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Use of the Occupational Adaptation Model for Quality of Life Enhancement: Educating Staff on Assistive Technology Use to Support Independence and Decrease Caregiver Burden

Jordan F. Jennings

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A capstone project submitted in partial fulfillment for the requirements of the Doctor of Occupational Therapy degree from the University of Indianapolis, School of Occupational Therapy.

Under the direction of the faculty capstone advisor:

Dr. Rebecca Barton, OTR, DHS, FAOTA

A Capstone Project Entitled

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By Jordan F. Jennings, OTS

Approved by:

Faculty Capstone Advisor	**Date**
Doctoral Capstone Coordinator	**Date**

Accepted on this date by the Chair of the School of Occupational Therapy:

Chair, School of Occupational Therapy	**Date**

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Jordan F. Jennings

University of Indianapolis

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Abstract

Joy's House is an adult day center located in Indianapolis, Indiana and provides interactive services to older adults through a non-medical model. Although many guests Joy's House remain active in their communities, the majority of them need some type of assistance when completing daily activities. Assistive technology is a term that has been around for decades to describe any device that can be used to improve function in an individual (Christiansen & Matuska, 2011). Although no-tech forms of AT have been proven to enhance independence in activities of daily living, knowledge on the topic is still unfamiliar for most. The purpose of this doctoral capstone project was to present an educational presentation for staff members of Joy's House pertaining to the use of AT in order for staff to effectively explain how to safely and properly use such equipment. This educational presentation was provided on site, and organized as a meeting for all staff members to attend. At the conclusion of the presentation, a survey was given to the staff members to allow for quantitative feedback in terms of how beneficial the staff felt that the presentation was in enhancing their knowledge on the use of this equipment, and successful feedback was obtained. A detailed plan for the implementation of a future "Joy's House Store" was also created and organized into a binder that includes evidence-based articles, as well as the types of adaptive equipment that would eventually be available for purchase. Through evidence-based research, a correlation was identified in both enhanced independence in individuals that use no-tech AT, as well as a decrease in caregiver burden with its use (Marasinghe, 2015). Thus, with the potential incorporation of AT, this knowledge can hopefully be introduced to the populations that could best utilize it, while also advocating for the field of occupational therapy.

Introduction

Adult day centers (ADC) have become increasingly more utilized in recent years as a unique, cost-effective option for long-term, community-based care. With over 4,600 adult day service centers in the United States, ADC's provide a variety of services for both guests and caregivers (NADSA, 2010). Joy's House is an adult day center located in Indianapolis, Indiana and provides interactive services to older adults through a non-medical model. While about 50% of ADC's have medical personnel on staff to address any health issues, the other half prefer a non-medical approach to the services they offer (NADSA, 2010). Joy's House staff is trained for best care practices of older adults in terms of transferring, feeding and eating, medication management, and more. However, they do not hire skilled health professionals to complete these responsibilities, nor do they accept new guests with severe health impairments in which this level of care would be necessary. They also provide a multitude of caregiver resources free of cost, and have even discussed plans of creating a caregiver resource center that connects to Joy's House for caregivers to utilize.

Occupation and Assistive Technology

With discussion of a caregiver resource center potentially being developed this year, a potential addition to this area could be inclusion of a "Joy's House Store" to benefit both caregivers and their loved ones who attend Joy's House. This store would focus on trialing different types of low-tech or no-tech assistive technology devices that guests or caregivers could conveniently purchase to assist with daily occupations. Occupation, specifically in the healthcare field, refers to " the daily life activities in which people engage" (AOTA, 2014, pg. S6). Occupations are typically broken down into categories, which include activities of daily living (ADL's) instrumental activities of daily living (IADL's), work, play, sleep, and more (AOTA,

2014). Assistive technology (AT) is a broad term in healthcare which includes "any item, piece of equipment, or product system, off-the-shelf, modified, or customized that is used to increase, maintain, or improve function" (Christiansen & Matuska, 2011, pg. 273). Occupational therapists are the health professionals that typically identify and recommend AT for individuals to promote independence and occupational performance in everyday tasks (Gitlow, Dininno, Choate, Luce & Flecky, 2011). Some common diagnoses among guests at Joy's House include dementia/cognitive impairment, visual impairment, arthritis, and Parkinson's disease (PD). With diagnoses such as these, along with the normal aging process, declining independence is a common trend. This process can be emotionally destructive and challenging to accept. It has been found that when individuals are able to remain independent in ADL's, they are "less likely to depend on caregivers" (Marasinghe, 2015, pg. 354). This is important to note, as many caregivers can experience negative effects when it comes to caring for a loved one. One study revealed, "depression, stress or burnout deteriorates caregiver quality of life and increases the risk of institutionalization of the person being cared for" (Marasinghe, 2015, pg. 354). However, utilization of AT may provide hope for preserving independence and enhancing safety in older adults, while also alleviating some responsibility from their loved ones who care for them.

Literature Review

In order to identify benefits and most appropriate types of AT with older adults, a literature review was conducted, and the theory of Occupational Adaptation (OA) was used to guide this process. The theory of OA is best fit to guide this search, as it emphasizes the importance of "the adaptation process in maintaining satisfying and meaningful occupational behaviors (Cole & Tufano, 2008, pg. 107). The use of AT specifically contributes to the process of adapting to one's environment to positively enhance performance and safety in occupations. By utilizing this

theory as a guide to current research, The Ebscohost database was used to search for information on AT. Databases including CINAHL Plus and Health Source (Nursing/Academic Edition) were searched were searched using keywords "*Assistive technology devices* AND *activities of daily living*". Out of 239 results from the CINAHL database, 25 articles were included in the review after the exclusion criteria were considered. Articles were excluded from the review if: (1) an electronic device was the focus of the study; (2) the study was published prior to 2008; (3) mobility devices or AT for cars was article's focus; (4) if no AT was addressed in the study or (5) the device was customized/complex (prosthetics, for example); (6) if the study was in another language, and (7) if the study's population focus was children. Inclusion criteria for the review focused on low or no tech, cost-effective types of AT, as well as a focus population of adults that used AT in the included articles. Scholarly journal/magazine articles or academic research papers were also included if they were published in 2008 or later and available in English.

A review of current literature signified numerous benefits when considering the provision of AT among adults with disabilities. One study focused on community participation in individuals with disabilities. Researchers surveyed over 800 participants to determine what factors best enabled this participation. Communication ability, quality of life ratings, and the use of AT were all significantly linked to participation in community events (Puumalainen, 2011). Additionally, it was determined that individuals "using assistive devices were more active than those who did not" (Puumalainem, 2011, pg. 279), signifying enhanced activity with the addition of AT.

Impaired vision is one of the most common diagnoses seen with guests at Joy's House and in general for the older adult population. Researchers evaluated a program that utilized AT when considering needs of older adults with vision loss. The program involved training staff members through demonstration of various types of AT for individuals with low vision. These

demonstrations were then completed with sixty user participants with low-vision. Prior to demonstration of assistive device use, participants were asked about their opinions and understanding of different types of AT. During this time, most users reported that they "lacked knowledge and confidence as regards utilizing daily living devices" (Percival, 2012, pg. 85). After demonstration of some no-tech AT, items that received the most positive feedback included dycem mats, "drop and chop" boards, and long handled sponges (Percival, 2012). Participants, however, had no knowledge of these existing devices, indicating a need for increased education in AT for individuals with sight loss. Another important outcome of this program study is that low-tech devices should not be overlooked, as they were seen has useful and important in increasing independence in ADL's for older adults experiencing sight loss (Percival, 2012). Assistive technology is a concept that is within the scope of practice of occupational therapy. Consequently, the study's results also illustrate the need for occupational therapists (OTs) to increase education through demonstration of AT, which has potential to enhance patient independence and participation in ADL's and self-care tasks.

Cognitive impairment, specifically dementia, is another common diagnosis seen in guests that attend Joy's House. A review of literature identified types of AT that were recommended by OT's working in the mental health field. The most dominant categories associated with the suggested types of AT included ADL's, mobility/seating, and low vision. The devices that were most frequently recommended to assist with ADL's were feeding and medication management devices, various long-handled tools, and bathroom equipment (Gitlow, Dininno, Choate, Luce & Flecky, 2011). The most beneficial types of AT recommended for individuals with low vision included magnification tools for enlargement of everyday objects. These are just a few tools that were identified as commonly recommended by OT's in order to assist individuals in "optimizing

their abilities to accomplish ADL's with items that are "readily available and inexpensive" (Gitlow, Dininno, Choate, Luce & Flecky, 2011, pg. 184). Another study involving a randomized-controlled trial of participants in an intervention and control group identified types of AT to assist with osteoarthritis, particularly in the hands (HOA). For three months, use of AT in individuals with HOA was tracked in the intervention group. Commonly used items trailed in the study included self-opening scissors, silverware with built-up handles, enlarged bottle grips, and jar-keys (Kjeken, Darre, Smedslund, Hagen, & Nossum, 2011). Using the Canadian occupational performance measure (COPM), significant, positive changes in self-perceived performance and satisfaction in activities such as personal care, household management, and leisure were noted (Kjeken, Darre, Smedslund, Hagen, & Nossum, 2011). Therefore, these results support the use of AT to enhance activity participation and performance in individuals with HOA.

Assistive technology has also been proven to improve the quality of life in individuals with Parkinson's disease, another diagnosis frequently seen in the Joy's House community. Specific devices noted to assist those with PD in ADL's include weighted pens and silverware, swivel spoons, plate guards, enlarged handles, and handrails (Swann, 2008). Weighted items have been found to ease tremors typically associated with this condition. Swivel spoons also counteract movements associated with tremors to allow for more controlled movements and less spillage when eating. Plate guards also assist in ensuring fewer spills when scooping up bites on a plate. Enlarged handles can aid in better control of device is being used, and handrails placed in areas where balance is a concern can help support safety and stability during household activities (Swann, 2008).

By reviewing current literature, three main themes were identified. The importance of utilizing AT to enhance participation and independence for individuals with disabilities is apparent. According to the literature, the most beneficial types of AT were those that were low or no-tech, simple to use and affordable. Not only will the use of AT have a direct effect on the individual using it, but it also has the ability to decrease caregiver burden. These ideas compliment the Joy's House mission, providing a convenient and cost-effective way to benefit the lives of guests and their caregivers. However, the literature also identified a gap in knowledge and accessibility when considering the types of products available and how to use them. For this reason, education for staff members, and therefore caregivers, is going to be a crucial component of this project.

Evaluation/Screening Methods

In order to first determine what areas of program development and education could best assist the Joy's House community, a needs assessment was conducted. This assessment is necessary to identify the primary needs of the target population, which in this case includes staff, guests, and caregivers (AOTA, 2018). The following procedures that were included in the needs assessment are as follows:

- Observation of Joy's House guests
- Meetings and consultations with all staff members of Joy's House
- Review of all initial assessments of active Joy's House guests
- Review of the literature based on identified topics in needs assessment

Based on the above protocols, it was noted that although many caregiver resources are offered at Joy's House, high levels of caregiver burden are still evident. Through guest observation, it was noted that most guests needed some type of assistance with ADL's, but no adaptive

equipment was utilized or available at Joy's House for completing these activities. ADL levels were obtained from completing a thorough screening of all guest assessments. The bar graph in appendix A illustrates whether minimal assistance (min A), moderate assistance (mod A) or maximum assistance (max A) is required for guests when in toileting, bathing, eating and dressing. A precise method for gathering data included to pull guest files and read each assessment, where all ADL levels were recorded. A graph was then created to illustrate assistance levels in toileting, bathing, eating, and dressing for 73 active Joy's House guests. The information included identifies assistance levels for 1/3 of the guests who were not independent in their ADL's. In some instances, levels that were recorded in the guest assessments were simply labeled as, "assist". When this occurred, staff report or guest observation was also used to more accurately obtain what level of assistance was required for a certain activity. Joy's House guest demographics were also obtained through guest files. The average age of a guest is 71, and 49% of guests are white, 47% are black, and 3% are Latino. The majority of guests are living at home either with their spouse or child, which is why caregiver support is imperative for this community.

When consulting with staff members at Joy's House, another topic was evaluated to consider innovative ways to further support caregivers and guests. This is when the idea of a caregiver resource center was brought to the forefront. A Joy's House store has the potential to provide new caregiver resources, as well as AT guests to trial and purchase, if desired. Not only would this be a great financial opportunity to support Joy's House as a not-for-profit organization, but this store also has the potential to better support caregivers while enhancing their loved ones' independence in everyday activities.

Caregiver resources offered currently at Joy's House include planned retreats, online videos, a "caregiver crossing" radio station, support groups, and a binder of resources to take home (Joy's House, 2018). This is similar to other ADC's in the community, yet none of their competitors yet offer an option for trialing or purchasing adaptive equipment. However, other organizations that have occupational therapists on staff, such as assisted living facilities and nursing homes, do provide this option. While Joy's House wishes to remain a non-medical model, advanced staff and caregiver training on proper use of AT provided by an occupational therapy graduate student could provide an avenue for demonstrating how to use AT, while also having such equipment available conveniently at the facility. The University of Indianapolis or a local Indianapolis vendor in the area will provide equipment that will be used for the initial educational demonstration to Joy's House staff. Vendors that have been contacted for consideration of permanent demo equipment include: At Home Health Equipment (AHHE), Home Health Depot, and Phoenix Medical Equipment and Supplies.

Comparison of Competitors

Skilled nursing, assisted living, and adult day facilities are primarily considered when contemplating options for long-term or daytime care for a loved one. Clearvista Lake Health Campus is a popular choice in the Indianapolis area, and includes both assisted living and skilled nursing options. When comparing a facility like this with Joy's House, the differences are evident. Clearvista, and nearly every assisted living or skilled nursing facility utilizes a medical model when providing care to residents. Consequently, Clearvista's OT staff can provide assistive device recommendations and education on their use. Joy's House, however, strives to emphasize their appeal through their idea of a non-medical environment. Clearvista does have some similarities to Joy's House in that there are organized activities and events. These events

range from gardening and field trips, to family nights at the facility (Trilogy Health Services, 2017). While Joy's House does not have an OT on staff due to their non-medical approach to care, they could potentially have staff to provide proper education and use of adaptive equipment with the consideration of this project model. While staff will not be able to recommend certain types of equipment to guests, they will be able to properly and safely demonstrate the use of such devices.

The average cost of a skilled nursing facility is $90,500 annually, which estimates to $248 per day (Mullin, 2013). Joy's House, however, is only $75 per day (Joy's House, 2018). If Joy's House could provide the option for trialing and purchasing AT, the appeal of the organization would be enhanced by offering something that many competitors already do, but for a much more affordable price. Sarah Care is another adult day center in the Indianapolis area that has similarities to Joy's House, but operates as a more medical model, with therapy and nursing staff to provide medical services if necessary (Sarah Care, 2018). While physical therapy is a component of this adult day center, occupational therapy is not an option. Moreover, the website doesn't identify any information relating to AT, so it is assumed that this is not offered. For this reason, the addition of AT at Joy's House would improve the organization in terms of what they could provide for guests and caregivers while still operating as a non-medical facility.

Plan Implementation

With the completion of the assessment for the needs of Joy's House, an educational presentation to staff members was then scheduled and presented. Six different types of AT were utilized for an in-person demonstration to show how the devices are properly used. At the conclusion of the presentation, a survey was given to the staff members to allow for quantitative feedback in terms of how beneficial the staff felt that the presentation was in enhancing their

knowledge on the use of this equipment, as well as how prepared they now feel with how to properly use the equipment. The survey contains three short questions that the staff members will answer by circling a number 1-5 on a likert scale, where 1= “not at all”, and 5= “extremely”. After collecting and reviewing the surveys after the formal presentation, the Goal Attainment Scale (GAS) will then be used as an outcome measure to determine how effectively the project goals have been met.

I organized and led the AT demonstration and presentation after receiving approval from an OTR and professor from the University of Indianapolis. A binder of information on specific types and prices of AT, as well as caregiver resources is also in the process of being created for Joy’s House as a resource for future use. The end of the survey asks for suggestions on useful caregiver resources that any staff members feel should be included in this binder. These suggestions will be taken into consideration when finalizing this portion of the project.

A company known as At Home Health Equipment (AHHE) provided various types of no-tech AT that were utilized for demonstration during the presentation. AHHE is a family owned business that sells various types of medical equipment in Indianapolis and surrounding areas (AHHE, 2018). By scheduling and meeting with the sales manager of AHHE, I was able to explain the basis of the “Joy’s House Store” project idea. He was more than willing to donate equipment for use in the demonstration, and expressed interest in future plans to potentially work with Joy’s House to provide adaptive equipment.

Leadership skills were exemplified during the implementation phase of the project by reaching out and scheduling meetings with vendors around the Indianapolis area. Not only was I able to explain the purpose of the project in terms of potential service provision, but I also familiarized local vendors with the various services that Joy’s House already offers. Because of

this opportunity, one particular AHHE vendor was then willing to donate equipment for the project, as well as keep Joy's House in mind as a future business partner. By scheduling and organizing an educational presentation for the staff members of Joy's House, staff development was promoted in terms of gaining knowledge pertaining to proper use of types of AT. The presentation also provided evidence-based research on the benefits of AT in both guests and their caregivers, as well as how OT is involved in this process. After the conclusion of the presentation, the vast majority of staff members felt confident in describing how to properly use six different types of AT. After surveys have been collected and analyzed in accordance with the GAS, they will then be used to provide detailed information on the success of the project presentation.

Outcomes

Quality improvement is a method utilized in most any organization and refers to a "systematic, formal approach to the analysis of practice performance and efforts to improve practice" (American Academy of Family Physicians, 2018, pg. 1). In healthcare specifically, quality improvement is a detailed plan necessary to refine the quality and delivery of patient care (Mainz, 2003). Many models and tools have been created to organize and assess quality improvement over time. One of most straightforward models used to guide this project currently and in the future is known as the "Plan-Do-Study-Act" cycle. This cycle includes four parts, including:

- Developing a plan with a set goal and plan for implementing that goal
- Implementing the plan that was developed
- Using measures to analyze results of the executed plan

- Adjusting the initial plan based on results to facilitate improvement (U.S. Department of Health and Human Services, 2017).

The goals for this project are to: (1) prepare and present an AT presentation to Joy's House staff to familiarize them with how to properly and safely use six types of no-tech AT, and (2) to organize a binder with information on types of AT and caregiver resources that would potentially be available for purchase at a future "Joy's House Store". In order to quantitatively assess and measure the success of the first defined goal, the GAS scale was used. This is an outcome measure that can be used to determine to what degree a goal is met or not met. This simple tool contains five outcome scores that will correlate with numbers 1-5 on a survey the student created to be filled out by staff members. Correlating the GAS scale with the survey numbers, a score of 0 indicates that the outcome (goal) was attained; -1 indicates the outcome was *somewhat less* than expected, and -2 indicates the outcome was *much less* than expected. A score of 1 shows that the goal's outcome was *somewhat more* than what was expected, and a score of 2 shows that the outcome was *much more* than expected based on quantifiable results (Turner-Stokes, 2014). Pertaining to the first goal, one of the survey questions asked "how much more prepared do you feel after the presentation in explaining what/how these types of assistive technologies are used?". Scores ranged from 1-5, where 1=not at all prepared, 2=somewhat prepared, 3= prepared, 4= very prepared and 5=extremely prepared. A score of a 3 would correlate to a 0 on the GAS scale, a 4 would correlate to a +1, and so on. Results from seven surveys indicate that one staff member felt prepared after the presentation, two felt very prepared, and the remaining three members felt extremely prepared to explain the use of the types of AT after demonstration.

Although the GAS scale identified achievement of the first stated project goal, there are still many uncertainties that would need to be considered before the plan of an AT store could be

put into place. However, continuous quality improvement was involved throughout the project process by developing resources that Joy's House would have available for use in the future. The presentation is now a permanent resource that Joy's House can use to refresh their understanding of different types of AT, or they can have this information available for caregivers to access. A binder was also created with detailed information on types of AT that could benefit their loved ones, as well as evidence-based research to further explain the value and importance of AT. Using the plan-do-study-act cycle to assess quality improvement should be continued as the project idea progresses in order to continue making adjustments to the plan as Joy's House staff members see fit. The resources left after the project are intended to guide and aid the larger plan for a future Joy's House AT store.

The idea to create a store that offered a convenient way to learn about and use assistive technology stemmed from a common theme of a lack of knowledge on the subject that was apparent through evidence-based research. The Technology Related Assistance for Individuals and Disabilites Act coined the definition of assistive technology in 1988, yet much of society is still unaware of the purpose of these devices or where to purchase them (Goodrich & Garza, 2015). However, research supports the use of no-tech or low-tech AT as a means of increased independence in older adults. One study initiated a plan to have demonstration sessions to teach participants how to use low-tech forms of AT. The demonstrations were so helpful that researchers who conducted the study concluded that this type of learning should be implemented as "an ongoing strategy, to raise awareness and share knowledge about assistive technology, and also, possibly allow for the borrowing of devices so that service users can try out before buying" (Percival, 2012, pg. 88). This complements the student's idea of having basic forms of AT

available at a future Joy's House store for individuals to try out to see if it works for their limitations before purchasing.

If a guest attending Joy's House requires a recommendation on a specific piece of equipment based on his or her own functional limitations or environmental barriers, occupational therapy would then be recommended. Joy's House staff members would not be able to make individualized recommendations, but they would be able to suggest reaching out to their OT (if the guest has one) or perhaps consulting with an OT in the area for more individualized help with choosing the best type of AT for them. Although OT won't be directly integrated at this site due to the non-medical model of Joy's House, the student has given staff members permission to use the resources created from the project to enhance knowledge on the topic of AT and OT. This is a strategy that will enable OT to respond to society's lack of knowledge regarding the use of AT to enhance their independence in ADL's, and thus decrease the burden on their caregivers.

Learning Process in Community Practice

Overall, I have learned a great deal about the details of business structure and health promotion of a not-for-profit, community-based practice model through my experience at Joy's House. To facilitate the needs assessment, meetings were scheduled with staff members one-on-one to better understand their unique roles in the Joy's House community. When meeting with the Senior Vice President of family care, the Joy's House business model was explained in more detail. I was asked to consider the aspects of OT could be incorporated into their business model to directly benefit the guests and/or their caregivers, while also potentially increasing revenue. By reviewing current literature and considering the needs of Joy's House after meeting with staff, my project idea began to evolve. This evolution took weeks of communication with both staff and guests at Joy's House, so that I could better understand the contextual factors of this

organization. I effectively communicated verbally and nonverbally when sitting in on meetings with staff, and with guests during activities. My site mentor and I also completed a presentation at the University of Indianapolis for doctoral occupational therapy students to describe Joy's House and the process of the capstone project in a community-based setting. To communicate my project idea to my site, a formal presentation was also completed for staff members. This involved the demonstration of low-tech assistive technology that would potentially be available for sale in the future at Joy's House. I also completed a transfer training/ assistive technology seminar for the community during a Joy's House caregiver retreat. Through these various types of professional communication, I was able to promote use of assistive technology to enhance independence, while also advocating the profession of occupational therapy.

Joy's House worked through a non-medical model, and thus did not have an OT working on site. However, I learned a great deal from this experience based how the organization still consistently incorporated aspects of OT when considering topics like their assessments with caregivers, and activities with guests. Each assessment intently focused on the future guest and their caregivers separately, asking them questions to gather as much information as they could about their individual interests, occupations, as well as areas where they may need extra support. When considering daily activities for guests, these interests are always taken into consideration, and can be altered depending on guest energy levels that day, or other contextual factors. Both of these examples mirror the "client-centered" concept and driving force behind OT. Even their vision directly mirrors that of OT and my project, where it states that they "envision a world where individuals with life-altering diagnoses and their families are living fulfilled lives of knowledge, choice, and comfort" (Joy's House, 2018). To be able to introduce new knowledge to

this community resonates directly with the Joy's House vision, while also advocating for the incredible, multi-faceted profession of occupational therapy.

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Appendix A

Figure 1. Guest ADL Assistance Levels

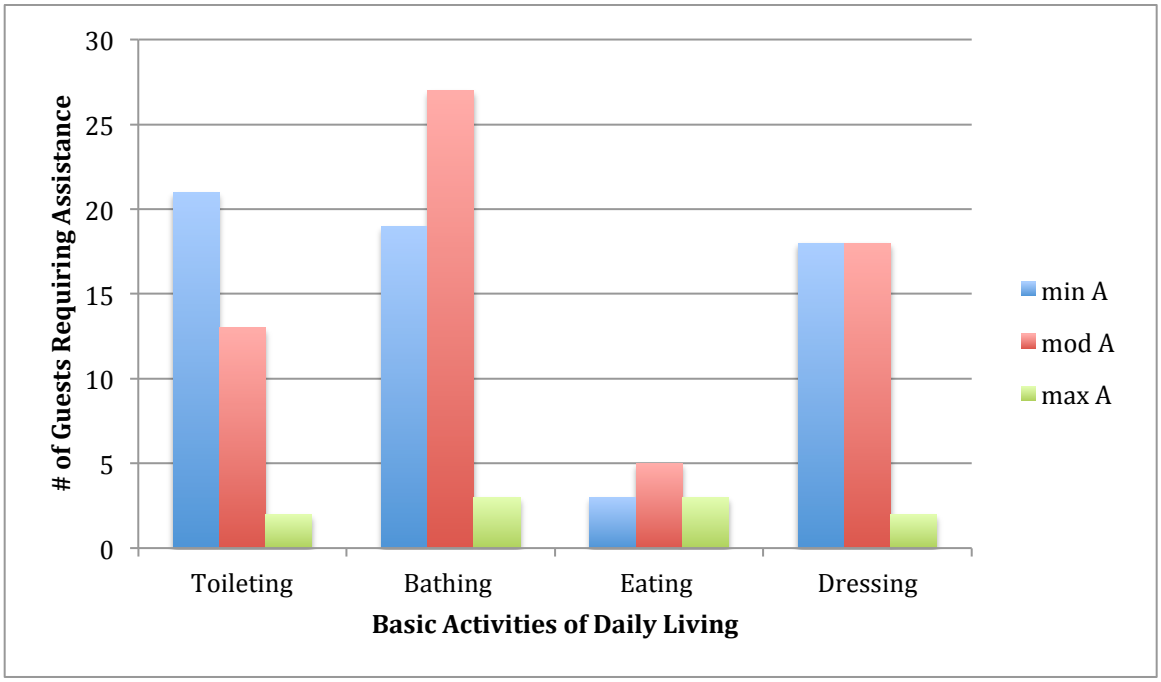

Figure 1. ADL Guest Assistance Levels. This graph depicts ADL assistance levels for guests who actively attend Joy's House.