The Open Journal of Occupational Therapy

Volume 3
Issue 2 *Spring 2015*

Article 2

4-1-2015

Time and Space Use of Adults with Intellectual Disabilities

Terry K. Crowe
University of New Mexico, tcrowe@salud.unm.edu

Jessica Salazar Sedillo
KidPower Therapy Associates, jessess917@gmail.com

Emily F. Kertcher
University of North Carolina Chapel Hill, emily.kertcher@gmail.com

Joy H. LaSalle
Oregon Rehabilitation Center at Sacred Heart Medical Center, jlasalle73@yahoo.com

Time and Space Use of Adults with Intellectual Disabilities

Abstract
Purpose: This study analyzed the time and space use of adults with intellectual disabilities (ID) in order to better understand the occupational patterns of this population.

Methods: Time and space use data were collected through observation of 15 adults with ID during 4-hour periods on typical weekdays and weekend days. Data were coded into 12 time and 10 space use descriptive categories.

Results: The participants used a greater variety of locations during weekdays that contributed to greater amounts of weekday time spent in a wider variety of activity categories. In contrast, the participants spent a majority of the observed weekend day time in the group home with less activity variety. Although the participants in this study lived in group homes and participated in day habilitation programs or supported employment, a majority of their midday time use occurred in passive activity categories in a minimum variety of locations. These results may be due to the types of activities offered by structured day habilitation programs and group homes.

Conclusion: Occupational therapists may be key players to enhance the environments of people with ID by providing direct service and staff training to facilitate more diversity of active use of time and space for adults with ID.

Keywords
occupational therapy, time use, community integration

Cover Page Footnote
We would like to express our gratitude to Malcolm Clark, Frances Dineyazhe, MOTR/L, and Leah Anthony, MOTR/L, for assisting with data collection. Also Robert Hobbs, MPH, OTR/L, Margaret Sanders, PhD, and Prisca Gruner, MOTR/L, assisted us with this study. And finally, we give a heartfelt thanks to the 15 study participants and their guardians.

Credentials Display
Terry K. Crowe PhD, OTR/L, FAOTA
Jessica Salazar Sedillo MOTR/L
Emily F. Kertcher PhD, OTR/L
Joy H. LaSalle MA, MOT

DOI: 10.15453/2168-6408.1124

Although more people with intellectual disabilities (ID) are living and participating in the community, there is limited research documenting their daily occupational behavior. According to the *Diagnostic and Statistical Manual of Mental Disorders 5th ed.* (DSM-5), an intellectual disability is defined as "deficits in intellectual functions, such as reasoning, problem solving, planning, abstract thinking, judgment, academic learning, and learning from experience; deficits in adaptive functioning that result in failure to meet developmental and sociocultural standards for personal independence and social responsibility; and onset of intellectual and adaptive deficits during the developmental period" (American Psychiatric Association, 2013). Within the limited research available, most of the studies examining the time use of adults with ID have focused on specific occupational categories such as leisure (Buttimer & Tierney, 2005; Zijlstra & Vlaskamp, 2005) and physical fitness (Messent, Cooke, & Long, 1999; Temple, Anderson, & Walkley, 2000).

Patterns of time use show that participants with ID spent a majority of their time in passive activities. In a small study (n = 4), it was found that participants mostly engaged in sedentary, passive activities, including spending 23% of their time "doing nothing" (Sparrow & Sharp, 1991). In a Spanish study with 237 adults with ID, the most common recreational activities at home were watching TV, resting, and listening to music with low levels of participation in physical activities (Badia, Orgaz, Verdugo, & Ullán, 2013). Participants expressed preference, however, for more social and physical activity. A multiple-case study from Australia involving six adults with ID by Temple et al. (2000) found that on average participants spent 10 hours lying down, 6 hours sitting, 3 hours standing, and 3 hours performing personal tasks or participating in moderate sport, leisure, or work activities. Participants were physically and cognitively able to walk independently, and lived in areas where employment or day habilitation services could be accessed by walking. Only two participants met the Australian guidelines for physical activity (30 minutes/day). A study from the Netherlands found that 160 people with ID living in residential facilities spent on average 3.8 hours participating in leisure activities during the weekend, and that almost half of that time was spent either watching television or listening to music (Zijlstra & Vlaskamp, 2005). Zijlstra and Vlaskamp stated that leisure time for persons with ID "contains more empty hours than quality time" (p. 434). Dixon-Ibarra, Lee, and Dugala (2013) found that older adults with ID (more than 50 years of age) performed even less physical activity than younger adults with ID. They stressed the need for health promotion efforts for adults with ID across the lifespan.

According to the 2013 American Time Use Survey from the U.S. Census Bureau for the Bureau of Labor Statistics, on an average day in 2013, adults in America spent about 7.6 hours working and 2.1-2.6 hours engaged in household activities. Ninety-five percent of adults aged 15 years and older engaged in a leisure activity daily (U.S. Census Bureau for the Bureau of Labor Statistics, 2014). The survey also found that men spent 5.9

hours and women spent 5.2 hours participating in these activities. The current research and the results of this survey show that adults without disabilities are spending more time participating in work and leisure activities than adults with disabilities.

In a large cohort study of the general population, it was found that sedentary behaviors (sitting time and television viewing) were positively associated with mortality after adjustment for age, gender, education, smoking, diet, race, and amount of moderate physical activity (Matthews et al., 2012). Additionally, a study from England found that individuals with ID who spent more time in passive activities were often associated with negative health outcomes, such as higher obesity rates, higher mortality rates, and decreased life span (Messent et al., 1999). Taylor and Hodapp (2012) found that 13% of 796 adults with ID were without daytime activities and these individuals had more emotional-behavioral and health problems compared to others in the study. The study by Peterson, Janz, and Lowe (2008) indicated that the activity levels of adults with ID were generally not enough to provide health benefits. In a systematic review of seven studies, Bodde & Dong-Chul (2009) found that the primary social and environmental barriers to physical activity for adults with ID were transportation issues, financial limitations, and a lack of awareness of options. The authors also stated that negative supports from caregivers and a lack of clear policies for engaging in regular activity in residential and day programs contributed to less physical activity (Bodde & Dong-Chul, 2009).

Salkever (2000) found that for young adults with ID, lower levels of physical activity were not only associated with a decrease in physical wellness, but also correlated with a decrease in life satisfaction and productivity. Howie et al. (2012) found that adults with ID had few physical activity environmental resources (such as exercise equipment or space) and opportunities available to them, especially those not living in group homes. Those who lived in group homes were more likely to have access to basketball hoops, sports fields, and recreation centers than those who lived alone or with family.

Purpose/Research Questions

Due to the limited research conducted on time and space use of adults with ID and since a majority of this research is focused on physical and leisure activity, the researchers designed this research study to analyze the time and space use of adults with ID in order to further understand the occupational patterns of this population. The research questions included:

- How do adults with ID use their time during midday hours?
- Where do adults with ID spend their time during midday hours?
- How does midday time and space use of adults with ID differ between weekdays and weekends?

Methods

A quantitative, exploratory, and descriptive research design was used for this study. The University of New Mexico Human Research and Protection Office approved this study.

DOI: 10.15453/2168-6408.1124

Participants

Fifteen adults with ID participated in this study. To meet the criteria for inclusion, participants had to be adults (18 years of age or older) with ID, and classified at a care status Level 1 or 2 by the New Mexico Department of Health (DOH) Long Term Services Division. Care status levels correspond with levels of impairment, with Level 1 assigned to people requiring the most assistance with activities of daily living and Level 2 care status assigned to people requiring moderate support (Human Services Department, State of New Mexico, Medical Services Division, 2002). Participants had to live in a group residence that was a single family home operated by a residential agency for adults with ID. The group homes were staffed 24 hours per day by the residential agency, with a maximum of three residents residing in each home. In addition, the individuals had to be participants in a New Mexico DOH Long Term Services Division-approved day habilitation program or a supported employment program for at least five hours per day for five weekdays per week. Table 1 provides demographic data for the 15 participants.

Table 1
Participant Demographics

Participant (n = 15)	Gender	Age (yrs.)	Care Status Level	Diagnoses
Participant 1	Male	54.3	1	SD, CP
Participant 2	Female	39.4	1	SD, MR
Participant 3	Male	38.6	2	SD, CP
Participant 4	Female	54.7	1	SD
Participant 5	Female	41.5	1	SD, Blindness, Spastic Quadraparesis, Profound MR, Microcephaly
Participant 6	Male	29.1	1	SD, Traumatic Brain Injury
Participant 7	Male	34.4	1	SD, CP
Participant 8	Female	33.2	1	Spastic Quadraparesis, MR, Blindness
Participant 9	Male	51.3	1	Not defined
Participant 10	Female	62.5	1	SD, MR, Spastic Quadraparesis, Refractive Error Vision
Participant 11	Female	56.4	1	CP, MR
Participant 12	Male	37.3	2	Autistic Features, MR
Participant 13	Female	31.6	1	SD, Autism
Participant 14	Male	40.6	1	SD, CP, MR
Participant 15	Male	44.7	1	MR

Note. SD = Seizure Disorder; CP = Cerebral Palsy; MR = Mental Retardation.

Instrument

A demographic survey completed by the guardian was used to collect general information about each participant. The researchers used an adapted version of the Caregiver's Activity and Recording of Events (C.A.R.E.; Crowe, 1988) to analyze each participant's activities and locations during each observation. Several changes were made to adapt the instrument for use in this study: (a) the C.A.R.E. was changed to an observation instrument because the ID of the participants impeded their ability to record their own activities independently, (b) recording space use was added, (c) time intervals were changed from 30 minutes to 15 minutes, (d) the instrument recording time was changed from 24 hours/7 days to 4 hours/2 days, and (e) the activity categories Therapy 1, Therapy 2, Down Time, and Transportation were added to describe the activities of this specific population more accurately. The modified version included the time diary, which researchers used to record their observations, an activity dictionary with updated activity categories that reflected participant activity patterns, and the C.A.R.E. coding tool to code the observations according to the updated categories.

The 12 activity categories were Active Recreation (e.g., sports, walking around a museum), Down Time (e.g., sitting and doing nothing), Education (e.g., related educational activities), Employment (i.e., only one participant was employed, which involved delivering papers from a car driven by a job coach), Homemaking (e.g., making a bed, shopping), Participation/Socialization (i.e., interactions with others at the group home or day habilitation), Passive Recreation (e.g., watching television, drawing), Personal Care (e.g., going to the bathroom, showering), Rest/Sleep (with eyes closed), Therapy 1 (i.e., attending physical, occupational, speech, behavior, or massage therapy sessions), Therapy 2 (e.g., receiving therapeutic interventions from staff such as range of motion or massage), and Transportation (e.g., traveling in a vehicle).

As stated, location data was not recorded on the original C.A.R.E. but it was added for this study. The 10 location categories recorded were Community Recreational Facility, Day Habilitation Program, Friend's House, Group Home, Medical Facility, Relative's Home, Restaurant, Social Service Agency, Store, and Vehicle (e.g., time spent in a vehicle going from place to place). While Work Place was originally a category, only one person worked, and that was delivering papers from a vehicle, which was coded as the location for this activity.

The duration of observations on the modified C.A.R.E. was reduced to 15-minute intervals for 4 consecutive hours during one weekday, and one weekend day (total of 16 segments each day). The intervals enabled the researchers to record precise observations, and the shorter duration of data collection was less invasive for the participants and caregivers than the typical 24-hour C.A.R.E. period.

Procedures

Recruitment entailed posting flyers at residential agencies, networking with professionals who work with adults with ID, and meeting with managers of day habilitation programs to identify potential participants. Once potential participants

DOI: 10.15453/2168-6408.1124

were identified, a researcher met with the participant and/or guardian. When the participant was his or her own guardian but was unable to communicate independently, a caregiver facilitated the conversation between the participant and the researcher. The meetings allowed the researcher to explain the purpose and procedures of the study, to obtain written consent from the participant or guardian, to collect demographic information, to answer the participants' and guardians' questions, and to make arrangements for data collection at the day habilitation or employment setting and the group home. The participants retained the right to withdraw from the study at any time.

Each participant was observed for a total of 8 hours. Most observations occurred midday (between 10:00 a.m. and 2:00 p.m.), which allowed the researchers to observe part of a morning routine, at least one meal, and part of an afternoon routine. Two participants were observed between 9:00 a.m. and 1:00 p.m. to accommodate day habilitation program scheduling. One researcher coded all data by sorting each participant's time use according to the 12 activity and the 10 location categories in the C.A.R.E. dictionary. Total minutes across each day were calculated for all activity and location categories.

Reliability

Agreement checks for data collection were established before any formal observations were completed. The four graduate student researchers and the first author practiced completing the time diary while watching videotapes or conducting naturalistic observations of non-participating adults with ID. The time diaries were compared until an agreement of at least 90% was established. To confirm that agreement for data collection was maintained throughout the study, the researcher and the first author simultaneously observed a participant for 45 consecutive minutes on every fifth observation. All researchers in this study achieved over 90% of agreement for data collection.

Both the data coder (third author) and the first author initially established the percent of agreement for coding all activity and location data from one day for one participant. Both sets of coded data were compared with agreement of over 95%. To confirm that agreement for coding was maintained throughout the study, both the coder and the first author coded one day of data from every third participant maintaining an agreement of over 95% throughout the process.

Results

The descriptive statistics for weekday and weekend day 4-hour time use data are shown in Table 2. Descriptive statistics for weekday and weekend day location data are given in Table 3. There was almost no data recorded that included unaccounted time for the participants. Unaccounted time was recorded when the amount of time in an interval did not equal 15 minutes or when the staff and researchers did not know what the participant was doing, such as when they were behind closed doors. One participant was missing 23 minutes of time use data and another participant was missing 15 minutes of space use data. Three other participants were missing fewer than 4 minutes of data.

Table 2
Weekday and Weekend Day Activities for 4-Hour Time Use (Minutes)

Activity Categories	n*	Mean	SD	Median	Low/High Scores
Active Recreation					
Weekday	10	17.2	21.8	10.0	0.0-66.0
Weekend Day	5	18.8	37.1	0.0	0.0-128.0
Down Time					
Weekday	14	40.9	29.7	39.5	0.0-98.5
Weekend Day	11	56.9	64.5	38.0	0.0-224.0
Education					
Weekday	2	5.3	16.1	0.0	0.0-61.0
Weekend Day	0	0.0	0.0	0.0	0.0-0.0
Employment					
Weekday	1	5.7	22.2	0.0	0.0-86.0
Weekend Day	0	0.0	0.0	0.0	0.0-0.0
Homemaking					
Weekday	5	3.3	6.4	0.0	0.0-19.0
Weekend Day	8	6.8	9.2	2.5	0.0-22.5
Participation/Socialization					
Weekday	15	59.9	42.2	48.0	9.0-165.0
Weekend Day	15	39.9	30.5	41.0	0.0-98.0
Passive Recreation					
Weekday	13	31.4	29.9	24.5	0.0-114.0
Weekend Day	10	31.7	38.3	16.0	0.0-123.0
Personal Care					
Weekday	15	31.3	19.0	26.5	9.0-85.5
Weekend Day	15	29.1	24.6	18.5	5.5-82.0
Rest/ Sleep					
Weekday	5	10.8	18.5	0.0	0.0-61.5
Weekend Day	9	42.2	72.5	5.0	0.0-206.0
Therapy 1					
Weekday	6	16.1	21.0	0.0	0.0-53.6
Weekend Day	0	0.0	0.0	0.0	0.0-0.0
Therapy 2					
Weekday	3	2.0	4.5	0.0	0.0-11.0
Weekend Day	1	0.5	1.8	0.0	0.0-7.0
Transportation					
Weekday	7	14.2	22.6	0.0	0.0-61.0
Weekend Day	8	14.1	15.3	11.5	0.0-41.5

Note. *Not all participants participated in all activities and spaces, and n represents the number of participants out of 15 who did participate.

DOI: 10.15453/2168-6408.1124

Table 3
Weekday and Weekend Day for 4-Hour Space Use (Minutes)

Location Categories	n*	Mean	SD	Median	Low/High Scores
Community Locations					
Weekday	3	1.5	3.9	0.0	0.0-15.0
Weekend Day	4	15.5	30.7	0.0	0.0-95.0
Community Rec. Facility					
Weekday	2	9.9	31.6	0.0	0.0-21.5
Weekend Day	5	27.3	48.3	0.0	0.0-146.0
Day Habilitation					
Weekday	13	166.3	93.6	223.5	0.0-240.0
Weekend Day	0	0.0	0.0	0.0	0.0-0.0
Friend's House					
Weekday	0	0.0	0.0	0.0	0.0-0.0
Weekend Day	3	4.1	10.5	0.0	0.0-39.0
Group Home					
Weekday	3	10.4	38.6	0.0	0.0-150.0
Weekend Day	15	165.4	79.4	183.0	8.0-240.0
Medical Facility					
Weekday	1	2.5	9.8	0.0	0.0-38.0
Weekend Day	0	0.0	0.0	0.0	0.0-0.0
Restaurant					
Weekday	1	3.2	12.5	0.0	0.0-48.5
Weekend Day	1	3.4	13.2	0.0	0.0-51.0
Social Service Agency					
Weekday	1	6.4	24.7	0.0	0.0-95.5
Weekend Day	0	0.0	0.0	0.0	0.0-0.0
Store					
Weekday	4	9.9	25.8	0.0	0.0-98.0
Weekend Day	3	3.5	9.4	0.0	0.0-33.0
Vehicle					
Weekday	7	28.8	48.0	0.0	0.0-151.5*
Weekend Day	7	20.9	24.7	0.0	0.0-67.5

Note. *Not all participants participated in all activities and spaces, and n represents the number of participants out of 15 who did participate.

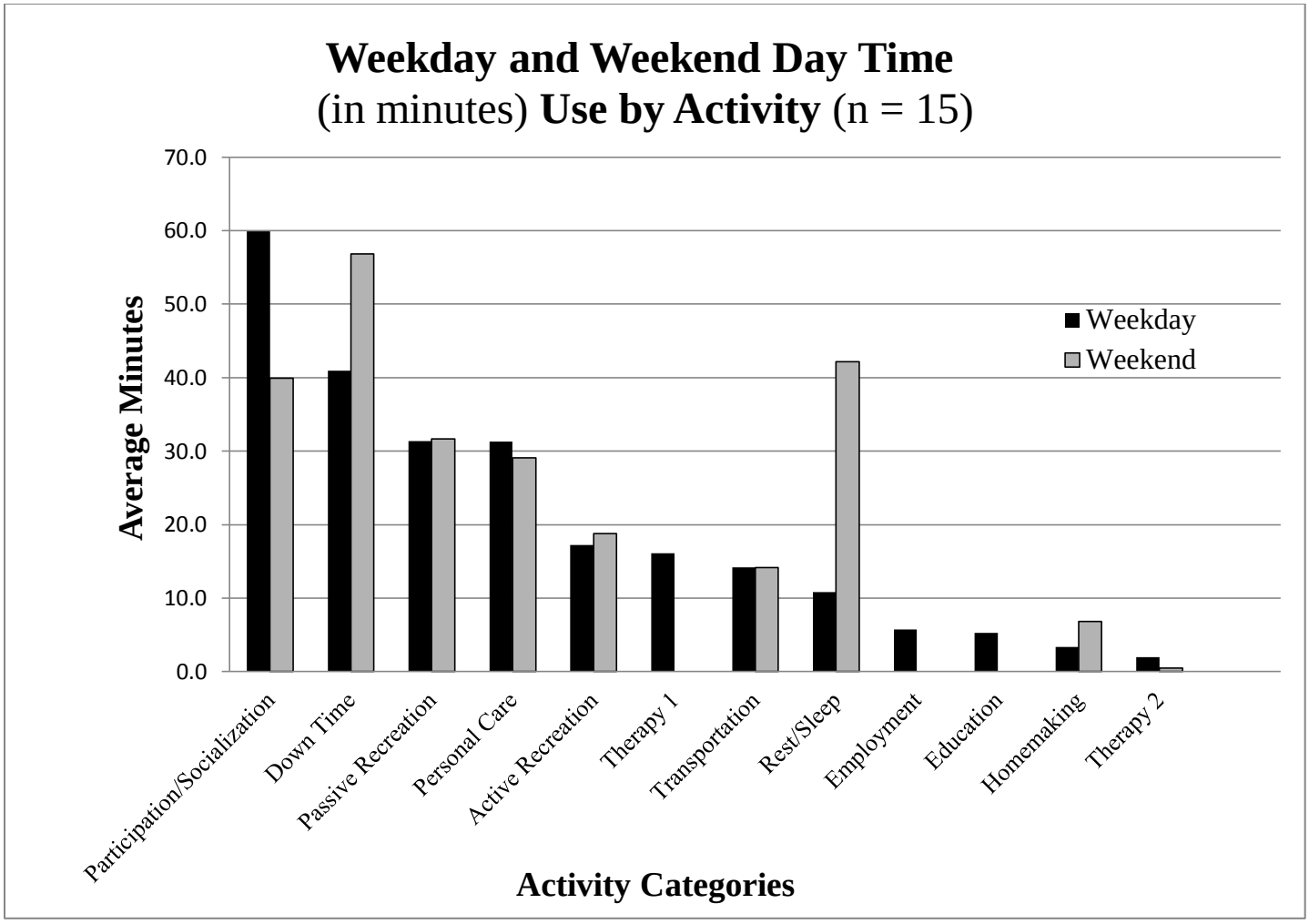

Figure 1. Comparison of 4-hour weekday and weekend day time use by activity (in minutes).

Weekday Time Use

The participants spent the most time in Participation/Socialization activities during the weekday observations. The next highest amounts of time were spent in Down Time, Passive Recreation, and Personal Care. The least amount of time was spent in Therapy 2 (receiving therapeutic interventions from either group home or day habilitation program staff). When reviewing time use categorized by location, the participants spent most of their weekday time in the categories of Day Habilitation Program, Vehicle, Group Home, and Store.

The activity standard deviation was higher than the mean in the activity categories of Active Recreation, Employment, Education, Homemaking, Rest/Sleep, Therapy 1 (attending physical, occupational, speech, behavior, or massage therapy sessions), Therapy 2, and Transportation. This discrepancy suggests a high variation in the time use of the participants in these activity categories. As expected, most of the participants spent their midday hours at the day habilitation programs. For comparison, only three participants were engaged in Therapy 2 and one in supported employment. Weekday location data show that the only category

DOI: 10.15453/2168-6408.1124

in which the standard deviation was not higher than the mean was Day Habilitation.

Weekend Day Time Use

The participants spent the greatest amount of time in Down Time during the weekend day observations. The next highest amounts of time were spent in Rest/Sleep, Participation/Socialization, and Passive Recreation. Average midday Rest/Sleep time on the weekend day observations was almost four times greater than Rest/Sleep time on the weekday observations. The participants did not spend any time in Therapy 1, Education, or Employment during the weekend day observations. When time use was coded by location, the participants spent the majority of their weekend day time at the Group Home, followed by the categories of Community Recreation Facility, Vehicle, and Community Location.

Weekday and Weekend Day Time Use Compared

Table 2 and Figure 1 show that the participants spent greater amounts of time in the Participation/Socialization, Personal Care, Employment, Education, Therapy 1, and Therapy 2 categories during weekday observations. They spent greater amounts of time in Homemaking, Down Time, and Rest/Sleep during the weekend day observations. Down Time during the weekend day was nearly equal to Participation/Socialization during the weekdays. Average time spent in Active and Passive Recreation, Personal Care, and Transportation was nearly equal on both weekday and weekend day observations.

As might be expected, time use comparisons of location data between the weekdays and the weekend days indicated nearly equal time was spent at either Day Habilitation (weekdays) or Group Home (weekend days). Only three participants spent a small amount of time visiting a Friend's House during the weekend days (for approximately one hour total) and no participants spent time at a Relative's House for either the weekdays or weekend days.

Discussion

Adults with ID experience distinct challenges related to activity status, dependency, mobility, and personal choice when compared to people without ID. The typical activity level for this population is less than that of the general population (Peterson et al., 2008; Krupa, McLean, Eastabrook, Bonham, & Baksh, 2003; Messent et al., 1999; Zijlstra & Vlaskamp, 2005). For example, in the present study, walking around a room was considered Active Recreation for adults with ID, while it may not be an acceptable form of Active Recreation for adults without ID.

Opportunities for engagement in activities that are considered active may be fewer for those with ID than for the general population. For example, activity participation may be a factor of staff availability. Individuals who require direct staff assistance may not have the opportunity to engage in an activity if a staff member is unavailable to facilitate their participation. Decreased mobility may also limit the amount of participation in tasks. Without compensatory adaptations, a person with ID may only be able to observe an activity rather than participate fully. Finally, a lack of choice may limit opportunities for engagement in activities. It was generally observed

that the staff in the group homes and the day habilitation settings often selected activities for the participants in this study. It is unknown if these activities would have been selected by the participants had they been given the opportunity to choose.

On average, the participants in our study spent about half of the two-day observation period in passive, sedentary activities (Down Time, Rest/Sleep, Passive Recreation, and Transportation) rather than in more active occupations (Active Recreation, Homemaking, Participation/Socialization). Salvatori, Tremblay, and Tryssenaar (2003) found in a qualitative study with 17 adults with ID that few participants reported that their relationships with others were entirely satisfactory or rewarding. The participants consistently identified the need for more social outings and interactions with friends.

While day habilitation settings may offer opportunities to access employment and education, few participants in this study engaged in these activities. Minimal time in Employment and Education activities was observed as only one individual participated in supported employment and worked during the weekdays and two participants attended educational sessions at their day habilitation setting. The appropriateness of these activities for participants and the variation of education and employment activities among day habilitation programs need further study.

On weekend days, few household responsibilities appear to be delegated to adults with ID in group homes. The minimal amount of time spent in homemaking activities raises the concern that adults with ID living in group homes may not be getting sufficient life skills training. Further, they may not be encouraged to learn or to take responsibility for themselves in ways that might lead to more independent lives in the future.

Overall, our study reveals a wide variance among the activity categories for the adults with ID. Functional levels of the participants may partly account for this variance. For example, it was necessary for all 15 participants, regardless of level of ability, to participate in or receive Personal Care. On the contrary, only three adults who were higher functioning participated in Education or Employment. Environment may also dictate participation in various activities. Although limited, day habilitation settings seemed to offer the participants a greater selection of activities during the weekday hours than the group homes offered during the weekend days.

As with most people, regardless of ability, the weekday schedule for adults with ID appears to be more structured than the weekend day schedule. Day habilitation programs seem to offer more structured activities during the weekdays than group homes offer on the weekend days. This discrepancy of structure may account for the observed increased time spent in Participation/Socialization during the weekday hours, and the increase in time spent in Down Time and Rest/Sleep during the weekend day hours. Further, therapists typically work during weekdays rather than during weekend days, thus accounting for the increased time spent in Therapy 1 on the weekdays. However, only six (40%) people received any type of therapy from occupational therapists, physical therapists, or

DOI: 10.15453/2168-6408.1124

behavioral therapists within the 4 hours of observed weekday time.

Accessibility also impacts participation. Day habilitation programs may be able to offer more activities within confined, accessible spaces with more accessible materials than group homes. Therefore, the group home staff may not be trained to provide modifications that will enable the individual to engage in meaningful occupations. Staff training to select meaningful activities is a factor in participation that is equally important to accessibility. As noted previously, the majority of weekend day time use occurred at group homes, and apparent access to destinations such as stores, restaurants, relatives' homes, or friends' homes was minimal. Zijlstra and Vlaskamp (2005) found similar results when direct group home support staff in 112 living units recorded the leisure time of 160 people with profound intellectual and multiple disabilities. A total of 3.8 hours of leisure activities was provided during the weekend days with almost half consisting of watching television or listening to music. Pollock and Stewart (1990) also found that in a survey of activity patterns of 40 adults with disabilities (between 18 and 28 years of age), they mostly engaged in passive, solitary leisure activities, such as watching television or listening to music. Few respondents in this study indicated that spending time with friends or going on outings were common leisure activities. Like this study, Zijlstra and Vlaskamp found that only a minor proportion of leisure activities were spent outside of the living unit. Access to transportation may be an issue in group homes. They also found minimal activities spent with parents, family members, or friends.

Limitations/Future Research

The timing of this study's observations allows only for an initial look at the time and space use of adults. A more optimal method of data collection would be to conduct observations for 24 hours per day for one consecutive week. The guardians of the participants in this study requested 4-hour observations, as they deemed that time less intrusive. In addition, the short durations of the observations limit comparisons of this data to that of other time and space use studies, and generalize only to similar individuals also living in group homes.

Another limitation within this study includes the lack of data collection on the functional status of the participants, including ambulation status and assistive device use of the participants. This information should be included in further research to add to the depth of understanding of the amount of participation each participant could engage in at the group homes and day habilitation programs.

Finally, the conclusions from this study are based on quantitative observational reports of activity patterns. Without qualitative data, such as personal causation, self-determination, meaningfulness or purposefulness of the activities, and context-specific dynamics, conclusions about the quality of occupational performance cannot be reported. The results may benefit day habilitation programs and group homes by demonstrating the importance of meaningful occupations and how to incorporate them into the programming for adults with ID. Since the environment dynamically influences participation, research into the design of environments that foster occupational engagement

in meaningful activity for adults with ID living in the community is recommended.

Implications for Occupational Therapy Practice

This study adds to the data on time and space of for adults with ID while identifying areas for occupational therapy practice. Occupational therapists need to advocate for the rights of people with disabilities to have choices, including where to live, with whom to live, and how to spend their time. The Model of Human Occupation uses an open system to describe the way people "choose, order, and perform in everyday occupational behavior" (Kielhofner, 1992). All individuals, regardless of ability, have a universal need to engage in occupations and explore their environment (Kielholfer, 1992). Adults with ID, however, may have deficits or delays that can disrupt this open system, impacting their ability to engage in meaningful occupations (Kielhofner, 1992). Understanding the time and space use of adults with ID helps occupational therapists to identify which aspect of the open system and environment impact adults with ID's occupational behavior. Therefore, occupational therapists can greatly contribute to enhancing adults with ID's engagement in meaningful occupations and participation within their communities through direct service or by providing facility staff training. Hammel et al. (2008) found that 63 people with disabilities concluded that they need "to be free to define and pursue participation on their own terms rather than meeting predetermined societal norms" (p. 1445).

An emerging area of practice for occupational therapists would be to develop staff training in the selection and provision of appropriate activities for adults with ID. Van Oorsouw, Embregts, Bosman, and Jahoda (2009) researched effective training methods for staff. In a meta-analysis they found that using a combination of in-service with coaching-on-the-job training is the most powerful format. Verbal feedback with praise and correction when working with staff is most effective to make changes. Zijlstra and Vlaskamp (2005) identified the need for staff to empower client choice. Both of these studies were conducted outside the United States, which may limit the ability to generalize conclusions across cultures.

Occupational therapists can also help build social networks for people with ID by increasing the time spent in socialization activities outside of the group homes, especially on weekends. Herge, Herge, and Varghese (2011) propose that occupational therapists can teach adults with ID to use social networks appropriately in order to build social contacts.

Eklund, Leufstadius, and Bejerholm (2009) suggested the provision of information to persons with disabilities conveying the importance of time use patterns and health and wellbeing. However, as previously stated, persons with ID often depend upon staff to facilitate their care. If staff are to care for this population adequately and appropriately, funded directives for the provision of exercise and active recreation would better address the health needs of this dependent population. Temple et al. (2000) stated that, "an opportunity exists to advance appropriate physical activity participation by changing the intensity (i.e., speed) that people walk

DOI: 10.15453/2168-6408.1124

to their day placement, work, or activity of daily living" (p. 339). It is also in the best interests of people with ID for occupational therapists to develop and implement activity guidelines into existing care plans and to advocate for adequate funding for such care. Occupational therapists may assist day habilitation and group home staff with environmental design to encourage occupational engagement. Although group homes try to mimic a more family-like environment, the environment itself may provoke a lack of stimulation, and home structure, staffing levels, and rules may restrict occupational choice. Occupational therapists need to advocate for policies that promote self-determination, independence, and inclusion in all facets of community life.

References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.

Badia, M., Orgaz, M. B., Verdugo, M. Á., & Ullán, A. M. (2013). Patterns and determinants of leisure participation of youth and adults with developmental disabilities. *Journal of Intellectual Disability Research*, *57*(4), 319-332. http://dx.doi.org/10.1111/j.1365-2788.2012.01539.x

Bodde, A. E., & Dong-Chul, S. (2009). A review of social and environmental barriers to physical activity for adults with intellectual disabilities. *Disability and Health Journal*, *2*(2), 57-66. http://dx.doi.org/10.1016/j.dhjo.2008.11.004

Buttimer, J., & Tierney, E. (2005). Patterns of leisure participation among adolescents with a mild intellectual disability. *Journal of Intellectual Disabilities*, *9*(1), 25-42. http://dx.doi.org/10.1177/1744629505049728

Crowe, T. K. (1988). Caregiver's Activity and Recording of Events Inventory (CARE). Unpublished instrument: University of Washington.

Dixon-Ibarra, A., Lee, M., & Dugala, A. (2013). Physical activity and sedentary behavior in older adults with intellectual disabilities: A comparative study. *Adapted Physical Activity Quarterly*, *30*, 1-9.

Eklund, M., Leufstadius, C., & Bejerholm, U. (2009). Time use among people with psychiatric disabilities: Implications for practice. *Psychiatric Rehabilitation Journal*, *32*(3), 177-191. http://dx.doi.org/10.2975/32.3.2009.177.191

Hammel, J., Magasi, S., Heinemann, A., Whiteneck, G., Bogner, J., & Rodriguez, E. (2008). What does participation mean? An insider perspective from people with disabilities. *Disability and Rehabilitation*, *30*(19), 1445-1460. http://dx.doi.org/10.1080/09638280701625534

Herge, E. A., Herge, E. D., & Varghese, J. (2011). Will you be my friend? Using technology to build social networks. *Developmental Disabilities Special Interest Section Quarterly*, *34*, 1-3.

Howie, E. K., Barnes, T. L., McDermott, S., Mann, J. R., Clarkson, J., & Meriwether, R. A. (2012). Availability of physical activity resources in the environment for adults with intellectual disabilities. *Disability & Health Journal*, *5*(1), 41-48. http://dx.doi.org/10.1016/j.dhjo.2011.09.004

Human Services Department, State of New Mexico, Medical Assistance Division. (2002). *ICF/MR Admission Criteria.* Retrieved from http://www.hsd.state.nm.us/pdf/Item18-MAD378FormICFMRCriteria.pdf

Kielhofner, G. (1992). *Conceptual foundations of occupational therapy*. Philadelphia, PA: F. A. Davis Company.

Krupa, T., McLean, H., Eastabrook, S., Bonham, A., & Baksh, L. (2003). Daily time use as a measure of community adjustment for persons served by assertive community treatment teams. *American Journal of Occupational Therapy, 57,* 558-565. http://dx.doi.org/10.5014/ajot.57.5.558

Matthews, C. E., George, S. M., Moore, S. C., Bowles, H. R., Blair, A., Park, Y., . . . Schatzkin, A. (2012). Amount of time spent in sedentary behaviors and cause-specific mortality in US adults. *American Journal of Clinical Nutrition, 95*(2), 437-445. http://dx.doi.org/10.3945/ajcn.111.019620

Messent, P. R., Cooke, C. B., & Long, J. (1999). Primary and secondary barriers to physically active healthy lifestyles for adults with learning disabilities. *Disability and Rehabilitation, 21*(9), 409-419. http://dx.doi.org/10.1080/096382899297396

Peterson, J. J., Janz, K. F., & Lowe, J. B. (2008). Physical activity among adults with intellectual disabilities living in community settings. *Preventive Medicine, 47*(1), 101-106. http://dx.doi.org/10.1016/j.ypmed.2008.01.007

Pollock, N., & Stewart, D. (1990). A survey of activity patterns and vocational readiness of young adults with physical disabilities. C*anadian Journal of Rehabilitation, 4*(1), 17-26.

Salvatori, P., Tremblay, M., & Tryssenaar, J. (2003). Living and aging with a developmental disability: Perspectives of individuals, family members and service providers. *Journal on Developmental Disabilities, 10*(1), 1-19.

Salkever, D. (2000). Activity status, life satisfaction, and perceived productivity for young adults with developmental disabilities. *Journal of Rehabilitation, 66*(3), 4-13.

Sparrow, W. A., & Sharp, K. L. (1991). Activity patterns of community residential unit residents in Victoria, Australia. *Australia and New Zealand Journal of Developmental Disabilities, 17*(2), 237-247. http://dx.doi.org/10.1080/07263869100034461

Taylor, J. L., & Hodapp, R. M. (2012). Doing nothing: Adults with disabilities with no daily activities and their siblings. *American Journal on Intellectual and Developmental*

Disabilities, *117*(1), 67-79. http://dx.doi.org/10.1352/1944-7558-117.1.67

Temple, V. A., Anderson, C., & Walkley, J. W. (2000). Physical activity levels of individuals living in a group home. *Journal of Intellectual & Developmental Disability*, *25*(4), 327-341. http://dx.doi.org/10.1080/13668250020019601

U.S. Census Bureau for the Bureau of Labor Statistics. (2014). *America time use survey: 2013 results.* (DHHS Publication No. USDL-14-1137). Retrieved from http://www.bls.gov/news.release/atus.nr0.htm

van Oorsouw, W., Embregts, P., Bosman, A., & Jahoda, A. (2009). Training staff serving clients with intellectual disabilities: A meta-analysis of aspects determining effectiveness. *Research in Developmental Disabilities*, *30*(3), 503-511. http://dx.doi.org/10.1016/j.ridd.2008.07.011

Zijlstra, H. P., & Vlaskamp, C. (2005). Leisure provision for persons with profound intellectual and multiple disabilities: Quality time or killing time? *Journal of Intellectual Disability Research*, *49*(6), 434-448. http://dx.doi.org/10.1111/j.1365-2788.2005.00689.x

DOI: 10.15453/2168-6408.1124