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Occupational Therapy Protocol Analysis: Acute Care Services for Elective Total Hip and Knee Replacement Patients

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A Capstone Project Entitled

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By

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Abstract

This paper summarizes the Doctoral Capstone Experience (DCE) that took place at Indiana University Health North Hospital (IUHNH) in which the student analyzed the occupational therapy protocol for patients following a total hip or total knee joint replacement. The purpose of this project was to identify modifications needed to improve care for this population and enhance patient's independence with activities of daily living (ADLs) and instrumental activities of daily living (IADLs) following surgery. An evidence-based quality assurance questionnaire was designed and distributed to patients following their discharge from occupational therapy services. A total of 44 questionnaires were completed and returned to therapy staff. The questionnaire used a 3-point Likert scale and five open-ended questions to measure patient's confidence levels, worries/concerns, and patient's opinions of occupational therapy serves. Patient questionnaires indicated that the majority of patients are confident resuming their ADLs and overall have positive opinions of their occupational therapy services. As a result of this DCE, the student has shown IUHNH's total hip and knee joint replacement program has a well developed occupational therapy protocol with modification only needed in order to address confidence levels with higher level IADLs and patient specific activities.

Occupational Therapy Protocol Analysis: Acute Care Services for Elective Total Hip and Knee Replacement Patients

Literature Review

The number of total hip replacements (THR) and total knee replacements (TKR) performed in the United States has continuously increased within the past decade (Kurtz, Ong, Lau, Mowat, & Halpern, 2007). According to projections formulated within this same study, the demand for primary THR and TKR is projected to grow 137% and 673% respectively by 2030 (Kurtz et al., 2007). The need for these surgeries often results from lower extremity osteoarthritis, associated chronic pain, stiffness, and mobility limitations (Cooke et al., 2016). Osteoarthritis and associated limb pain can often cause changes in individual's roles and social life, decrease independence with activities of daily living (ADLs), and reduce quality of life (Grant, St John, & Patterson, 2009).

The recovery process for individuals following a hip or knee replacement can often be slow and affect various aspects of the person's life apart from their physical abilities (Grant et al., 2009). Although reclaiming physical capabilities is usually the main focus of therapists in the hospital setting, research has found that psychosocial issues are also an important aspect of the recovery process for this population (Grant et al., 2009). Furthermore, the recovery process would also benefit from a focus on re-establishing roles, relationships, and refocusing one's self (Grant et al., 2009). According to Kiefer and Emery (2006), skilled occupational therapy services in the acute care setting may increase patient performance in self-care, functional mobility transfers, and overall quality of life. Occupational therapy with the joint replacement population may also lead to improvements in functional mobility and occupational performance, as well as decrease activity restrictions and limitations (Richmond, 2016). Orthopedic procedures are often

described as straightforward, having an anticipated plan of care, length of stay (LOS), and clinical outcomes that are expected (Prouty et al., 2006) However, multiple programs throughout the county have researched ways in which to modify current procedures to better prepare patients for both surgery and recovery (Naville, Volz, & Curry, 2009; Prouty et al., 2006).

Pre-Operative Structures Currently in Place

Pre-operative education provides multiple benefits when given to individuals undergoing a THR or TKR (Cooke et al., 2016). Research supports that pre-operative education allows the patient to assume a "central role in their recovery promoting sustainable, long-term positive outcomes" (Cooke et al., 2016). Naville et al. (2009) examined and modified the joint replacement pre-surgery structure at Baptist Hospital East in Louisville, Kentucky. Modifications to this program were followed by a survey distributed to patients, indicating that, "they are pleased with the care they have received and would recommend this program to others" (Naville et al., 2009, p. xx). These researchers discussed the importance of a free multidisciplinary pre-surgery class to provide education to patients and caregivers regarding what to expect throughout the entire recovery process (Naville et al., 2009). According to the study, the class is accompanied by a joint power aquatics course focused on increased strength and range of motion also addressing any fears or concerns individuals have regarding the upcoming surgery (Naville et al., 2009). Prouty et al. (2006) and Walker (2012) also supported the benefits of preoperative education, finding that it gave patients the opportunity to ask questions and hear a clear message from multiple disciplines before surgery.

Current Postoperative Occupational Therapy within the Hospital Setting

According to Naville et al. (2009), most patients spend approximately two to three hours in anesthesia care following joint replacement surgery, and are then moved to a post-operative

care unit once medically stable. Depending on the program, most patients are evaluated by physical therapy either the day of surgery or on postoperative day one and evaluated by occupational therapy postoperative day three (Naville et al., 2009). Further studies support early therapy intervention following surgery, reporting rehabilitation done immediately after joint replacement patients arrive to the therapy floor positively affect function, range of motion, quality of life and the prevention of post-operative complications or blood clots (Jame Bozorgi, Ghamkhar, Kahlaee, & Sabouri, 2016; Naville et al., 2009). Grant et al. (2009) examined the recovery process as a whole following a THR. The researchers found that, "recovery consists of three interrelated processes encompassing the physical, psychological, and social domains: reclaiming physical ability, re-establishing roles and relationships, and refocusing self" (Grant et al., 2009, p. 1617).

Naville et al. (2009) observed that therapy treatment sessions occurred in the patient's room or in a therapy gym. Patients in this study were encouraged to have a support system, with one individual named a "coach", present throughout the recovery process so that all therapy education could be done with both individuals (Naville et al., 2009). The "coach" was useful in helping assist and encourage the patient and resulted in an ultimate decrease in anxiety when discharging home. Grant et al. (2009) found similar results on the importance of having a good support system present during therapy.

For the purpose of this study, adaptive equipment is defined as any device specifically used to enable individual's ability and ease to perform ADLs; such as reachers, sock-aids, long-handled sponges, elastic shoelaces, and elevated commode seats (Naville et al., 2009). According to Jame Bozorgi et al. (2016), the use of adaptive equipment following a joint replacement could reduce compressive forces on the joint and, in result, reduce the load applied to the newly

replaced joint. This same study also found that patients who used adaptive devices "increased self-confidence due to pain-free, active and independent performance of their ADLs" (Jame Bozorgi et al., 2016). Occupational therapy treatment following a joint replacement surgery is primarily focused on examining the need for adaptive equipment, instructing the client in the use of that equipment, and educating patients on adaptive techniques in order to complete ADLs (Jame Bozorgi et al., 2016; Naville et al., 2009).

McHugh and Luker (2012) conducted interviews with patients following lower extremity replacements in order to determine if their experience expectations were met. Participants reported disappointment in length of the recovery process compared to what medical professionals initially told them in regarding to returning to expected mobility level (McHugh & Luker, 2012). McHugh and Luker (2012), found "there was a feeling that confidence was starting to be gained when participants stopped focusing so much on their hip, the fear of falling lessened and they began wanting to do things again." The article concluded that patients were frustrated with not being able to get back to "normality" and researchers found patients were hopeful to return to their leisure activities and hobbies as soon as possible (McHugh & Luker, 2012).

Occupational Therapy Discharge Structures

Most research regarding THR and TKR is in agreement that discharge planning should begin on the day of admission (Naville et al., 2009). According to Naville et al. (2009), all members of the orthopedic care team, which included occupational therapy, should actively participate in providing input for proper discharge to occur. US based research done by Mallinson et al. (2011) concludes "direct discharge to home with home care was the optimal strategy for patients after total joint replacement surgery that were healthy and had social

support." According to Grant et al. (2009), approximately 91% of patients over the age of 65 years old discharge directly to home following a joint replacement. This same research study found that patients who returned directly home were found to have increased control over their physical activity and increased confidence in their abilities due to familiarity of the living environment (Grant et al., 2009). This study also found that once patients were home, confidence levels correlated with the gradual relinquishing of mobility aids (Grant et al., 2009).

Discharge preparation differs depending on whether patients are discharged home versus discharged to a rehab facility (Naville et al., 2009). Patients who returned directly home from the hospital continued their rehabilitation with either home health therapy or outpatient services (Naville et al., 2009). However, all research that discussed these services specify patients only receiving home health physical therapy services and not occupational therapy (Naville et al., 2009). For those remaining patients who are not deemed safe or appropriate to return directly home, discharge to either a subacute rehabilitation or acute rehabilitation facility where they continue both physical and occupational therapy (Naville et al., 2009). If patients are returning directly home, occupational therapy staff within the hospital assist the patient in obtaining any needed equipment and make recommendations regarding assistance needed for ADLs once home (Naville et al., 2009).

This Doctoral Capstone Experience (DCE) focused on providing joint replacement patients with the highest quality of care and evidence-based occupational therapy interventions aligned with the latest research. Indiana University Health North Hospital (IUHNH) currently has an established joint replacement protocol; however, this project will aim to guarantee therapists are viewing patients using a holistic approach and truly using client-centered care; addressing not only physical impairments but also psychosocial aspects of recovery after a joint

replacement. Therefore, the purpose of this study was to analyze the current occupational therapy joint replacement protocol and provide therapists with quality improvement suggestions in order to maximize outcomes and patient satisfaction within this population at IUHNH.

The Model of Human Occupation

The Model of Human Occupation (MOHO) is a systematic, holistic approach that focuses on the connection between the mind and body in order to provide care related to all aspects of the person and their environment (Cole & Tufano, 2008). The MOHO is client-centered in nature and appropriate to be used for individuals of all ages and diagnosis or conditions (Cole & Tufano, 2008). Lee, Taylor, Kielhofner, & Fisher (2008) analyzed occupational therapists' use of the MOHO in everyday practice. The authors found that "more than 80% of respondents indicated that they used MOHO in their practice at least some of the time" (Lee et al., 2008). Results of this study found that therapists view the MOHO as "holistic, occupation-focused, client-centered, and evidence- based practice" (Lee et al., 2008). MOHO concepts are seen as useful for treatment planning and intervention and lack of knowledge regarding the model is seen as the only major barrier when using this model (Lee et al., 2008).

MOHO will be utilized as a guide throughout this project to analyze and modify all aspect of the occupational therapy protocol with joint replacement patients while putting a greater emphasis on providing a holistic approach. MOHO will serve as a guide to visualize the interaction between internal motivation such as patient's values, interests, and personal causation and external performance with this population in order to increase patient's overall recovery once home.

Screening and Evaluation Process

IUHNH strives to provide the best care for their patients and focuses on returning their joint replacement patients to maximum function as quickly and as safely as possible following their surgery (A.B. Wolfgang, personal communication, January 16, 2018). This is displayed through their mission statement, “Indiana University Health's mission is to improve the health of our patients and community through innovation and excellence in care, education, research and service”(Indiana Health University, 2018). During an occupational therapy doctoral program rotation, located at IUHNH, the researcher worked under the clinical supervision of a licensed OTR to develop and perform all aspects of the OT process framework. While at this facility, the researcher was able to not only participate in therapy services but also observe all phases of care for patients following lower extremity joint replacements. During this rotation the researcher observed “gaps” within occupational therapy services. Specifically, noticing that patient education was significantly neglecting the emotional and psychosocial aspects involved in recovery. Interdisciplinary staff were preparing patients with functional mobility, transfers, and basic activities of daily living (BADLs); however, it was apparent that there was a lack in services addressing patients comfort level with these functions and with more advanced instrumental activities of daily living (IADLs).

After the initial observation of potential gaps within the joint protocol, an official needs assessment was conducted. For the purpose of this study, a needs assessment is defined as any processes used to determine priorities and make improvements by identifying needs or gaps between a facility's current state and where the facility envisions itself in the future (Scaffa & Reitz, 2014). Therefore, a needs assessment was conducted at IUHNH to obtain information in order to determine gaps in the current protocol used for joint replacement patients. The researcher used a combination of methods to obtain information for the needs assessment, such

as: observation and participation in treatment, direct contact including one-on-one interviews with multidisciplinary employee, and evidence-based research. The purpose of the needs assessment was to analyze the current protocol and to determine the priorities of the facility to improve occupational performance and quality of life. The researcher used information collected to break up occupational therapy's current role within the joint replacement process at IUHNH into three main phases; pre-admission joint class, postoperative therapy evaluation and intervention, and discharge from therapy services.

Pre-Admission Joint Class

Two to three weeks prior to scheduled surgery, occupational therapy's role within the joint replacement protocol begins during the pre-admission joint class (A.B. Wolfgang, personal communication, January 16, 2018) According to A.B Wolfgang, the orthopedic program coordinator for IUHNH, both TKR and THR patients are encouraged to attend this class which is run by a registered nurse (personal communication, January 17, 2018). Patients are encouraged to bring along family and friends that will act as their support system throughout the recovery process in order for both parties to be educated on all aspects of recovery (Indiana University Health, 2016, p. 17). Patients are given a total joint replacement education booklet as a valuable resource to prepare for their surgery (Indiana University Health, 2016). The booklet contains step-by-step details on what patients should expect before, during, and after surgery. (Indiana University Health, 2016, pp. 3-7) Booklet information and class education addresses multiple aspects including; preparing for surgery, your hospital stay, managing your health at home, activity guidelines, exercises, and lifestyle changes (Indiana University Health, 2016, pp. 3-7).

Occupational therapy's role within this class involves a short 2-5 minute presentation that briefly discusses occupational therapy's involvement in patient recovery and expectations in

regards to therapy treatment while in the hospital (L. Sanders, personal communication, January 16, 2018). L. Sanders, an occupational therapist at IUHNH, explained that this session includes disclosing to patients that they will be practicing toilet transfers, shower/tub transfers, and car transfers following their surgery before discharge from the hospital (personal communication, January 16, 2018). Therapists also request that patients bring loose and baggy clothing in order to practice dressing to familiarize patients with the adaptive equipment (L. Sanders, personal communication, January 16, 2018).

Postoperative Occupational Therapy Process

Post-operation, patients are moved to the post-anesthesia care unit (PACU) for approximately 1-3 hours based on their medical statues (Indiana University Health, 2016, p. 26). Once medically stable, patients are then moved up to a recovery room and will typically be seen by at least one therapy discipline day of surgery (L. Sanders, personal communication, January 16, 2018). Therapy services may be delayed till post op-day one pending the occurrence of any numbness, dizziness, blood pressure issues, or other health concerns (Indiana University Health, 2016, pp. 27-33). J. Thompson (personal communication, July 2017), physical therapist at IUHNH, stated that therapists may get patients up to the side of bed or ambulate with assistance if they believe it is safe to do so at this time. If patients are expected to leave the same day of surgery they must be seen by both occupational therapy and physical therapy prior to discharge (A.B. Wolfgang, personal communication, January 16, 2018).

Occupational therapy's focus within this stage of recovery, whether the patient is being seen day of surgery or the following days while at the hospital, is on instructing patients and their support system on how to safely complete ADLs while also abiding by any surgical precautions (J. Phillips, personal communication, May 2017). The current protocol in place involves

therapists initially conducting an evaluation of patients' functional mobility including bed mobility/positioning and toilet transfer, completion of ADLs, and understanding of surgical precautions (L. Sanders, personal communication, January 16, 2018). The evaluation process also involves occupational therapists determining the need for adaptive equipment in order to allow for patients to independently complete these tasks or complete them with increased ease and decreased pain (L. Sanders, personal communication, January 16, 2018). Following the initial evaluation, therapists will educate patients and their support system on safe toilet/shower/tub transfers, educate both parties on adaptive techniques for performing lower body dressing, and provide education on adaptive equipment if required (Indiana University Health, 2016, pp. 72-74). Verbal and visual instruction of shower/tub and vehicle transfers are completed, and physical practice of toilet transfers and dressing are performed (J. Phillips, personal communication, May 2017).

Occupational Therapy Discharge Structure

Discharge planning begins as soon as a patient schedules their joint replacement surgery (Indiana University Health, 2016, pp. 37-40). A large majority of patients discharge directly home with home or outpatient physical therapy services rather than transitioning to a post-acute or sub-acute facility (A.B. Wolfgang, personal communication, January 16, 2018). IUHNH believes that patients will be more comfortable during their recovery if they start taking care of themselves in their own home, allowing them to sleep in their own beds, be on their own schedule, and being at a decreased risk for infection due to having fewer germs in their own home (Indiana University Health, 2016, p. 37). Based on patient's recovery statues, occupational and physical therapists make discharge recommendations. If a post-hospital rehabilitation stay is deemed necessary by therapists and/or the orthopedic surgeon, the patient's case manager and

social worker are responsible for finalizing arrangements to the facility (Indiana University Health, 2016, pp. 36).

Compare & Contrast practice areas of OT

Protocol for joint replacement patients may differ depending on the care setting in which a patient is currently located. After conducting a phone interview with the program director of a local sub-acute rehabilitation facility (SAR) and analyzing current literature, the researcher was able to identify a variety of similarities and differences between occupational therapy treatment within the hospital setting and the SAR setting for joint replacement patients (J. Krodel, personal communication, February 9, 2018). The occupational therapy treatment within the hospital setting and the SAR setting are found to generally have the same focus routed in ADL independence. However, several differences between the two settings were found such as length of stay, incorporation of IADL training, conduction of home visits, and differences in discharge planning.

The phone interview occurring between the researcher and the program director of a local SAR allowed for the gathering of information on the joint protocol within this particular setting. According to this health professional, which is also an occupational therapist, the general focus of occupational therapy treatment in this setting is increasing independence and safety with completing of daily activities such as personal care and shower/tub, vehicle, and toilet transfers (J. Krodel, personal communication, February 9, 2018). These finding are similar to the focus of treatment within the hospital setting seen in research conducted by Naville et al., (2009) at a Kentucky hospital, which is described in greater detail throughout the literature review section of this paper. Between 50-66% of occupational therapy treatment in a SAR setting focuses on exercise, functional mobility, and dressing lower body (DeJong et al., 2009). Another similarity

that is found between the SAR and hospital setting is the focus on restrictions and precautions education (J. Krodel, personal communication, February 9, 2018). Both settings stress a great deal of importance on patients' understanding of precautions in order to prevent damage to the joint replacement (J. Krodel, personal communication, February 9, 2018).

There are a variety of differences between therapy treatment within the hospital setting and SAR. The average length of stay for joint replacement patients at a SAR is between 5-14 days, which is significantly longer than the average hospital stay (J. Krodel, personal communication, February 9, 2018). Since patients at a SAR are often receiving therapy for a longer period, the therapists have more time to address advanced IADLs that are not usually discussed during the short time a patient is in the hospital (J. Krodel, personal communication, February 9, 2018). Specifically, activities such as cooking, doing laundry, household cleaning, and any other activities that are important to the patient are addressed due to the increased amount of therapy at a SAR (J. Krodel, personal communication, February 9, 2018). Also not done in the hospital setting, The SAR setting often conducts home visits where therapists go with the patient to their own home in order to provide home modifications and to allow practice with daily activities in their home environment, which is not done in the hospital setting (J. Krodel, personal communication, February 9, 2018.

According to J. Krodel (personal communication, February 9, 2018) joint replacement patients that require further therapy after hospital discharge often had a prior list of significant comorbidities, leading to a harder recovery. Similarly, Mallinson et al. (2011), in an observational cohort study to examine patient outcomes across 3 post acute settings following a lower extremity joint replacement surgery, found that joint replacement patients who required further rehabilitation at a SAR were often more medically complex and having these patients

attend a SAR improved their independence in self care activities and mobility (Mallinson et al., 2011). Although it is important to understand the differences seen between care in different settings, for the sake of this particular project, further evaluation of the occupational therapy joint replacement protocol will be specific to the acute care setting.

Implementation

After the completion of the needs assessment; including observation of the current joint replacement protocol, interviews with multidisciplinary staff, and a review of current literature, a post-joint replacement questionnaire was formulated. According to the needs assessment, therapists and other staff involved in the care of orthopedic patients desired to analyze patient perceptions of occupational therapy treatment while hospitalized at IUHNH. Therapists also desired to identify whether or not IADLs or higher-level occupations should be addressed while in the hospital. Program evaluation information collected during the needs assessment highlighted key factors in recovery as social support and psychological domains (Grant et al., 2009, p.1617). These findings were discussed with staff, who decided that the importance of these aspects on recovery should also be analyzed by interspersing social support and psychological domains throughout the questionnaire. The student, in collaboration with the therapy staff, created the questionnaire based on current literature and the established needs of the facility (See Figure 1).

This DCE included both total hip and knee joint replacement patients who received their surgery at IUHNH. The questionnaires were given to adults of any age who received both inpatient acute OT and PT services following their surgery. Individuals who had a history of cognitive impairments such as dementia or altered mental status (AMS) were excluded from participating in this study. The questionnaire was given to each patient upon discharge from OT

services. Therapists were educated on the proper technique to administer the questionnaire, including when to administer and the verbal explanation to utilize when administering. Staff was instructed to explain to patients the importance of answering the questions honestly and that results would remain confidential to be used to improve quality of care in the future. Therapists were instructed to provide the questionnaire to patients at the end of their last OT session and instructed to inform patients that another staff member would come by to pick up the completed questionnaire to ensure confidentiality. A different staff member collected each questionnaire in order to enhance patients' comfort level and allow the patients to feel more open to sharing their truthful opinions.

Data Analysis

Data collection was completed by the student following the administration and collection of all questionnaires. 44 questionnaires were completed via paper copies; all containing 23 questions, and the researcher verified that no personal identifiers existed on any of the documents. Collected questionnaires were transcribed to the Excel program by the researcher within a week of their completion. The data was organized through a "person by item" table to allow the researcher to review both individual and group responses across all items (Bonnel & Smith, 2018, pp. 190-191). The organization of data in this manner allowed the researcher to review data for completeness, to identify any patterns in responses, and to review summative average responses for each item. Quantitative data analysis was used to organize confidence level item responses. Data collection for the final five items on the questionnaire was done via qualitative data analysis, specifically utilizing content analysis secondary to these questions being open-ended. The researcher reviewed all responses for these items to seek common themes

in order to make the data meaningful. The collected data was stored on the researcher's locked computer in a secured place in order to insure confidentiality of the data.

Staff Development

In order to ensure therapists at IUHNH would benefit from this DCE, collaboration occurred with multidisciplinary staff throughout the entire process. This allowed for not only the discovery of staff's particular needs and opinions, but also allowed the project to focus on developing ways in which therapists could improve overall quality of care for their patients. Once all data were collected and results were established, the information was used to develop official modifications and suggestions for IUHNH. The occupational therapy student planned and presented two presentations in order to educate staff on the results of the project. One presentation took place during a monthly "Ortho Steering" meeting, in which all department heads involved in the joint replacement protocol are present. This included the orthopedic program coordinator, orthopedic surgeons, and representatives from the therapy and nursing departments. The second presentation occurred during the monthly therapy staff meeting in order to share results with all of the therapy staff and allow for questions or concerns regarding the results found during the project.

Leadership

As a Doctoral student, the student continuously has strived to both establish and enhance professional skills throughout the rest of her education and throughout her future career. This experience has allowed the student an additional opportunity to grow currently obtained skills and further establish new skills to use in the future. This doctoral capstone specifically allowed the student to further grow leadership skills while planning, developing, organizing, and marketing all aspects of this project. Leadership skills were required during the initial creation of

this DCE when the student organized ideas and collaborated with staff to officially create the project. The student utilized critical thinking and decision making in order to formulate expectations, goals, and objectives based off the needs of the facility and ACOTE requirements.

The researcher worked alongside multidisciplinary staff on a daily basis in order to provide occupational therapists with the most beneficial project outcome in line with the needs of the facility. Collaboration with staff members provided the student with the opportunity to utilize a team oriented mindset and effective communication in order to advocate for patient's best interests. Leadership skills were needed at the conclusion of the experience in order to advocate for the importance of the results found during the project. Specifically, during the two final presentations discussed above, the student educated hospital staff on suggested joint replacement protocol changes based off of the results found during the project. Leadership skills, advocacy skills, and confidence were needed in order to develop staff buy in and to communicate these changes in a professional and appropriate manner.

Discontinuation and Outcome Phase

The DCE took place on the IUHNH campus from January 9th to April 27th of 2018. During this time, the student established goals and objectives that were expressed within the Memorandum of Understanding (MOU) document. The overall goal addressed throughout this project was, "filling the gaps from the time a patient decides they are getting a joint replacement until they fully recovered at home, in order to increase quality of occupational therapy care." The student followed the objectives created in order to accomplish this goal and modified/revised the objectives as necessary. As the project was developed, the original goal established was slightly modified in order to put a greater emphasis on the importance of patient's confidence and comfort level upon returning home and resuming their daily activities.

Quality Assurance Questionnaire

The written post-joint replacement quality assurance questionnaire was administered two weeks following the start of the student's DCE. The questionnaire was administered to 44 forty-four total lower body joint replacement patients following their discharge from occupational therapy services and was discontinued after 8 weeks. A total of 28 TKR patients and 16 THR patients completed the questionnaires. Out of the THR patients who completed the questionnaire, eight patients were discharged the day of surgery (post-op day 0) and eight patients were discharges the day after surgery (post-op day 1).

3-point Likert scale items. The first section of the questionnaire addressed patient's current confidence level completing a variety of activities using a 3-point Likert scale. This section consisted of 8 items that asked about a variety of transfers, dressing, adaptive equipment use and understanding of educational concepts (see Figure 1). Patients were asked to rank their confidence level for each item using a 3-point Likert scale as "limited confidence, moderate confidence, or extreme confidence." If the patient selected either limited or moderate confidence, they were then asked to explain why they chose this answer; selecting from "not clearly explained, need more practice, limited by pain, or writing in an addition reason that was not already an option to select." The results for this section are listed in Table 1 in the Appendix. Data was shown as percentages, displaying the percentage of THR & TKR patients who rated their confidence level completing ADLs & IADLs (See Figure 1). Values displayed within the table are separated between TKR and THR results. Results are summarized below as a whole in order to clearly and concisely describe the overall findings.

ADLs. Ninety-three point eight percent of THR patients and 100% of TKR patients scored their confidence levels performing shower/tub transfers as either extreme or moderate

confidence. Patients reported feeling similarly confident completing toilet transfers, with 100% of THR patients and 96.4% of TKR patients scoring extreme to moderate confidence with these activities. Patient's confidence completing car transfers were shown as slightly lower than the toilet and shower/tub transfers with 50% of TKR patients ranking moderate confidence and 50% ranking extreme confidence. 87.6% of THR patients choose moderate to extreme confidence with car transfers. Only 3.6% of TKR patients reported feeling limited confidence performing lower body dressing, however 12.5% of THR patients reported limited confidence with this activity. When asked to explain, THR patients often described hip precautions limited their ability and confidence with this task, and they required more practice. All functional mobility and daily self-care activities physically performed and practiced while in the hospital scored higher overall than activities not performed. Overall results from the 3-Point Likert scale displayed confidence levels with all ADLs as extreme and moderate confidence levels.

IADLs. The results shown for the questionnaire item "holding items while using a walker" demonstrated 43.8% of THR and 32.2% of TKR patients identified moderate and limited confidence completing this activity. 37.5% of THR and 42.9% of TKR patients scored the item "meal prep/cleanup" as moderate to limited confidence. Results for the item "household cleaning" displayed that 37.6% of THR and 57.1% of TKR patients felt only moderate to limited confidence completing these tasks at time of occupational therapy discharge. Overall, a higher percent of patients reported moderate or limited confidence with more advanced daily activities such as meal prep, household cleaning, and holding items while using a walker in comparison to ADLs that were practiced while in the hospital. These IADLs analyzed in the questionnaire were often not specifically addressed while in the hospital or were only briefly discussed if the patient brought up concerns.

Open-ended items. The second section of the questionnaire consisted of five open-ended questions addressing patient's perceptions of their occupational therapy treatment. The five questions addressed roles and responsibilities patients anticipate resuming once home, their feelings toward returning to these duties, the most beneficial and least beneficial aspects of their occupational therapy treatment, and concerns they currently had regarding resuming their daily activities. The student identified common themes regarding the responses for each of the final five open-ended items on the questionnaire. These themes illustrated the overall patient viewpoint of occupational therapy care within IUHNH.

Roles and responsibilities/feeling toward these duties. When asked which roles and responsibilities patient's anticipated when returning home from the hospital, all responses fit into two categories: ADLs & IADLs. Responses over both hip and knee joint replacement patient questionnaires had a primary theme regarding the importance of returning back to household cleaning and meal preparation as soon as possible. A variety of responses were categorized within these two activities, with multiple patients reporting, "general light housekeeping", "cleaning and meal prep", "mainly cooking", "keeping house, meal prep, and laundry." Although a majority of responses stressed the importance of returning to these activities as soon as possible, patients who will be returning home with family/friend support reported plans for their caregiver to complete these tasks until further recovered. This was expressed with replies such as, "cooking my meals after 10 days", "planning to rest and not going to do this until 2-6 weeks", "may get help from husband to do cleaning." Others identified activities were personal hygiene, functional mobility tasks such as picking things off the floor or transporting items, and pet care. When asked about their feelings toward returning to these activities, responses were overall positive; with patients reporting they were, "looking forward to it, eager, and feeling great" about

resuming the activities. Although the majority of responses were positive, there were some patients that expressed slight nervousness or a need to gain more confidence secondary to desiring more practice.

Most beneficial. Patients' impressions when asked, "what part of occupational therapy was most beneficial?" indicated that they viewed all aspects of occupational therapy treatment as beneficial or necessary. An overwhelming amount of replies reported that all activities and educational concepts were viewed as helpful. Specifically, the education on lower body dressing, use of adaptive equipment, and education on transfers to toilet, shower/tub, and vehicle were reported to be the most beneficial aspects of occupational therapy. Patient's found it helpful when therapists used "step by step instructions" and when they were given verbal, written, and physical demonstrations of the educational concepts. Patient's also found it helpful when they were able to practice the activities while in the hospital and the review what they should or shouldn't do when completing these activities.

Least beneficial. Out of all collected questionnaires for hip and knee patients, only three patients reported specific activities that they believed to be the least beneficial. In regards to these three responses, each expressed the reasoning behind feeling this way toward an activity was due to having previous knowledge of the method taught due to a prior joint surgery or "already did the task the way explains". All other responses reported, "none" or "it was all good and helpful" for this questionnaire item.

Worries/concerns. When asked about what worries or concerns the patients had resuming daily activities post discharge, patients expressed not having any or having slight concern. The majority of responses identified no worries or concerns. However, with the responses that did address a specific activity, most activities were more advanced IADLs not normally addressed

within the hospital setting. Examples of this are “being able to care for my pet”, “being able to kneel for church”, and “being able to carry items while using the walker.” Concerns were also expressed regarding completing activities in patient’s home environment versus practicing in the hospital.

Outcomes

Initially, the student developed the questionnaire, completed research analysis, and performed observation of current treatment protocol with plans for the project outcome to be giving the hospital staff a vast amount of suggested modifications and adjustments to their current joint replacement protocol. However, after analyzing the results from the questionnaire, results showed that the majority of patient’s expressed satisfaction with their care and overall confidence resuming most of their ADLs once home. Multiple patients reported worries and concerns that the student discussed with staff, however the overall view of the current procedure was positive. Results from the DCE will allow the student to demonstrate that current OT protocol, with exception of a few modifications, is fitting the needs of the majority of joint replacement patients.

Ongoing quality improvement. Continuous Quality Improvement (CQI) was used by the student throughout the entire DCE. The student utilized CQI to analyze and modify the current occupational therapy joint protocol for THR and TKR to ensure quality of care met the needs and standards of both patients and staff. The student developed multiple modifications for the joint replacement protocol based off questionnaire results to ensure quality improvement. In order to increase confidence levels in areas that displayed lower than others, the student suggested that occupational therapists put emphases on IADLs that are not being addressed in the current protocol. These IADLs include meal preparation and clean up, household cleaning, and

transporting items while using a walker. All of these specific activities were addressed within the questionnaire and a higher percentage of patients reported moderate to limited confidence completing these activities. The student also suggested that therapists put a greater emphasis on patient specific activities. This involved making sure therapists are using the occupational profile to build rapport in order to identify specific activities that are important to each individual patient. Making sure therapists identify and acknowledge activities important for each individual patient will allow therapy services to become more client-centered and improve overall patient care.

In order to ensure ongoing quality improvement, the student presented the project and it's findings to staff during two presentations. The overall response from staff during these presentations were positive. Therapists were also supportive of suggested changes in protocol made by the student. Specifically, the orthopedic surgeon expressed positive reactions and suggestions following the presentation. He conveyed that he loved how this project allowed for examining patient's satisfaction and gathering patient's viewpoint on their care (J. Hur, personal communication, April 13, 2018). Dr. Hur explained that IUHNH has a very specific clientele, only doing surgery on patients who have somewhat limited co-morbidities and have a confirmed plan for recovery and support. Therefore, he also provided suggestions for future projected, stating it would be beneficial to conduct a project similar to this at several other hospitals in order to compare results with populations that have different socioeconomic standing, co-morbidities, etc. Overall feedback from staff members showed that suggested modification to the occupational therapy protocol would occur and results would continue to be supported by all members of the orthopedic team. The student plans to discuss with professors the possible continuation of the project at varies other hospitals during DCE projects in the future.

Overall Learning

Throughout this DCE project, the student was required to use program development, advocacy, and clinical practice skills in order to achieve the goals and objectives put into place prior to the start of the project. The focus put on these skills prepared the student for future practice and assisted the student to further develop and grow these skills for the future. The student utilized program development skills in order to analyze the current protocol in place and modify it in order to meet best practice. The student used critical thinking skills throughout the project to modify and adapt the goals and objectives of the project to meet the changing needs of the facility. The original plan for the DCE was to analyze the current protocol in place for joint replacement patients and then, using the results of the questionnaire, research, and observation, provide the therapy staff with suggestions and modifications in order to fill any gaps seen in the protocol regarding meeting all of the needs of the patient. Modifications to this plan had to be made once the results showed a very high percentage of patients reporting moderate to extreme confidence resuming daily activities and minimal worried or concerns returning home. Therefore, the focus of the project was then adapted to advocacy and allow the student to use these results in order to advocate for the IUHNH joint protocol.

The hospital setting is quick paced and constantly changing due to modifications of schedules, patient refusals, and medical needs affecting treatment. This experience within such an environment allowed the student to develop skills in being able to adapt to change and develop more flexible within the patient care setting. This will be useful in future practice because the student intends to continue working in a hospital setting after graduation. The student also focused on research and evidence-based practice principles grounded in the MOHO

model when working with patients and when developing the questionnaire used for the implementation phase.

Communication

Communication skills were extremely important throughout the entire DCE project. It was crucial for the student to practice proper non-verbal, written, and oral communication skills with all individuals in which she encountered. On a daily basis, the student strove to be a good active listener in order to be a good communicator. This involved always paying close attention to others and clarifying any questions that arose. An example of this occurred during patient care while making sure to truly listen to the patient, and make sure they knew they were being heard. While working in an interdisciplinary team, the student learned the importance of communicating in a respectful, confident, and friendly manner, especially when advocating for the sustainability of the project.

Non-verbal communication with interdisciplinary staff, patients, and patient's family members always utilized appropriate body language, eye contact, and hand gestures to help convey what the student wanted to express. The student used a respectful and friendly tone in order to always appear approachable and encourage trust.

Written communication was completed mostly through documentation of services with patients. The student worked towards always making sure this communication was done in a clear and concise manner that allowed for the documentation to provide an accurate portrayal of the OT process provided with each patient. A specific time the student had to verify good written communication was during the development of the questionnaire. The student had to make sure all patients could understand the terminology used and that it was truly portraying what each question was intending to ask.

Limitations

Limitations of this study included the small sample size, the high chance of questionnaires not getting collected prior to patient's discharge, and the study being restricted to only one particular hospital. The sample size was depended on how long of a time period the questionnaires could be pasted out. Since, this project had deadlines regarding each stage of the research, questionnaire distribution has to be concluded prior to reaching the desired number of questionnaires. Due to the quick nature of the acute care setting and discharges occurring sometimes less than an hour after questionnaires were originally distributed, some questionnaires were taken home by patients or thrown away after a patient has discharged. This caused several of the questionnaires to be missed by therapy staff. The final limitation noticed was the fact that the research only occurred at one particular hospital. This limits the results to a particular population with patients falling under similar socioeconomic groups that may vary from other hospitals.

Conclusion

This project allowed the student to identify modifications needed to improve care for the THR and TKR population in order to enhance patient's independence with activities of daily living (ADLs) and instrumental activities of daily living (IADLs) following surgery. Results of patient questionnaires, a review of current literature, and observation done by the student indicated that IUHNH's total hip and knee joint replacement program has a well developed occupational therapy protocol with modification only needed in order to address confidence levels with higher level IADLs and patient specific activities.

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Figure 1.

Post-Joint Replacement Questionnaire

Date:

POST-JOINT REPLACEMENT QUESTIONNAIRE

All questions contained in this questionnaire are strictly confidential
and will be used to improve overall quality of therapy services.

☐ M ☐ F	**DOB:**	**Type of Surgery:**
Marital status: ☐ Single ☐ Partnered ☐ Married ☐ Separated ☐ Divorced ☐ Widowed		
Orthopedic Surgeon:		**Date of Surgery:**
Discharge location: ☐Home alone ☐Home, living with support system (spouse, relative, friend) ☐ Someone else's home ☐ Post-acute rehab		

PERSONAL HEALTH HISTORY
☐ OA ☐ COPD ☐ Obesity ☐ Diabetes ☐ Hypertension ☐ Congestive Heart Failure ☐ Previous joint surgery, if so specify: _____
List any other diagnosed medical problems:

Please rate your current confidence level with SAFELY completing these daily activities?

Survey Item		
1. Getting in and out of the vehicle	☐ Limited confidence ☐ Moderate confidence	If limited or moderate, please explain why: ☐ Not clearly explained ☐ Need more practice ☐ Limited by pain ☐ Other: _____
	☐ Extreme confidence	
2. Getting in and out of the shower/bath tub	☐ Limited confidence ☐ Moderate confidence	If limited or moderate, please explain why: ☐ Not clearly explained ☐ Need more practice ☐ Limited by pain ☐ Other: _____
	☐ Extreme confidence	
3. Getting on and off the toilet	☐ Limited confidence ☐ Moderate confidence	If limited or moderate, please explain why: ☐ Not clearly explained ☐ Need more practice ☐ Limited by pain ☐ Other: _____
	☐ Extreme confidence	
4. Putting on and taking off lower body clothing	☐ Limited confidence ☐ Moderate confidence	If limited or moderate, please explain why: ☐ Not clearly explained ☐ Need more practice ☐ Limited by pain ☐ Other: _____
	☐ Extreme confidence	
5. Holding items while using the walker	☐ Limited confidence ☐ Moderate confidence	If limited or moderate, please explain why: ☐ Not clearly explained ☐ Need more practice ☐ Limited by pain ☐ Other: _____
	☐ Extreme confidence	
6. Meal preparation/clean up	☐ Limited confidence ☐ Moderate confidence	If limited or moderate, please explain why: ☐ Not clearly explained ☐ Need more practice ☐ Limited by pain ☐ Other: _____
	☐ Extreme confidence	

7. Overall household cleaning	□ Limited confidence	If limited or moderate, please explain why: □ Not clearly explained □ Need more practice □ Limited by pain □ Other: _____
	□ Moderate confidence	
	□ Extreme confidence	
8. Understanding of and adherence to hip or knee precautions	□ Limited confidence	If limited or moderate, please explain why: □ Not clearly explained □ Need more practice □ Limited by pain □ Other: _____
	□ Moderate confidence	
	□ Extreme confidence	

List some of your daily roles and responsibilities you anticipate returning to once home.	**Explain how you feel about returning to these duties?**

What parts of occupational therapy were the most beneficial for you?

What parts of occupational therapy were the least beneficial for you?

List any worries/concerns you have regarding leaving the hospital and resuming necessary daily activities?

Table 1.

Percentage of THR & TKR Patient's Confidence Level Completing ADLs & IADLs

	THR Results			**TKR Results**		
Car Transfers	68.8%	18.8%	12.5%	50.0%	50.0%	0.0%
Shower/Tub Transfer	68.8%	25.0%	6.3%	64.3%	35.7%	0.0%
Toilet Transfers	87.5%	12.5%	0.0%	71.4%	25.0%	3.6%
Dressing LB clothing	81.3%	6.3%	12.5%	82.1%	14.3%	3.6%
Holding Items while using walker	56.3%	31.3%	12.5%	67.9%	14.3%	17.9%
Meal Prep/Clean-up	62.5%	12.5%	25.0%	57.1%	25.0%	17.9%
Overall Household Cleaning	62.5%	18.8%	18.8%	42.9%	35.7%	21.4%
Understanding Precautions	93.8%	6.3%	0.0%	92.9%	3.6%	3.6%