structured by their supports (Rimmer &

Rowland, 2008). Krahn et al., (2006) also describes that residential settings supporting inactivity and poor nutrition is a factor that contributes to the observed poor health of those with ID.

Social support is critical for those with ID. Qualitatively, Temple (2009) interviewed 13 active adults with ID to determine factors associated with PA participation. The results from a semi-structured interview showed that active adults with ID depend on social and environmental supports to “show them how” to be active and give them confidence (Temple, 2009). Another qualitative study examined facilitators and barriers to PA for those with DS, findings illustrate social support being both a facilitator and a barrier. Those with DS view social support as a facilitator when others support their decision to be physically active and are enthusiastic about PA. Additionally, those with DS discussed an overall lack of physical, emotional, and community supports (e.g. supervision, transportation, financial support, lack of programs, acceptance, and awareness in the community) to be barriers to PA (Mahy et al., 2010).

The social environment also includes the space in which an individual lives. Accordingly, researchers need to evaluate the affects of living arrangements on health behaviors. In the past 40 years, there has been a drastic shift in living arrangements in the United States for those with ID. Older adults with ID are more likely to live in shared supported living arrangements rather than homes with family or friends. As a result, researchers creating HP interventions need to be aware of this shift and the impact it has on the health status of those with ID. Rimmer, Braddock, and Marks, (1995) article determined that individuals in institutional settings are consistently watched, meals scheduled, and every day choices are planned leading to positive health risk profiles. Adults with ID in least restrictive settings such as group homes and family homes have less supervision, more choices, and lack awareness of their health behaviors (Rimmer et al., 1995). Therefore without proper supports, individuals living in residential settings or with family members are typically not choosing healthy lifestyles

Caregiver Knowledge and Attitudes. Caregivers' resistance to change routines to include PA and proper nutrition is a significant barrier when promoting healthy lifestyles for those with ID (Lunsky, Straiko, & Armstrong 2003). In a 2009 study, researchers surveyed a convenience sample of family and paid staff (n=63) who had known people with ID for an average of 47 months. Caregivers' knowledge about nutrition and PA were assessed along with their ideas surrounding the benefits and barriers for those with ID. The results indicated that caregivers were more likely to know dietary recommendations for fruit and vegetables rather than recommendations for PA ($\chi^2 = 21.8$, $p < 0.001$). Weighted scores from caregivers demonstrated a greater importance on the benefits of proper nutrition than PA. Twenty-three percent of the caregivers reported no interpersonal barriers (lack of support, lack of encouragement, and the influence of other people's lifestyle) relevant to those with ID for changing their PA. They expressed intrapersonal barriers of knowledge, skill, and motivation of those with ID was the primary barriers for PA. Overall, this study demonstrated that caregivers of those with ID have training needs in order to promote a healthy lifestyle, including knowledge related to public health PA recommendations. One suggested solution to improve caregiver attitudes and knowledge is to have training on healthy lifestyles as part of an induction into a paid care position. This would be ideal due to the high staff turnover rate in community-based supported living settings, so all paid caregivers are trained to support healthy lifestyles (Melville et al., 2009).

Qualitative studies have been conducted to examine staffs' attitudes and perceptions about PA. Frey, Buchman, and Rosser Sandt, (2005) describe a lack of guidance for PA for those with ID. During the interview process of individuals with ID and their care staff, a salient barrier unique to this population became a recurrent theme, negative supports. There are caregivers, coaches, teachers, and role models reinforcing sedentary behaviors for reasons consisting of lack of knowledge about PA, fear for their safety, ignorance that this population can improve health, and lack of time to take individuals to activity programs. The importance of support systems and authority figures is really powerful for individuals with ID, when promoting health and PA. In addition,

individuals with ID do perceive benefits to PA similar to the general population (e.g. awards (scoring and winning), looking good, social interactions, and feeling good). However, regardless of confidence or benefits associated with PA, those with ID were restricted from participation because of “negative supports” (Frey et al., 2005).

Further evidence in a study conducted by Heller et al., (2002) determined staffs’ perceptions of PA strongly influenced the activity level of those with cerebral palsy (CP). The caregivers’ perception about the benefits of exercise for the adult with a disability greatly influenced the degree in which the individual participated in exercise. For staff and caregivers that perceived more benefits from exercise, the person with CP was more likely to be active. Staff and caregivers that had poor health and lacked interest in PA were more likely to not provide support and guidance for exercise. These outcomes demonstrate that in order to increase PA behaviors for those with disabilities, staff and caregivers need to become educated about exercise, and provide proper support and guidance (Heller, Hsieh, & Rimmer, 2002).

Overall, those with ID face similar but also unique barriers to PA compared to the general population. In a review of social and environmental barriers to PA by Bodde and Seo (2009), they determined that personal barriers faced by those with ID are actually similar to the general population such as age, lack of self-efficacy, lack of interest, preference for sedentary behaviors, availability of resources, safety, and built environment. However, these barriers are more elevated for those with ID, due to their reliance on social supports and restrictive environments. With the overall lack of control over their surroundings, those with ID struggle to rise above social barriers while also trying to overcome personal barriers that may exist. The following were recurring barriers to PA for those with ID: lack of money/ financial constraints, lack of support from others, lack of transportation, risk assessment, discouragement from others due to safety reasons, lack of opportunities, lack of clear policies in home or day programs, family or staff constraints, lack of awareness of options, location to fitness centers, and weather. As noted, the majority of these reoccurring barriers are associated with trying to

alleviate environmental barriers. Thus, practical implications would be to change the social environment for those with ID to limit external barriers to be active (Bodde & Seo, 2009).

Lack of Policies. One particular way to change the environment for those with ID would be to change the policies in restrictive community settings to allow for healthier lifestyle options. It is suggested that adults with ID, specifically DS, typically do not initiate PA. The decision is often made for them by others (Mahy et al., 2010). Paid staffs play a huge role as both a facilitator and a barrier to PA for those with ID. Thus, changing policies to decrease staff burdens related to time constraints, transportation, etc could increase the overall health of this population. In fact, changing group home policy to allow for staff to participate in PA with those with ID would be an effective way to increase role modeling and motivation for this population to be active (Mahy et al, 2010).

As suggested by Bodde and Seo (2009), agencies that serve those with ID should begin to integrate PA opportunities into their regular day programs and provide ways to encourage PA during evening and weekend down times. Paid staff could be trained on ways to incorporate PA into the daily routine, and become accountable for providing PA opportunities. Therefore, it is suggested that PA education and the incorporation of PA into day activities should be a required for paid staff that work with those with ID.

V. Health Promotion for Persons with IDD

There is a scarcity of literature on HP for individuals with ID, which has left a gap in understanding how to improve health and reduce secondary conditions in this population. In Healthy People 2000, an expert panel observed the absence of health-related data for those with disabilities. Within the past decade, there has been a slow but steady increase in the importance of HP for those with disabilities (US Department of Health and Human Services, January 2000). Now, in the national PH initiative, Healthy People 2020, it mentions individuals with disabilities in 27 sections and includes a

separate section for the prevention of secondary conditions (US Department of Health and Human Services, 2011).

Other national and international publications have been developed in the past few decades to explore risk factors of chronic diseases and secondary conditions for those with ID. Specifically, national reports like the *Healthy People 2010 and 2020* (USDHHS, 2000) and *Closing the Gap: A National Blueprint to Improve the Health of Persons with Mental Retardation* (U.S. Surgeon General, 2002), and the *European Pomona Projects I and II* (Walsh, Kerr, & van Schrojenstein Lantman-De Valk, 2003; Walsh, 2008) have shown promising attempts to change the health of this population. Globally, the World Health Organization in collaboration with the International Association for the Scientific Study of Intellectual Disabilities (IASSID) issued both *Healthy Ageing—Adults with Intellectual Disabilities: Summative Report* (WHO, 2000) and *Healthy Ageing: Adults with Intellectual Disabilities—Physical Health Issues* (Evenhuis, Henderson, Beange, Lennox, & Chicoine, 2001). These reports have given attention to the needs of those with ID, particularly identifying disparities in healthcare, HP, health outcomes, and health behaviors.

According to Stanish et al. (2006), there is still a critical lack of data related to PA HP for those with ID, and this has significant concerns for three reasons. First, healthcare costs for inactivity of the general population estimates \$75 billion in the United States. There is currently no data for the cost of inactivity for those with ID, but the medical and nonmedical costs associated with the diagnoses of ID (e.g., physician visits, inpatient hospital stays) are estimated over \$12.3 billion (Honeycutt et al., 2004). Second, indirect costs of inactivity such as premature death, lost wages, and work limitations are estimated over \$38 million and account for 76% of the total lifetime costs related to ID diagnoses. It is reasonable that a portion of these costs are related to inactivity. The third reason is related to the positive physical, emotional, and social aspects of PA. Individuals with ID express desire for control of their lives. If inactivity is an indicator of

health, then physical, emotional, and social independence will be compromised (Stancliffe, 2001). .

In a critical review of PA and exercise research for persons with disabilities, Rimmer and colleagues (2010) describe the current state of research in this area. For those with ID, the most common research includes pre and post only designs. The gold standard to determine the true effectiveness of an intervention is the randomized control trial (RCT). Out of the 10 reviewed exercise interventions for those with ID, only two conducted a RCT. It was suggested that future studies use better study designs to examine the effects of various methods on health outcomes. Additionally, research for those with disabilities, including those with ID, are lacking follow-up assessments to determine long term effects of interventions. The review also identified the least targeted health outcomes for interventions. One outcome discussed was body weight/ body fat reduction. This is a critical outcome to explore for those with ID, considering the rise in obesity rates in this population (Rimmer et al., 2010).

VI. Preparation in Health Promotion Research for those with IDD

As a blue print for including and designing HP programs for those with disabilities, experts in disability, PH, and other related fields established guidelines for conducting and implementing HP programs. The following guidelines were determined for creating appropriate HP programs for those with disabilities: 1) Include an underlying theoretical framework, 2) Implement process evaluation, 3) Use disability-appropriate outcome measures, 4) Include all stakeholders in the development and implementation of the program, 5) Consider the beliefs, practices, and values of the targeted group, 6) Make program socially, behaviorally, programmatically, and environmentally accessible to participants, and 7) Create an affordable program. These guidelines are strongly encouraged to use as the best available set of practices for implementing HP programs for those with disabilities (Drum et al., 2009b). In a community-based HP program review for those with ID, authors determined the following five components as key points in the development of an effective HP program: 1) theoretical support, 2) supportive

environments, 3) educational focus, 4) core activities, and 5) evaluation. Other suggestions from this review include keeping a low cost program, providing transportation or choosing an appropriate location for the program, acknowledging and addressing staff turnover, keeping simple assessments, including motivational strategies, and incorporating a control group (Marks, Sisirak, Heller, & Wagner, 2010). Future HP programs should consider these guidelines as the best available tools for implementing interventions and programs for those with disabilities.

As stated in the above guidelines, a first step in designing a HP program is to make sure participants and stakeholders are involved in the program (Rimmer et al., 2010). A suggested technique to create a successful HP program for those with ID is utilizing Community-Based Participatory Research (CBPR) approaches. There are many advantages to this approach. For instance, by allowing persons with disability and other stakeholders in the research process it provides ownership of the program. This ownership often leads to increased participation in the created program, less drop outs, and it is often easier to recruit individuals for future phases of the project. Additionally, this method can create more valid measurement, because the assessment used is based on specific needs.

It is not only the disability population that encourages the use of CBPR, as certain funding agencies (NIDRR National Institutes in Disability Rehabilitation Research) and institutions expect it as well (Institute on Medicine, 2003). Professionals in the disability and health field are also strong supporters of CBPR including Lollar and Andresen (2011) *Perspectives of Public Health on Disability* text; Gloria Krahn (2006) *Disability and Health: National Agenda for Future Research*; and Drum et al., (2009) *Guidelines for Community-Based Health Promotion Programs for Persons with Disabilities*. Along with these prominent professionals in the field, the *Surgeon General Call to Action Improving the Health and Wellness of Persons with Disabilities* (2005) expresses the need for persons with disabilities to be involved in the whole research process, with CBPR as a successful strategy to accomplish this task.

VII. Conclusion

There is a critical need to reduce health inequities for persons with ID (Krahn et al., 2006). One particular health inequity is the difference in obesity rates and secondary for those with ID compared to the general population (Rimmer and Yamaki, 2006; Haveman et al., 2010). One unjust reason for the differences in health for those with ID is due to the lack of HP programs designed to increase health-promoting behaviors (e.g. PA) (Krahn et al., 2006).

When creating a HP program for those with ID, it is clear that engaging community stakeholders is critical in the needs assessment, design, implementation, and evaluation of health promotion programs (Drum et al., 2009b). Specifically for those with ID, specially designed programs that obtain feedback from stakeholders is needed to address the unique living environment of the group home setting. Of particular importance, in community-based supportive living settings (e.g., group home settings), the lifestyles of those with ID are often influenced by staff support (Krahn et al., 2006; Rimmer & Rowland, 2008). Thus, an optimal way to increase health promoting behaviors is to focus on environmental change within these settings by addressing high staff turnover rates, integrating policies for HP training, and incorporating healthy choices within the routine schedule of activities.

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Research Aim and Approach for Manuscript 1:

Aim: To conduct focus groups with an established ‘Advisory Group’ of group home stakeholders, from three group home agencies, to obtain information about physical activity within the group home setting, barriers and facilitators of activity, and receive input/feedback on program design.

Approach: Three separate focus group discussions were conducted with each group home stakeholder group (i.e., program coordinators, staff, and residents) to obtain insider knowledge about physical activity in the group home setting. Three follow-up focus groups were conducted with the same stakeholders, after program design, to receive feedback on created program materials.

Assumptions:

- 1) It was assumed that all participants were honest and not providing socially desirable responses to the research team.
- 2) It was assumed that the three group home agencies involved are mostly representative of other group home agencies in the delivery of services.
- 3) It was assumed that the residents with mild to moderate intellectual disabilities could comprehend questions in the focus group discussions.

Limitations:

- 1) The study participants were from a convenient sample from pre-determined agencies and thus do not represent a random sample.
- 2) Participation in the study was voluntary, so recruited group homes may have joined the study because they were interested in physical activity or residents pursued activity in their homes.
- 3) Residents in the focus group had mild to moderate intellectual disability and could actively participate in the discussion. We did not hear the opinions and experiences of those with more severe intellectual disabilities.

- 4) The nature of qualitative analysis is somewhat subjective according to the researcher's interpretation of the data. To avoid this bias, three researchers coded transcribed discussions.
- 5) The resident sample included more males than females
- 6) The program coordinators and staff sample included more females than males

Delimitations: The study is delimited to the following:

- 1) Questions asked in the focus group discussion regarding the topic of physical activity within the group home setting.
- 2) Individuals with intellectual disabilities within the age of 26-65, including both males and females, living in a group home setting.
- 3) Program coordinators and staff within the ages of 20-54, including both males and females, who provide at least 10 hours per week of care and personal assistance to a person with an intellectual disability within the group home setting.

Operational definitions:

Intellectual or Developmental Disability- diagnosed with an intellectual disability by their 18th birthday or developmental disability by their 22nd birthday. Qualification for intellectual disability is an IQ lower than 69. For those with a developmental disability, they must have a medical or clinical diagnosis of disability and a significant impairment to adaptive functioning. Most frequent developmental disabilities diagnoses seen for eligibility include: cerebral palsy, tourettes, fragile X syndrome, Prader Willi, fetal neurological disorders (alcohol, lead, drugs, and disease), epilepsy, Klinefelter, traumatic brain injury, and Pervasive Developmental Disorders: autism disorder and Asperger's disorder.

Group home - licensed community residence facility that provides a home-like environment for four to eight related or unrelated persons with an intellectual disability, where 24 hour extensive or pervasive paid staff are provided within the home for support

Program coordinators- Adults 18 years or older who manage group home sites within an agency. They direct support staff who work directly with the residents.

Support staff- Adults 18 years or older who is paid to provide a significant amount (10 hours per week or more) of care and personal assistance to a person with an intellectual or developmental disability in the group home setting.

Research Aim and Hypotheses for Manuscript 2:

Aim: To evaluate the feasibility and assess preliminary program outcomes of the Menu-Choice Physical Activity Program 10 week pilot intervention

Hypothesis 1: Program coordinators will feel sufficiently trained to implement the Menu-Choice activity program (measured through a training evaluation).

Hypothesis 2: Staff will use the major components of the program, specifically medical approval forms, Special Activity Needs sheets, baseline activity sheets, Weekly Activity Schedules, resident pictorial goal calendars, and program evaluation sheets (measured through observation of program use).

Hypothesis 3: Group home staff will have a high fidelity score with the program materials over the 10 week intervention (measured with a fidelity survey).

Hypothesis 4: Residents will increase their weekly physical activity over the 10 week intervention (measured with Omron 720 pedometer and weekly goal setting sheets).

Hypothesis 5: Residents will report increases in their activity knowledge and beliefs over the 10 week pilot phase (measured with knowledge & beliefs questionnaire).

Hypothesis 6: Residents will decrease body mass index over the 10 week pilot phase (measured with staff reported height and weight).

Assumptions:

- 1) It was assumed that the program coordinators trained staff on the Menu-Choice physical activity program
- 2) It was assumed that staff understood and followed the step-by-step guide of the Menu-Choice physical activity program

- 3) It was assumed that the residents with mild to moderate intellectual disabilities could comprehend questions in the knowledge and belief scale.
- 4) It was assumed that staff answered the surveys independently and answered accurately
- 5) It is assumed that staff completed weekly activity sheets accurately and pursued the physical activity they documented.
- 6) It is assumed that program coordinators completed the training evaluation honestly and thoroughly.

Limitations:

- 1) Residents with severe intellectual disability could not complete the knowledge and belief scale
- 2) Residents with physical limitations did not wear the pedometer for activity assessment
- 3) Only evaluates the use of the program within one group home agency.

Delimitations:

- 1) Individuals with intellectual disabilities within the age of 45-70, including both males and females, living in a group home setting.
- 2) Staff within the ages of 18-65, including both males and females, who provide at least 10 hours per week of care and personal assistance to a person with an intellectual disability within the group home setting.
- 3) Program coordinators within the ages of 23-65, including both males and females, who coordinate staff within the group home setting.
- 4) Participants were from only one group home agency in the Northwest
- 5) The use of the Menu-Choice for the 10 week pilot intervention.
- 6) The Menu-Choice program being delivered in the fall months.

Operational definitions: (see operational definitions in manuscript #1)

Research Aim and Approach for Manuscript 3:

Aim: To conduct interviews with participants involved in the 10 week Menu-Choice pilot intervention to obtain information about program training, implementation, program materials, and collect suggestions for future program iterations.

Approach: Interviews were conducted following the 10 week pilot intervention with 1-2 staff and/or residents from each of the five group home sites involved.

Assumptions:

- 1) It was assumed that all participants were honest and not providing socially desirable responses to the research team.
- 2) It was assumed that the staff and residents did not feel pressured by superiors or care providers to respond a certain way. To overcome this, interviews were conducted in a private location and participants were informed that the conversation was confidential.
- 3) It was assumed that the residents with mild to moderate intellectual disabilities could comprehend questions in the interviews.

Limitations:

- 1) The study participants were from a convenient sample from a pre-determined group home agency and thus do not represent a random sample.
- 2) Participation in the study was voluntary, so recruited group homes may have joined the study because they were interested in physical activity or residents pursued activity in their homes.
- 3) Residents in the focus group had mild to moderate intellectual disability and could actively participate in the discussion. We did not hear the opinions and experiences of those with more severe intellectual disabilities.
- 4) One group home site had all residents with severe intellectual disability, thus this site did not have a resident representative in the interviews.

- 5) Program coordinators were not interviewed, so their thoughts on program implementation and training were not assessed.
- 6) The nature of qualitative analysis is somewhat subjective according to the researcher's interpretation of the data. To avoid this bias, three researchers coded transcribed discussions.
- 7) The sample only included 12 participants, so generalizations to other group home staff and residents are limited.
- 8) Only female staff participated in interviews.

Delimitations: The study is delimited to the following:

- 1) Questions asked in the interview regarding program implementation.
- 2) Individuals with intellectual disabilities within the age of 45-59, including both males and females, living in a group home setting.
- 3) Female staff within the ages of 18-65, who provide at least 10 hours per week of care and personal assistance to a person with an intellectual disability within the group home setting.

Operational definitions: (see definitions provided with manuscript #1)

Chapter 2: Manuscript 1

Understanding physical activity in the group home setting: A qualitative inquiry

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Abstract

Background: Persons with intellectual disabilities have low levels of physical activity. Creating health promotion programs unique to the social context in which this population resides may prove successful at increasing physical activity. The aim of this study was to qualitatively explore physical activity from various stakeholders in the group home setting.

Method: Twenty stakeholders (i.e., residents with intellectual disability, support staff, and program coordinators) participated in one of three focus groups, separated by stakeholder status. Trustworthiness was established through investigator and site triangulation, utilization of a critical friend, and member checks.

Results: Six meta-themes were identified: Nature of residents' physical activity, Facilitators to physical activity, Barriers to physical activity, Personal Factors, Organizational factors, and Solutions to increase physical activity.

Conclusions: Findings suggest that residents with intellectual disabilities need additional physical activity. Consideration must be given to the unique needs of the group home setting including factors such as staff turnover, lack of resident and staff buy-in, negative supports, and supporting the diverse needs of residents.

Understanding physical activity in the group home setting: A qualitative inquiry

According to the Administration on Developmental Disabilities, there are approximately 4.5 million people with developmental disabilities in the United States, with intellectual disability being the most common (2.5 million) (Administration on Developmental Disabilities, 2013). Adults with intellectual disabilities are at an increased risk for certain health conditions including cardiovascular disease, obesity, osteoporosis, and musculoskeletal conditions (Haveman et al., 2010). An emphasis on addressing obesity and related secondary conditions through physical activity is a focal point in multiple national initiatives including: the Centers for Disease Control report on obesity for those with disabilities (Centers for Disease Control and Prevention, 2011a), Healthy People 2020 (U.S. Department of Health and Human Services, 2010), and two Surgeon General's Reports to improve the health of persons with disabilities (U.S. Department of Health and Human Services, 2005; U.S. Department of Health and Human Services, 2001).

The vast benefits of physical activity for persons with intellectual disabilities are similar to the general population including controlling body weight, decreased risk for cancer, improving functional and mental health status, and reducing cardiovascular disease (CDC, 2011b). Other benefits of physical activity specific for persons with intellectual disabilities include gains in longevity, older-age quality of life, increased functional capacity, increases in muscular strength, and improved balance (Bartlo & Klein, 2011). Despite the documented benefits of being active, a recent study showed that adults with intellectual disabilities spent 6-8 hours in sedentary activity across the day with only 6% of older adults with intellectual disability (50 years and older) and 13% of younger adults (18-49 years) with intellectual disability meeting activity recommendations (Dixon-Ibarra, Lee, & Dugala, 2013). This is particularly low when compared to a national estimate of 52% of the general population meeting recommended activity guidelines of 150 min per week of moderate intensity activity (CDC, 2011c).

Physical activity participation for those with intellectual disability is influenced by interplay of factors. One essential determinant of health for those with intellectual disability is the social environment. The social environment plays a role in physical activity behavior for many with intellectual disability, because these individuals depend on their supports for routine activities of daily living (Krahn, Hammond, & Turner, 2006). Rimmer and Rowland (2008) further emphasized that the environment can exacerbate secondary conditions through discouraging or preventing participation in health promoting activities. This is true of those with intellectual disability whose environments are often structured by their supports (Rimmer & Rowland, 2008). Krahn et al., (2006) also describes that residential settings supporting inactivity and poor nutrition is a factor that contributes to the observed poor health of those with intellectual disability.

One environment that has been limitedly explored in relation to physical activity behavior is the group home setting. The group home setting is a dominant form of residential accommodation for persons with intellectual disabilities (Bigby & Clement, 2009). Group homes are a licensed community residence facility that provides a home-like environment for four to eight related or unrelated persons with an intellectual disability, where extensive or pervasive paid staff are provided within the home and community-based settings (Bigby & Clement, 2009). The main group home stakeholders, although names may differ for a given agency, include group home managers, program coordinators, support staff, and residents. For the nature of this research, we define program coordinators as persons who manage the individual group home houses. They direct the support staff who work one-on-one with the residents. A support staff is an individual who is paid to provide care and personal assistance to a person with an intellectual disability in the group home and community setting. Residents have diagnoses of various forms of intellectual and developmental disability that need supports that are provided in the group home setting.

There are limited health promotion programs and currently no physical activity programs tailored for the group home environment. One particular reason for insufficient

programming may be due to our lack of understanding of what physical activity looks like and what specific barriers are faced by group home residents and staff. Gaining additional information about this health behavior and its barriers/facilitators is a necessary step to finding effective ways to intervene within this environment.

Utilizing focus group methodology provides a way to hear the voices of the group home stakeholders to obtain multiple perspectives on physical activity in this setting. Therefore, this study aims to qualitatively examine physical activity within the group home setting by conducting three focus groups to hear perspectives of residents with intellectual disability, support staff, and program coordinators. In an effort to understand physical activity within the group home setting and gain knowledge to design an appropriate health promotion program to fit the needs of this community.

Methods

Participants

Participants were recruited from three group home agencies in the western United States that provide 24 hour support for residents with intellectual and developmental disabilities. Inclusion criteria for residents were 18 years and older with mild to moderate intellectual disability, verbal communication skills to actively participate in a group discussion, and reside in a group home. Secondly, criteria for the support staff were 18 years and older and paid to provide 10 hours per week or more of care and personal assistance to a person with an intellectual disability within the group home setting. Finally, inclusion criteria for program coordinators were 18 years or older and manager of group home houses. Various group home environments were represented in the focus groups as the residents, staff, and program coordinators were not recruited from the same group home sites. Table 1 summarizes participant characteristics. Prior to participating in the focus group discussions all participants signed an informed consent approved by an institutional review board.

Data Collection

Semi-structured focus groups with the three stakeholder groups were conducted. The stakeholders were separated into three groups being sensitive to their positions within the group home setting: (group 1) residents with intellectual disability, (group 2) support staff, and (group 3) program coordinators. The smaller groupings provided opportunity for elaborating on ideas generated by others (Vaughn, Schumm, & Sinagub, 1996). Moreover, the participants were able to freely express their ideas without undue pressure from their superiors.

Each group met with the focus group moderator, lead author, for 60-90 minutes. Moderator guides for residents, program coordinators, and staff are included in Appendix A and B. A note-taker was present to assist the moderator and take note of the discussion documenting each speaker's name with a note on their comment for later identification of

speaker identity on the recording (Krueger, 2009). This person did not actively participate in the discussion.

The focus groups involved the moderator facilitating discussion through a series of guided, open-ended questions created to simulate discussion on the following three categories: 1) Values, 2) Operations, and 3) Content. Value-driven questions explored participants' attitudes, intention, and expectations of physical activity within the group home setting. Operation-driven questions served the following two functions: 1) examine the overall operations of the group home system and 2) explore resources and opportunities for physical activity in the community and within the group home. Content-driven questions examined current physical activity knowledge and explored barriers and facilitators for physical activity. Formative assessments designed to understand the target population's characteristics, attitudes, beliefs, values, behaviors, determinants, and barriers is consistent with guidelines disseminated by the Centers for Disease Control (Brown, Heath, & Martin, 2009).

Prompts were used to elicit further information from stakeholders. Each participant was prompted to answer the questions to gain participation from all individuals in the focus group. However, as normal with focus groups, the amount of information that came from each person varied (Creswell, 1998). The discussions were held in a private conference room area at a local group home agency, thus it was familiar to the stakeholders. The focus groups were audio-taped.

Transcription and management of data

Following the discussions, the first and second author transcribed the recordings verbatim. All identifying information was removed and replaced with participants' first name initial. The transcripts were checked with the note-taker's records to ensure the participants' identity on the recording.

Data analysis

Each of the three coders read the transcripts numerous times creating notes (van Manen, 1997). After reading the transcripts multiple times, the research team began highlighting phrases and coding them with meaningful labels (i.e., nature of physical activity, physical activity barriers, etc). We generated codes inductively from the data, which involved going through the data minutely (i.e., line by line), providing many categories to the responses (Berg, 2004). For developing codes, we used individual themes as the unit of analysis, rather than the physical dialectal units (e.g., word, sentence, or paragraph). This involved assigning codes to sentences or larger portions of text that represent the individual's thought. Notes were taken throughout the process as memos for theme development.

After independently coding the transcripts, the team reviewed the transcripts minutely comparing labels/ codes to determine if they should belong to an existing label or be included as a separate code entirely (Wolcott, 2002). Any discrepancies in codes were reviewed until an agreement was made.

Trustworthiness

To gain multiple perspectives of the group home setting, three separate focus groups were held to obtain site triangulation. By having the three stakeholder groups participate, we were able to see multiple perspectives of the group home environment and how physical activity was perceived by the different groups.

The plausibility of the findings was enhanced through investigator triangulation (Berg, 2004). The first three authors comprised the research team that coded the transcripts. Each person in the team had either an advanced degree in adapted physical activity, familiarity with the group home setting, and/or worked with adults with intellectual disabilities to promote physical activity.

Following the final draft of the themes, a critical friend was used to examine the developed themes. The critical friend was not part of the study team, had a master's degree in adapted physical activity, and worked as a support staff in a group home agency

unaffiliated with the group homes involved in this study. The critical friend reviewed the transcripts in its entirety to verify and check the coding of the research team. Upon review of the themes developed, the critical friend further explained that the experiences expressed by the residents, staff, and program coordinators appropriately reflected her experience within the group home setting. Additionally, verifying the coding was accurate.

A member check was also conducted to increase the trustworthiness of the analysis. The research team met with the study participants, following data analysis, and presented the meta-themes and codes for their given group (i.e., program coordinators, support staff, and residents). The participants had an opportunity to demonstrate whether their thoughts and opinions were represented with the coded themes. Each of the groups of stakeholders indicated that their experiences were described in the themes.

Results

Analysis of the focus group data indicated six meta-themes that were consistent between each sub-group including: (i) Nature of residents' physical activity, (ii) Facilitators to physical activity, (iii) Barriers to physical activity, (iv) Personal factors, (v) Operational factors, and (vi) Solutions to increase physical activity. Table 2 displays meta-themes and codes of focus group analyses.

Nature of Residents' physical activity

Nature of residents' physical activity meta-theme captured the type and amount of physical activity performed and opportunities available for residents. Walking is one of the primary forms of physical activity for this population (Temple, Frey, & Stanish, 2006). Residents in the current study also reported walking as popular form of physical activity. Other types of physical activity mentioned were Special Olympics, biking, playing Wii Nintendo, dancing, using a row machine, stretching, hiking, swimming, trampolining, participating in a recreational program provided at the local university, and participating in an adapted exercise class. The frequency of these activities varied from being part of a scheduled weekly routine to only occurring periodically. For instance, residents mostly participated in Special Olympics events when they were in season. One program coordinator described, "*Special O (Olympics) you've got it for chunks of time and then there's this hiatus. What happens to clients who can't do Special Olympics for that chunk of time they don't have any physical activity besides for walking and things like that for months.*"

Some of the residents' reported being active through their occupations. As one resident stated, "*I work to clean bathrooms, five of them.*" However, being active at work was not consistent across all of the residents. Some of the jobs the residents had were not active and did not contribute to their physical activity, with one resident describing that at his job "*I hang around at the TV room watching TV.*" A program coordinator talked about a few residents who had active occupation and stated that "*everyone else has just*

office work and is sitting down.” Moreover, relying on employment to obtain physical activity would be inappropriate for this population, since adults living in the group home setting may not be participating in working activities and more day activity programs (Frey, 2004).

Stakeholders discussed the lack of community options and physical activity support for residents beyond Special Olympics, an adapted fitness class, and a university program. One staff described, *“Special O(Olympics) is a big one, but outside of that there's not a whole lot tailored to this community with a level of support that some of our clients need...”* Although improvements in providing opportunities have likely increased, the lack of accessible and available community options for physical activity is not a new area of concern for this population (Messent, C.B. Cooke, Long, J P, 1999; Stanish, Temple, & Frey, 2006).

Barriers to Physical activity

Barriers to physical activity meta-theme is defined as factors that hinder, limit, or restrict physical activity participation for residents in the group home setting. The most described barrier to physical activity, from the staff and program coordinators, was the residents’ lack of motivation. These groups believed that residents would rather be inactive. As one program coordinator described, *“if you give them an option of yes or no (to be active) they're generally going to choose to be stagnant.”* A staff participant further stated, *“I think that the hardest part is to get them interested in it, in physical activity. Cause you could provide a soccer ball, but if they don't want to do the running or something you can't make them do it.”* In a similar qualitative inquiry, residents’ lack of motivation was described by staff; however these attitudes did not emerge as a theme for persons with intellectual disabilities who had favorable attitudes towards activity (Temple & Walkley, 2007). This is consistent with our study findings as residents described enjoyment of activity, for example when asked about going canoeing one resident explained, *“Yeah, it was fun.”*

In addition to the residents' motivation, the staff and coordinators stated that having lower intellectual functioning, physical disabilities, and being older were limiting factors. They discussed that behavioral issues, limited attention span, sensitivity to sounds, inability to describe pain, lack of independence, and their inability to express interest in physical activity all limit activity. For example, one program coordinator stated, *"There's a lot of noise, a lot of people lots of distractions. My client may not be able to function well in places like that."* One staff had difficulty thinking of activities that a resident in a wheelchair could pursue. *"One client she just doesn't like doing physical activity. Being in a wheelchair, it's hard to think of things for her to do..."* Residents also felt that their physical limitations were too difficult to overcome in order to be active. When asked *"what don't you like about physical activity?"* one resident stated, *"It hurts my legs."* Residents' age was a barrier described by staff and program coordinators, with older residents being more sedentary and generally having difficulty doing activity. One program coordinator explained, *"for the older residents its harder for them to do those kinds of things now."* The lack of confidence to assist older residents or persons with physical limitations was a barrier in a previous study looking at enabling and restricting factors for physical activity promotion in this population (Temple & Walkley, 2007).

One unfortunate barrier to physical activity for residents was negative physical activity support. The program coordinators and staff described negative influences within the group home setting and from family members. The program coordinators described that, *"The staff are integral for any part of their life especially health and wellness because if the staff aren't healthy aren't physically active they're not going to encourage the client to do that."* This is emphasized by Frey et al. (2005) work, which found that negative influences and lack of guidance from support systems were apparently unique to this group (Frey, Buchanan, & Sandt, 2005).

Barriers, specific to the group home setting, include busyness of the group home schedule, limited staff, and staff/ residents' resistance to change established routines. When discussing when physical activity could be done with the residents, one program

coordinator clearly stated that “*all the time is occupied.*” A staff stated that “*the schedules for our clients are pretty full.*” Staff and program coordinators indicated that limited staff to help residents pursue activity is a significant barrier. One staff states, “*...riding bikes is good, walking around the block is good, but you know we are fairly limited in our resources sometimes.*” Another staff said, “*we can't leave three clients alone to go on walks with one person.*” Staff or residents’ caregivers are often resistant to change their established routines to include more physical activity. As one staff describes, “*She's (resident's mother) not welcome to any sort of change, so she doesn't even like to staff when they first come in. It takes her awhile to warm up...*”

Similar to barriers reported by the general population (Salmon, Owen, Crawford, Bauman, & Sallis, 2003; Tucker & Gilliland, 2007), staff and program coordinators described cost and weather as challenges to being active. Due to the cost of certain activities, residents will walk (i.e., walk in the neighborhood, around grocery stores, or hike) for physical activity. One staff explains, “*One of my clients loves swimming but she can't afford to go swimming all the time, so she goes maybe once every two or three months.*” Having low cost activity options is an important enabling and reinforcing factor, as indicated by active adults with intellectual disabilities in Temple (2009) study findings. Weather, especially rain, limited the amount of activity the residents performed. One program coordinator simply stated, “*a lot of our guys are weather dependent.*”

Facilitators to Physical Activity

The *facilitators to physical activity* meta-theme is defined as factors that support, encourage, or enable physical activity for residents living in group homes. Residents discussed how they enjoyed physical activity because it was fun. They liked to receive medals, win, travel, practice their sport, and be healthy. One resident said he rode his bicycle because it helped him “*stay fit.*” In addition, the staff and program coordinators mentioned that residents pursued activity for social engagement, because they enjoyed being around others. Shapiro (2003) also found that Special Olympians were motivated to participate because of similar reasons (i.e., win ribbons and medals, play with other people, get exercise, do something they’re good at, and have fun) (Shapiro, 2003). In a

previous study including active adults with intellectual disability, the main factor that influenced future activity were the friendships and social connections, which aligns with the current study findings (Temple, 2009).

Moreover, choosing activities to participate is also a motivating factor. One staff said, *“we'll give him the list and he'll point to which ones, or sometimes we'll just give him those three options.”* Self-determination has the potential to improve the health and wellness of adults with intellectual disabilities (Heller, Fisher, Marks, & Hsieh, 2014). For this population, studies have shown that active participation in their own health results in overall improved health outcomes (Lennox et al., 2004).

All stakeholders discussed the importance of having role models or positive encouragement from supports. One staff said, *“they see us get excited about it (physical activity) and then they get excited about it.”* Another staff said, *“..staff make or break it. ... if you have someone (resident) who isn't motivated to go out, but you're like 'I'd really like to go on a walk with you', that can really change things around.”* Consistent with other studies, Temple (2009) study demonstrated that active adults with intellectual disability depend on social and environmental supports to “show them how” to be active and give them confidence (Temple, 2009). Another qualitative study illustrated that persons with Down syndrome viewed social support as a facilitator when others supported their decision to be physically active and were enthusiastic about physical activity (Mahy, Shields, Taylor, & Dodd, 2010).

According to Peterson et al. (2008) and Robertson et al. (2001), family, staff, and peers are the main source of support for adults with intellectual disabilities (Peterson et al., 2008; Robertson et al., 2001). This was a consistent finding with the residents in this study, where they explained that they received positive physical activity support from primarily three groups of individuals (i.e., staff, family, and peers). One resident also mentioned being encouraged by his sport coach.

Some of the staff and program coordinators found that physical activity also helps to reduce negative behaviors. As one program coordinator states, *“If he’s (resident) able to get out and move around then that takes care of those big motors things. He needs to get that energy out in order to feel less anxious and happy.”* Moreover, having a house pet was also described as a motivating factor to being active, as the residents shared the responsibility of walking their dog.

Personal factors

Personal factors was labeled as a higher ordered theme and was defined by characteristics of the stakeholders that influence physical activity participation. These factors are psychosocial in nature (Goodson, 2010) and capture the complexity of personal factors that influence physical activity across the stakeholders in the group home setting.

The staff and program coordinators in the focus groups had favorable attitudes towards physical activity. Most of the staff described physical activity or physical activity programming in the following ways, “cool,” “very important,” “love,” “excited about,” “highly in favor of,” “in need of,” and wished it was “promoted more.” One staff said, *“I get excited about it (physical activity), our shifts are long and just like being in the house all day I get excited about it, but I also care that they’re getting out and doing something not just sitting and staring or whatever.”* On the other hand, the program coordinators described that some staff would rather not include physical activity for the residents, because they dislike it and are unwilling to do it.

“....now if they’re (staff) expected to go to the exercise class; you’re going to get oh gee this stupid exercise class. There isn’t any buy in. They (residents) won’t want to be around them.”

Knowledge is a person factor that ultimately influences activity participation. The residents knew sports were physical activity (e.g., running, weight lifting,) however they were unable to identify leisure activities. Three residents knew how physical activity was beneficial. One resident said *“it makes you have a strong heart. Blood circulates around your body...”* The staff and program coordinators knew that physical activity had positive

effects on health. One program coordinator commented, *“A huge component of health and wellness is your physical being and nutrition and physical activity definitely goes into that a lot.”* However, the staff were unable to describe types of activities that certain residents (i.e., those with a physical disability or who were aging) could be doing and did not know how much the residents should be pursuing. As one staff said, *“I know a walk is very important every day, but I don't know much about the human body I'm learning right now... I don't know how much they should be doing”* This lack of knowledge regarding public health recommendations for physical activity was also found in a study who surveyed 63 caregivers supporting adults with intellectual disabilities (Melville et al., 2009).

The staff and program coordinators expectations for residents' physical activity varied. If their program coordinator expected physical activity in their house, then staff encouraged the residents to be active. Program coordinators created this environment by making physical activity apart of their staff training. For instance, *“we (program coordinator) ask that the staff have him engaged in physical activity at some point during each shift.”* If higher management did not expect physical activity, then it was up to the staff to promote it. Program coordinators and staffs' expectations for physical activity were low for specific groups of residents (i.e., those with physical limitations and older adults). In particular, the staff and program coordinators did not expect older residents to do much activity. A program coordinator commented, *“Older residents, its harder for them to do those kinds of things now.”*

Furthermore, activity intentions and efficacy for physical activity influences participation. When a resident was asked if he lifted weights, he said, *“No, but I want to do that.”* Another resident said she intended to pursue activity after she did her shopping. Several staff and program coordinators had positive intentions for residents' activity. Staff stated they would like to see their residents walking more and simply doing more than they are currently doing. Findings revealed that the residents involved in this study had activities that they felt confident in, but other activities that they had little self-efficacy to pursue. One resident described swimming as too hard and he did not want to

learn how to do it because he would “*sink to the bottom of the pool.*” Another resident confidently responded by saying “*I’m a good swimmer.*” In Peterson et al (2008) study both younger and older adults with intellectual disabilities reported self-efficacy to be a significant factor associated with physical activity and a factor to consider in health promotion programs.

Operational Factors

Operational factors were labeled by the coders to describe unique aspects of the group home setting that influence physical activity participation for residents. The daily operations are critical to understanding whether and how physical activity is included within the group home setting. Program coordinators explained a typical day for the residents. Most of the residents had some kind of work in the mornings, an outing in the afternoon (i.e., doctor appointments, shopping, movies), then they come home for dinners and “*just kind of hang out in their own apartments*” for the evening. One program coordinator describes the evenings after dinner as,

“*Everybody kind of shifts gears and relaxes and kind of has a pool table, so everybody is kind of doing their own thing.*”

The overall consensus among staff and program coordinators was that the group home schedules are busy and structured. A coordinator described “*With instructions provided by caregivers and goals on their ISP (individual service plan), their days are chalked full. People are just spinning around - I couldn’t live their lives.*” The program coordinators felt as if they were “*always dropping folks off at different places.*” Because of the busy schedules, if physical activity is not already a priority of the resident, caregiver, or part of their ISP then it is difficult to fit it in. Daily routines are often structured and consistent. “*Everyone is set in their habits*” a coordinator explains. Other coordinators explained, “*lot of the clients work best with structure. So when you deviate from that it doesn’t work with them.*” and “*for each staff they basically do the same thing gives them (residents) calmness and structure.*” Additionally, if physical activity changes the routine they may get resistance not only from residents but also the staff. A coordinator explained, “*There also habits with staff when staff learn to do things one way*

they typically will keep doing it that way. It is harder for them to see the full picture if they're only there a couple of days per week. They're kind of like let's do what we always do."

Organizational priorities were factors that participants explained as important from the agency that influence activity participation. One program coordinator explained, *"it's (physical activity) not coming down from the agency to incorporate the health and wellness it's on us, on our people (staff) to discern. I have to learn about health and wellness for this person who has complex needs, organized their medicine, sort through all of their medical issues, and decide what they need to do."* The lack of clear physical activity policies in these settings has been identified in the literature to be an issue in providing a health-promoting environment for persons with intellectual disabilities (Bodde & Seo, 2009; Messent, R., Cooke, C.B., Long, J. P, 1999; Temple & Walkley, 2007).

The most discussed priorities of the group home agencies were allowing residents to be self-advocates and meeting ISP goals. One program coordinator explains, *"...we're trying to get people to advocate for themselves. And excite their motivation to go and do things rather than cuing them..."* If the resident decides they do not want to participate in physical activity they are not required to. A staff describes, *"We are all about self-advocating, so they are very happy because they know that they can say no to things they don't want to do. Anything from doing chores to medication to physical activity ..."* Moreover, ISP goals need to be assessed and pursued regularly. One program coordinator described, *"you try to get all of the ISP stuff done, you have to get all of their meds given, and you're going all day so the food and nutrition and the physical activity that's on top of their PT or whatever else they have to do that day so it gets put on the back burner Unless you have an extra staff there to help you do it. It's one more thing on a checklist that you have to get done."* Other priorities at a group home agency level included getting the residents involved in the community, providing social opportunities, having relaxation time, and addressing doctor orders.

Other key aspects of the group home setting that influence physical activity for the residents is staff training, insufficient staffing, staff turnover, and job experience. Staff training for physical activity varied across group home houses. Training for new staff was described as overwhelming. As described by one program coordinator, *“We have 1, 2, 3,4,5,6 notebooks when they first come in to start working. So you’re like shadow this person and then read this notebook, and then read this one and go shadow this person and that’s really overwhelming”* There was not a standardized training on physical activity from the agency level. If physical activity was included in staff training, it was house-based. One program coordinator stated, *“I think it’s important to have solid plans and training materials ...That’s on us to develop that and most of us are still young in the field or whatever. And if it’s not coming down from the agency to incorporate health and wellness it’s on us...”*

Staff turnover and overall lack of staffing was an evident concern for the group home setting. Staff and program coordinators described that jobs are often filled by temporary workers. As one program coordinator describes, *“Some of the clients in their 40s/50s have been through multiple or hundreds of staff.”* In general, the staff and program coordinators felt that there was insufficient staffing to pursue residents’ activity interests. One staff explained, *“... ideally if we were all one on one with every client they would be very physically active.”* As a program coordinator put it *“this nonprofit situation is notorious for being under staffed.”* High client to staff ratios is a consistent barrier for promoting activity across the literature for persons living in settings that require 24 hour supervision (Bodde & Seo, 2009; Messent, Cooke, & Long, 1999; Temple & Walkley, 2007). Moreover, Robertson et al. (2000) determined that persons with intellectual disabilities are 1.78 times more likely to be inactive if they have higher care staff ratios (Robertson et al., 2000). These ratios influence whether physically active choices are available and possible as indicated in our discussions and the literature.

The amount of job experience the staff have also determine whether they encouraged physical activity. A program coordinator described this factor, *“newer staff are more focused on the here and now ... Whereas the more experienced staff are more*

comfortable in various situations so they're more able to focus on those things that aren't necessarily part of the training.”

Solutions to increase activity

Solutions to increase activity were characterized by examples and/or suggestions by staff and program coordinators to increase activity in the group home setting. The largest discussed way to increase activity described by the stakeholders was to create a program that would get resident and staff buy-in. Both the residents and the staff need to ‘want’ to increase physical activity in order for it to happen. As one staff stated, *“selling it (physical activity) to them (residents) finding that way to get them personally motivated is really helpful.”* Other program coordinators mentioned, *“getting the staff to buy into it (physical activity program) and agree with it not just okay we have to go to exercise class cause we have to. That's why things haven't been accepted in the past and don't work.”* In a study evaluating community-based health promotion programs for Special Olympic athletes, a similar theme emerged, the importance of obtaining “buy-in” from athletes, coaches, family members, and carers to ensure ongoing support for program implementation is critical for program success (Marks, Sisirak, Heller, & Wagner, 2010).

Stakeholders also explained the importance of making physical activity fun and allowing for self-determined activity. If the residents find the activity fun, then they will continue to be active. Staff mentioned trying to get residents to think they are not performing physical activity. One staff said, *“We don't even know or realize that its physical activity.”* Another staff suggested not talking about “exercise” or “physical activity” because these terminologies are not fun for the residents to hear. *“Getting moving”* or *“activity time”* were suggestions one staff used to get residents to do physical activity. One staff described an incentive program her house uses, *“they have a choice between working out on the Wii for like 45 min or doing the exercise bike for 30 min, or going for walks for 30 minutes; and then they get a punch on their punch card. After 15 punches they get a gift card.”*

Other suggestions for a successful physical activity program were to have activities that could address the diverse needs of the residents in the group home (i.e.,

aging, physical disability, lower functioning). A staff explained, “...for him (resident with Autism) it would be nice if there was something we could do at home. But, there's other ones ... I would highly recommend them getting out of the house.” A program coordinator described, “I think a lot of it is a variety of activities that would fit specific clients’ needs depending on age, physical ability, and they are busy.”

Moreover, having a physical activity program that is simple and well engrained into the group home system would prove successful in increasing activity. One program coordinator explained, “Start small and make it really simple ... If it's hard the staff are going to resist it... If it's small they would probably be more likely to catch on”. Program coordinators said the following, “It (physical activity program) would just have to be really engrained into the system it's kind of like a machine,” and “I want some interactive thing where they (staff) have to refer to it all the time. As opposed to 'Oh here's a training thing...”

Also since staffing is often limited, volunteers could provide additional support to encourage activity. One staff said, “ more volunteers would be phenomenal.” Another staff stated that a “physical activity volunteer group” would be helpful to increase residents’ activity.

Discussion

All three stakeholder groups provided valuable insider knowledge based on their group home perspective that can be used to inform future health promotion programming. Residents provided information about the nature of physical activity (e.g., recreational, occupational, and frequency of physical activity), facilitators (e.g., winning, health, and enjoyment), and barriers to being active (e.g., physical limitations). Staff provided insight about insufficient staffing to provide individualized physical activity for residents, lack of health promotion training at an agency level, lack of community programs/ activity options for complex needs. They emphasized the importance of role modeling, making physical activity fun (e.g., changing terminology to ‘activity time’ to reduce negative connotations, having incentive programs, etc), and including self-determined activity. Program coordinators discussed the overall operations of the group home setting and how physical activity is or in some cases is not part of the system. This group emphasized the struggle of training new staff due to high staff turnover and expressed that including health promotion to an already overwhelming training would be a challenge unless it is simple, engrained into established routines, and something staff would refer to daily/weekly.

Results have implications for future health promotion efforts within the group home setting. Making health and wellness a priority of the group home agency is critical. Group home agencies are typically not including physical activity in training at an agency level. When it is not implemented from a top down approach, it lends program coordinators the ability to choose if physical activity is a priority for staff training. To avoid variability in expectations for activity within the agency, physical activity should be adopted at an organizational level and included in staff training.

Nevertheless, the group home setting is notorious for limited staff and time intensive schedules (Bodde & Seo, 2009; Messent, R., Cooke, C.B., Long, J.P., 1999; Robertson et al., 2000; Temple & Walkley, 2007). A health promotion program will surely fail if these unique aspects are not considered in the design and implementation of

the program. A program should be simple enough to meet the demands of this setting. By providing a clear step by step instruction for use and easy to follow training program, coordinators and staff will more likely buy into it. To accommodate busy schedules, the program should be flexible, with activities for short time intervals 10-15 minutes.

When designing a health promotion program for this setting, it would also be advantageous to facilitate common types of physical activity (e.g., walking, Special Olympics, biking), while also encouraging and exploring new types of activity. Due to the lack of activity outside of Special Olympics, an activity program should also provide specific examples of activity that can be pursued within the home and community. Moreover, program materials should meet the diverse needs of the residents. For instance, providing exercise suggestions for older residents or persons with physical disabilities could be helpful for staff who may not understand that persons who are aging and have more severe limitation can also be physically active.

Beyond the activity examples and suggestions, the program should provide ways to make physical activity fun (e.g., having incentives) and encourage staff involvement. One way to make activity fun for the residents is having staff or volunteers participate in physical activity with the residents. Support and role modeling is key for successful resident participation in activity. Lennox (2002) suggests that staff need to be active role models to demonstrate to the individuals they care for that physical activity is important (Lennox, 2002). Heller et al., 2002 also suggest that if caregivers believe that physical activity will benefit the persons they care for, then the individual is more likely to be active (Heller, Ying, Rimmer, & Marks, 2002). Making activity fun and staff involvement in the program will likely increase residents' motivation to be active.

Limitations

Participation in the study was voluntary, so recruited group homes may have joined the study because they were interested in physical activity or residents pursued activity in their homes. Therefore, it is likely that we did not hear the opinions of

residents, staff, or program coordinators that had negative attitudes towards physical activity. In addition, residents in the focus group had mild to moderate intellectual disability and could actively participate in the discussion. Therefore, we did not hear the opinions and experiences of those with more severe intellectual disabilities. Finally, due to the nature of focus group methodology, there was a small sample size of stakeholders. Thus, the generalizability of the findings should be acknowledged as a limitation. The findings in this study highlight several issues that warrant additional research.

Conclusion

There is a need to increase the health and wellness of adults with intellectual disability. Exploring the social environment is one way to discover valuable information to create effective health promotion programs. Since the group home setting is where a large proportion of adults with intellectual disability reside (Bigby & Clement, 2009) this is an optimal place to intervene. The focus group discussions described in this study have provided the foundation to begin program planning to meet the unique aspects of the group home setting. The findings suggest that residents with intellectual disability need more physical activity and additional support from their caregivers to motivate them to be active. Group home agencies should consider adapting introductory staff training and integrating policy at an organizational level to emphasize the importance of an active lifestyle for the residents.

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Table 1 Focus group participant characteristics

	Residents n=6	Support Staff n=8	Program Coordinators n=6
Age, range	26-65	20-28	20-54
Sex, n			
Male	5	2	2
Female	1	6	4
Years worked in group home, mean (range)	N/A	4.16 (0.75-8)	6.75 (1-20)

Table 2: Focus group results from group home stakeholders

META THEMES	CODES	FREQUENCY OF CODES*	EXAMPLE OF QUOTE
Nature of Residents' PA	Types of PA	22 staff 13 PC 35 Residents	“He has his rowing machine, and he likes to either walk around the block or go to the park or go see trains”-Staff “So our program is always moving and with swimming, walking, working, and grocery outings, adaptive fitness class on Friday.”-PC <i>“I play Special Olympics basketball”-Resident</i>
	Active Occupation	3 PC 5 Residents	“He has lots of PA at work he works out at the gardens were he does heavy manual labor out there.”-PC <i>“I work to clean bathrooms, five of them”-resident</i>
	Sedentary Occupation	4 PC 1 resident	“They don't do a lot of physical activity at work and it's not very mentally stimulating for them it's not very challenging” -PC
	Community Options	13 staff 9 PC	“Special Olympics is a big one but outside of that there's not a whole lot tailored to this community”-Staff “We do have clients that have exercise classes”-PC
	Frequency of PA	4 Residents	“How often do you play volleyball?” <i>“I played it last year.”-Resident</i>
	Sedentary Behavior	6PC	“She's sedentary all the time.”-PC
	Resident Motivation	20 staff 10PC	“One client she just doesn't like doing PA” -Staff “if you give them an option of yes or no they're generally going to choose to be stagnant”-PC

Resident Level of Intellectual Functioning	12 staff 11PC	<p>“He has a really hard time with social interactions, he has intense autism which prevents him from engaging” –Staff</p> <p>“There’s a lot of noise, a lot of people lots of distractions. My client may not be able to function well in places like that”-PC</p>
Busy Schedules	13staff 4 PC	<p>“the schedules for our clients are pretty full you know it's nonstop all day” –Staff</p> <p>“You know there's already a lot of. Special o is on week day evenings and but there's already a lot of other stuff going on in the evening for people to get to.”-PC</p>
Limited Staff	12staff 2 PC	<p>“if there's one staff on the' can't leave three clients alone to go on walks with one person”-staff</p> <p>“lack of staffing to be able to do anything sometimes you’re down to one and you're it”-PC</p>
Negative Support	11 staff 3 PC	<p>“Staff being like 'I don't want to take them our here, I don't want to do this” –Staff</p> <p>“if the staff aren't healthy the staff aren't physically active they're not going to encourage the client to do that”-PC</p>
Resident Physical Limitations	7 Staff 2 Resident	<p>“I have a client in a wheelchair who has severe osteoporosis and is missing his right leg from the knee down. It's fairly hard for him to get healthy amount of PA” –Staff</p> <p><i>“It hurts my legs”-Resident</i></p>
Resident Age	5 Staff 3PC	<p>“...one of them is approaching 60 and one is 60 and so I feel like they are getting to the point in their lives where they just want to stay home” – Staff</p> <p>“the older residents its harder for them to do those kinds of things now”-PC</p>
Cost	3Staff 3PC	<p>“...hiking is a big thing cause it's inexpensive and our clients don't have a lot of money” –Staff</p> <p>“A lot of the stuff that we would do would cost money to actually get a good work”-PC</p>
Weather	2 staff 3PC	<p>“We do lots of activities in house, of course cause of the rain” –Staff</p> <p>“Our guy walks just about everywhere unless it’s bad weather”-PC</p>
Staff & Residents’ Resistance to Change	3 Staff	<p>“She's not welcome to any sort of change, she doesn't even like to staff when they first come in” -Staff</p>

Facilitators to PA	Role modeling/positive encouragement	17 Staff 4 PC 11 residents	<p>“they see us get excited about it and then they get excited about it” –Staff</p> <p>“He wants us to watch it and his IMPACT person to watch it. (IMPACT volunteer) is wonderful and actually gets involved with it too.”-PC</p> <p>“Who encourages you to be active?” <i>“Yeah, this guy over here! (Points to staff) He tells me to do all my laps around the block.”-resident</i></p>
	Social Engagement	4 Staff 4 PC	<p>“...likes to attend a step aerobics class that he can't participate much in but likes to go for the social engagement...” –Staff</p> <p>“Having others around like social engagement would be a big motivator...”-PC</p>
	Self-Determined PA	8 Staff	<p>“we'll give him the list and he'll point to which ones, or sometimes we'll just give him those three options” -Staff</p>
	Reducing Negative Behaviors	1 Staff 3 PC	<p>“I've noticed that getting them out and doing things allows them to put that energy somewhere else” –Staff</p> <p>“If he's able to get out and move around then that takes care those big motors things that need to get that energy out in order to feel less anxious and happy”-PC</p>
	Winning	3 Resident	“It's fun, win medals”-Resident
	Enjoyment	3 Residents	<p>“You've gone canoeing?” <i>“Yeah, it was fun”-Resident</i></p>
	Having a house pet	2 Staff	“...it's my dog, no it's my dog. It's like well we can all just go on walk” -Staff
	Health	1 Resident	<p>“Why do you like biking?” <i>“To stay fit” -Resident</i></p>
	Practice Sport	1 Resident	<p>“Why do you like biking?” <i>“It's good for practicing”-Resident</i></p>
	Daily Operations	13 PC	“it's like a machine. You have to keep everything running and moving throughout the day”-PC
Organizational Factors	Busy Schedules	9 PC	“they have ISP, we have parents, and their days is chalk fool. People are just spinning around”-PC
	Routine Schedules	11 PC	“Consistency is key and the perpetuation of schedules”-PC
	Organizational Priorities	18 Staff 17 PC	<p>“I feel like it takes a doctor saying to be healthy..... then it becomes part of our contract like we have to implement it as part of our job” – Staff</p> <p>“you try to get all of the ISP stuff done, you have to get all of their meds given, and you're going all day so the food and nutrition and the PA that's on</p>

			top of their PT or whatever else they have to do that day so it gets put on the back burner"-PC
	Self-advocating	17 PC	"...we're trying to get people to advocate for themselves. And excite their motivation to go and do things rather than cuing them..."
	Staff Training	8 Staff 13 PC	"we explain it to them as a part of our training process because being active is so prevalent in our house it's a crucial part of our training" -Staff "We have 1, 2, 3,4,5,6 notebooks when they first come in to start working. So you're like shadow this person and then read this notebook, and then read this one and go shadow this person and that's really overwhelming"-PC
	Staff turnover	8staff 11PC	"It's pretty hard for the clients to make any connections with staff because most people only stay there like three months" -Staff "Some of the clients in their 40s/50s have been through multiple or hundreds of staff."-PC
	Limited Staff	8 Staff 5PC	"we have primarily have one on one staffing" - Staff "We try to have about one staff for two clients and one staff for the other."-PC
	Job Experience	11 PC	"newer staff are more focused on the here and now ... Whereas the more experienced staff are more comfortable in various situations so they're more able to focus on those things that aren't necessarily part of the training."-PC
Personal Factors	Attitudes	22 Staff 25 PC	"I would say that all the staff in my program are all highly in favor of PA" -Staff "I'm like let's go for a hike, but then there are staffs that are not like that."-PC
	Knowledge	9 Staff 12 PC 35 Resident	"I know a walk is very important every day, but I don't know much about the human body" -Staff "it makes you have a strong heart. Blood circulates around your body..."- Resident
	Expectations	7 Staff 6 PC	"yeah but that's what he's capable of doing mentally and physically so it's all individually dependent" -Staff
	Intention	3 Staff 3 PC 2 Resident	"it would be cool if he would go on a walk everyday" -Staff "Do you lift weights?" "No, but I want to do that."-Resident
	Self-Efficacy	6 residents	"I sink to the bottom of the pool" "If you learned how to, would you do it?" "No" -Resident

Solutions to Increase PA	Resident & Staff buy in	2 Staff 9 PC	“selling it to them finding that way to get them personally motivated is really helpful” –Staff “it’s us being excited about it, getting the staff to buy into it and agree with it ...that's why things haven’t been accepted in the past and don’t work.”-PC
	Make it fun	6 Staff	“we bought him a trampoline like one of those mini ones as a form of PA that was cloaked in fun” -Staff
	Address diverse needs	3 Staff 3 PC	“for him it would be nice for if there was something we could do at home , but there’s other ones...for them I would highly recommend them getting out of the house-Staff “...to create a program make sure you can format to individual needs otherwise if you keep it in the same format it doesn't really speak to my clients.”-PC
	Self-determination	6 Staff	“we explain okay these are the activity menu and residents can pick whichever one they want” - Staff
	Simplicity	4 PC	“make it so that anyone who reads it is going to be able to understand what’s going on. I think you should put priority on starting small”
	Engrained into the system	3 PC	“It would just have to be really engrained into the system it's kind of like a machine.”-PC
	Incentive Program	3 Staff	“We have workouts, it's like an incentive program were if they get so many punches on their punch card, they'll get like a five dollar gift card” -Staff
	PA Volunteers	2 staff	“More volunteers would be phenomenal” -Staff

Notes:

*Frequency indicates the amount of times the code was mentioned in the transcripts, not the number of participants.

Chapter 3: Manuscript 2

Physical Activity Health Promotion Program for the Group Home Setting: Results from a preliminary process evaluation

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Abstract

To conduct a process evaluation of a physical activity health promotion program, five group home sites for adults with intellectual and developmental disabilities participated in a pilot intervention. A quasi-experimental pretest-posttest design with follow-up was conducted. Fourteen program coordinators (age M 39; 77% females), 22 staff (age M 39; 82% females), and 18 residents (age M 59; 72% females; 56% ambulatory) participated. The physical activity program was designed based on theoretical frameworks, community-based participatory approaches, and established health promotion guidelines for adults with disabilities. Results from the fidelity survey and program completion highlight challenges with implementation. Findings will assist with the refinement of the program for continued implementation trials in the group home community.

Physical activity health promotion program for the group home setting: Results from a preliminary process evaluation

Growing evidence indicates that persons with intellectual disabilities consistently demonstrate poorer health than the general population (Krahn, Hammond, & Turner, 2006). For example, data demonstrates that cardiovascular disease is prevalent and a common cause of death among this population (Draheim, 2006; Haveman et al., 2010; Henderson et al., 2008). Moreover, literature related to overweight and obesity is prominent and described as a risk factor for poor health since chronic conditions (e.g., diabetes and heart disease) are undiagnosed in this population (Haveman et al., 2010b; Henderson et al., 2008; Rimmer & Yamaki, 2006). Obesity is a particular health inequity that has drawn national attention across disability populations, including those with intellectual disability (CDC, 2011). Obesity is steadily increasing in this population, as prevalence rates are at least 1.5 times higher for those with intellectual disabilities compared to the general population (Rimmer & Yamaki, 2006). Adults with intellectual disability living in the United States within smaller settings (e.g., group homes and family homes) have a significantly higher rate of obesity compared to other countries and those living in larger more supervised setting (e.g., institutions) (Rimmer & Yamaki, 2006). In order reduce obesity and other secondary conditions, changing negative lifestyle factors and enabling living environments for persons with intellectual disabilities is needed.

One lifestyle factor influencing health is physical activity. An emphasis on addressing secondary conditions through physical activity promotion is the focal point of multiple national initiatives including: CDC's report on obesity for those with disabilities (CDC, 2011a), Healthy People 2020, and two Surgeon General's Reports to improve the health of persons with disabilities (U.S. Department of Health and Human Services 2002; 2005). Despite public health efforts and the documented benefits of being active (e.g. controlling body weight, improving functional and mental health status, and reducing cardiovascular disease) (CDC, 2011b), only 30% of adults with intellectual disability are meeting recommended guidelines (Stanish et al., 2006). Additional findings suggest that

many individuals with intellectual disabilities are also demonstrating preferences for sedentary behaviors (Dixon-Ibarra, Lee, & Dugala, 2013; Frey et al., 2005). With the clear lack of physical activity, health promotion efforts are needed to target social and environmental barriers limiting activity.

A critical component to changing health behavior is to target the environment in which people live, and the group home setting is a pre-dominant form of residential accommodation for persons with intellectual disabilities (Bigby & Clement, 2009). Caregivers play an important role in the behaviors of those with intellectual disability, especially in the group home setting, where residents often depend on group home providers to include physical activity into their structured daily routines (Krahn, Hammond, & Turner, 2006). The lack of physical activity has been shown to be a result of insufficient guidance and support from caregivers within residential facilities (Bodde & Seo, 2009; Dixon-Ibarra, Dugala, Vanderbom, & Driver, 2014a; Messent, Cooke, Long, 1999; Temple & Walkley, 2007).

In order for physical activity to be an integral part of the daily lives of persons with intellectual disabilities' living in residential facilities, caregivers need to be supportive of this lifestyle. The lack of social support for physical activity is a common mentioned barrier of activity for persons with intellectual disabilities (Bodde & Seo, 2009). Specifically, caregivers are negatively influencing behaviors by discouraging and prohibiting activities due to fear of injury or health issues (Bodde & Seo, 2009; Dixon-Ibarra et al., 2014a; Frey et al., 2005). An optimal way to increase health promoting behaviors is to focus on environmental change within these settings by addressing negative influences, integrating policies for health promotion training, and incorporating healthy choices within the routine schedule of activities (Bodde & Seo, 2009; Lennox, 2002; Messent et al., 1999; Temple & Walkley, 2007). Health promotion programs that effectively enable the group home environment and empower persons with intellectual disabilities to engage in physical activity will likely prove successful at changing the health status of this population (Rimmer & Rowland, 2008).

However, health promotion programs designed specifically for the group home setting to enable physical activity do not exist. To fill the identified need, the research team created a physical activity program called *Menu-Choice*, which addresses the unique aspects of the group home setting (Dixon-Ibarra et al., 2014a). The current study is a process evaluation of the created program to examine preliminary program outcomes and the feasibility of implementing the program. Process evaluation offers insight into whether the program is successful within the community and allows for program planners to make post implementation modifications prior to larger effectiveness studies (Valente, 2002). Therefore, the purpose of this study was to conduct a process evaluation to describe the preliminary outcomes and feasibility of using the *Menu-Choice Physical Activity Program*. Results will be used to refine the program and improve effectiveness.

Methods

Program development

We used specific guidelines for community-based health promotion programs to design and implement a physical activity health promotion program for this setting (Drum et al., 2009). The guidelines are as followed:

- ***Operational guidelines***: Theoretical underpinnings, process evaluation, disability appropriate outcome measures
- ***Participation guidelines***: stakeholder involvement in development and implementation, consideration of values of targeted group and support for personal choice
- ***Accessibility guidelines***: Social, behavioral, programmatically, and environmentally accessible

Community-based participatory approach. The participation of persons with disabilities and their caregivers in the design and implementation of community-based health promotion programs is identified in the guidelines above (Drum et al., 2009). Additionally, the *Surgeon General's Call to Action Improving the Health and Wellness of Persons with Disabilities* (2005) expresses the need for persons with disabilities to be involved in the whole research process, with community-based participatory research as a successful strategy to accomplish this task. The Menu-Choice program is rooted in principles of community participation from persons with disabilities and their caregivers through initial needs assessment, program design, program implementation, and program evaluation.

Consistent with these guidelines, the first step in identifying a need for the program was to confer with stakeholders in the group home setting. We constructed an 'advisory group' from two group home agencies. The advisory group roles were to participate in a needs assessment of the problem (i.e., lack of physical activity for adults living in the group home setting), provide insider knowledge about barriers and

facilitators of physical activity in the group home setting, and provide critical feedback for program design. These individuals expressed the importance of increasing physical activity for the residents in their homes and provided the following feedback for designing a program for this setting (Dixon-Ibarra et al., 2014a):

1. Obtain Resident & Staff buy in
2. Address diverse needs
3. Include self-determination for activity
4. Make physical activity fun
5. Create a simple program that can be engrained into the group home system

Theoretical framework for program design. After utilizing stakeholder feedback from our ‘Advisory Group,’ we designed materials based on the goal setting theory. Ultimately, creating the program with an underlying theoretical framework will likely produce favorable behavior changes (Glanz, Rimer, & Viswanath, 2008). We chose the goal setting theory to address ‘advisory group’ feedback, to engrain the program into the system. From our ‘Advisory group,’ we determined that the group home system functions through check lists of tasks (e.g., training needs, daily operational tasks, etc.) to complete daily and weekly activities. . Likewise, staff are familiar with documenting goals and helping residents achieve these goals through Individual Service Plans, which were an identified priority within the group home setting (Dixon-Ibarra et al., 2014a).

Setting goals is a strategy for organizing physical activity information and skills into practical and manageable steps (Shilts, Horowitz, & Townsend, 2004). Since residents are currently insufficiently active, with large portions actually pursuing sedentary activity, setting small manageable goals is important for success. Small increases in activity could provide substantial health benefits for this population. According to Powell and colleagues (2011), for sedentary and low active populations, reductions in mortality risk begin to accumulate with the first increase in physical activity beyond baseline. It is suggested that it is an inaccurate assumption that a threshold of physical activity is needed to receive benefits. In fact, the rate of risk reduction is the

highest for the lowest activity levels, especially moving from sedentary to light physical activity (Powell, Paluch, & Blair, 2011). Thus, setting goals from baseline activity to small manageable increase in activity will likely be successful for this population verse encouraging residents to meet physical activity recommendations of accumulating 150 min of moderate physical activity or 75 min of vigorous physical activity across the week (CDC, 2011c).

Moreover, if other people set goals without input from the participant than they are less likely to be motivated to work hard to achieve them (Locke & Latham, 1990). Thus, a key component of Menu-Choice is to encourage the staff to include the residents in the goal setting process. We provided various opportunities within the program to include residents in the goal setting process. For example, there are resident choice activities, a pictorial goal calendar for residents to track their own goals, and staff tips for including residents in the goal setting process. As identified by our ‘Advisory group’ and the literature (Bodde & Seo, 2009; Dixon-Ibarra et al., 2014a; Mahy, Shields, Taylor, & Dodd, 2010), residents model their behaviors from the staff in their homes. Therefore, the importance of staff involvement in encouraging and pursuing physical activity with the residents to reach goals is highlighted in the training and program materials.

Theoretical framework for program implementation. The implementation of the Menu-Choice program is centered on Diffusion Theory (Goodson, 2010). Diffusion theory provides a framework for understanding how innovations (e.g., programs, policy, etc.) are diffused within a community. According to Diffusion theory there are different phases in which the adoption of an innovation occurs (Goodson, 2010). Group home agency managers and program coordinators are the ‘early adopters’. “Early adopters” tend to be the first to comprehend the advantages of the program and were willing to try it out. The group home managers are strong opinion leaders within the social system. Therefore, these change agents are used to ‘ignite’ the diffusion of the program throughout the group home system (Goodson, 2010). Allowing the program coordinators to train staff on Menu-Choice is a method used to make the program seem acceptable and

normative to the staff and residents. Many of the key characteristics of an innovation described within the Diffusion Theory (Goodson, 2010) were also identified by our 'Advisory Group' and included in the design of the program and/or training of managers and program coordinators. Below are the key characteristics and how these concepts were utilized in the Menu-Choice program:

- *Relative advantage* was described during training to express that the program advantages outweigh the negative outcomes of physical inactivity for the residents
- *Compatibility* was an integral part of program design to make the program consistent with the practices and culture of the group homes system (e.g., using goals and check lists)
- *Communicability* was included in the design and implementation as we provided an easy step by step explanation of the program for staff to follow.
- *Simplicity* was a focus in the design to make it easy to follow and implement. A one page step by step guide was created for ease.
- *Trailability* was the main purpose of the feasibility study where the group home had the opportunity to try the program prior to adopting it in their agency.
- *Time* to implement the program was addressed by creating a program that would take minimal time to organize and implement.

Menu-Choice Physical Activity Program. Menu-Choice assists staff in including physical activity goals within the group home schedule. The staff and residents work together to develop weekly goals for residents' activity. The program includes a resource binder, weekly scheduling sheets, pictorial goal calendar and post it activity pictures for the residents. The resource binder includes resources for staff to learn about physical activity, activity examples, information about goal setting, and guidelines for specific disabilities within the group home setting. The pictorial goal calendars allow residents to post pictures of their activity across the week and check off when they complete their goals. Menu-Choice's 12 major components are listed in table 1. In order to minimally run the program, the follow are the basic program contents: 1) step by step guide, 2) Residents' Special Activity Needs Sheets, 3) Menu-Choice activity modules, 4) Weekly

Activity Schedule, 5) Resident's Pictorial Goal Calendar. See Appendix C to view the Menu-Choice Physical Activity Program contents.

Program feedback prior to implementation. After drafting the program materials, Menu-Choice was presented to the 'Advisory Group' for their final feedback prior to implementing with the group home setting. The residents in the 'advisory group' used the drafted materials with ease, staff, and program coordinators all agreed that the program was appropriate based on their initial feedback provided in focus group discussions.

Program implementation

The agency managers and program coordinators attended a three hour Menu-Choice training session at their agency meeting room. The training described how to use the Menu-Choice components and study testing procedures. Content was delivered through powerpoint descriptions of the materials, group discussions, and case studies to practice using the materials. Concluding the training, program coordinators completed a training evaluation and took Menu-Choice materials to implement the program within their group home sites.

Subsequently, program coordinators trained support staff within their houses on Menu-Choice over a two-week period. The research team came to the group home sites prior to implementation to obtain baseline assessments from staff and residents. Following baseline assessment, the group homes were instructed to use the program materials for 10 weeks. During the implementation period, the first author contacted the group home sites weekly to check program progress. Consultation hours were also provided throughout the week so staff could ask questions about the program. After the 10 week implementation period, the research team conducted post assessment on program. The first author contacted the group home sites one month after the post assessment to evaluate continued program use. The pilot intervention lasted a total of 16 weeks. The university review board approved all study activities. See figure 1 for implementation and evaluation timeline.

Evaluation Outcomes

Menu-Choice training. To evaluate the effectiveness of the training, we assessed how well the training assisted program coordinators understanding of the materials. We asked the managers and program coordinators if they knew enough to train staff in their group home sites. Moreover, we asked if the lectures, activities, and discussion met their learning needs. To determine the program coordinators expectation for use, we asked the attendees what materials they expected to be used “regularly,” “occasionally,” or “never.” Training attendees could also provide qualitative feedback on what they learned the most, what they wanted to learn more about, and how the training could be improved (See Appendix D Menu-Choice Training Evaluation).

Use of Menu-Choice. We measured the fidelity of program use or the extent that our program was delivered in the group homes. Staff completed a fidelity survey at post and follow up assessments asking how frequently they used the 12 components of Menu-Choice. The responses consisted of did not use the component, sporadically used the component, or consistently used the component (See Appendix E Staff Assessment Packet). Humphries et al (2008) successfully measured the fidelity of a nutrition program for the group home setting using similar response outcomes.

Other information of program use came from the evaluation of program materials at post assessment. Program materials were reviewed for completion and usage. First, each resident needed to complete a PAR-Q to determine physical activity readiness. We assessed if these documents were completed and how long it took to obtain approval. The special activity needs sheet (SAN) was a one page communication aid with the goal of a safe and pleasant physical activity experience for the residents. We assessed if these sheets were not completed, partially completed (i.e., basic information, no pictures, skipped questions), or thoroughly completed (i.e., detailed responses, no skipped questions, pictures included). The baseline activity sheets determine baseline activity prior to making appropriate activity goals. These sheets were assessed for completion (i.e., not complete, partially completed (i.e., missing minutes, activity intensity,

mode/type of activity), or thoroughly completed). The pictorial goal calendar allows residents to play an active role in their activity goals by posting activity pictures across the week and checking off activity as they complete the task. We assessed the location of the pictorial goal calendars and use of post it pictures. The goal evaluation flowchart was designed to keep residents on track with their goals in five week intervals and was assessed with the following criteria: not completed, partially completed (i.e., flow chart not circled but notes included or vice versa), or thoroughly completed (i.e., flowchart complete with notes). The documentation section is a specific space in the back of the resource binder to include completed documentation (i.e. par-q, activity sheets, san sheets, etc.). We assessed whether paperwork was included or not included in the documentation section of the binder.

Health outcomes: Physical activity. Physical activity was assessed through the weekly goal scheduling sheets (See Appendix F Menu-Choice Weekly Goal Sheet). Although a proxy for physical activity, we were able to determine how much activity was planned for the residents across the 10 week intervention. Moreover, the activity sheets provided key information about the types of activities the residents were pursuing and changes in the amount of planned activity (i.e., minutes per week and days per week).

We also used the Omron HJ 720ITC pedometer to assess walking behavior. Data indicate that pedometers are an accurate and reliable measure for assessing walking activity in adults with intellectual disability (Stanish, 2004; Stanish et al., 2006; Temple & Stanish, 2009). According to Temple and Stanish (2009), three days of monitoring time for those with intellectual disability is sufficient to understanding habitual physical activity. For this study, the participants were encouraged to wear the device for one week to ensure three days of valid data from the pedometer. The research team described how to wear the pedometer to both the residents and the staff. Residents were to wear the pedometer when they woke in the morning until they went to bed at night. The pedometer output was blocked with tape to reduce reactivity.

Furthermore, we assessed the physical activity levels of the program coordinators and staff through the *Behavioral Risk Factor Surveillance System* global physical activity questions (CDC, 2012).

Health outcomes: Physical activity knowledge. Residents with mild to moderate IDD (i.e., residents who could verbally communicate with the researcher) were asked about their attitudes and beliefs about physical activity. The *Attitudes and Beliefs about Exercise questionnaire* was selected from the *Health Matters: Exercise and Nutrition Education Curriculum for People with Developmental Disabilities* (Marks, Sisirak, & Heller, 2010) (See Appendix G Resident Assessment Packet). This measure was one of the assessments used to determine the effectiveness of the *Health Matters* health promotion program. The measure was sensitive enough to detect increases in attitude and beliefs in the effectiveness trials of the Health Matters curriculum Heller, Hsieh, & Rimmer, 2004).

Health outcomes: Body mass index. Resident body weight and height was self-reported by staff. The staff's height and weight information was also self-reported to evaluate their body mass index.

Analysis

Descriptive analyses of results were conducted using means and frequencies to display study findings. STATA version 11 was used.

Results

Participants

The current study included five group home sites from a group home agency in the Northwest. Table 2 shows the characteristics of the participating stakeholders including program coordinators, staff, and residents.

Menu-Choice training

Eighty-six percent (n=12) of program coordinators agreed and 14% (n=2) strongly agreed that they knew enough to help staff use Menu-Choice following the training. The lectures, activities, and discussions met the learning needs of 93% (n=13) of the attendees. The program coordinators expected the following components to be used most frequently - Resident's pictorial goal calendar, weekly activity schedules, and activity modules. The program materials that were least expected to be used were the step by step guide and physical activity education section.

From the training evaluation, participants learned the most about the general structure of Menu-Choice, how to implement the program, finding ways to motivate residents, making physical activity fun, and physical activities for different types of disabilities in the group home setting. Participants wanted to learn more about setting realistic goals, increasing activity goals, individualized exercise options for severe disability, and nutrition. Feedback for improvement included more hands on activities and practice using materials, more specialized materials for specific disabilities, enhancing choice variety, and including education for residents. General feedback was positive, where program coordinators stated that the materials were very easy to use and the training was good, interesting, and fun.

Use of Menu-Choice

The fidelity scores of the basic Menu-Choice components are included in Table 3. Although fidelity scores indicate low use of program materials, results stratified by group

home site had approximately 1-2 staff implementing the program at least sporadically across the basic components. Of the 12 Menu-Choice components, the most regularly used materials of the program included activity schedules and staff and resident activity champions. Least used were goal evaluation sheets and the physical activity knowledge section.

At the one month follow up, only group home site A was using program materials. Two staff from site A were ‘sporadically’ using resident choice activities, activity schedules, and pictorial goal calendars. One staff from site A was also ‘sporadically’ using activity modules and program evaluation sheets. The other four group home sites reported they were no longer using the program.

Program material evaluation. Twelve of the eighteen residents had their medical approval (i.e., PAR-Q) by week 2. Sixteen of 18 resident SAN sheets were completed with six partially completed (e.g. basic information, no picture, skipped questions) and 10 thoroughly completed. The baseline activity sheets were one of the of least used program materials with only five residents having them at least partially completed. The four residents from group home A had goal evaluation sheets partially filled out (i.e., flowchart not completed but notes on progress were included), no other group home site completed these sheets. Eight residents had pictorial goal calendars in their rooms, while 10 residents were shown calendars by staff. Group home E had a calendar in the living area for group activities. Residents did not have checked off activity nor goal achievement post its. All of the group home sites, except group home B, had documents included in the specified documentation section in the binder. See Table 4 for program material completion by group home site.

Health outcomes

Physical activity. Each week the program was implemented an activity sheet should have been completed for each resident. An average of four weekly activity sheets were completed per resident (M 4, SD 2.13, range 1-8). Due to medical approval delays

and lack of implementation, the completed activity sheets varied for residents. Fourteen residents' activity was scheduled for the morning and four residents had the majority of their activity scheduled in the evening. Days of scheduled physical activity did not substantial change from pre to post (pre M 2.30 SD 1.36; post M 2.58 SD 1.00). Due to the lack of available information regarding minutes and intensity of activity, we were unable to determine changes in scheduled activity based on recommended activity guidelines.

Aerobic, motor, strength, and flexibility components were examined within the weekly sheets. There was an overall lack of strength activity planned with only three residents having at least one strength activity planned per week. Flexibility, although strongly encouraged for persons who were non-ambulatory with more severe limitations, was only included in two residents activity schedules. Motor activity was included in the program to replace aerobic activity for persons with severe limitations. Examples of motor activities and post it pictures were provided for staff and residents. Based on resident descriptions in SAN sheets, seven residents were described as having severe limitations. Six of these seven residents had at least one type of motor activity included in their weekly goals. Aerobic activity was the most common type of activity included in the activity sheets.

The variety of activities scheduled was minimal. Group home A had "follow me" and ball pushes for motor, punches for aerobic, and arm lifts for strength and flexibility. Group home B only included walking for aerobic. Group home C listed walking and dancing for aerobic, holding a toy and hitting a balloon for motor, and arm/leg lifts for strength. Group home D included walking, biking, dancing, and jumping jacks for aerobic with flexibility and strength activities. Group home E had walking, dancing, and biking for aerobic with no flexibility or strength activities.

Pedometer data was difficult to obtain from the residents during the pilot study. Of the eligible 10 ambulatory residents, six residents had sufficient pedometer data for use at baseline. Sufficient data included an average of eight or more hours of wear time

for three days across the week assessment period (Temple & Stanish, 2009). The mean steps for baseline was 2375 steps (SD 740), with less than 5,000 steps per day being considered a sedentary lifestyle (Tudor-Locke & Bassett Jr, 2004). The residents wore the pedometer for an average of 11 hours (SD .76).

Although strongly encouraged by the research team, only four residents wore the pedometer for post assessment. Of these four residents, only two had valid data with a mean of 2150 steps (SD 1649). Both residents wore the pedometer an average of eight hours across the assessment period. At follow up, staff reported that residents would not wear the pedometers. Due to lack of data, we cannot accurately assess whether pedometer steps changed across the pilot study. The data available indicates that residents likely did not change their physical activity behavior from pre to post pilot study. Table 4 displays physical activity steps by group home site.

From the BRFSS global activity questions, 67% of program coordinators and 53% of staff implementing the program were pursuing less than two days of activity across the week. Only 8% and 32% of program coordinators and staff were doing activity more than five days a week.

Physical activity knowledge. Resident's knowledge about physical activity did not change from baseline to post intervention. Seven residents were able to verbally communicate with the researchers and completed the assessment. Out of a possible score of 12, residents' mean score for physical activity knowledge for baseline assessment was 8.14 SD 1.21. Post assessment results were not substantially different ($M = 8.57$ SD 2.23). Knowledge results by group home site are displayed in Table 4.

Body weight. Resident body weight did not substantially change from baseline, post, to follow up. Baseline body mass index was $M = 25.67$ SD 4.40, post BMI was $M = 25.23$ SD 4.53, and follow up BMI was $M = 23.67$ SD 7.79. Table 4 displays BMI from pre and post assessment across the group home sites. Moreover, seventy-nine percent of the

staff implementing the program were either overweight or obese according to body mass index.

Discussion

The current study demonstrated that the Menu-Choice physical activity program was not implemented sufficiently. As a result, health outcomes remained unchanged at post and follow up time periods. Although the use of theoretical frameworks and community based approach were utilized the prohibitive barriers faced by adults living in the group home setting may have influenced the application of theory (Bodde & Seo, 2009). This study did not evaluate the barriers for implementation; however, the lack of program use and previous literature would allude to contributing organizational and attitudinal barriers (Bodde & Seo, 2009; Dixon-Ibarra et al., 2014a; Frey et al., 2005; Messent et al., 1999; Robertson et al., 2000).

Program coordinators expectation of the use of program materials was fairly different compared to actual use described by staff. The majority of the program coordinators expected that the staff would use the basic Menu-Choice components consistently, except for the step by step guide which was expected to be used sporadically. None of the program coordinators expected that the program materials would never be used. Moreover, the pictorial goal calendar was the most expected to be used across program coordinators, where the weekly activity sheets were used most often by the staff. This difference is critical as the pictorial goal calendar demonstrates expectation of more resident involvement where the weekly schedules are recorded goals by staff. This indicates that the program coordinators either did not demonstrate their expectations for use or staff were unable to implement the program due to barriers. Additional qualitative information is needed to explore supervisor support and barriers for program implementation.

The lack of program implementation is a key finding in this study. The overall intent of the program was to intervene at an environmental level. According to the literature, the lack of policies for physical activity in residential and day programs is a barrier to physical activity (Bodde & Seo, 2009; Dixon-Ibarra et al., 2014a; Messent et al., 1999; Temple, 2007). We did not ask for policy level change; however, we obtained

agency level support prior to implementing the program. Although agency managers were on board with the program, there was minimal adherence to making the program a priority. The transferability of the program to the staff did not indicate that the program was a priority to implement within the other tasks of the group home environment. It is evident that policy level change in the group home setting is needed to promote active lifestyles (Messent et al., 1999; Temple, 2007). In fact, Messent and colleagues (1999) describe that there must be a “mandatory commitment and appropriate resources” available to facilitate service providers in offering physical activity opportunities for adults with intellectual disabilities. Upon program refinement, eliciting policy change could be a next step in implementing Menu-Choice in the group home setting. Specifically, group home agencies should consider including physical activity education in staff induction training, mandate the use of health promotion programs to encourage resident activity, and allocate resources to help staff and residents pursue physical activity.

The lack of responsiveness from weekly progress calls alluded to a lack of program buy-in from program coordinators and staff. One group home site referred all the progress calls to their program coordinator. Program coordinators were extremely difficult to get a hold of and most did not return phone calls. Weekly progress calls were short without questions or comments across the group home sites. Moreover, neither staff nor program coordinators utilized the consultation hours to ask questions. Unfortunately, the lack of health promotion buy in has been documented in the literature for this population and likely the reason for non-responsiveness in the current study (Dixon-Ibarra et al., 2014a; Humphries, Traci, & Seekins, 2008; Marks et al., 2010). More insight is needed as to why these consultation hours were not utilized to validate our assumptions.

It is important to note that staff and program coordinators, which themselves had high BMI and low activity levels, may not have found value in implementing an activity program. Perhaps, personal inactivity provided an additional level of insufficient buy-in

to implement the program. Moreover, role modeling is necessary for successful resident participation in activity. Lennox (2002) suggests that staff need to be active role models to demonstrate to the individuals they care for that physical activity is important (Lennox, 2002). Heller et al., 2002 also suggest that if caregivers believe that physical activity will benefit the persons they care for, then the individual is more likely to be active. This study further demonstrated that staff that had poor health and lacked interest in physical activity were more likely to not provide support and guidance for activity (Heller et al., 2002). Knowing that individuals who work within group home settings have varying attitudes towards health and wellness, this program should be diffused as an environmental change through superior direction. Program refinement will include gaining policy level support to gain staff buy in to implement the program to avoid personal health promoting behaviors.

Furthermore, the program was not implemented as it was intended as resident involvement was not maximized as planned. Site A selected residents that they thought would participate, while others that could use the program were excluded. According to the staff, the residents that were excluded were asking why they could not participate. Beyond excluding residents, the fidelity survey showed that only four staff consistently used the resident pictorial goal calendars and resident choice materials. The placement of the calendars also provides insight into residents' involvement as only half of the residents had their calendars in their room or space. As, the program was intended to be an interaction between staff and residents to create activity goals, residents' lack of involvement could have resulted in a disinterest in the program and ultimately limited activity. Self-determined physical activity was determined in our preliminary community engagement study as an important component for an activity program (Dixon-Ibarra et al., 2014a). Moreover, Heller and associates (2014) describe in their article on *Interventions to promote health: Crossing networks of intellectual and developmental disabilities and aging*, how self-determination within health and wellness interventions is critical to improve health of adults with intellectual disabilities (Heller et al., 2014).

Lennox et al., (2004) also expressed that active participation in their own health results in overall improved health outcomes for this population (Lennox et al., 2004).

Other examples of inappropriate uses of the program included the lack of one on one implementation, residents not using their pictorial goal calendars to mark off activity, not referring to SAN sheets to create activity goals, and overall lack of strength and flexibility included in goals. Menu-choice training will be revised to ensure that program coordinators are periodically checking program use to ensure proper implementation.

One critical barrier to acknowledge in this study was the staff burden to implement the program. Specifically, at each group home site there was 1-2 staff that either knew the participants well enough to implement the program, complete doctor approvals, san sheets, etc. The program materials were designed for a staff to work with 1-2 residents for implementation. From the weekly progress calls, we realized that there was few staff that consistently worked within the group home sites. This is not surprising as our preliminary study and other literature have documented staff turnover and limited staff as a barrier (Bodde & Seo, 2009; Dixon-Ibarra et al., 2014a; Messent, Cooke, Long, 1999; Temple & Walkley, 2007). For this reason, a few sites only had two staff that consented to participate with implementation. Other staff working within the sites were ‘floaters’ and did not know the residents well enough to implement the program. Thus, the program was not implemented when they were on shift. Additionally, staff and program coordinators described in our calls that they were short staff, so the program could not be implemented to its fullest. These barriers were identified in the preliminary study (Dixon-Ibarra et al., 2014a), as a result, staff training for in-coming staff was strongly encouraged during the Menu-Choice training with program coordinators. However, staff implementing the program described that new staff were not trained on the materials, which caused inconsistency in program delivery.

The current study is not without limitations. The generalizability of findings to all group home agencies is limited. The current study only evaluates the implementation of Menu-Choice within one group home agency, so the findings are limited to the current sample.

Moreover, we were unable to determine actual physical activity changes within the pilot study due to missing data. Similar protocols for collecting objective physical activity (e.g., pedometers and accelerometers) have been used successfully for persons with intellectual disabilities (Dixon-Ibarra et al., 2013; Peterson et al., 2008; Stanish et al., 2006; Temple, 2007; Temple, 2009). Therefore, future studies with Menu-Choice will need to emphasize the importance of staff assistance for activity assessments and overall implementation of the program materials.

Conclusion

Despite limitations and lack of program adoption, the pilot study provided critical information for program refinement. The results indicate that the majority of program coordinators and staff implementing the program were overweight and physically inactive, potentially influencing the attitudes of using a physical activity program. Moreover, staff usage of the program was drastically different from the coordinators expected use by staff (i.e., they expected more use). Thus, the transferability of program training and expectations were lacking as the program was not implemented as intended within the group home sites. Since the program was not sufficiently implemented, the health outcomes remained unchanged at post and follow-up evaluations.

Ultimately, we will use the findings from this pilot intervention to improve the program prior to a large randomized control trial. Specifically, for program training, we will include more hands on activities using the program materials. We will also provide activities that will allow exploration of the activity options for residents and specifically persons with severe disabilities. More training on how to write a realistic goal and increase activity is also needed according to participant feedback. For program implementation, we will obtain group home agency buy in and pursue policy level change for physical activity programs. The program will be revised for simplicity to overcome barriers related staff turnover and shortages. We will reevaluate the unused materials and revise or exclude them to make them easier for use. To support these findings, additional qualitative studies are needed to obtain rich descriptive data on program implementation.

To conclude, there is a need to improve the health and wellness for those with intellectual disabilities (Krahn et al., 2006) due to continual rises in obesity and other preventable secondary conditions (Haveman et al., 2010; Henderson et al., 2008). With the obvious challenges to include physical activity within the group home schedule, specially designed programs to meet the needs of both residents and staff are essential for successful promotion of activity. Health promotion researchers should target efforts

towards this population and environment as there are evident health disparities in health outcomes and health promotion programming.

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Table 1 Menu-Choice Physical Activity Program contents

1. Step by Step Guide to Menu-Choice *
2. Physical Activity Education Section
3. Residents' Special Activity Needs Sheet *
4. Goal Setting Education Section
5. Resident Choice Activities
6. Menu-Choice Activity Modules *
7. Menu-Choice Activity Progressions
8. Weekly Activity Schedule (goal setting sheet) *
9. Resident's Pictorial Goal Calendar *
10. Goal Evaluation Sheets
11. Finding Motivation Activities
12. Staff and Resident Activity Champions

Note. * Basic components of Menu-Choice program

Table 2 Participant Characteristics

	PCs (n=14)	Staff (n=22)	Residents (n=18)
Age, mean SD	39.1 (14.0)	38.7 (15.1)	59.4 (7.5)
Sex, n %			
Male	3 (23%)	4 (18%)	5 (28%)
Female	10 (77%)	18 (82%)	13 (72%)
Years worked in GH, mean (range)		4.9 (0.08-13.25)	
Race, n %			
White, Non-Hispanic	14 (100%)	14 (64%)	18 (100%)
Asian/Pacific Islander	0	5 (23%)	0
Indigenous/Aboriginal	0	1 (5%)	0
Hispanic	0	1 (9%)	0
Ambulatory, n%			
Non ambulatory			6 (33%)
Walker/ cane			1 (11%)
Walk			10 (56%)
Body mass index			
Normal weight 18.5-24.9		4 (21%)	9 (56%)
Overweight > 25		15 (79%)	7 (44%)
Physical activity steps, mean SD			2375 (740)
Physical activity per week, n%			
0-2 days	10 (71%)	13 (59%)	
3-4 Days	3 (21%)	3 (14%)	
> 5days	1 (7%)	6 (27%)	

Notes. GH= group home, PC= program coordinator

Table 3 Fidelity scores across basic Menu-Choice components

Program Coordinator Expectation of Use^a					
N (%)	Step by Step Guide	SAN Sheets	Activity Modules	Weekly Activity Schedule	Pictorial Goal Calendar
Did not use	0	0	0	0	0
Sporadically used	7 54%	7 50%	3 21%	3 21%	2 14%
Consistency used	6 46%	7 50%	11 79%	11 79%	12 86%
Group Home A Program Use^b					
N (%)	Step by Step Guide	SAN Sheets	Activity Modules	Weekly Activity Schedule	Pictorial Goal Calendar
Did not use	4 80%	5 100%	3 60%	3 60%	3 60%
Sporadically used	1 20%	0	1 20%	0	0
Consistency used	0	0	1 20%	2 40%	2 40%
Group Home B Program Use^b					
N (%)	Step by Step Guide	SAN Sheets	Activity Modules	Weekly Activity Schedule	Pictorial Goal Calendar
Did not use	1 50%	1 50%	2 100%	1 50%	1 50%
Sporadically used	1 50%	1 50%	0	1 50%	1 50%
Consistency used	0	0	0	0	0
Group Home C Program Use^b					
N (%)	Step by Step Guide	SAN Sheets	Activity Modules	Weekly Activity Schedule	Pictorial Goal Calendar
Did not use	0	0	0	0	0
Sporadically used	2 50%	2 100%	2 100%	2 50%	2 50%
Consistency used	0	0	0	0	0
Group Home D Program Use^b					
N (%)	Step by Step Guide	SAN Sheets	Activity Modules	Weekly Activity Schedule	Pictorial Goal Calendar
Did not use	5 71%	4 67%	4 57%	4 57%	4 57%
Sporadically used	1 14%	1 17%	2 29%	1 14%	1 14%
Consistency used	1 14%	1 17%	1 14%	2 29%	2 29%

Group Home E Program Use^b

N (%)	Step by Step Guide	SAN Sheets	Activity Modules	Weekly Activity Schedule	Pictorial Goal Calendar
Did not use	2 50%	2 50%	2 50%	2 50%	3 75%
Sporadically used	1 25%	1 25%	2 50%	1 25%	1 25%
Consistency used	1 25%	1 25%	0	1 25%	0

Notes.

^a Expected program use measured at program training

^b Program use at 10 week post evaluation

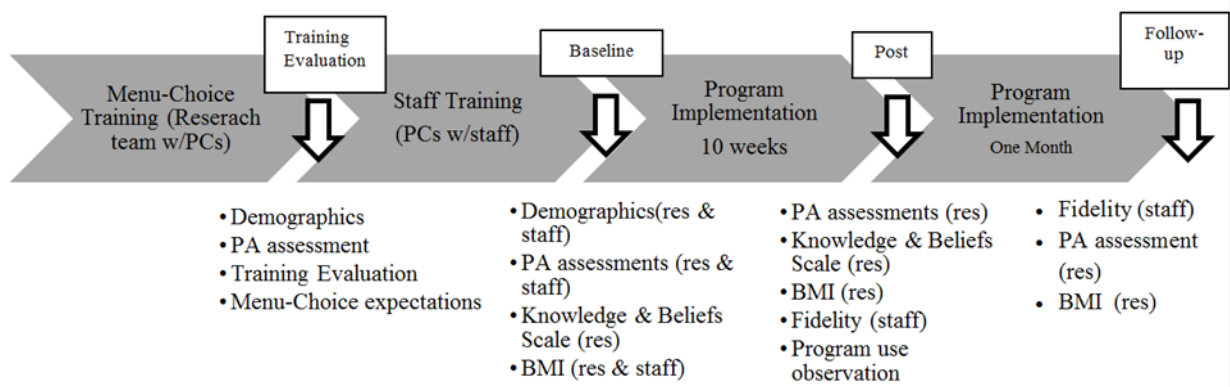
Table 4 Program material completion and health outcomes by group home site

Group Home	PAR-Q	SANs	Baseline Activity Sheet	Goal Evaluation Sheet	Pictorial Goal Calendar	Doc Section	PA Steps	PA Knowledge ^a	BMI
A (n=4 res)	4 completed	2 partially 2 thoroughly	3 partially 1 thoroughly	4 partially	Location: office	4 included	Pre(n=1)=1914 Post(n=1)=501 N/A(n=1) ^b	Pre (n=1)=9 Post (n=1)=11 N/A(n=3) ^b	Pre (n=4)=25.2 Post(n=4)=25.4
	3 by week 2 1 by week 5				1-2 post its; no markings				
B (n=5 res)	1 completed 3 not completed	2 not completed 3 partially	5 not completed	5 not completed	Location: office	5 not included	Pre(n=4)=1571 Post: - N/A(n=1) ^b	Pre (n=4)=7.3 Post (n=4)=7.3 N/A(n=1) ^b	Pre(n=5)=26.3 Post (n=4)=25.6
	1 by week 3				Week 1 post its; pedometer goals written in				
C (n=5 res)	5 completed	5 thoroughly	5 not completed	5 not completed	Location: resident rooms	5 included	N/A ^b	N/A ^b	Pre (n=3)=25.1 Post(n=3)=24.78 N/A(n=2) ^b
	5 by week 2				Post its included; no markings				
D (n=1 res)	1 completed	1 partially	1 thoroughly	1 not completed	Location: office	1 included	Pre: - Post: -	Pre: - Post (n=1)=9	Pre(n=1)=29.8 Post(n=1)=29.2
	1 by week 2				Post its included; minutes of activity written in				
E (n=3 res)	3 completed	3 thoroughly	3 not completed	3 not completed	Location: resident rooms & living space for group activities	3 included	Pre(n=3)=3600 Post(n=1)=3800	Pre(n=2)=9.5 Post (n=2)=9 N/A(n=1) ^b	Pre (n=3)=24.5 Post(n=3)=23.5
	3 by week 1				Post-its included; no markings				

Notes. Res= residents; PAR-Q= Physical activity readiness questionnaire; SANs= Special Activity Needs sheet; Doc=Documentation; PA=Physical activity; BMI=Body mass index

^a PA Knowledge out of 12 possible points

^b Not applicable due to severe disability

**Figure 1.** Menu-Choice implementation and evaluation

Notes. PC=Program Coordinator, res= resident, PA= physical activity, BMI= Body Mass Index

Chapter 4: Manuscript #3

Stakeholder perspectives on a physical activity health promotion program for the group
home setting

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Abstract

Purpose. To complete a process evaluation of a physical activity health promotion program for adults with intellectual disabilities utilizing qualitative methods.

Setting. Group home agency in the Northwest

Participants. Twelve participants, who completed the 10 week pilot intervention, (n=7 staff, mean age 42; n=5 residents, mean age 52) participated in interviews. Participants represented five group home sites involved in the intervention.

Intervention: The physical activity program was designed through community-based participatory approaches and health promotion guidelines established for persons with disabilities. The program assists staff in including physical activity goals into the group home schedules.

Method. Face to face interviews were conducted to obtain information about program training, program use, barriers, facilitators, and program feedback. Three coders reviewed transcribed interviews to identify themes.

Results. Hierarchical themes included: (1) Program Training, (2) Program Implementation, (3) Program Physical Activity (4), Program Barriers (5), Program Facilitators and (6) Program Feedback.

Conclusion. Several program barriers to intervention delivery were identified that emphasized the importance of obtaining increased agency support to include the program as policy and enhance engagement.

Stakeholders perspectives on a physical activity health promotion program for the group home setting

It is well documented that persons with intellectual disabilities have poorer health status and lower physical activity than the general population (Dixon-Ibarra et al., 2013; Draheim, 2006; Haveman et al., 2010; Krahn et al., 2006; Peterson et al., 2008; Stanish et al., 2006). The lack of physical activity in this population is a contributing factor to health issues including a greater risk of secondary conditions (e.g., obesity, cardiovascular disease, gastrointestinal conditions, and musculoskeletal conditions) (Haveman et al., 2010; Henderson et al., 2008; Rimmer & Yamaki, 2006). In order to increase activity in this population, barriers for participation need to be addressed. While persons with intellectual disabilities are faced with similar barriers to physical activity as the general population (e.g., age, low self-efficacy, lack of interest, preference for sedentary behaviors, availability of resources, safety, and built environment), this population is also trying to overcome barriers related to restrictive environments and negative physical activity supports from caregivers within the community and group home setting (Bodde & Seo, 2009; Dixon-Ibarra, Dugala, Vanderbom, & Driver, 2014a).

Literature demonstrates that the organizational aspects of group home settings (i.e., staff to resident ratios, limited staff, staff turnover, lack of health promotion training/policies, and rigidity of routines) are risk factors for physical inactivity and obesity (Dixon-Ibarra et al., 2014a; Messent, Cooke, Long, 1999; Robertson et al., 2000; Temple & Walkley, 2007). The group home setting is a residential environment, where an increasing number of persons with intellectual disabilities reside (Bigby & Clement, 2009). Group homes are a licensed community residence facility that provides a home-like environment for four to eight related or unrelated persons with an intellectual disability, where paid staff supervise residents within the home and community-based settings (Bigby & Clement, 2009). Previous studies have explored the barriers and facilitators of physical activity in these settings (Dixon-Ibarra et al., 2014a; Messent,

Cooke, Long, 1999; Temple & Walkley, 2007) however, no physical activity health promotion program has been designed for this environment.

Effectively intervening within the group home setting through specially designed health promotion programs is critical for the health of residents within these settings. Historically there have been limited health promotion programs specifically for the group setting but, encouragingly, there is growing evidence that such programs are being developed. For example, Humphries and colleagues (2008) Menu-Aids nutritional program demonstrates the feasibility of implementing a health promotion program in this setting with positive impacts related to acceptability from staff, planned and served foods, and fidelity of program materials. Specific to physical activity, preliminary studies have been conducted to engage group home stakeholders in the design and implementation of the current physical activity program called Menu-Choice (Dixon-Ibarra et al 2014a; Dixon-Ibarra, Van Volkenburg, & Driver, 2014b). The program was designed based on health promotion guidelines for adults with disabilities (Drum et al., 2009), feedback from stakeholders (Dixon-Ibarra et al, 2014a; Dixon-Ibarra et al, 2014b), and involves staff including physical activity goals within the group home schedule for residents. Results demonstrate challenges in implementing a physical activity program with lower fidelity scores and insufficient program usage (Dixon-Ibarra et al., 2014b).

Before implementing the Menu-Choice physical activity program in a large randomized control trial, it is critical to complete a process evaluation to refine program materials based on feedback from key stakeholders (Dehar, Casswell, & Duignan, 1993; Drum et al., 2009). Historically, program evaluations have largely focused on outcomes with the process of implementation often ignored (Wickizer et al., 1993). Therefore, obtaining information on program implementation from key stakeholders is essential if better designed and more effective health promotion programs are to be implemented (Dehar et al., 1993). In fact, according to the Centers for Disease Control and Prevention's Evaluation Framework (1999) the first step that should be taken in any evaluation is engaging stakeholders, where participant voice regarding their satisfaction

and acceptability of the program is an important outcome to be measured (CDC, 1999). Feedback from stakeholders is precisely what is needed for Menu-Choice program refinement as feasibility and preliminary outcomes from this program indicate the lack of program use and no change in health outcomes (Dixon-Ibarra et al., 2014b). Engaging the program stakeholders may provide insight into the barriers of implementation. Additionally, giving persons with a disability and their caregivers a voice in program design, implementation, and evaluation is a critical guideline for health promotion for adults with disabilities (Drum et al., 2009). One appropriate mode of obtaining rich information about program implementation and acceptability, while also pursuing active participation from persons with disabilities and their caregivers, is through qualitative methods (Cook & Reichardt, 1979; Patton, 1987).

Thus, the purpose of this study was to complete a qualitative process evaluation of the Menu-Choice physical activity program to receive descriptive information about program implementation and feedback for program refinement from key stakeholders.

Methods

Participants

Participants were recruited from the group who had completed the Menu-Choice activity program during the 10 week pilot intervention (Dixon-Ibarra et al., 2014b). The pilot intervention included 22 staff and 18 residents from five group home sites within a Northwest group home agency. For the qualitative process evaluation, each of the five sites had at least two individuals that participated in the post evaluation interview. Residents from four sites (n=5) participated in interviews as one site had residents who were non-verbal that could not participate. At least one support staff from all five sites participated in interviews (n=7). To obtain valuable feedback on the program, staff that used the program most frequently were interviewed, as well as residents with mild to moderate intellectual disabilities who could actively participate in an interview. Table 1 describes the characteristics of participants interviewed for the post evaluation.

Procedures

When evaluating programs the selection of disability appropriate outcome measures is critical to obtain needed information (Drum et al., 2009). While the challenges in self-report for persons with intellectual disabilities has been well documented in the literature (Bogdan & Taylor, 1994; Finlay & Lyons, 2001), the use of qualitative methods has been successfully utilized in physical activity research (Frey et al., 2005; Hawkins & Look, 2006; Messent, Cooke, Long, 1999; Temple & Walkley, 2007). Thus, the use of interviews with residents with intellectual disability was deemed an appropriate method to gain descriptive feedback on program implementation. More so, eliciting qualitative information from staff will allow the comparison of program implementation findings between residents and their staff. Consistencies among the interviews will further validate the experience of using the Menu-Choice program and provide evidence of trustworthiness of the qualitative data.

Face to face interviews, approximately 10-15 minutes, were conducted in the group home setting in which the resident resided or staff was employed. To avoid coercion from their superiors and caregivers, the residents and staff were interviewed in a separate space from these individuals. Each participant responded to a set of semi-structured questions designed to obtain information regarding program use, implementation, and feedback on program materials. Utilizing a semi-standardized format allowed for consistency throughout the interviews, while allowing participants to expand on their point of view (Berg & Lune, 2004). Probes were used throughout to encourage responses. The semi-structured interview questions for staff and residents are provided in Appendix H. Moreover, participants were reminded about the purpose of the interview and that the interviews would be audio recorded for transcription. All participants signed an informed consent approved by a university research board.

Data analyses

Following the interviews, the first author transcribed the recordings verbatim. All identifying information was removed and replaced with participants' first name initial. To increase the trustworthiness of the study findings, investigator triangulation was utilized with a team of three coders (Berg & Lune, 2004), who read the transcripts numerous times creating notes (van Manen, 1997). After reading the transcripts multiple times, the research team began highlighting phrases and coding them with meaningful labels (i.e., program barriers, program facilitators, etc). Codes were generated inductively from the data, which involved going through the data minutely (i.e., line by line), and providing many categories to the responses (Berg & Lune, 2004). For developing codes, individual themes were used as the unit of analysis, rather than the physical dialectal units (e.g., word, sentence, or paragraph). This involved assigning codes to sentences or larger portions of text that represent the individual's thought. Notes were taken throughout the process as memos for theme development.

After independently coding the transcripts, the team reviewed the transcripts minutely, comparing labels/ codes to determine if they should belong to an existing label

or be included as a separate code entirely (Wolcott, 2002). Any discrepancies in codes were reviewed until an agreement was made. The final coded transcripts were uploaded into Atlas t.i. for organization and the evaluation of the themes and codes.

Results

Analysis of interviews indicated six meta-themes: (i) Program Training, (ii) Program Implementation, (iii) Program Physical Activity, (iv) Program Barriers, (v) Program Facilitators, and (vi) Program Feedback. Table 3 displays the hierarchical themes and group home sites associated to these codes.

Program training. The meta-theme of program training was coded to explore how the staff were trained and if they received sufficient training to implement the program. After attending a half day workshop, approximately 2-3 hours, program coordinators trained their support staff on the Menu-Choice activity program. From the interviews, staff from every site expressed that their program coordinators trained them in a one day meeting. Although trained, staff had to read through the materials at a later date to understand the program. As one staff described, *I was ok trained but I really didn't understand it. I had to look through it myself.* Staff from three of the five sites reported that their coordinator sufficiently trained them on the program. Staff from three sites described that their coordinator did not train them or insufficiently trained them. When asked if they were trained, the staff from site B stated, *no no, because I wasn't here when (coordinators) had their little session on it ...* another staff from site E responded, *I think the training was fine.... If my coordinator explained it more so I could understand... I had to take my time away from the clients to sit and read through the pages.*

Program implementation. This meta-theme included detail regarding how the program was implemented and intention for future use. The staff continuity of implementation was an interesting finding as most staff described that the house staff were on the same page regarding program implementation. However after coding, inconsistencies were revealed as staff did not know if other staff were using the program with the residents and who was writing down activity goals. When asked about weekend staff, one staff from site E said, *I'm not sure about that one...* With short staff and floaters, it was difficult for staff to know who was implementing the program and using the materials. For instance, a staff from site A explained, *today we have two floats*

because we have two people out today. That's just an on-going issue. It would be difficult to train everyone to get them on the same page.

The frequency of how often the program was used within the sites varied drastically. As one staff from site D stated, *"I offered it everyday,"* while a staff from site E mentioned that *"They haven't used it for a month now."* Frequent use of program materials (i.e., multiple times a week) was described by staff or resident, for two of the five sites (site A and D). Resident responses regarding frequency of use were consistent with their staff within their site. Primarily the program was offered whenever the staff could find time. Staff from site C described, *We would take 5-10 minute increments just whenever and I think when it happened it was ok, when we found an extra 30 minutes to do something.* Staff from site A and E described that they set a time in the schedule to use the program. For instance, *at 1030 before eleven o'clock lunchtime that half hour from 1030-11 is usually when we find the time to do, because there is nothing on tv.* Since the program was at the same time, the resident from site A would ask for it at the specified time which provided a desired consistently for the resident. The staff from site E described that she found time to use the program by, *treating it like my schedule.* The residents did not describe a set time that they performed activity. One resident from site B mentioned doing her exercises in the morning.

Staff primarily delivered the program. Two residents from sites A and B mentioned their program coordinator and one resident from site B said that their skill trainer helped with the program. Staff from site D mentioned that *Everyone (staff) just offered it* and staff from sites C and E described that only the staff in the evening were able to implement the program, because that was when the residents were home.

The staff used the basic program materials (i.e., weekly schedule, pictorial goal calendars, and post it pictures) with little exploration of the resource binder and other materials. A staff from site A described, *We used the board with the little stickers.* Staff from site D showed the residents post it pictures and allowed them to choose their activity. *We would bring everything out and lay it out and say, 'Do you want to do any of*

these activities? Staff from site E said, *They choose one(post it) that I would do for the next day. I would come in and we would work on that together and then I would go to the next client and I would work on what they chose and then go to the next.* Residents described that they used the pictorial goal calendars and post it pictures. One resident from site B said, *She (staff) just asked me what I would like to do.*

A key finding in the interviews was the lack of program use. Staff used the basic materials as previously described, but other components of the program that would increase resident motivation, introduce new activities, etc. were not used. When asked if they used materials in the resource binder staff responded, *“No, I haven't had time”* and *“there has been days that I hardly touched any of it.”* Only one staff from site A said they used the activity modules to find activities for her resident with severe limitations. The residents described even further disuse of the program as residents from site B did not recall using the post it and pictorial goal calendars. A resident from site E described that she only used one post it picture. When showed the other post it pictures she said, *no I never saw those ones before.*

When asked if they would continue using the program, staff from three of the five sites said they would not use the program or did not know if they would continue using the program. As one staff from site B stated, *I think it will fall off the way side.* Another staff from site C mentioned *it depends on what our program manager says, so if they want us to do it then we will continue to do it if they don't then it all depends.* One staff from site A was enthusiastic about how the program was helping her resident and wanted to continue using it. She said, *I would like to continue with what we have been doing and later on add leg movements like kicking.* On the other hand, all the residents interviewed, wanted to pursue more physical activity and continue using the program. One resident from site B explained, *i would like to do physical activity once or twice a day.*

Program physical activity. This meta-theme describes the physical activity pursued during program implementation. There was a short list of activities mentioned by the residents including walking, biking, arm/leg lifts, punches, and dancing. Staff

described light intensity physical activity including seated activity (i.e., arm lift and leg lifts), walking, stretching, motor activity (i.e., pushing a ball, hand grasps, picking up objects). One staff from site A described that her resident was doing *arm and hand exercises mostly because he is in a wheelchair*. Although some of the residents from sites A, C, and E had severe limitations, most did not and were still pursuing light aerobic/strength activity. Minimal variety of activities was evident across all group home sites. This may be related to a barrier discussed below regarding staff fearing that they would injure the residents.

Moreover, staff from three sites mentioned that residents increased components of exercise either in flexibility or aerobic activity. One staff from site A said, *I did notice that he is looser on it because before that he was too stiff*. Staff from site D stated, *He's (resident) been walking more and using his bike around here*. Staff from sites B, C, E stated there was no change in activity since the program started. Staff from site B explained, *there was one that wanted to walk a little more but that kinda lasted a short time*. Residents from sites A and B said they thought they were more active. The resident from site B said, she thought she was more active; however, later in the interview expressed that she was not doing anything new since the program started. The resident from site D did not specifically say he increased activity, however he talked about the different activity he was pursuing (i.e., walking, biking, and dancing).

Program barriers. This meta-theme includes factors that hindered program implementation. The most discussed barrier from the staff was the residents' motivation to be active. Staff from site B, D, E discussed that residents were too tired from their day to be active. Staff said that they want their relaxation time in the evenings and weekends. Staff from site E said, *They go to work during the weekday. They do a lot of physical activity like drawing and stuff so when they come home they just want to rest*. Age was another barrier mentioned by staff stating that *they (older residents) get really tired and don't want to do anything at all*. Lack of motivation was not one of the residents' primary

barriers to activity. However, two residents did describe that they want to watch TV in the evening and relax on the weekend.

Beyond resident motivation, staff from four sites described that they did not have time to use the program. Staff had other priorities and the program was not used when time was limited. Staff from site C mentioned, *I'm just busy with medications getting dinner ready it is just hard to find time. Initially it was a good idea, but in this house we are so busy.* One resident from site E described that she did not have time to be active. Residents from site B described that the *staff are too busy here to walk with me.*

Another barrier for program implementation across all sites was limited staff. One staff from site A described, *when we didn't have staff it got pushed down to the bottom of the priorities.* The shortage of staff throughout the sites made it difficult to implement Menu-Choice particularly because 'floaters' were not trained on the program and did not deliver it when they were on shift. Also, staff were not sure who would be there from day to day. The staff from site B mentioned, *with only one staff here per shift. It makes it difficult, especially when you got two or 3 different clients that need different things. We spread ourselves thin.* With few consistent staff working a given shift, the burden of program implementation was on a few staff. For three sites, this led to minimal program use. Staff from site E described that *there is only one staff on my shift, so they don't really know what's going on and what they are doing or what kind of exercises they are doing so they couldn't figure it out.*

Moreover, the lack of time and staff availability influenced activity for residents that were dependent on staff to perform activity. Residents from site B, who needed one-on-one support, described that they use to walk on their own but now they cannot because of *(Resident)'s balance and (Resident)'s mind they won't let us do it no more.* Residents from this site expressed that their staff were busy. One resident from site B said, *they don't take us no where. They just make us stay here.* Staff from site C discussed that dependence of activity was a barrier from them. One staff stated, *I don't think they benefit*

from it because it is not something they can do on their own. It depends on what they can do for themselves and what the staff has to do for them in order for them to get it done.

Staff and residents both mentioned that they lacked program understanding. Staff from site E, when asked if she knew about the motivation section in the binder, said *I did not know there was that*. The staff from site B described that the residents did not understand how the pictorial goal calendars and post it worked. More so, residents from sites A, B, D, and E were confused or could not remember the program materials and/or thought Menu-Choice was about their nutritional menu. The staff from site E had confusion about program materials, because she felt unsupported by her program coordinator. The staff explained, *she doesn't come out to the houses. I don't think she talked to the clients about the program*. Additionally, residents from sites B and E felt unsupported with the program when, program activities were not described to them, staff restricted them from doing activity, staff did not do activities with them, or were too busy to take them places to be active. When asked if she would like to use more of the post its the resident from site E replied, *I think I would if the staff would let me*.

Specific resident characteristics, like age and limitations, were also barriers expressed in the interviews. Staff from site B mentioned, *If they were younger, it might make a difference, but being the ages they are late 50s and above, it makes it difficult*. Staff described the following limitations as restrictions to activity: use of a wheelchair, dementia, and severe physical or intellectual limitation. One staff from site C said *it depends on their physical needs because some of them aren't fit to get up and actually do stuff because of the way their body is*. Only one resident from site B described her physical limitations as a barrier to being active. Due to limitations and health concerns, staff from sites A and C feared that they could injury the residents. One staff from site A stated, *I would be more concerned about injury because a lot of our folks are older and a lot of them don't get a lot of exercise*.

Other described barriers for program implementation included weather, lack of equipment, and negative attitudes. Four of the five residents interviewed mentioned the

weather made it difficult to be active. One resident described that doing activity is *hard in the rainy weather*. Another resident said, *it's too cold to ride my bike*. Additionally, staff and residents from sites A and D described that their facilities lacked available equipment to pursue physical activity, particularly strength exercises and indoor aerobic activity. Overall negative attitudes about physical activity and the program were expressed. A resident from site B discuss her dislike with a specific exercise. The staff from site B described that the *thought of exercising* made it difficult. After reviewing the binder. The staff from site D described how the other staff, *looked at each other like how is that going to happen?*

Program Facilitators. This meta-theme includes factors described by staff and residents that aided in program implementation and increasing resident motivation. One clear facilitator was having a positive attitude towards physical activity and implementing a physical activity program. Staff with positive attitudes stated, *we try to make it (physical activity) a priority; it (physical activity) is helpful to make sure other things don't come out of it like a lot of weight gain; I like exercising, so I think it is a good thing, it's good for everyone, even for me physical activity is important and for the clients it is really good; and I actually used some of them (activities) at my house.*

Specific for implementation, staff that included the program within the group home schedule, had one-on-one implementation, and were familiar with the residents described more success with the program. One staff from site E stated, *I treated it like my schedule. We would have dinner by 4:30 and we would workout by 5:30 because I would have an hour of down time with them and get things done around the house. I would use that time and would make sure my stuff was done a head of time before working out.* Working one-on-one worked well for a staff from site A. Her resident asked for the program three times a week and increased his physical activity. On the other hand, the other staff from site A mentioned, *I also tried to cover 3 clients and I should have split that up with other staff and let them do that.* Another facilitator to implement the program was knowing the residents well. One staff from site A stated, *I've known (resident) for*

over 30 years so I know what he can do and what he can't do as far as his movement and I know (resident) so well it was easy for me to comprehend and know what we were doing.

As mentioned, resident motivation was an identified barrier for the staff to overcome in order to implement Menu-Choice. Some facilitators that increased residents' motivation included: staff encouragement, making activity fun, making choices, residents having their own materials, and spending time with the staff. Staff encouragement for activity was provided through pursuing activity with the residents and prompting the residents to do physical activity. When asked how you got the residents to be active, one staff from site E said *I got up and actually did it with them*. Another staff from site C said, *when you do things with them they are going to want to do it*. Residents from three sites described that staff did activity with them. When asked if someone doing activity with them would help, one resident from site E responded enthusiastically, *Yeah! That might help*. While prompting residents to be active reminds them to perform activity, physical doing activity with the residents seemed to be more effective. Two residents, from site B mentioned that their staff prompted them to do their activity. Unfortunately, this site used the program the least with no change in physical activity according to interviews. When asked if their staff helped them with their activity, the resident from site B responded, *Well no, they ask me if I have done them*. The staff from site B described *I would say you can stretch sitting down. You can stretch your legs. They'd do it a few times and say ok*. Staff from sites C and D mentioned using positive prompting or encouragement as a means to increase motivation. Staff from site C expressed, *they go off of your motivation, so if you're like uhhhh I can't then obviously it will convey to them but if you are upbeat like anything in the house it goes well*. The positive encouragement and performing activity with the residents, as one staff from site C said, *made it more fun for them so they liked doing it*. The residents from sites D and E found activity fun when music and dancing were involved. Residents enjoyed spending time with the staff to use the program. When asked what parts of the program do you think the residents enjoyed,

staff from site D stated *well just the time we were taking with him*. Another staff from site A said, the residents liked *having one on one attention doing the exercises*.

Beyond staff encouragement and performing activity with staff, the residents found making choices and having their own materials motivating. Self-determination was an engrained component of the Menu-Choice program, where residents should have been choosing their activity goals and activity with their staff. Two residents from sites A and E mentioned that they chose their activity. One staff from site A mentioned that, *if we sit down and let them make some choices, I think we could get some more people on board*. Giving the residents their own materials for the program was motivating. For instance, the resident from site E, when looking through the post its with the researcher said *Can I go put this on my calendar right now?* Another resident from site B enjoyed having the pedometer we gave her during the assessments.

Additional resident factors that facilitated program implementation included the ability to pursue independent activity and previous physical activity levels. For site D, residents had milder intellectual disabilities and less physical limitations, so pursuing activity independently was a program facilitator. A resident from site E said that her staff did not help her to do physical activity she was able to dance by herself. In addition, residents that were previously active were more easily persuaded to use the program. A staff from site C described that it *depends on how active the person was before this whether the program will help...* Additionally, the residents that were previously active simply continued to be active with the program. One staff from site A stated, *(resident) actually gets a lot of activity with his guardian already. They have equipment, and his guardian takes him hiking on the weekends so it is part of his life anyway. So he understands it and appreciates it*. Another staff from site D said, *It was a good fit for (resident) because does these things every day*. A resident from site B was describing that she does stretching in the mornings. The resident further explained that she has been doing them for a long time and was not doing anything new since the program started.

Program Feedback. This meta-theme describes general program comments, feedback on specific program materials, and suggestions for program refinement. The majority of the staff said the residents enjoyed the program. One staff said, *(resident) had difficulty because she has dementia, but the others enjoyed it.* Another staff explained, he *(resident) was yelling at me that he wanted to do it today, so he lets me know.* A resident from site D said, *it (the program) was kinda neat.* Staff from four sites mentioned positive comments about the program materials, but due to barriers did not use them as much as they wanted. Staff from site A said, *we thought it was good materials. On our end, we just didn't find the time but I think the materials were all pretty clear.* Other comments about the materials included: *It was useful and fairly basic and flexible enough that we could adapt to our clients; I think the book and materials are really good. They are well written. I think someone could sit down and figure it out on their own which is nice; I think it is good the way it is. I think it is a good thing; I like it; and You guys did a good job.*

There were a few negative comments from staff regarding the program. The staff from site B said, *It just seemed like it wasn't working* and the staff from site D said, *I'd hear him (resident) complaining that he was more tired and going to bed early.* Also to mention, staff from sites A and E discussed that it was initially difficult to implement the program, because the residents *weren't use to it.* The staff from site E said, *we got them use it and (they) started to actually do stuff.* The residents did not mention anything negative about the program.

Feedback was provided for the following materials: medical approval, physical activity knowledge section, activity sheets, and physical activities provided in modules. Site A had difficulties receiving medical approval for their residents. No other staff discussed issues receiving consent to begin the program. Staff from Site C described there were no problems with the approval process. The staff felt that the physical activity section was “worthwhile” and “it explains a lot”. One staff said she felt more knowledgeable after using the program with the clients.

Staff from three of the five sites found that the activity schedules were time consuming. These three sites only had one staff filling out the activity sheets, which may have led to the time burden. One staff said, *documenting on each of their calendars and what they did throughout the day because there is a lot of documentation I need to get done by a certain amount of time so it was kinda hard to keep up with that, but it got done somehow*. Staff from the other two sites said they were easy to do. Staff from site D said, *I think they were easy to do*.

The physical activities included in the activity modules had mixed reviews. Staff from three of the five sites stated that the activities included seemed too advanced for the residents. A staff from site A said, *alot of that seemed to be too advanced for our folks that are lower level function and a person is in a wheelchair*. The staff from these sites did not look through the activities in detail, because there were activities for persons with physical disabilities, severe disabilities, and persons who were aging. The staff from Site E provided feedback that residents, *don't have the ability to get out and do that*, referring to activities like hiking swimming, tennis. Staff from two sites said there were activities in the resource binder that their residents could perform. Residents from these sites range from serve disability to mild intellectual disability.

One key finding from the interview, particularly from the residents, was confusion with the program name. At least two residents started talking about food when the researcher mentioned the *Menu-Choice* program. For instance, when asked what they liked about the program one resident said, *I just don't like the menu they have now... just didn't like the food*. Another resident talked about how they cooked lasagna the night before. The staff person from site B mentioned that the name was confusing staff and residents with the food menu.

Overall there were few specific suggestions for improving the program. One staff mentioned that if the residents could work as a group *that would make a big difference*. Ideally the staff said, *if there was a certain day that they could all be home and work on it together that might make a difference*. Staff from two of the sites mentioned that the

residents should be included in the training of the program. After asked how to help with the training, staff from site E suggested, *I think if you could come in and talk to the clients and see if they really want to do it or are capable to do it.* One staff said it would be beneficial to create a video about the program for the residents to watch. The staff explained, *Just talking with them sometimes it doesn't click, but a visual, something they could watch and listen. That would make it better for them. Watching tv is what they do, so if they have something like that and they would pay attention.*

Discussion

This study describes the qualitative evaluation of the Menu-Choice program gaining both resident and group home staff's perspectives on program training and implementation. Most health promotion programs designed for persons with disabilities have not been evaluated and published in peer reviewed journals (CDC, 2011). This is true for those with intellectual disabilities, with Menu-Choice being one of the few health promotion programs that have provided evidence for process evaluation. More so, Menu-Choice has provided quantitative evidence of program use and preliminary outcomes (Dixon-Ibarra et al., 2014b) and qualitative interviews which offers rich descriptive data on barriers and facilitators that will inform future iterations of the program.

The salient theme of the interviews was the lack of program use. Since the Menu-Choice program was designed with community feedback (Dixon-Ibarra et al., 2014a) similar barriers like lack of time, staff shortages, residents' lack of motivation, and residents' limitations were identified and considered in the design of Menu-Choice. Most staff did not use the program enough to utilize tools created for barriers they identified in the current study. For example, staff describe that resident limitations (e.g., severe intellectual disability, physical limitations, age) restricted them from using the program. However, the program offers physical activity examples and instructions for older adults, persons with physical disabilities, and severe limitations. One staff from site A successfully used these materials with a resident with severe disability. This staff described using the activity modules for and stated that her resident made progress with his flexibility and motor skills. Another staff from site D said her resident, with mild intellectual disability and no physical limitations, increased aerobic activity. This demonstrates that the program can be effective at increasing activity for the wide range of abilities within the group home setting when the materials are utilized. The reluctance to change routines and implement a health promotion program is not surprising. In a pilot intervention for the Menu-Aids nutritional program for the group home setting, group home managers initially encountered resistance from staff to implement the program with

one group home site still having low fidelity scores for implementation (Humphries et al., 2008). The importance of obtaining “buy-in” for activity programs for those intellectual disabilities is critical for success (Marks et al., 2010), and preliminary community engagement for Menu-Choice determined that lack of staff buy in for activity programming is why programs have not been successful in group homes in the past (Dixon-Ibarra et al., 2014a).

Additionally, the program was designed to have one staff working with one or two residents to complete activity sheets. However, only one staff from site A worked one-on-one with a resident and the rest of the sites, including other staff from site A, had one or few staff implementing the program with multiple residents. This led to program burden and lack of time to use the program effectively. Future program refinement needs to consider that limited and inconsistent staff within houses is an inevitable barrier (Bodde & Seo, 2009; Dixon-Ibarra et al., 2014a; Messent, Cooke, Long, 1999; Temple & Walkley, 2007). Thus, making the program simple enough to be used by one or few staff within the houses should be considered. For example, information in the resource binder could be more accessible and manageable for the staff to read if one-page handouts were available. The one page handouts provide a more manageable way for the staff to read the resources available in the binder without having to look through the program contents. More so, these handouts could remind or refer the staff to use the materials available to them (e.g., motivational tips, strategies for increasing activity based on activity levels, etc.). Similar tip sheets have been incorporated in the evidence-based Menu-Aids nutritional program for the group home setting (Humphries, Traci, & Seekins, 2011).

The inability to engage unmotivated residents was also apparent throughout the sites. Based on preliminary findings, Menu-Choice includes a section devoted to strategies to motivate residents (Dixon-Ibarra et al., 2014a). To our knowledge, staff in the current study did not utilize these resources, as none of the staff or residents described the strategies or activities in the program implementation. In fact, the staff from site E did not know there was a section for motivation in the binder. Furthermore to avoid

motivating residents, staff chose residents who were already motivated or active (sites A, D) and did not describe actively pursuing residents who were not motivated (sites A, B, C, E). The need for social support for physical activity is well documented in the literature and a much needed aspect for a health promotion program for this population (Bodde & Seo, 2009; Dixon-Ibarra et al., 2014a; Heller et al., 2002; Mahy et al., 2010; Peterson et al., 2008; Temple & Walkley, 2007). Peterson et al., (2008) empirically determined that older adults with intellectual disabilities (35-60years), who reported higher social support from staff, had higher levels of leisure physical activity. Qualitative interviews confirm these findings, as adults with intellectual disabilities reported the importance of support systems and authority figures for promoting physical activity (Frey et al., 2005). Thus the lack of encouragement and support for unmotivated residents in the pilot study likely resulted in decrease activity and program use.

Sites that described more success with the program provided facilitators that aided with implementation and felt positively about the program materials. The facilitators to increase resident motivation (i.e., making activity fun, providing choices, and spending time with staff) were consistent with the literature (Bodde & Seo, 2009; Dixon-Ibarra et al., 2014a; Frey et al., 2005; Mahy et al., 2010). Demonstrating the discussed facilitators to increase resident motivation should be emphasized in future iterations of the program.

Future implementation of Menu-choice will need to consider whether staff and agency providers recognize the need for physical activity and are ready to implement a program. The one site that had the lowest program use (i.e., site B) provided mostly barriers for program implementation (e.g., negative attitudes about activity and program implementation, insufficient coordinator training, and only one staff implementing the program) versus facilitators. The residents from this site felt unsupported and frustrated that they were not able to be active because of the barriers expressed by the staff (i.e., lack of time, shortage of staff, negative attitudes, staff program burden, limitations, etc). Similar to Humphries et al (2008) pilot intervention of Menu-Aids nutritional program for the group home setting, the current pilot had group home sites that were 'too busy' to

fully implement the program and other sites that had positive attitudes towards implementation, perhaps indicating that the staff's readiness to implement a health promotion program varied. The use of Transtheoretical Model and stages of change may be a successful way to determine staff readiness and provide sight into modifying program training to meet these needs (Prochaska & DiClemente, 1982). The use of TTM and stages of change is encouraged and has been used successfully in health promotion for persons with intellectual disabilities (Humphries et al., 2011; Hutzler & Korsensky, 2010; Marks et al., 2011). Refinement of the program will consider combining this additional theory to program design to assist in changing health behaviors in the group home setting.

Additionally, a critical need for program success is intervening at a policy or agency level. It is recommended that interventions to reduce health disparities in this population must address multiple levels for success including persons with intellectual disability, providers who support them, and the policies that will direct the systemic changes (Krahn et al., 2006). The Menu-Choice program intervened with providers and residents; however, policy level change did not occur. Suggestions from stakeholders in our preliminary findings inferred that without buy in for physical activity programming it would likely not be successful (Dixon-Ibarra et al., 2014a). Based on this feedback, program recruitment was initiated with the agency director to gain buy in from a top down approach. However, the pilot intervention demonstrated that there was still a lack of supervisor buy in for the program. With other tasks within the group home schedule, physical activity was still ignored, despite our attempt to receive agency support for the program. One staff described that the future use of the program was dependent on if their program coordinator wanted them to continue to use it. Group home directors and program coordinators will have more defined roles in program delivery, in future iterations of the program, to check in with implementation and provide oversight to the program. For example, program coordinators may require staff to submit the weekly activity sheets and/or the one-page five week program evaluation to assess resident progress and program usage. Moreover, policy level change for physical activity in the

group home settings has been promoted in the literature and should be addressed (Bodde & Seo, 2009; Dixon-Ibarra et al., 2014a; Messent, Cooke, Long, 1999; Temple & Walkley, 2007). Specifically, group home agencies should consider including physical activity education in staff induction training, mandate the use of health promotion programs to encourage resident activity, and allocate resources to help staff and residents pursue physical activity.

More so, residents were not included in Menu-Choice training, because this did not align with the Diffusion Theory change agent model (Goodson, 2010). To explain, the research team wanted to use change agents (i.e., staff) within the group home setting to transfer program information to residents. However, the use of change agents will only be successful if staff have adopted the program (Goodson, 2010), and in this case there was a lack of staff buy in to the program. Future program training will consider a more hands on and consistent approach to training staff and residents. As suggested in the interviews, a video that both the staff and residents can watch together might provide a better understanding of the program materials and how to use the program. According to a recently developed health education program, adults with intellectual disabilities were retaining education through videos (Bodde, Seo, Frey, Lohrmann, & Van Puymbroeck, 2012). Video reinforcements were also described as important tools in maintaining compliance to activity programs in Hutzler and Korsensky's (2010) review of motivational correlation for physical activity for persons with intellectual disabilities. Ultimately, allowing the staff and residents to be involved in the training process might increase their motivation and buy in to the program, while maintaining consistency in program training.

Based on our interviews and our previous findings of program usage (Dixon-Ibarra et al., 2014b), the program will be revised for ease of use. Understanding, most group home settings have staff shortages and a rotation of new and existing staff on shift (Dixon-Ibarra et al., 2014a; Messent, Cooke, Long, 1999; Temple & Walkley, 2007) revising the activity sheets to reduce paperwork may facilitate more program use.

However, monitoring physical activity to record changes in this health behavior is recommended to reduce health disparities for those with intellectual disability, so this component of Menu-choice is still critical (Krahn et al., 2006).

One way to reduce staff burden is through the use of technology to simply click activity and minutes performed by residents. A program application including all the program materials and a guide to assist staff in completing necessary medical approvals, activity sheets, and show them activities available to them by disability type and severity could be beneficial in decreasing time, increasing program understanding, and reducing barriers related to limitations. The use of interactive technology in health promotion is becoming widely used (Street, Gold, & Manning, 2013). A systematic review of the use of technology for teaching persons with developmental disabilities showed favorable outcomes related to academics, communication, employment, leisure, and transitional skills (Kagohara et al., 2013). Another study created accessible cell phones for persons with intellectual disabilities through the use of specially designed software and determined that adults with intellectual disability were able to learn how to use them and enjoyed the use of technology (Stock, Davies, Wehmeyer, & Palmer, 2008). With the barriers faced by the group home setting, technology may be a useful way to increase resident motivation, reduce inconsistencies with implementation, and reduce time to implement programs.

The current study is not without limitations. The interview participants were not randomly selected from the group home sites. In order to obtain useful information, staff were selected based on whether they used the program in their group homes. Staff that did not use the program were not selected, thus their opinions on program use were not captured in this study. Residents were selected based on mild intellectual disability and their ability to communicate in an interview. One site did not have a resident representative, because their site had residents with severe intellectual disability. Moreover, the sample size is small and represents one group home agency who agreed to

participate. Therefore, generalizations of the findings to other group home agencies, staff, and residents are limited.

Conclusion

In conclusion, the current evaluation of the Menu-Choice Physical Activity program provides valuable information about implementing a health promotion program in the group home setting. Moreover, the program training was inconsistent with some of the staff describing sufficient support and others not receiving proper guidance from their program coordinators. Additionally, only basic program materials were utilized with future use of the program being dependent on the program coordinators direction and availability of staff. Barriers identified across group sites were the lack of resident motivation to be physically active, lack of time, and limited staff available for implementation. Having a positive attitude towards physical activity, including the program in the group home schedule, pursuing activity with residents, and providing positive encouragement were facilitators for program implementation. Overall, the staff believe that the program was well written and the residents enjoyed it. However, due to the organizational barriers of lack of time, limited staffing, and insufficient support from program coordinators the program was unsuccessful in changing health outcomes. The findings from this process evaluation will be used to refine the current program materials, program name, training, and implementation in an effort to create a program designed to meet the needs of the residents residing in this setting.

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Table 1 Participant Characteristics

	Age	Gender F/M	Time worked in GH	GH Site
Resident 1	46	F	N/A	A
Resident 2	59	F	N/A	B
Resident 3	58	F	N/A	B
Resident 4	53	M	N/A	D
Resident 5	45	F	N/A	E
Staff 1	65	F	7 years	A
Staff 2	64	F	13 years 3	A
Staff 3	60	F	6 years 6	B
Staff 4	46	F	4 years	C
Staff 5	21	F	9 months	C
Staff 6	20	F	4 months	D
Staff 7	18	F	4 months	E

Notes. GH= group home

Table 2: Interview Results from Staff and Residents

META THEMES	CODES	FREQUENCY OF CODES^a	GROUP HOME SITE^b	EXAMPLE OF QUOTE
Training	How Trained	9 Staff 0 Residents	A, C, D, E	“She trained us at a meeting. She came over here and went over it with us a little bit.” –Staff
	Sufficient coordinator training	7 Staff 0 Residents	A, C, D	“You felt adequately trained?” “Yeah.” –Staff
	Insufficient coordinator training	6 Staff 0 Residents	B, C, E	“I was okay trained, but I really didn’t understand it. I had to look through it myself.” –Staff
Program Implementation	Continuity of implementation	11 Staff 0 Residents	A, B, C, D,E	“Was everyone on the same page?” “Yes, we all talked to each other about it.” –Staff
	Frequency	4 Staff 3 Residents	A, D, E A, B, E	“How much did you use the program?” “I offered it everyday.” –Staff
	When Offered	8 Staff 2 Residents	A, B, C, D, E B	“We would take 5-10 increments just whenever” –Staff “I haven’t been doing anything except stretching in the morning.” –Resident
	Who Offered	5 Staff 8 Residents	A, C, D, E A, B, E	“Everybody did their best to get them to understand it.” –Staff “Did you use any of these (shows her the post its) and put them on the calendar?” “No, the staff helped me” –Resident
	How Offered	17 Staff 17 Residents	A, C, D, E A,B,D,E	“We would bring everything out and lay it out and say, ‘Do you want to do any of these activities?’” –Staff “Did you use the post its? Do you remember using these?” “Yeah.” –Resident
	Program disuse	15 Staff 10 Residents	A, B, C, D, E B, E	“Did you use anything else in the binder?” “I don’t think so.” –Staff

				<p>“How often do you think you used this calendar? Do you remember them bringing this to you?”</p> <p>“I don’t remember at all.” –Resident</p>
	Intention for use	7 Staff 10 Residents	A, D A, B, D, E	<p>“I think we need to start again and see if we can get it better organized.” –Staff</p> <p>“Would you have done other things if you could?”</p> <p>“Yeah I would!” –Resident</p>
Program Physical Activity	Types of Activities	13 Staff 25 Residents	A, C, D, E A, B, D, E	<p>“He was doing arm and hand exercises mostly because he is in a wheelchair.” –Staff</p> <p>“What kind of activities do you do?”</p> <p>“Walking.” –Resident</p>
	Increase PA	9 Staff 3 Residents	A, C, D A, B, E	<p>“I did notice that he is looser on it because before he was too stiff.” –Staff</p> <p>“Have you been doing more physical activity?”</p> <p>“Yeah, I have.” –Resident</p>
	No Change	5 Staff 2 Residents	B, C, E B	<p>“...there was one that wanted to walk a little more, but that kind of lasted a short time.” –Staff</p> <p>“Are you doing any new activities?”</p> <p>“Um, no it doesn’t seem like it.” –Resident</p>
Program barriers	Resident Motivation	31 Staff 9 Residents	A, B, C, D, E A, B, D, E	<p>“It was just lack of motivation for them. They all work, so when they come back from work they usually have dinner, make their lunch, and go to bed right away.” –Staff</p> <p>“What would you rather do in the evening?”</p> <p>“Sit down and rest.” –Resident</p>
	Lack of Time	26 Staff 3 Residents	A, B, C, E B, E	<p>“We had to make a conscious effort to carve out time for it, which is part of the problem because when we didn’t have staff it got pushed to the bottom of the priorities.” –Staff</p>

			“They are too busy here to walk with me.”-Resident
Limited Staff	10 Staff 0 Residents	A, B, C, D, E	“Again, the staff shortages. You never knew who was going to be here from day to day.” -Staff
Staff Program Burden	7 Staff 0 Residents	A,B,E	“They participated, but it was real dependent on the staff to encourage it and organize it.” –Staff
Residents’ Dependence on Staff	3 Staff 6 Residents	C B	“I don’t think they benefit from it because It is not something they can do on their own.”-Staff
			“I was wanting to go somewhere but every time I ask to check they won't take us no place” –Resident
Lack of Program Understanding	4 Staff 9 Residents	B, E A, B, D, E	“I don’t think they understood it very well, except for the younger one that was here.” –Staff
			“How do you like the Menu-Choice PA program?” “I don’t know, what’s that?” –Resident
Staff/Resident Unsupported	1 Staff 10 Residents	E B, E	“... she doesn’t come out to the houses. I don’t think she talked to the clients about the program.” –Staff
			“Do your staff do any physical activities with you?” “No, I don’t remember them doing any activities with me.” – Resident
Age	4 Staff 0 Residents	A, B, E	“If they were younger, it might make a different, but being the ages they are late 50s and above, it makes it difficult” – Staff
Limitations	18 Staff 2 Residents	A, B, C, E B	“What were some of the challenges you faced with the program?” “The capability of some of the individuals.” -Resident
			“Would you ride a bike or anything?” “I would if I could.” –Resident

	Staff Fear Resident Injury	6 Staff 0 Residents	A, C	“We can do things outside of that but we need to be careful not to cause them harm.” –Staff
	Weather	1 Staff 6 Residents	B A, B, D, E	“So you think the weather might have been an issue?” “Yes, it definitely was part of it.” –Staff “Can’t go because its raining.” –Resident
	Lack Equipment	4 Staff 4 Residents	A, D A, E	“I just wish they had their own gym here or equipment, so that would be good.” –Staff “I don’t have any weights.” -Resident
	Negative Attitudes	5 Staff 1 Resident	A,B,C,D B	“I know some of the things in there (binder) the staff looked at each other like, how is that going to happen?” –Staff “What don’t you like about it?” “Doing push ups.” –Resident
Program Facilitators	Positive attitudes	18 Staff 0 Residents	A, C, D, E	“I think we try to make it (PA) a priority.” -Staff
	Program included in schedule	4 Staff 0 Residents	A, E	“So you scheduled a time to do it?” “Yes, with him I have to because of the things I have to work on, so that’s his half hour with me. We leave it at the same time.” –Staff
	One-on-one Implementation	3 Staff 0 Residents	A	“I also tried to cover 3 clients and I should have split that up with other staff and let them do that.” –Staff
	Staff familiarity with residents	4 Staff 0 Residents	A, C	“I’ve known Ken for over 30 years so I know what he can do and what he can’t do as far as his movement.” –Staff
	Staff Encouragement: PA with residents	7 Staff 8 Residents	C, E A,D,E	“How did you motivate them to be active?” “Dancing is a big part and dancing along with them.” –Staff “What kind of activity did you do with (staff)?” “Walk around” –Resident
	Staff Encouragement:	5 Staff 6 Residents	B,C, D B, D	“So we’ve been encouraging him to walk more.”-Staff

Prompting				<p>“Does your staff encourage you to be active?”</p> <p>“She (staff) keeps asking me if I do my exercises.” –Resident</p>
Making Activity Fun	2 Staff 3 Residents	C D, E		<p>“I made it more fun for them so they liked doing it. We would have mini dance parties in the kitchen, so it was something they enjoyed when there was music and we were dancing.” –Staff</p>
Spending time with Staff	3 Staff 0 Residents	A, D		<p>“They liked discussing different types of activity and making choices and using the materials and having one on one attention doing the exercises.” –Staff</p>
Residents have choices	4 Staff 3 Residents	A, E A, E		<p>“So, they picked the post it and showed you and you did the activity with them.”</p> <p>“Yes.” –Staff</p>
Residents having own materials	1 Staff 3 Residents	A B, E		<p>“Did you get to pick that picture out?”</p> <p>“Yeah.” –Resident</p> <p>“I think the fact that they would have their own board with their name and one on one time which they all enjoy.”- Staff</p>
Independence	1 Staff 2 Residents	D E		<p>“Are you going to give me a pedometer?”</p> <p>“Did you like the pedometer?”</p> <p>“Yeah, I do.” –Resident</p> <p>“They could go out for a walk by themselves?”</p> <p>“Oh yeah.” –Staff</p>
Previously Active Residents	6 Staff 1 Residents	A,C,D B		<p>“Did your staff help you do PA?”</p> <p>“No, I did it on my own.” –Resident</p> <p>“He used to just bike bike bike everywhere.” -Staff</p>
Feedback	General: Enjoy	18 Staff 9 Residents	A, C, E A, D, E	<p>“Have you been doing your stretching for a long time?”</p> <p>“Yeah.” –Resident</p> <p>“I think the ones who participated, enjoyed it.” -Staff</p>

			<p>“How did you like the Menu-Choice PA program?”</p> <p>“I liked it.” –Resident</p>
General: Positive about materials	11 Staff 0 Residents	A,C,D, E	<p>“We thought it was good materials. On our end, we just didn’t find the time, but I think the materials were all pretty clear.” –Staff</p>
General: Dislike	2 Staff 0 Residents	B,D	<p>“I’d hear him complaining that he was more tired and going to bed early.” –Staff</p>
Receiving medical approval	3 Staff 0 Residents	A, C	<p>“We talked about doing the Health Matters (another health promotion program) class and again we run into issues getting permission slips and that kind of thing.” –Staff</p>
PA Knowledge Section	3 Staff 0 Residents	A,D,E	<p>“Do you feel more knowledgeable about physical activity?”</p> <p>“Yeah it was worthwhile.” –Staff</p>
Activity Sheets: Time Consuming	5 Staff 0 Residents	B,C,E	<p>“How was writing down the activity in the schedules?”</p> <p>“Depending on the day you ask me, some days yes it was difficult.” –Staff</p>
Activity Sheets: Appropriate	2 Staff 0 Residents	A, D	<p>“Did you find the weekly sheets difficult, easy to follow?”</p> <p>“Yeah, I think they were easy to do.” –Staff</p>
PA Activities: Appropriate	4 Staff 0 Residents	A, E	<p>“So you were able to find activities they were able to do?”</p> <p>“Yeah, I did.” –Staff</p>
PA Activities: Not Appropriate	5 Staff 0 Residents	A, B, E	<p>“The activities were too advanced. Our folks aren’t going to do a lot of physical activity running, skiing, or whatever.” –Staff</p>
Name	1 Staff 3 Residents	A A,B,E	<p>“You said the name Menu-Choice wasn’t good?”</p> <p>“Yes.” –Staff</p>
			<p>What did you like about the Menu-Choice program?</p> <p>“I cooked lasagna last night.” –Resident</p>
Specific Suggestion: Group effort	3 Staff 0 Residents	B	<p>“... make it more of a group effort?”</p> <p>“Yeah, I think that would make a big difference.” –Staff</p>

Specific Suggestion: Resident involvement in training	3 Staff 0 Residents	B, E	“If you had something that also showed them (residents) what it is. Something like that would be great.” –Staff
Specific Suggestions: Video	1 Staff 0 Residents	B	“Just talking with them sometimes it doesn’t click, but a visual, something they could watch and listen. That would make it better for them.” –Staff

Notes:

^a Frequency indicates the amount of times the code was mentioned in the transcripts, not the number of participants.

^b Residents from site C did not participate due to severity of disability

Chapter 5: General Conclusion

General Conclusion

Residents with intellectual and developmental disabilities who live within the group home setting have poor health status and preventable secondary conditions. Thus, there is a critical need to develop health promotion programs to meet the unique environment of the group home setting. When group home providers do not prioritize healthy behaviors (i.e., physical activity), are inconsistent role models due to high staff turnover, and are resistant to change established routines, the health of adults with intellectual disabilities are at risk. This research attempts to better understand the group home setting and design a physical activity health promotion program to meet the needs of group home providers and residents.

The steps taken to develop a specially designed health promotion program for this setting were based on established health promotion guidelines for adults with disabilities and principles of community engagement. Group home stakeholders (i.e., residents, staff, and program coordinators) were included in the needs assessment, design, implementation, and evaluation of the created program. The *Menu-Choice Physical Activity Program* is theoretically grounded in the Goal Setting Theory and Diffusion Theory for implementation. With resident involvement, the program aides staff in the scheduling of physical activity goals for residents.

In Phase I, focus groups with stakeholders provided insider knowledge to the barriers, facilitators, and nature of physical activity in the group home setting. Results from the preliminary focus groups (i.e., manuscript #1) suggest that residents with intellectual disability need more physical activity and additional support from their caregivers to motivate them to be active. Suggestions for program design from these groups included: 1) Obtaining resident and staff buy in, 2) Addressing the diverse needs of the residents, 3) Including self-determination for activity, 4) Make the program and physical activity fun, and 5) Create a simple program that can be engrained into the group home system. From the knowledge obtained from these stakeholders, Menu-Choice was created.

Phase II research piloted the program in a group home agency, which included five group home sites. Quantitative (i.e., manuscript #2) and qualitative (manuscript #3) process evaluation revealed that the program design and implementation did not sufficiently overcome organizational barriers. Specifically, the program training and implementation did not gain sufficient program coordinator and staff buy in. Moreover, despite creating a simple program, staff turnover and limited availability were still a limiting factor. We did not ask for policy level change; however, we obtained agency level support prior to implementing the program. Although agency managers were on board with the program, there was minimal adherence to making the program a priority. The transferability of the program to the staff did not indicate that the program was a priority to implement within the other tasks of the group home environment. Fidelity surveys and qualitative interviews validated that staff from the five sites did not use the program as it was intended due to factors related to lack of stakeholder buy in, insufficient staff training, and resident factors (e.g., motivation, physical limitations, and severe disability).

The findings from Phase I and II research will be used to refine the current program materials, program name, training, and implementation in an effort to create a program designed to meet the needs of the residents in a group home setting. One specific program change will include the use of the Transtheoretical Model to determine group home readiness to change. The use of stages of change will allow the researcher to tailor program training and implementation according to agency and provider's readiness to adopt a health promotion program. The program will also pursue the following modifications: change its name to avoid confusion with food, provide training to both staff and residents using videos for consistency, give group home agency directors and program coordinators more defined roles in program oversight, incorporate technology to reduce staff burden and ensure proper implementation of the program, and provide one page handouts for a more manageable way to read the resources available. Ultimately, the need for agency support is critical for physical activity programming, especially because the attitudes and behaviors toward physical activity differ among group home providers.

Without policy level change, these attitudes influence how and if physical activity is encouraged for residents. This was evident in the pilot study as the majority of the program coordinators and staff were overweight and had insufficient physical activity levels. Thus, agency level adoption of health promotion programming is needed to increase physical activity of residents and reduce preventable secondary conditions in this population.

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APPENDICES

APPENDIX A

Manuscript #1 Resident Moderator Guide

Welcome and Introductions:

- The assistant will pass out the name tags. The moderator will discuss that they may put any name on their name tag. It doesn't have to be their name, but a name that they will be referred to in the discussion.

Script: Hello and welcome! I'd like to thank you for taking time to join us today for our physical activity discussion. I will be the leader for this discussion. Anisia will be taking notes to make sure that we get as much information as possible.

As you may know, the purpose of this focus group is to discuss your physical activity. We want to learn about your physical activity and what things make you more active or less active.

- Discuss Informed Consent—assistant will distribute the documents
- Turn on the recorders.

Script: Before we begin, I'd like to provide you with guidelines for our discussion.

- *First, we are audio taping our conversation so that we don't miss any of your important comments. This is necessary because we can't write everything down fast enough to remember it all. These tape recordings will be shared only with Kerri, myself, and one other girl that will not talk about our talk.*
- *During our discussion, we will only use first names*
- *We urge everyone to keep what is said in our discussion secret and don't tell others who participated in the group.*
- *Take turns talking with the group*
- *Also, it is important for you to remember that there are no right or wrong answers. We expect that there will be differing points of view. Please feel free to share your point of view even if it differs from what others have said.*

- *Be nice to others when they are talking*
- *The “go around” question will consist of everyone in the group talking.*
 - Go to each person and repeat the following questions:
 - So _____How old are you? What house do you live in?, What’s your favorite sport to play or watch?

Questions:

1. Where do you work? What types of activities do you do at work?
 - a. Do you do physical activity when you come home from work? Or on the weekend?

ACTIVITY: *What is Healthy to me ?*

2. What is physical activity?

Probes (yes/no) Is it?

- | | |
|----------------------------|------------------------|
| -Walking to work | -watching a movie |
| -yoga | -exercise video |
| -Special Olympics practice | -mowing the lawn |
| -lifting weights | - taking out the trash |

ACTIVITY: Pictures of activities will be printed and given to the residents.

The moderator will ask

- Which of these pictures are physical activities? (colored copy)
- “If you had any choice, choose two of these activities you would do in your spare time? Circle one.”
 - a. Each person will talk about why they chose that activity
 - b. Talk about the sheet
- 3. What is your favorite physical activity?

4. What is the least favorite physical activity?
5. Do you think physical activity is important for your health? Why or why not?
 - a. In what ways can physical activity give you better health?
6. When you were young, did you play any sports or do exercise with friends and family?
7. Do you participate in Special Olympics, fitness classes, IMPACT for Life, adaptive swimming, ect? Talk about your experience in these programs.
8. Do your friends do physical activities with you? Can you talk about the activities they do with you?

9. Tell me about your staff.
 - a. How long have you known the staff that come to your house?
 - b. Does your staff do physical activities with you? Can you talk about the activities they do with you?
10. What would your staff say if you asked to go to the gym? On a walk? Ride bikes?

11. Does anyone encourage you to perform more physical activity? Like who?
12. Does anyone encourage you to do less physical activity? Like who?

NOTES:

- Go around to each person and ask the question
- Ask questions when they are talking

APPENDIX B

Manuscript #1 Program Coordinator and Staff Moderator Guide

‘Advisory Group’ Meetings

Creating the Atmosphere

Light food and beverages will be provided at the discussion. Participants will arrive and will have some time (10-15minutes) to get food and talk with the moderator and greeter/note taker/technical assistant. The greeter will welcome participants as they arrive.

- Place name tags/ notebooks on the table

Welcome and Introductions:

Script: Hello and welcome! I'd like to thank you for taking time out of your busy lives to join us for this discussion. We very much appreciate your willingness to share your insights with us. My name is Alicia and I will be your moderator for this discussion. Anisia is the Research Assistant on this project. She will be taking notes to make sure that we get as much information as possible.

As you may know, the purpose of this focus group is to discuss what physical activity looks like in the group home setting. We want to create a physical activity program that is especially designed by you to better fit the group home setting needs.

- Review the informed consent. The assistant will pass out the documents and name tags. During the consent discussion, the moderator will discuss that they may put any name on their name tag. It doesn't have to be their name, but a name that they will be referred to in the discussion.

- Start the recorders

Script: Before we begin, I'd like to provide you with an overview of today's meeting and guidelines for our discussion.

-Today's discussion will last approximately one hour to one hour 30minutes. We will

begin with a short activity and follow with open ended questions about operations in the group home, physical activity opportunities, physical activity that the residents perform, feasibility of integrating a PA program in the group home, and a discussion about why residents are/ are not active. Are there any questions?

- *Each of you have a notebook in front of you. We will use these for two activities today, but feel free to open to a clean page and take notes to share once others are done speaking. At the end of the discussion, I'll ask if there is anything else to ask, you can return to your notes at that time to share.*
- *Feel free to put any name you'd like on the name tag*

-Ok, I'm going to briefly go over a few ground rules for the discussion today.

- Have guidelines written on flip board
 - *First, we are audio taping our conversation so that we don't miss any of your important comments. This is necessary because we can't write everything down fast enough to remember it all. To maintain confidentiality, these tape recordings will be shared only with researchers and with the person who transcribes the tapes. In order to maintain a high level of confidentiality, we will use only first names.*
 - *Before speaking to the group state your name. This makes it easier to listen to the recordings later*
 - *While those of us collecting your information will keep your comments confidential, we can't speak for those participating in the focus group. We do urge everyone, however, to respect the confidentiality of others by not revealing who participated in the group and by not telling anyone else what is said in the group.*
 - *These tents help me remember names, but they can also help you. If you want to follow-up on something that someone has said—if you want to agree or disagree—feel free to do that. You do not have to respond to me all the time. I*

want to encourage you to have a conversation with one another about these questions.

- Take turns talking with the group
- Also, it is important for you to remember that there are no right or wrong answers. We expect that there will be differing points of view. Please feel free to share your point of view even if it differs from what others have said.
- Be respectful of the opinions of others in the discussion
- I am here to ask questions, to listen, and to ensure that everyone has a chance to share. We're interested in hearing from each of you.

Is there anything else you would like to add to the discuss guidelines?

Program Coordinators (1.5 hours):

Intro ACTIVITY: Flip Chart/ in notebooks--- **ACTIVITY 1: Health and Wellness**

Components

1. Social engagement
2. Personal motivation
3. Nutrition
4. Involvement in leisure activities (i.e. shopping, tv watching, video games)
5. Physical activity
6. Spirituality
7. Occupation
8. Sustaining from substances (alcohol, smoking)

Choose the **top three** of the components listed in your notebooks that you believe are the **most important** for the health and wellness of the residents

Choose the **bottom two** of these components you believe are **least important** for the health and wellness of the residents

- Why did you choose those three as the most important?
- Why did you choose _____-as the least important?
- Did we miss any components of health and wellness for the residents?

Operation-Directed Questions:

1. Can you discuss what a typical day looks like for the residents in your house?

2. *Describe the employment/ jobs of the residents.*
 - *Do these jobs require physical activity?*
3. How quickly do direct care staff turnover at *Homelife Inc and Benco*?
 - How does the turnover affect the dynamics of the house?
4. What kind of training is provided for new staff?
5. Can you discuss if PA is included on residents' individual plans at the group home?
 - Can you discuss how the goals are selected for these plans?
 - How often is PA included on these individual plans?
6. Are there programs or training in place that addresses physical activity or health/wellness at *Homelife and Benco*, if so what are they?
 - Why do you think there aren't any programs in place?
7. What physical activity opportunities are available for residents at *Homelife/ Benco* or in the community?
 - How many participate in these programs?
 - *Has anyone in Homelife or Benco looked for additional PA resources for the residents?*
8. What kinds of physical activity do the residents perform?
 - Why do you think they enjoy/dislike these activities?
 - How do you and the staff plan them into their daily schedule?
9. How often do you think support staffs participate in physical activity with the residents?
 - Is it feasible for staff to do PA with the residents based on their schedule?
10. *Have you noticed if physical activity is different for residents during the week*

compared to the weekend? If yes, why?

Content-Directed Questions (knowledge, barriers, facilitators):

11. How much physical activity do you think the residents need to perform to be healthy?
 - What types of benefits do you think physical activity could provide for the residents?

ACTIVITY: Notepads will be provided. The participants in the focus group will take five minutes to think about the following question and write down responses. After five minutes, the moderator will ask the group the question again.

12. What barriers are preventing residents from engaging in PA? (Following are potential probes from the literature, if needed).
 - Lack of time for staff?
 - Lack of opportunities in the community?
 - Money restraints?
 - Resident motivation?

13. What do you believe can motivate residents to be more active?

Value-Directed Questions (expectations, attitudes, intention):

14. What do you think your role is in promoting health (e.g. physical activity, nutrition, wellness, ect) in the group home setting?
15. How feasible is it to include more physical activities into daily schedules of inactive residents?
16. If a program was available to help you integrate more physical activity into daily scheduling for the residents, would you use it? Why or why not?
 - What hesitations do you have about using a health promotion program?
17. In your opinion: why do you think we had such a low response rate for these PA

focus groups?

18. Is there anything else you would like to add to the discussion?

- The moderator will conclude each meeting by reassuring participants' confidentiality of the recorded information. The researcher will also ask permission if she can contact participants for clarity of their responses if needed.

Thank you!

Support Staff (1.5 hours):

Intro ACTIVITY: Flip Chart/ in notebooks--- **ACTIVITY 1: Health and Wellness**

Components

9. Social engagement
10. Personal motivation
11. Nutrition
12. Involvement in leisure activities (i.e. shopping, tv watching, video games)
13. Physical activity
14. Spirituality
15. Occupation
16. Sustaining from substances (alcohol, smoking)

Choose the **top three** of the components listed in your notebooks that you believe are the **most important** for the health and wellness of the residents

Choose the **bottom two** of these components you believe are **least important** for the health and wellness of the residents

- Why did you choose those three as the most important?
- Why did you choose _____-as the least important?
- Did we miss any components of health and wellness for the residents?

Operation-Directed Questions:

1. Can you discuss what a typical day looks like for a resident in the group home?
2. Do the residents have consistent support from the same staff for greater than one year?
 - How quickly do direct care staff turnover at *Homelife Inc and Benco*?
 - How long do you plan to stay at Homelife/Benco?
3. Describe the employment/ jobs of the residents.

- Do these jobs require physical activity?
- 4. Are there programs or training in place that addresses physical activity at *Homelife and Benco*, if so what are they?
 - Why do you think there aren't any programs in place?
- 5. Can you discuss if PA is included on residents' individual plans at the group home?
 - Can you discuss how the goals are selected for these plans?
- 6. What physical activity opportunities are available for residents at *Homelife/ Benco* or in the community?
 - Special Olympics directed question: Is PA balanced throughout the year or only when a sport season is occurring?
 - Probes: How many participate in these programs?
 - Has anyone in Homelife or Benco looked for additional PA resources for the residents?
- 7. What kinds of physical activity do the residents perform?
 - Why do you think they enjoy/dislike these activities?
 - How do they plan them into their daily schedule?
- 8. Have you noticed if physical activity is different for residents during the week compared to the weekend? If yes, why?
- 9. Do the residents ever request to do physical activities (i.e., go to join a gym, fitness class, go on a walk, etc)?
- 10. Would you and do you participate in physical activities with the residents?
Describe some of the activities you perform with the residents.

Value-Directed Questions (expectations, attitudes, intention):

- 11. What do you think your role is in promoting health (e.g. physical activity,

nutrition, wellness, ect) in the group home setting?

12. How feasible is it to include more physical activities into daily schedules?

13. If a program was available to help you integrate more physical activity into daily scheduling for the residents, would you use it? Why or why not?

- What hesitations do you have about using a health promotion program?

Content-Directed Questions (knowledge, barriers, facilitators):

14. How much physical activity do you think the residents need to perform to be healthy?

- What types of benefits do you think physical activity could provide for the residents?

ACTIVITY: Notepads will be provided. The participants in the focus group will take five minutes to think about the following question and write down responses. After five minutes, the moderator will ask the group the question again.

15. What barriers are preventing residents from engaging in PA? (Following are potential probes from the literature, if needed).

- Lack of time for staff? Lack of opportunities in the community?
- Money restraints? Resident motivation?

16. What do you believe can motivate residents to be more active?

17. Is there anything else you would like to add to the discussion?

- The moderator will conclude each meeting by reassuring participants' confidentiality of the recorded information. The researcher will also ask permission if she can contact participants for clarity of their responses if needed.

APPENDIX C**Manuscript #2 Menu-Choice Physical Activity Program****(See attachment)**

APPENDIX D
Manuscript #2 Menu-Choice Training Evaluation

Complete demographic information and submit page one to the Menu-Choice team.

Age: _____

Gender (circle one): M F

How would you classify yourself?

_____ Arab	_____ Indigenous or Aboriginal
_____ Asian/Pacific Islander	_____ Latino
_____ Black	_____ Multiracial
_____ Caucasian/White	_____ Hispanic
_____ Would rather not say	Other: _____

Your role in the group home agency:

_____ Manager

_____ Program Coordinator

_____ Other:

(explain) _____

During the past month, other than your regular job, did you participate in activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?

Yes

No

How many times per week or per month did you take part in this activity during the past month?

___Times per week

___Times per month

Page 2

Menu-Choice Training Evaluation

Return pages 2-3 in the secured envelope prior to leaving the training session

Do you agree or disagree with the following statements?	Strongly disagree	Disagree	Agree	Strongly agree
I know enough about Menu-Choice to help staff in my group home learn about it and use it.				
The lectures at this training met my learning needs				
The activities at this training met my learning needs				
The discussion at this training met my learning needs				

How often do you expect the following Menu-Choice materials will be used in your group homes?	Regularly	Occasionally	Seldom or Never
10 Step Guide to Menu-Choice			
Physical Activity Education Section			
Residents' Special Activity Needs Sheet			
Goal Setting Education Section			
Resident Choice Activities			
Menu-Choice Activity Modules			
Menu-Choice Activity Progressions			
Weekly Activity Schedule (goal setting sheet)			
Resident's Pictorial Goal Activity Calendar			
Goal Evaluation Sheets			
Choosing a Staff and Resident Activity Champion			
Finding Motivation Activities			

In this training, I learned the most about...

I would have liked to learn more about...

How can we improve this Menu-Choice training?

Any suggestions for improving Menu-Choice program?

**We are glad you came! Please write additional comments
here....**

APPENDIX E
Manuscript #2 Staff Assessment Packet

Menu-Choice Fidelity Questionnaire

How often do you use the following Menu-Choice contents?	Consistently used the component	Sporadically used the component	Did not use the component
10 Step Guide to Menu-Choice			
Physical Activity Education Section			
Residents' Special Activity Needs Sheet			
Goal Setting Education Section			
Resident Choice Activities			
Menu-Choice Activity Modules			
Menu-Choice Activity Progressions			
Weekly Activity Schedule (goal setting sheet)			
Resident's Pictorial Goal Activity Calendar			
Goal Evaluation Sheets			
Staff and Resident Activity Champions			
Finding Motivation Activities			

Demographic Questionnaire

Age:		Gender:	
Height (inches):		Weight (lbs):	

How would you classify yourself?

<p>_____ Arab</p> <p>_____ Asian/Pacific Islander</p> <p>_____ Black</p> <p>_____ Would rather not say</p>	<p>_____ Indigenous or Aboriginal</p> <p>_____ Hispanic</p> <p>_____ Caucasian/White</p> <p>Other: _____</p>
--	--

How long have you worked in the current group home?	years _____ months _____
How many hours of direct care do you provide to persons residing in the group home?	hours per week _____ hours per day _____

During the past month, other than your regular job, did you participate in activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?

Yes

No

How many times per week or per month did you take part in this activity during the past month?

___ Times per week

___ Times per month

APPENDIX G
Manuscript #2 Resident Assessment Packet

Knowledge and Beliefs Questions

"I am going to read you some possible reasons why you might want to exercise. Do you think that exercise would"

- | | | |
|-----|---|--|
| 1. | Help you lose/control your weight or not help you lose/control your weight? | |
| | Help Not help Neither or both | |
| 2. | Make you feel less tired or make you feel more tired? | |
| | Less tired More tired Neither or both | |
| 3. | Make your body feel good or not make your body feel good? | |
| | Feel good Not feel good Neither or both | |
| 4. | Make you feel happier or not make you feel happier? | |
| | Feel happier Not feel happier Neither or both | |
| 5. | Make you hurt less or not make you hurt less? | |
| | Hurt less Not hurt less Neither or both | |
| 6. | Help you meet new people or not help you meet new people? | |
| | Help Not help Neither or both | |
| 7. | Help you get in shape or not help you get in shape? | |
| | Help Not help Neither or both | |
| 8. | Make you look better or not make you look better? | |
| | Look better Not look better Neither or both | |
| 9. | Improve your health or not improve your health? | |
| | Improve Not improve Neither or both | |
| 10. | Make your cholesterol level better or not make your cholesterol level better? | |
| | Lower Not lower Neither or both | |
| 11. | Make your blood pressure better or not make your blood pressure better? | |
| | Make better Not make better Neither or both | |

12. Improve your strength or not improve your strength?

Improve

Not improve

Neither or both

Health Matters: The Exercise and Nutrition Health Education Curriculum for People with Developmental Disabilities
by Beth Marks, Jasmina Sisirak, and Tamar Heller

Demographic Questionnaire

Age:		Gender:	
Height (inches):		Weight (lbs):	

How would you classify yourself?

_____ Arab

_____ Indigenous or Aboriginal

_____ Asian/Pacific Islander

_____ Hispanic

_____ Black

_____ Caucasian/White

_____ Would rather not say

Other: _____

APPENDIX H

Manuscript #3 Post Evaluation Interview Questions

Staff Semi-Structured Questions:

- Are there any changes that have occurred in the PA routines and procedures since the new PA program was introduced?
- What are the reactions of other staff and residents regarding the program?
- Has there been extra time commitments related to implementing the program?
- Do you feel you were adequately trained in *MenuChoice* prior to using the program?
- Do you feel as if your superiors support the program?
 - a. Were there occasions where you needed something for the program and they were able to get it for you?
 - b. In what ways was your coordinator was helpful or not helpful.
- What challenges did you face while using the program?
- Were there any parts of the program you or the residents enjoyed?
- How did you find time to use Menu-Choice ?
- How did you motivate resident to participate in the program?
- Do you think the program materials fit the needs of the group home, residents, and staff?
- What could we change about the program?
- Do you think your house will continue to use *MenuChoice*?
- How do you feel about physical activity? Is it useful for the residents?

Resident Semi-Structured Questions:

- How did you like the Menu-Choice program?
- Did you notice there was a new program in your house? Did anything change?
- Are you doing more physical activity?
- Are you doing any new physical activities now that the program has come into the house?
- Does your staff do more physical activities with you?
- How does your staff encourage you to be more physically active?
- Does your staff limit your physical activity? How?
- What is your favorite part of the program?
- What didn't you like about the program?