

**Home Modification and Adaptation Educational Seminar for Individuals with Parkinson  
Disease to Reduce Risk of Falls**

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**Abstract**

Clients with Parkinson's disease have high rates of falls within their homes due to the movement disorders typically associated with the disease. This study used quantitative methods to determine the program evaluation of educational seminars on home modifications and adaptations to reduce the risk of falls in Parkinson's disease (PD) clients. Two educational seminars were given to PD clients and caregivers on how to make modifications and adaptations to their homes and included resources for where to find adaptive equipment and services for providing installations and modifications. Data was collected through pre and post-surveys and analyzed using an independent samples t-test analysis. There was a significant difference in the knowledge of how to make living spaces, bathrooms, and bedrooms safer to reduce the risk of falls in the home. There was also a significant difference in the overall satisfaction of participants' knowledge on how to complete home modifications and adaptations and for their knowledge on resources/places to find adaptive equipment. Recommendations included continuing to provide home modification education to people with Parkinson's to ensure further safety and help reduce the risk of falls within the home. The results propose that PD clients are not receiving education on home modifications at rates that would be of benefit to them.

*Keywords:* Parkinson's disease, home modifications, adaptations, reduce fall risks, educational seminars

### **Home Modification and Adaptation Educational Seminar for Individuals with Parkinson Disease to Reduce Risk of Falls**

Parkinson's disease (PD) is a neurodegenerative disease that is the second most common worldwide and affects one million Americans (Salinas et al., 2020). Many individuals with PD have a variety of motor and non-motor symptoms that effect their daily participation (Udow et al., 2018). Motor symptoms that often present as rigidity effects balance in individuals with PD more than older adults without PD (Leavy et al., 2019). Balance impairments often lead to falls especially when completing activities of daily living (ADL). Evidence supports that exercise through individual and group sessions, education on safety to remain independent, and recommendations for home modifications and adaptive equipment have a role in reducing falls (Chase et al., 2012). For this study, a partnership was formed with a non-profit community organization and foundation that specializes in helping individuals with PD. This foundation provides evidence-based exercise classes, PD support groups, and caregiver support groups as well as many resources related to PD. The foundation has twelve locations in Indiana, however, only one location was the primary source for this study. Exercise classes typically had 20 members attending each class but since the transition to virtual classes due to the Coronavirus 2019 (COVID-19) pandemic there was approximately 12 or more members at each virtual class. The foundation offers personal trainers, a speech therapist, and administrative staff as resources to providing members with information and evidence-based exercise and therapy.

The focus area of this study was Program and Policy Development aimed at providing individuals with Parkinson's disease and caregivers the information needed to complete home modifications and adaptations within the home. Falls can be detrimental to the disease burden for PD and overall reduces quality of life (Parashos et al., 2018). Therefore, the purpose of this

project was to provide individuals with PD and caregivers with a program that provides education on home modifications and adaptations in order for further safety in the home to help reduce risk of falls.

### **Needs Assessment**

In order to gain more knowledge about the site, a needs assessment interview was conducted online via Zoom with the Director of the foundation. The questions in the beginning were focused on gaining information about the foundation and who they are, the population they serve, and project ideas (See Appendix A for interview questions). Once the need was identified questions became more specific to better understand the problem.

Throughout the interview a few themes were evident. One that was important to the foundation was providing research based programs and another theme was inclusion for all members no matter their level. They modified classes to meet the needs of each individual. After further discussion with the director of the foundation it was discovered the need for further falls prevention education along with the project idea of home modification education for this population. The capstone project was further developed by the population as the director of the foundation noted that the population not only was clients with PD but they are older adults who are 60 years old or older and this population is typically at risk for falls (Director of Foundation, personal communication, March 9, 2021). Clients with PD also have difficulties with motor movements and this can cause issues with functional mobility. Home modifications and adaptations may help with preventing falls for this population. The capstone student developed the purpose based on the needs assessment along with the responses of the interview questions.

The foundation has exercise programs and educational programs for individuals with Parkinson's disease but does not provide education on home modifications or adaptations to

reduce risk of falls. The exercise programs and classes are supported by research and are part of many fall prevention programs. It is important to acknowledge that many older adults who have experienced a fall in the past often fear falling again and this can limit body movements and participation in occupations (Michalska et al., 2020). Adding an educational falls prevention piece that focuses on home modifications and adaptations can provide clients with PD with the tools to decrease the fear of falling, make changes to their homes, and reduce risk of future falls. The education will be provided to not only clients with PD but also to caregivers to support in the prevention and home modification process.

Parkinson's disease and falls are both a combination that no older adult wants to experience. Falls can be prevented by many different factors and through the use of exercise and home environmental modifications and adaptations. Older adults with a diagnosis of Parkinson's disease pose a greater risk for falls due to their decreased balance and gait patterns (Michalska et al., 2020). Occupational therapists (OT) can help with home modifications to reduce risk of falls. Falls can be detrimental to older adults and especially those with Parkinson disease. Falls prevention is a large part of intervention for those with Parkinson's disease as well as engagement in functional mobility activities. Some of those interventions are already being put into place by the foundation such as their postural and balance classes, yoga classes, big movement classes and more (Director of foundation. personal communication, March 9, 2021). These exercise based classes are a part of best practices of falls prevention but another piece is home modifications and adaptations to reduce risk of falls when they go home and that is missing. Although there is little research on home modifications for those with PD there is strong evidence for home modification in the older adult population which most clients with PD fall into. Research suggests that there are three components to consider when addressing home

modifications for clients with PD and those are including the person, the environment, and the activity (Bhidayasiri et al., 2015).

There is a gap due to the foundation not offering a falls prevention program that educates members and caregivers on the importance of preventing falls and home modifications (Elliott & Leland, 2018). Providing a falls prevention program and education to this population with emphasis on education in home modification and adaptations, the rate of falls in this population could be decreased. This program can help to decrease the risk of falls in the homes of these individuals with PD and help to fill the gap that the Parkinson Foundation is having. This will also provide the foundation with education that will be able to be continued on by their trainers or by hiring an OT eventually.

Currently, there are no occupational therapists on staff at the foundation and the foundations does not employ anyone that is skilled in home modifications. The staff at the foundation do not have the training nor knowledge on home modifications and adaptations, and would benefit from knowledge on the subject. The capstone student's project will provide home modification and adaptation education to clients with PD, caregivers, and staff to help further prevent falls in the homes of this population. By providing this education to clients with PD and caregivers it is hopeful that they will be able to make modifications and adaptations to their homes to reduce risk of future falls. Furthermore, the foundation staff will be able to utilize the educational programming as well as potentially hiring an occupational therapist in the future.

### **Literature Review**

In order to examine current research on providing educational seminars to individuals with Parkinson's disease on home modifications to reduce risk of falls, the researcher retrieved articles that would be supportive and beneficial to this project planning and implementation. The

following will provide support for the need for falls prevention in those with PD, the use of home modifications as well as educational delivery methods, and guiding theory for this project implementation.

### **Causes of Falls**

Parkinson's disease is a neurodegenerative disorder that has many chronic and progressive aspects to the disease (Michalska et al., 2020). PD is a neurodegenerative disorder that results in many disabilities such as tremors, rigidity, impaired balance, and bradykinesia (Michalska et al., 2020). Evidence supports that individuals with PD have a greater risk of falls than those without PD (Michalska et al., 2020). It has been found that those with PD during a three-month period have fall rates at 46% and those that fall tend to fall again and on an average of 20 times per year (Leavy et al., 2019). The consequences of these falls for PD clients are bone fractures and psychological effects that impact quality of life and can increase activity avoidance in fear of falling again (Leavy et al., 2019). Falls in PD clients increase morbidity and mortality, increase health care costs, increase caregiver burden, and reduce quality of life (Parashos et al., 2018). Leavy et al. (2019), found that falling was seen as a concern for PD clients and an everyday worry for them that they considered an inherent part of the disease process. However, there are preventative measures that can be taken to reduce the risk of falls in PD clients and can impact their quality of life. Home modifications are one way that can be used as a preventative measure for falls in the home.

### **Home Modifications**

Clients with PD often experience recurrent falls and 80% of those are happening in their homes (Bhidayasiri et al., 2015). Evidence shows that falls prevention programs are best when they are multifactorial and include home modifications, education, exercise, vision assessments

and modifications, as well as assistive technology provided by occupational therapists (Chase et al., 2012). Evidence supports that OT led environmental assessments and home modifications are effective than when provided by non-OT (Pighills et al., 2011; Frith & Davison, 2013). The study examined the effectiveness of environmental falls prevention programs that were provided by an OT compared to those who were not an OT who led the programs. The study consisted of 238 older adults 70 years old or older, and measured the fear of falling, quality of life, and independence in activities of daily living. The results found that the OT group had significantly lower falls than the control group after 12 months and there was no significant effect on falls in the unqualified assessor group (Pighills et al., 2011). According to Chase et al. (2012), when occupational therapists examined environmental hazards in the home of participants and provided environmental modifications the participants had an increase in completing activities of daily living and instrumental activities of daily living (IADL). The participants also had less home hazards and were aware of adaptive strategies as compared to those who did not received occupational therapy (Chase et al., 2012). Roughly 9% of clients with PD are being referred to occupational therapists for home safety, assessments, and modifications (Bhidayasiri et al., 2015). Frith & Davison (2013) mention that successful components of falls prevention or risk reduction are multicomponent exercise groups and home hazard modifications.

The evidence demonstrates the importance of home modifications and the role of occupational therapists in those home modifications in order to reduce the risk for falls in the home. Home modifications and adaptations can be completed by PD clients and caregivers if given the proper education. Educational methods are ways in which education on home modifications and adaptations can be delivered.

### **Educational Methods**



Education on home modifications and ways to adapt the home will be utilized and provided to those with PD and caregivers. Different educational methods will be used in order to deliver the educational materials. Jansa & Aragon (2015) found the use of educational programs delivered by occupational therapists that include implementation of workshops, lectures, and other types of educational programming to PD clients or their caregivers is effective. The use of Kolb's experimental learning style theory will be utilized throughout the planning and implementation of the educational seminars (McLeod, 2017). Kolb's experimental learning style theory is based on a four-stage learning cycle where the learner goes through each stage (McLeod, 2017). The four-stage learning cycle involve concrete experience, reflective observation, abstract conceptualization, and active experimentation (McLeod, 2017). The concrete experience is the new experience that is encountered or different interpretation of a previous experience (McLeod, 2017). Reflective observation is reviewing and reflecting on the experience. Abstract conceptualization is the learning from the experience and new ideas formed (McLeod, 2017). Active experimentation is when the learner is able to apply their ideas to the world around them (McLeod, 2017). The use of these concepts will guide the planning and implementation of the educational seminars on home modifications while also using a guiding model.

### **Guiding Model**

The Person Environment Occupation (PEO) model supports this project due to having an emphasis on how the person, their environment, and occupations fit together (Wong & Leland, 2018). The PEO model involves being client-centered and examining how the interaction between the person, environment, and occupation enables meaningful participation (Wong & Leland, 2018). When these three become a good fit the individual will have increased

participation in meaningful activities and occupations, however when there is a poor fit this can lead to lack of engagement and participation (Wong & Leland, 2018). If individuals with PD experience a poor fit due to their environment being unsafe, putting them at risk for falls this can lead to lack of participation and engagement in the things that are most meaningful to them.

PEO model will be used to guide the project and implementation by providing education on home modifications and focusing on what the population needs in regards to home modifications to help each person have a good fit with their environment and promote engagement in occupations. There are many factors that also influence the person and how they are experiencing PD which involves different symptoms and effects their performance in occupations. Through the use of education on home modifications it will allow the individuals with PD the ability for themselves or caregivers to make the changes to the home in order to reduce risk of future falls. By completing this project and implementation of it will directly align with the PEO model.

This evidence aided in the development of the educational seminars on home modifications and adaptations. The use of the PEO model and the educational materials will aid in the delivery of the educational seminars on home modifications and adaptations. The purpose of the project and program are to provide education on how to complete home modifications and adaptations in the home to create a safer home for reduced risk of falls for PD clients.

### **Project Plan and Process**

#### **Project Plan**

The plan for this project was to create and present educational seminars on home modifications and adaptations to PD clients and caregivers in order to reduce risk of falls. These educational seminars were developed based on the needs of the site and included information on

different home modifications and adaptations that could be made to their homes. The educational seminars were planned to be given at two different times to make it more accessible to as many clients and caregivers. The first one was planned to be in person at one of the foundation's locations during the PD support group meeting and the second was to be delivered on Zoom and was offered to all the foundation's locations including people with Parkinson's (PWP) and caregivers. The plan was to use a pre-survey and post-survey to determine the effectiveness of the educational seminars. It was determined by previous research and the needs of the site that the following information was collected for each participant: who they were in regards to PD (client, caregiver, or other), how many years they or their loved one had been diagnosed with PD, if themselves or loved one had experienced a fall at home, if they had received education on home modifications prior and from who, and knowledge questions regarding home modifications. This data was then analyzed to determine the difference in knowledge from before the educational seminars to after the educational seminars.

### **Project Goals**

The plan discussed above was developed to achieve the following goals.

Project Goal 1: The student will collaborate with the foundation to determine the needs and "gap" of the organization to develop a project that will best fit their needs and the target population.

Objective 1: Student will conduct a needs assessment to determine the needs of the organization and target population.

Objective 2: Student will review the literature to implement best practices and reasoning for evidence-based development to support the program/project.

Objective 3: Student will utilize information gathered from site stakeholders and needs assessment in order to develop and implement a plan for the doctoral capstone project.

Project Goal 2: Student will develop and implement an educational seminar on the topic of home modifications and adaptations for clients and/or caregivers in order to reduce risk of falls in the home and increase quality of life in those who are members of the foundation.

Objective 1: Student will collaborate and utilize the needs of the organization, clients, and stakeholders in order to plan for relevant and evidence-based home modifications and adaptation information to be included in seminars.

Objective 2: Student will develop educational seminars on implementing home modifications in client's home in order to reduce the risk of falls in the home.

Objective 3: Student will implement and give educational seminars to clients, caregivers, and stakeholders of the foundation.

Project Goal 3: Student will create and develop a plan for measuring the effectiveness of the educational seminars and doctoral capstone project.

Objective 1: Student will research different outcome measurements and select a measurement tool that is most appropriate for this organization, targeted population, and project.

Objective 2: Student will define the targeted outcomes within the outcome measurement tool and develop a measurement tool in a way that is user-friendly.

Objective 3: Student will educate staff and stakeholders on how to continue implementing seminars in order for sustainability for the foundation.

## **Project Process**

In the beginning stages of the project, the focus was on building relationships with the site and the clients as well as caregivers to gain a better understanding of the site and how to best meet the foundation's needs. This also included finalizing the plan for the project and developing a means for collecting data for analysis. Meeting with the site mentor and other key stakeholders focused on gaining more information on current procedures and what the foundation provides to clients, to better improve the needs of the clients. The project plan was reviewed and updated to ensure all members involved were in agreement with the project. It was determined that clients and caregivers were not receiving education on home modifications and adaptations from the foundation directly. There was also a lack of education on where and how to get equipment or services for providing home modifications that were unable to be completed by caregivers or PWP. This information was concluded through informal interviews with clients, caregivers, and stakeholders of the foundation. This then became part of the educational seminars to provide clients and caregivers with information and resources on where to find someone to install modifications or where to find adaptive equipment. This led to the development of the education seminars and objectives for the seminars that were presented over two different sessions including clients and caregivers. The objectives were for clients to be able to:

1. Define occupational therapy.
2. Demonstrate increased knowledge on home modifications and adaptations to the entrance of the home, living spaces, kitchens, bedrooms, bathrooms, and furniture.
3. Identify resources to find adaptive equipment.
4. Identify resources for installation of home modifications and adaptive equipment. These objectives were measured through conducting pre and post-surveys developed by the researcher. The surveys were developed using evidence-based research on home modifications and

adaptations for PWP. Evidence on home modifications and adaptations guided the development of the objectives for the educational seminars as well as the development of the surveys. The BRUSO model guided the survey question development by being “brief”, “relevant”, “unambiguous”, “specific”, and “objective”. In developing the surveys and seminars several health literacy considerations were made. Health literacy considerations were made by developing the educational seminars and questions for the surveys at a sixth grade level or lower, and provided information that was easy to read and understand at a sixth grade level. The pre and post surveys were created and distributed using Qualtrics online survey software.

The pre-survey was sent out in a monthly newsletter to be taken before attending the educational seminar. The researcher included a QR code in the presentation and allowed for participants to complete the pre-survey before the presentation if it had not been completed prior. Researcher was present and available for anyone who had questions or difficulty retrieving the pre-survey. At the conclusion of the educational seminar the researcher asked participants to complete a post-survey through a QR code in the presentation.

In the final phase of the project the researcher collected and analyzed the data from the pre and post-surveys and was shared with the site mentor and stakeholders. Feedback was given to researcher after each seminar by the site mentor and the impact on the participants was discussed along with how this project would be able to continue on. At the conclusion of the project, the researcher met with the site mentor to complete student evaluations and discuss the overall project. Refer to Appendix B for the project timeline.

### **Project Implementation**

This project was submitted to the Indiana University Institutional Review Board (IRB) to review the researcher’s methods and determine if it was ethical. The project was determined by

the IRB to not need review as it was not human subject research. The participants for this study included clients with PD and caregivers. The first seminar that was held in person included 7 participants and the second seminar held on Zoom included 4 participants. The first educational seminar that was in person included a print out of the presentation slides for each participant in attendance to follow along. Some barriers for the in person seminar were not having access to a projector screen to display the presentation slides on, and the seminar was given after one of the foundation's locations exercise class, during the members monthly support group. The researcher was able to utilize the print out of the presentation slides to provide the participants with visual information to be able to follow along with the presentation. The researcher provided a link to the pre-survey in a monthly newsletter before both educational seminars, however, participants in attendance had not completed the survey prior. The researcher provided a QR code to the pre-survey and guided the participants on how to retrieve the survey using their mobile devices. After the educational seminar information was delivered the researcher had participants complete a post-survey with a provided QR code. The second educational seminar was given online via Zoom and the time and link to the Zoom meeting was shared in advance with all of the foundations locations ahead of time in a monthly newsletter. The second seminar included a pre-survey QR code on the screen for participants to complete before beginning the seminar. The researcher allowed time for the participants to all complete the pre-survey before continuing with the presentation. The research provided the post-survey QR code at the completion of the educational seminar and allowed time for each participant to complete before ending the meeting. The participants of the Zoom educational seminar were given a copy of the presentation slides via email as a resource. A third presentation was planned to be given during the monthly caregiver support group, however

the site had scheduled another presentation during that time and a third educational seminar was not given.

The educational seminars included information on statistics about falls in PWP and information about what occupational therapy is and how occupational therapists can complete home evaluations and recommendations for modifications and adaptations to reduce the risk of falls in the home. Information about specific modifications and adaptations to different areas of the home were shared including the entrance to the home, living spaces, kitchens, bedrooms, bathrooms, and furniture.

### **Project Evaluation**

The primary focus of the project was developing and implementing a program that included educational seminars on home modifications and adaptations in order to reduce the risk of falls in the home. To evaluate the program a survey was developed to assess changes from before the educational seminars were given to after and to measure change in knowledge. The method for the evaluation was a pre and post-survey that included the same quantitative questions and was quick in order to receive more responses. Likert scales were used for most of the questions along with some demographic questions. The pre-survey was distributed before the educational seminars and at the beginning of the seminars to maximize the number of responses. The post-surveys were given at the conclusion of the seminars. The evaluations were anonymous and de-identified in order protect participants. The quantitative responses were analyzed by averaging the data for each question from both the pre and post-surveys. Refer to Appendix C for the pre and post-survey questions.

### **Results**



There were 14 participants who responded to the pre-survey and 6 participants who responded to the post-survey. The sample was 50% people with Parkinson, 42.86% caregivers and 7.14% other. The sample was 50% of caregivers or individuals' who have been diagnosed with PD for 7 or more years, 35.71% diagnosed for 3-4 years, 7.14% diagnosed for less than a year, and 7.14% diagnosed for 5-6 years. Of the participants 78.57% reported they or their loved one had fallen in their home, and 21.43% have not experienced a fall in their home. The sample reported that 64.29% had received education on home modifications and adaptations and 35.17% reported not receiving education on home modifications and adaptations. Using a 4-point Likert scale to assess participant's knowledge on how to make home modification and adaptation to the entrance to their homes, living spaces, bedrooms, and bathrooms. The 4-point Likert scale used with 1 being not knowledgeable about and 4 being very knowledgeable about. A 5-point Likert scale was used to assess participants satisfaction with their overall knowledge on home modifications and adaptations with 1 being extremely dissatisfied and 5 being extremely satisfied. To measure the question of how likely it is for participants to make home modifications and adaptations or to have someone do it for them a 5-point Likert scale was used with 1 being extremely unlikely and 5 being extremely likely. A 4-point Likert scale was used to measure how aware participants were of resources/places to find adaptive equipment with 1 being not at all aware and 4 being moderately aware.

After coding the data, a statistical analysis of independent samples t-test was completed using SPSS in order to analyze the data. The independent samples t-test was used to compare the pre and post-surveys. The results of the t-tests are shown in Table 1. There was significant difference in participants' knowledge on how to make their bedrooms safer to reduce risks for falls from before the educational seminars to after with a mean difference of 1.0256,  $p < 0.01$ .

There was also a statistically significant difference in participants' knowledge on how to make their living spaces safe to reduce risk of falls with a mean difference of 0.8718,  $p < 0.05$ , and knowledge on how to make their bathrooms safe with a mean difference of 0.7948,  $p < 0.05$ . The results showed there to be significance in the participants overall satisfaction with their knowledge on home modifications and adaptations with a mean difference of 0.8818,  $p < 0.05$ , and participants' awareness for resources for adaptive equipment after the educational seminars with a mean difference of 1.1538,  $p < 0.05$ .

Table 1. Results of Independent Samples t Tests for Pre and Post Surveys

Item	Pre-Mean (SD)	Post-Mean (SD)	Mean Difference	One-Sided $p$ Value
<i>Have you or your loved one (with Parkinson's disease) ever received education on home safety or home modifications/adaptations to reduce risk of falls?</i>	1.3846(0.50637)	1.1667(0.40825)	-0.2179	0.185
<i>Who provided education to you or your loved one (with Parkinson's disease) on home safety or home modifications?</i>	4.3846(1.55662)	3.8333(1.32916)	-0.5513	0.232
<i>Do you know how falls can happen in your home?</i>	2.8462(0.55470)	3.1667(.75277)	0.3205	0.155
<i>Rate your knowledge on how to make the entrance to your home safe to reduce risk of falls.</i>	2.6923(.75107)	3.3333(0.81650)	0.641	0.055
<i>Rate your knowledge on how to make your living spaces safe to reduce risk of falls.</i>	2.4615(0.66023)	3.3333(0.81650)	0.8718	0.012*
<i>How would you rate your knowledge on how to make your bedroom safer to reduce risk of falls?</i>	2.3077(0.75107)	3.3333(0.81650)	1.0256	0.008**
<i>How would you rate your knowledge on how to make your bathroom safer to reduce risk of falls?</i>	2.5385(0.66023)	3.3333(0.81650)	0.7948	0.018*
<i>How would you rate your overall knowledge on home modifications and adaptions for safety in the home to reduce risk of falls?</i>	2.8462(0.55470)	3.3333(0.81650)	0.4871	0.072
<i>How satisfied are you with your overall knowledge on home modifications and adaption (or ways to make changes to your home) to reduce risk of falls?</i>	3.4515(0.87706)	4.3333(0.81650)	0.8818	0.028*
<i>How likely is it for you to make home modifications and adaptations or to have someone do it for you?</i>	3.8462(0.80064)	4.0000(1.26491)	0.1538	0.375
<i>How aware are you of resources/places to find adaptive equipment?</i>	2.8462(0.98710)	4.0000(1.26491)	1.1538	0.022*

Significant with \* =  $p < 0.05$ ; \*\* =  $p < 0.01$ ; \*\*\* =  $p < 0.001$

## Discussion

Overall, this project brought attention to the need for education on home modifications and adaptations for the Parkinson's population in order to reduce the risks of falls. Many of the participants reported having experienced a fall in their home and makes this education important to help reduce the risk of falls in the home. The problem this project addressed was the lack of education on home modifications and adaptations for individuals with PD as part of falls

prevention they often receive. This was confirmed by the data analysis that showed there was a significant difference in the knowledge of how to make home modifications and adaptations to their living spaces, bedrooms, and bathrooms. Although, there was a small sample size due to the in person seminar being given at only one location and it was given after an exercise class where their support group follows. There are only a small group of members who attend the exercise classes at the location and this could affect the participation rate. It seemed to be possible that many members did not stay after the class for the monthly support group. The online via Zoom seminar was open and shared with all locations, however it may have been given at a time that was inconvenient for some. There were 3 more participant responses than there were in attendance at the seminars and this could be due to sending out the survey link in advance. There were only 6 post-surveys and this could be due to lack of completing or willingness of participants to complete the post-surveys. The small sample size and differences in the number of participants in the pre and post-surveys could affect the results. Information regarding resources for places to obtain adaptive equipment and for services for installation of home modifications were developed using places local to the in-person educational seminar location.

The educational seminars addressed the gap in the education that PWP are receiving on home modifications and adaptations to reduce the risk of falls as part of most falls prevention programs. The foundation addresses falls prevention through exercise however there was a gap in the knowledge on home modifications and adaptations. There is also a gap in the research on home modifications and adaptations for those with Parkinson disease. The educational seminars were able to provide an increase in knowledge about how to reduce the risk of falls through home modifications and adaptations as well as resources to be able to obtain adaptive equipment or services for having modifications completed or installed in their homes. This education may

not be needed at the time in many PWP lives currently depending on their stage and symptoms, however the education provided them with the education they need in order to start planning or making the changes for when their disease progresses.

### **Impact**

This project had a positive impact on the population, site, and capstone student. The population was able to be educated on ways to modify and adapt their homes to reduce the risk of falls in their homes. They were also given resources to be able to find someone who can install or modify their homes for them to make them safer to reduce the risk of falls. The population was also educated on different adaptive equipment as well as resources as to where they can find those items. This project also provided the site and program directors with the information and education on home modifications and adaptations as well as resources that can continue to be shared with members. As there is no OT on staff at the foundation this education is important to the site and stakeholders to have to be able to continue to share when members need this information. The results of this project contribute to the current literature on education on home modifications and adaptations for individuals with PD. The capstone student gained confidence in working with individuals with PD as well as advocacy skills. The researcher was able to gain advanced knowledge in program development as well as with Parkinson's. The researcher was able to learn from individuals with PD and their caregivers and was able to receive a better understanding of how each individual with Parkinson's is different. During this project, the researcher advocated for the education for this population as well as for the OT profession. Overall, the project received positive feedback from the site mentor, program director, and participants. The researcher is optimistic that the site will continue to provide the education to members.

**Sustainability**

The site mentor (foundation director) and program director were educated on the findings and recommendations of this study. The presentations used during the educational seminars were shared with the foundation director and information from the seminars were condensed down and were provided as a resource on their website (see Appendix D). The information from the education seminars will be able to be added to the foundations training manuals as a way to educate new staff and trainers on the information in order to continue to educate members on how to complete modifications and adaptations to their homes. The foundation was receiving questions from members about resources regarding adaptive equipment and for services to complete home modifications and now they have the resources to continue to educate and share with members.

**Conclusion**

Falls in clients with Parkinson's disease can be detrimental to their quality of life and often falls happen within their homes. The purpose of the project and program was to provide education on how to complete home modifications and adaptations in the home to create a safer home for reduced risk of falls for PD clients. Using evidence-based research the capstone student was able to develop educational seminars for PD clients and caregivers on how to make home modifications and adaptations to help reduce the risk of falls in their homes. More than half of the participants reported they or their loved one with PD had experienced a fall in their home and more than half also reported not receiving education on home modifications and adaptations. Independent samples t-tests analyses showed there to be significance in the difference from pre surveys to post surveys that participants rated having more knowledge on how to make their living spaces, bedrooms, and bathrooms safer to reduce risk of falls. The data show significance

in the mean difference in the participants overall satisfaction with their knowledge on home modifications and adaptations. The capstone student found statistically significance in participants' awareness for resources for adaptive equipment after the educational seminars. These results demonstrate the importance of educating individuals with PD on home modifications and adaptations as well as providing resource for where to obtain adaptive equipment and services for installation of modifications. While there are consistencies with previous research on falls prevention programs and home modifications being part of these programs, more studies need to be done with the PD population and the most effective modifications and adaptations.

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## **Appendix A**

### **Needs Assessment Interview Questions**

1. How would you describe your purpose or mission of your organization?
2. What are some of the characteristics such as age, abilities, and so on, of the population that you serve?
3. What types of programming do you offer? (Treatment, prevention, group, individual)
4. Do you provide any type of educational classes or services?
5. How many participants are typically in each of the classes?
6. Do family members come for support with participants to classes, or are family members allowed to attend with participants?
7. What are your funding sources, and what is the cost of services to participants?
8. Is there any type of referral that is needed for individuals to attend classes?
9. What type of staff do you employ?
10. Are there other unmet programming needs that you have?
11. Do my ideas for programming seems realistic for you? Would they add value to you and the population you serve?

**Appendix B****Timeline of the Capstone Project**

## Appendix C

### Pre and Post Survey

#### *Capstone Project on Home Modification and Adaptation Educational Seminar for Individuals with Parkinson Disease to Reduce Risk of Falls*

#### **CONSENT TO ACT AS A PARTICIPANT:**

##### **What is this survey about?**

This is a capstone project aiming to provide education to individuals with Parkinson's disease and their caregivers on home modifications and adaptations to help reduce falls.

##### **Why are you asking me?**

You are being asked to participate in this study because you or your loved one is a member of the Indiana Parkinson Foundation.

##### **What will my participation include?**

You will be asked to complete this survey, attend a presentation on home modifications and adaptations, and complete a follow-up survey after the presentation. This survey is expected to take 15-20 minutes to complete. There will be 16 multiple choice questions based on your knowledge of the topic.

##### **Will this information be confidential?**

All information and data collected will be confidential and de-identified and stored on a password protected computer.

##### **What if I do not wish to complete this survey, the follow-up survey or the presentation?**

You have the right to refuse to participate or to stop the survey at any time. If you do not complete this survey, you may ask that any of your data collected to not be used in the dissemination of this project.

##### **Voluntary Consent by Participant:**

1. By agreeing to this consent form, you are stating that you have read, or it has been read to you, and that you fully understand its contents.

A. Yes, I agree to participate

B. No, I do not agree to participate

2. Write in the blank the first two letters of your mother's first name and the last two numbers of your phone number without spaces. It should look like this: HA64

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3. Are you a caregiver of someone with Parkinson's disease or are you a person with Parkinson's disease?

- A. Caregiver of person with PD
- B. Person with PD
- C. Other

4. How long have you or your loved one been diagnosed with Parkinson's disease?

- A. Less than a year
- B. 1-2 years
- C. 3-4 years
- D. 5-6 years
- E. 7 or more years

5. Have you or your loved one (with Parkinson's disease) experienced a fall at home?

- A. Yes
- B. No
- C. Unsure

6. Have you or your loved one (with Parkinson's disease) ever received education on home safety or home modifications/adaptations to reduce risk of falls?

- A. Yes
- B. No
- C. Unsure

7. Who provided education to you or your loved one (with Parkinson's disease) on home safety or home modifications?

- A. Neurologist

- B. Primary care doctor
  - C. Occupational therapist
  - D. Physical therapist
  - E. Other \_\_\_\_\_
  - F. I have not received education on home safety or home modifications
8. Do you know how falls can happen in your home?
- A. Not at all
  - B. A little
  - C. Quite a bit
  - D. Completely
9. Rate your knowledge on how to make the entrance to your home safe to reduce risk of falls.
- A. Not knowledgeable about
  - B. Somewhat knowledgeable about
  - C. Knowledgeable about
  - D. Very knowledgeable about
10. Rate your knowledge on how to make your living spaces safe to reduce risk of falls.
- A. Not knowledgeable about
  - B. Somewhat knowledgeable about
  - C. Knowledgeable about
  - D. Very knowledgeable about
11. How would you rate your knowledge on how to make your bedroom safer to reduce risk of falls?
- A. Not knowledgeable about

B. Somewhat knowledgeable about

C. Knowledgeable about

D. Very knowledgeable about

12. How would you rate your knowledge on how to make your bathroom safer to reduce risk of falls?

A. Not knowledgeable about

B. Somewhat knowledgeable about

C. Knowledgeable about

D. Very knowledgeable about

13. How would you rate your overall knowledge on home modifications and adaptations for safety in the home to reduce risk of falls?

A. Not knowledge at all

B. Very little knowledge

C. Knowledgeable

D. Very knowledgeable

14. How satisfied are you with your overall knowledge on home modifications and adaptations (or ways to make changes to your home) to reduce risk of falls?

A. Extremely dissatisfied

B. Somewhat dissatisfied

C. Neither satisfied nor dissatisfied

D. Somewhat satisfied

E. Extremely satisfied

15. How likely is it for you to make home modifications and adaptations or to have someone do it for you?

- A. Extremely unlikely
- B. Somewhat unlikely
- C. Neither likely nor unlikely
- D. Somewhat likely
- E. Extremely likely

16. How aware are you of resources/places to find adaptive equipment?

- A. Not at all aware
- B. Slightly aware
- C. Somewhat aware
- D. Moderately aware
- C. Extremely aware

## Appendix D

### Foundation Website Information

#### Occupational Therapy:

Occupational Therapists can help you to continue doing the things that you want to do and need to do that are meaningful to you. Occupations are considered as activities of daily living (ADL), instrumental activities of daily living (IADL), work, school, education, leisure, rest and sleep, and play. Occupational therapists can help you to be independent in all of these areas of occupations through different techniques, modifications or adaptations, or changing the environment in which they are done. Activities of daily living are things such as dressing, eating, and bathing and instrumental activities of daily living are things such as driving, grocery shopping, managing medications, or paying bills. Occupational therapists are also skilled in providing home assessments/evaluations for home safety to help reduce risks of falls. Some home safety tips are listed below.

##### Home Safety:

- Make sure to keep rooms well-lit and use nightlights in hallways and bathrooms when getting up at night.
- Remove throw rugs to prevent tripping on them.
- Remove any clutter that would get in the way of moving around your home
- Remove all rolling or wheeled chairs and only use stationary chairs.
- Install grab bars in the bathroom next to the toilet, outside and inside the shower; do not use the suction cup grab bars inside the shower/tub because they can come off easily when using them for support.
- Install handrails anywhere there are stairs; entering/exiting the home, in the garage, or to the second story or to the basement.

#### Resources for Adaptive Equipment:

##### Good Samaritan Network:

Rehab Equipment Link: <https://www.gsnlive.org/rehab-equipment-link>

They provide equipment rentals to Hamilton County Residents and have an online application to fill out in order to rent items.

Located: 865 Westfield Rd., Suite C

Noblesville, IN 46062

Phone: 317-219-8613

##### Easter Seals Crossroads INDATA Project:

Loan Link: <https://www.indata.at4all.com/welcome.aspx>

They loan adaptive equipment out to those who need items. The link provided will take you to their online catalog where you can browse or search for items that they have available for loan.

Located: 4740 Kingsway Drive

Indianapolis, IN 46205

Phone: 317-466-2013 or 888-466-1314

#### Resources for Home Modifications/Installations:



**CICOA**

Provides residents of Marion County who are 60 years or older and who own their home with home modifications. They will complete some home modifications outside of Marion County and are a great resource to check out. Website here: <https://cicoa.org/services/home-accessibility-modifications/>

Phone: (317) 803-6131 or (800) 432-2422

**USDA Rural Development**

Provides home modifications to Hamilton and Hancock counties for individuals who are 62 years or older. Here is their website: [www.rd.esda.gov/in](http://www.rd.esda.gov/in)

Located: 3641 N. Briarwood Ln.  
Muncie, IN 467304  
Phone: (765) 747-5531, ext. 4

**Easter Seals Crossroads**

Provides home modification evaluations and more information can be found on their website here:  
<https://www.eastersealscrossroads.org/services/family-services/home-modification-services/>

Located: 4740 Kingsway Dr.  
Indianapolis, IN 46205  
Phone: (317) 466-1000

**Hand, inc**

Provides Home repairs and modifications to Hamilton County residents. More information can be found on their website here: <https://www.handincorporated.org/hand-rental-properties/helping-hands/>

Located: 347 S. 8th Street, Suite A  
Noblesville, IN 46060  
Phone: (317) 674-8108

Contact: Rebekah Wood  
Email: [rebekah@handincorporated.org](mailto:rebekah@handincorporated.org)