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# Client Perceptions on the Value of Pre-Surgical Education Regarding the Recovery Process after Carpometacarpal Arthroplasty

Alice J. Mullholand
*Eastern Kentucky University*, amullholand@methodist.edu

# Client Perceptions on the Value of Pre-Surgical Education Regarding the Recovery Process after Carpometacarpal Arthroplasty

Presented in Partial Fulfillment of the
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AJ Mullholand OTR/L, CHT
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## Executive Summary

**Background:** The delivery of client education is an intervention that has a substantial influence on healthcare outcomes. However, the significance of preoperative education for outpatient hand treatments remains inadequately supported by research. Occupational therapists possess the necessary skills and knowledge to effectively address the issue of health literacy and make valuable contributions toward the promotion of health equity. The existing research fails to provide adequate evidence to support the claim that preoperative education is important for outpatient hand procedures. It is important to promote the adoption of best practices and enhance clients' health literacy regarding hand surgery to achieve the essential goal of ensuring that clients have adequate health literacy regarding hand surgery.

**Purpose:** This Capstone study aimed to assess the perspectives of clients on the perceived benefit of a preoperative educational session focusing on the postoperative recovery following carpometacarpal arthroplasty (CMC) surgery. The study addressed two questions. 1) Do clients perceive themselves as well prepared for CMC arthroplasty surgery and understand how long it will take to return to normal activities? 2) What are perspectives of clients regarding an occupational therapy consultation pre-operatively focusing on enhancing comprehension of post-operative treatment?

**Theoretical Framework.** The Person-Environment-Occupation-Performance, PEOP, model provided the researcher the framework to identify client frustrations that may have accompanied limited hand function following carpometacarpal arthroplasty surgery and how improved preparation would help to overcome some of the barriers and decrease client concerns.

**Methods.** The study utilized a quantitative survey methodology to collect data on client perceptions of the perceived benefits of enhanced preoperative education, using descriptive statistics for analysis. The application of this methodology enabled the investigation of participants' opinions within the *Facebook Group, CMC- joint arthritis suffers United*, utilizing a representative subset of the group.

**Results.** Out of the total sample size of twenty-five participants, a majority of 72% indicated either strong agreement or somewhat agreement about their understanding of the recovery process prior to undergoing CMC arthroplasty. While more than half of the participants had a solid understanding prior to the procedure, 33% of them later expressed a lack of understanding regarding the duration required to resume routine activities after the procedure. A substantial majority of the participants, (88%), indicated a high level of agreement or somewhat agreement on the possible advantages of a therapist-led educational session in improving understanding of the surgical procedure and subsequent recovery, consequently emphasizing the importance of strengthening health literacy regarding CMC arthroplasty.

**Conclusion:** While clients may initially perceive themselves as having a comprehensive understanding of CMC arthroplasty and the recovery process, they may still have unanswered questions concerning the slow return of routine activities. Occupational

therapists have the responsibility of facilitating individuals' preparedness for occupational performance, encompassing an obligation to adequately prepare clients before and following hand surgery.

**Acknowledgement**

I would like to express my sincere thanks to Dr. Donna Colaianni for her initial guidance and backing for my research. My committee mentors, Dr. Shirley O'Brien, and Dr. Cindy Hayden, for their invaluable feedback and direction throughout this project. As well as my colleagues Dr. Sherri Michel and Dr. Shelby Benke. Lastly, my family, friends, and students' unwavering encouragement and support. Especially my devoted husband, Mark, who kept telling me "You're capable of this!"

**EASTERN KENTUCKY UNIVERSITY**
**COLLEGE OF HEALTH SCIENCES**
**DEPARTMENT OF OCCUPATIONAL SCIENCE AND OCCUPATIONAL THERAPY**

# CERTIFICATION OF AUTHORSHIP

Submitted to (Faculty Mentor's Name): Dr. Shirley O'Brien, PhD, OTR.L, FAOTA
Student's Name: AJ Mullholand, OTR/L, CHT
Title of Submission: Client Perceptions on the Value for Pre-Surgical Education Regarding the Recovery Process after Carpometacarpal Arthroplasty

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Student's Signature: AJ Mullholand, OTR/L, CHT

Date of Submission: 11/20/2023

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## Section 1: Nature of Project and Problem Identification

Over the last forty years, there has been a notable rise in outpatient surgeries, particularly in the United States (US). The percentage of outpatient surgeries in the US has experienced significant growth, rising from 34% in 1985 to 61% in 1994 (Stephanie et al., 2021). As the trend advances toward more outpatient surgeries and shorter hospital stays, better client education can assist in reducing postoperative complications (Koivisto et al., 2019).

Client education is an intervention that significantly impacts healthcare processes and outcomes (Stern et al., 2019). Spalding's (2003) seminal article concluded that pre-operative education effectively reduced anxiety levels among those undergoing hip arthroplasty, through fostering a sense of familiarity and understanding regarding their upcoming orthopedic surgical procedure. Verma et al. (2020) affirmed that inadequate instruction on the importance of postoperative rehabilitation is a significant factor in the psychological effects experienced after an injury or surgery. There is a lack of evidence regarding the impact of pre-operative education and level of health literacy for clients who undergo outpatient hand procedures.

According to the U.S. Department of Health and Human Services (2022, p. 2.1), health literacy is the extent to which individuals can acquire, analyze, and comprehend fundamental health-related information and services necessary for making suitable decisions regarding their health. Occupational therapists possess specialized knowledge and certifications that equip them with the skills needed to address health literacy effectively. Health literacy and occupational therapy practice both emphasize holistic approaches, prioritize client-centered practices, employ

teaching methods and information dissemination, and strive for equal access to services and equitable outcomes (Levasseur & Carrier, 2011, pp. 1- 2).

Several approaches identified in healthcare research influence the planning and implementation of interventions. Further investigation would help to better understand how occupational therapists integrate client education into the broader theoretical framework of their profession (Stern et al., 2019). In the context of preoperative education, it is imperative for occupational therapists to acknowledge the importance of both the educational content and the delivery manner. This recognition is crucial because both factors rely on more than simply delivering useful information to reduce customer concerns (Spalding, 2003).

There are 7,322 certified hand therapists (CHT) worldwide, of which 87% hold occupational therapy licenses (HTCC, n.d.). Occupational therapists who are CHT's can substantially impact health literacy and the advancement of health promotion by developing and implementing health education strategies and resources that are all-encompassing, readily available, and applicable to individuals undergoing outpatient hand surgery (Pizur-Barnekow et al., 2017). Therefore, it is imperative to do additional research to determine the most effective methods for preoperative education of outpatient hand clients.

**Problem Statement**

The problem this Capstone project addressed is the lack of research that identifies the benefits of an occupational therapy (OT) pre-operative education program with individuals undergoing carpometacarpal (CMC) arthroplasty.

## Purpose of the Project

This Capstone study aimed to assess the perspectives of clients on the perceived benefit of a preoperative teaching session focused on the postoperative recovery phase following first-time CMC arthroplasty.

## Research Questions

The research questions for this capstone were:

1. Do clients perceive themselves as well prepared for CMC arthroplasty surgery and understand how long it will take to return to normal activities?
2. What are clients' perspectives regarding an occupational therapy pre-operative education session designed to improve understanding of CMC arthroplasty and post-operative care?

## Theoretical Framework

The Person-Environment-Occupation-Performance (PEOP) model assisted with supporting this study. Baum et al. (2015) highlighted the PEOP model as a comprehensive system model that takes into account the interplay among the various components of the system and its overall performance. It considers four pivotal elements that exert an impact on performance, participation, and well-being including: environmental factors, individual factors, occupational performance, and occupations. By identifying critical elements in human and environmental performance enablers/barriers, this model facilitates the development of a practical intervention plan for the client. It emphasizes that an individual's performance can be positively or negatively influenced by their interactions with their environment and uniquely

integrates a biomedical and sociocultural framework with one for contemporary practice (Baum et al., 2015).

PEOP enhances the growing knowledge of occupational therapists, who must now learn to incorporate a global healthcare perspective to achieve maximum effectiveness. It incorporates an approach that is both biomedical and sociocultural, while also accounting for modern practice. Moreover, the framework embraces a comprehensive systems approach that takes into account biopsychosocial (BPS) determinants of occupational performance. This viewpoint facilitates understanding of the complex attributes associated with occupational performance. By prioritizing the client, PEOP facilitates an occupational therapist's view of the entire system of care. The PEOP model resonates with the emerging paradigm of occupational therapy practice, which recognizes the unique capabilities and requirements of organizations, populations, and individuals (Baum et al. 2015).

This model is applicable in a wide variety of healthcare settings, including social and community settings, rehabilitation facilities, and medical practices. Dysfunctional occupational patterns often appear as a result of deficiencies in personal abilities and skills, attributed to health conditions, environmental barriers, or insufficient resources. The model underscores the significance of psychological factors in relation to performance (Baum et al. 2015). Therefore, the framework establishes a basis for the researcher in identifying client frustrations that might have accompanied restricted hand function for a duration of 4-8 weeks and helps to illustrate how enhanced preparation could assist in navigating challenges and alleviating client apprehensions about occupational performance limitations.

**Study Significance**

While a considerable amount of scholarly work has been devoted to preoperative education regarding lower extremity procedures, this knowledge does not pertain to hand surgeries. By investigating the literacy requirements of those undergoing CMC arthroplasty, this research makes a scholarly contribution to the domain of preoperative education by applying fundamental principles of preoperative education established for lower extremity procedures. The primary aim of this research was to improve comprehension regarding the importance of preoperative education, explore gaps in client knowledge and the resulting impact of such learning. Moreover, the objective was to demonstrate that enhanced health literacy can alleviate clients' apprehensions concerning recovery and postoperative care subsequent to CMC arthroplasty. Additionally, the study advocates that OT practitioners participate in the preoperative phase for clients who elect CMC surgery. This will enable the distribution of knowledge to healthcare professionals, insurance providers, and physical and occupational therapists concerning the crucial significance of enhancing health literacy in relation to surgical procedures and the subsequent rehabilitation period needs. Blending preoperative education, by addressing daily routine adaptations, healing processes and resuming occupational performance can improve client rehabilitation, which can prevent future injury. Furthermore, by addressing preoperative client needs for CMC education, occupational therapists can increase the organizational dedication to the promotion of health literacy within their professional roles.

**Operational Definitions**

- Arthroplasty: The surgical reconstruction or replacement of a joint (*Oxford Languages and Google - English | Oxford Languages*, 2022).
- CMC Joint: Categorized as possessing a concavo-convex saddle configuration (Villafañe et al., 2019).
- Osteoarthritis: A chronic condition characterized by the gradual deterioration of joint structures (Branch, 2023).

**Summary**

Stern et al. (2019) underscored the importance of client education as an intervention that has an impact on both the healthcare process and the resulting outcomes. However, it is imperative to gain a deeper understanding of how occupational therapists effectively integrate client education into their professional practices. According to Montgomery (2023), occupational therapy practitioners possess the ability to promote health equity by fostering health literacy and employing efficient methods of communication while interacting with their clients. The current shift towards outpatient surgery and shorter hospital stays has prompted the recognition that improved patient education may contribute to the reduction of postoperative problems (Koivisto et al., 2019).

The objective of this Capstone project was to examine the viewpoints individuals have on the benefits associated with a preoperative education session focused on enhancing health literacy pertaining to CMC arthroplasty surgery and post-operative care, with the intended purpose to illustrate that clients' inadequate understanding of the healing timeline and temporary limitations after hand surgery heightened their concerns. This highlights the importance of enhancing health literacy pertaining to the surgical procedure in order to build optimal

approaches. The research was supported by the PEOP model, as proposed by Baum et al. (2015), which underscores the significance of psychological factors in connection with performance. The objective of the study is to highlight the potential advantages of increased awareness in effectively addressing issues and reducing client concerns regarding deficiencies in occupational performance.

## Section 2: Review of the Literature

The researcher performed a comprehensive literature review using the Eastern Kentucky University library database to identify the current practices about the effectiveness of enhanced health literacy in reducing concerns among clients having orthopedic hand procedures. The peer-reviewed papers were retrieved by employing the library databases CINAHL Complete, Google Scholar and MEDLINE. The search used specific keywords such as patient education, health literacy, occupational therapy, hand therapy, orthopedics, and upper extremity rehabilitation. Further understanding of the subject was sought by exploring the websites of the American Occupational Therapy Association and the Hand Therapy Certification Commission to enhance content understanding and to offer additional support. This literature review offers a comprehensive overview of the health literacy levels among individuals undergoing hand surgery, as well as the significant contributions that occupational therapists can make in this context.

### Health Literacy

According to the U.S. Department of Health and Human Services (2022), an individual with health literacy can effectively obtain, analyze, and understand essential health-related knowledge and resources to make informed decisions. Limitations of health literacy influence the utilization of services and adoption of healthy behaviors by clients in health literacy (Hadden et al., 2016). Various factors can hinder health literacy, such as age, language proficiency, cultural background, level of education, and the accessibility of services (U.S. Department of Health and Human Services, 2022). Nevertheless, a significant portion of the American population, encompassing eighty-seven million individuals, faces difficulties comprehending

printed health information, irrespective of their wealth, social status, or educational attainment (Hadden et al., 2016).

As a "silent epidemic," low health literacy is an urgent and significant health concern that is widely recognized on an international level (Cosic et al., 2017, p.90). Continued research conducted by the Secretary's Advisory Committee for Healthy People 2030 has resulted in the expansion of preexisting definitions of health literacy. Specifically, they proposed the notion of organizational health literacy, which acknowledges that the onus is not solely on the individual to promote health literacy. In creating and delivering health information and services, this expanded definition highlights the responsibility of organizations and practitioners (*History of Health Literacy Definitions - Healthy People 2030 | Health.gov*, n.d.).

Inadequate health literacy correlates to various adverse outcomes, including increased mortality rates, hospitalizations, and utilization of healthcare resources (Cosic et al., 2017). According to Hadden et al. (2016), the nation's economy suffers from an estimated range of $106 to $238 billion in avoidable expenses due to inadequate comprehension of health information among clients. Enhancing client compliance and achieving optimal outcomes requires improving understanding and health literacy (Cosic et al., 2017).

There is a high prevalence of low health literacy among older adults and individuals with lower levels of education who seek consultation with hand surgeons (Hadden et al., 2016). Cook et al. (2017) determined that individuals, irrespective of their literacy levels, exhibit a preference for written materials that are straightforward and succinct. Therefore, findings suggested that the creators of instructional materials utilized in healthcare should develop resources written at a reading level equivalent to that of sixth-grade students to enhance comprehension to the greatest

extent possible. Nevertheless, it has been seen that patient education materials pertaining to hand surgery exceed a suitable standard of comprehensibility. Furthermore, it has been noted that healthcare personnel regularly exhibit inadequacies in accurately evaluating health literacy, often overestimating their clients' level of proficiency (Hadden et al., 2016).

Approximately one-third of patients who visit a hand surgeon face challenges in acquiring, processing, comprehending, and communicating health-related information, thereby hindering their ability to make informed decisions. As a result, patients with limited health literacy who undergo hand surgery tend to ask fewer questions regarding their medical care, including their therapeutic regimen and condition. In addition, their interactions were notably shorter. These findings suggest that health literacy has a substantial impact on client involvement in hand surgery and underscore the need of implementing strategies that can enhance individuals' engagement, especially among those with inadequate health literacy (Menendez et al., 2017).

**Client Education in Healthcare**

The integration of client education is an essential intervention that significantly impacts healthcare processes and outcomes. The delivery of the education is a topic that generates significant debate, consequently influencing the development and execution of intervention strategies. The method employed in client education programs has undergone substantial development, progressing from fundamental dissemination of knowledge to a more targeted approach that seeks to encourage and strengthen individuals in their pursuit of self-determination (Stern et al., 2019).

It was argued by Roh et al. (2016) that while there is a growing recognition of health literacy as a barrier to both public health and individual healthcare, there is a lack of research

investigating its influence on treatment results specifically in the context of orthopedic injuries. There is an association between reduced health literacy and insufficient compliance with conservative treatment methods for mallet finger injuries. Patients with inadequate health literacy were significantly less satisfied with the treatment outcome of this injury (Roh et al., 2016).

Spalding's 2003 seminal article provided evidence of the beneficial impact of preoperative education in reducing patient anxiety on clients awaiting total hip replacement, finding that adequately informed clients exhibited a clear understanding of their future and reported reduced levels of anxiety due to the familiarity brought about by the education (p. 289). She recommended that occupational therapists recognize the importance of the educational process and outcomes. Recommending three strategies in order to enhance the client's understanding of their future: furnishing education regarding the systematic advancement of recovery, ensuring that the occupational therapist imparting the information actively engages in the individual's treatment, and acquainting the client with the treatment environment (Spalding, 2003).

A study by Koivisto et al. (2019), found that providing sufficient patient awareness and education is essential because 30% of surgical complications occur in the home setting within one month after hospital discharge. Additionally, a strong correlation was found between preoperative education with decreased levels of client anxiety, and a lower incidence of post-surgical problems. The study revealed that client education is of paramount importance in resolving problems, particularly in situations where the intervention is to address a mechanical diagnosis. However, Van Eck et al. (2018) propose that when the surgeon assumes exclusive

responsibility for patient education, there may be limitations on the client's ability to retain knowledge.

Hadden et al. (2016) directed their attention towards the concern regarding insufficient client education materials in the domain of hand surgery. They proposed that in order to address this issue, it is imperative to improve knowledge dissemination, provide avenues for professional growth, and refine the approaches utilized by healthcare practitioners for understanding preoperative education prior to surgery. The significance of preoperative education prior to surgical procedures has been demonstrated. The subsequent section will focus on upper extremity issues, specifically highlighting CMC arthroplasty.

**CMC Arthroplasty**

Osteoarthritis (OA) of the CMC joint is a frequently encountered condition within healthcare settings that specialize in hand care. Multiple studies have provided evidence indicating that the occurrence of thumb carpometacarpal osteoarthritis among adults aged thirty and above is 15% for women and 7% for men (Cantero-Tellez et al., 2022; Ling et al., 2023; O'Brien et al., 2022; Yao & Park, 2008). The characteristic features of CMC OA are the erosion and degeneration of the joint surfaces, laxity of the ligaments, and the production of osteophytes. There are three primary theories regarding the origin of thumb carpometacarpal osteoarthritis (CMC OA): ligamentous laxity, joint compression, and insufficient neuromuscular control of the joint (Villafañe et al., 2019).

Extensive documentation exists about the efficacy of several surgical techniques, including suspension and/or interposition arthroplasty, CMC joint fusion, trapeziectomy, and complete joint arthroplasty, in the management of advanced thumb arthritis. The primary

objective of these surgeries is to alleviate discomfort while concurrently enhancing the stability and strength of the thumb (Sander et al., 2020). Ling et al. (2023) assert that the thumb assumes a pivotal part in approximately 50% of the hand's entire functionality. As a result, the existence of CMC arthritis can significantly affect hand mobility, resulting in discomfort and reduced stability. The symptoms associated with thumb CMC OA include pain, reduced strength, and a noticeable deterioration in the capacity to perform a range of routine activities. These activities encompass grasping objects, executing a pinch grip, turning a key, lifting objects, engaging in grooming tasks, and opening jars (O'Brien et al., 2022).

Sigel et al. (2022) conducted a study that identified significant variability in the therapeutic interventions administered subsequent to thumb CMC arthroplasty. Identifying that various studies examining the duration of range of motion, utilization of orthoses, and postoperative management protocols indicate a lack of consensus among healthcare professionals regarding the optimal treatment approach. However, the text failed to address the significance of preoperative education.

**Role of Occupational Therapy in Client Education**

The act of educating clients is an essential approach that is emphasized in the Occupational Therapy Practice Framework 4th edition (OTPF-4, 2020). The fundamental aim of this initiative is to enhance client understanding, facilitate the acquisition of knowledge, and promote overall well-being. The main objective of such an approach is to enhance the independent thinking of individuals by equipping them with the essential knowledge and tools to promote their understanding and active participation in their healthcare. One potential avenue for occupational therapy practitioners to effectively contribute to the advancement of health equity is through the proactive development of health literacy and engagement in successful

communication with their clients (Montgomery, 2023). The AOTA Vision 2025 focuses considerable emphasis on the implementation of a client-centered approach and the active engagement of persons in collaborative efforts to achieve positive outcomes. The acknowledgement by the advisory committee to the secretary highlights that Healthy People 2030 acknowledges the increasing duty placed on organizations and professionals engaged in the provision and dissemination of health information and services to actively promote health literacy, alongside individual accountability (*History of Health Literacy Definitions - Healthy People 2030 | Health.gov*, n.d.). Consequently, occupational therapists have the ability to assume a crucial role in educational practice, both prior to and following CMC arthroplasty procedures, in accordance with this fundamental premise.

**Summary**

This literature review highlights the significance of health literacy and the benefits associated with strengthening comprehension to achieve enhanced surgical outcomes through preoperative education. Prior studies have indicated that preoperative education confers benefits to those undergoing hip replacements and other orthopedic procedures through the enhancement of patient awareness and understanding. Every discrete component of the exhibition showcased unique attributes, while concurrently underscoring the advantageous impacts of health literacy on client outcomes. However, it is evident that there exists a significant gap in the existing literature about the delivery of educational materials to individuals before participating in hand surgery. This underscores the importance of learning client perceptions regarding their perceived knowledge of CMC arthroplasty and the recovery process.

## Section 3: Methods

The study utilized a quantitative survey methodology to collect descriptive statistics on client perceptions of the perceived benefit obtained through enhanced preoperative education. The survey design employed in this study is an analytical approach aimed at gathering and assessing data in order to accurately reflect the dominant patterns, attitudes, and perspectives within a specific group. This is achieved by evaluating a representative sample of participants from within the group (Creswell & Creswell, 2018).

### Project Design

The current study employed a cross-sectional survey design. According to Creswell and Creswell (2018), this particular design is characterized by collecting data at a single moment in time to generate descriptive statistics. The use of this survey method is preferred in scholarly studies to expedite the timely collection of participant replies (Creswell & Creswell, 2018). Institutional Review Board (IRB) approval (# 5534) was obtained prior to beginning the study.

### Setting

The study was conducted on a private Facebook social media site dedicated to members that have undergone CMC arthroplasty surgery ("CMC - Hand joint arthritis sufferers- United."). A Facebook invitation was posted in the group (Appendix B) inviting interested members to participate that met the inclusion criteria.

**Participants**

Eligible participants were individuals who belonged to the Facebook group, who were between 40-80 years old, and who had undergone CMC arthroplasty for the first time. Individuals who did not belong to the Facebook group, who were under the age of forty or over the age of 80, or who had CMC arthroplasty prior were excluded from the study.

**Instrument**

The researcher created the survey instrument employed in this study based upon content expertise from experts and the literature (refer to Appendix A). The survey was pilot tested by a sample of five clients from the clinic where the researcher works, who had undergone CMC arthroplasty to verify their comprehension of the questions. Subsequent improvements were implemented to ensure the quality of the data, drawing from piloting and feedback provided by the Capstone committee. The survey consisted of eighteen questions organized into categories based on client views about CMC arthroplasty, recovery, and demographics. The survey evaluated an individual's preoperative understanding of the surgical technique, postoperative care, and issues pertaining to surgery and rehabilitation, as a post- hoc perspective. The survey was administered via the Qualtric platform and incorporated a 4-point Likert scale, encompassing responses that span from strongly agree to strongly disagree.

**Data Collection**

The researcher utilized Qualtrics software, facilitated by Eastern Kentucky University, to develop a digital survey exclusively for the purpose of this study. The researcher was granted permission by the Facebook group administrators to distribute the survey within the closed social media group, of which the researcher herself is a member. Data collection was

facilitated by using close-ended questions presented on a digital survey platform. All disseminated surveys consisted of identical questions. Once the survey was posted, data collection occurred between 09/27/2023- 11/04/2023. Each week a reminder post was submitted to the group to invite participation and thank those that had completed the survey.

**Data Analysis**

The data was summarized using descriptive statistics to identify perceptions of clients' understanding prior to undergoing CMC arthroplasty surgery. Means and percentages were calculated using Qualtrics software.

**Validity**

Prior to beginning the study, all participants were provided with information regarding the goal of the study, and their participation in the study constituted informed consent. The process of data collecting, and analysis was conducted on a computer that is secured and password protected. The findings obtained from this research will remain confidential and will not be disclosed to those outside of the research team. Data disseminated in presentations and publications will be aggregate data only.

According to Creswell and Creswell (2018), internal validity risks refer to the many treatments, experiences, or procedures encountered by participants that have the potential to undermine the researcher's capacity to appropriately interpret the data derived from them. Utilizing a Likert scale in which the respondent expresses their level of agreement or disagreement, ranging from "strongly agree" to "strongly disagree," without being explicitly informed about the numerical correlation, can serve to mitigate any bias in participants' responses. In general, the likelihood of encountering adverse consequences for individuals

participating in the survey was minimal, as the study primarily focused on survey design and does not involve any form of intervention for the participants. All survey responses were stored within the Qualtrics database.

## Ethical Considerations

The researcher obtained approval from the Eastern Kentucky University Institutional Review Board (IRB) prior to initiating the study. Furthermore, in order to effectively address ethical concerns, the study implemented the following practices. The participants were fully informed that the researchers had a specific interest in their comprehension prior to the procedure, and that their involvement in the survey could potentially aid in the improvement of the preoperative experience for those undergoing CMC arthroplasty in the future. To ensure questions were understood, the survey was piloted to five nonparticipating clients at a dedicated outpatient hand clinic. Further improvements were implemented to guarantee the quality of the data, drawing from the committee's feedback, and the piloting process. The surveys were administered anonymously, thereby minimizing potential risks for the participants.

## Timeline of Project

| | | |
|---|---|---|
| Initial IRB Submission | 08/30/2023 | Accepted |
| IRB updated with recommended changes | 09/18/2023 | Re Submitted |
| IRB Approved | 09/26/2023 | #5534 |
| Initial Facebook posting | 09/26/2023 | Initial data collection |
| Second Facebook posting | 10/01/2023 | Continue data collection |
| Third Facebook posting | 10/09/2023 | Final data collection |
| Data Analysis | 10-22-2023-11/05/2023 | Utilizing Qualtrics |
| Dissemination of results | 11/16/2023 | Final Presentation |

## Section 4: Results and Discussion

### Introduction

The collected data revealed the perspectives of patients who had undergone CMC arthroplasty for the first time regarding their understanding of the perceived benefit gained through enhanced preoperative education. The survey was accessed by fifty-two individuals; however, only thirty completed it; of the thirty completed surveys, twenty-five met the inclusion criteria.

### Demographics

The survey received responses from a sample of thirty female participants, ranging in age from 45 to 74 years. Five participants were eliminated from the study due to their prior history of CMC arthroplasty and failure to meet the inclusion criteria. A total of 52% of the eligible participants indicated that they held either an associate or bachelor's degree. Forty eight percent of individuals underwent surgery on their dominant hand.

### Results

Data was obtained from the Qualtrics platform, and non-parametric descriptive statistics were used to assess participants' comprehension of CMC arthroplasty and the subsequent rehabilitation procedure. A significant majority of participants, specifically 76%, expressed either strong agreement or partial agreement with their perceived preparedness for the surgery (Figure 1). Similarly, 72% of participants indicated strong agreement or partial agreement in terms of their comprehension of the healing process prior to undergoing the CMC surgery (Figure 2).

*Figure 1: Client Perception of Preparation for CMC Surgery*

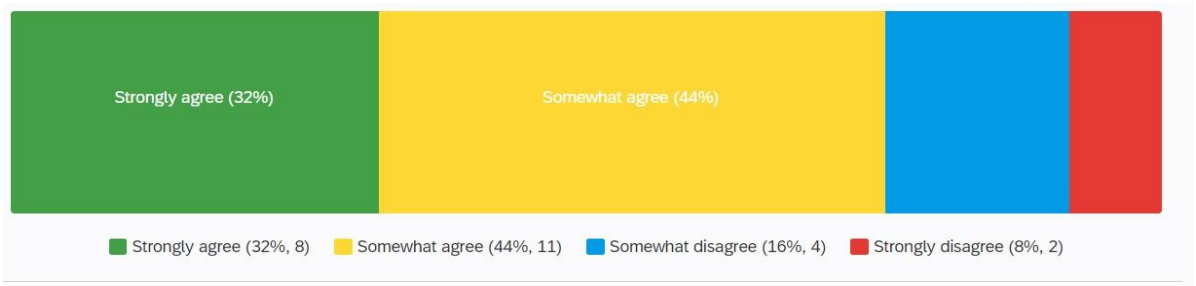
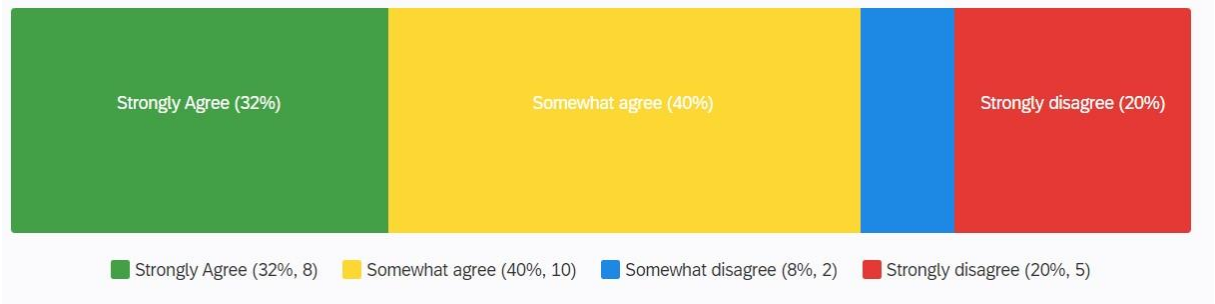



*Figure 2: Understanding of the Recovery Prior to Surgery*




However, by combining strongly agree and somewhat agree, 48% expressed agreement, with the belief that they lacked comprehension of the duration of time required to resume normal activities and had heightened concern pertaining to the surgical procedure and subsequent rehabilitation, as their knowledge of the longer healing process intensified (see Figure 3 and Figure 4). The findings of this study indicate that a large proportion, specifically 33.3%, of the participants who self-reported feeling adequately prepared and possessing a comprehensive grasp exhibited misconceptions regarding their understanding of their preparedness for surgery and understanding of the healing process.

*Figure 3: Understanding about length of time to return to normal activities*

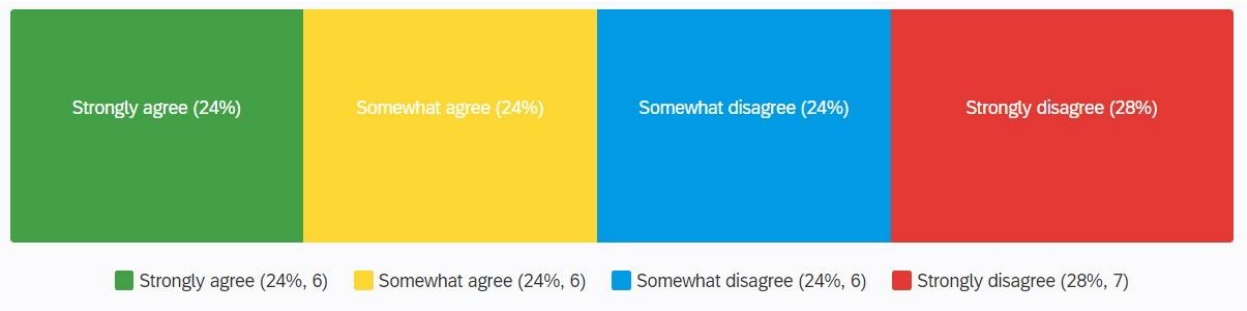
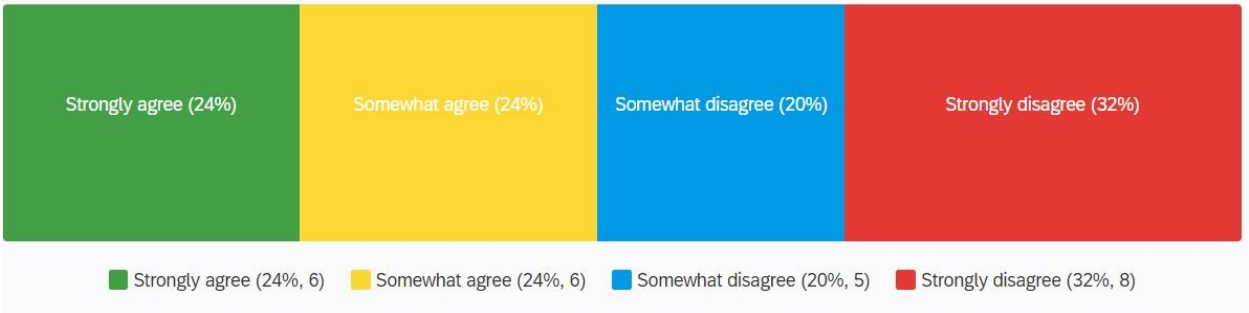
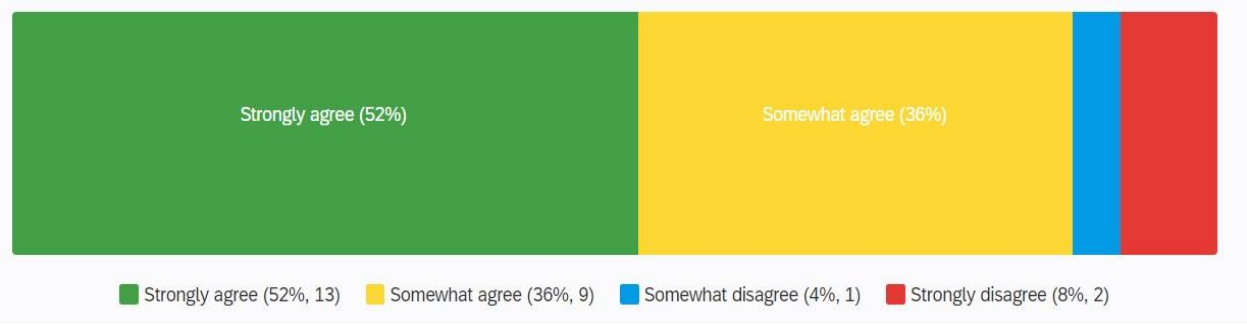



*Figure 4: Concerns about surgery and rehab increased because of unawareness of healing time*




Additionally, only 52% of respondents expressed a moderate level of agreement with the enhancement of knowledge after undergoing therapy, hence raising concerns about the effectiveness of therapist education in the context of CMC arthroplasty. Nonetheless, a significant majority of participants (88%) expressed strong agreement or partial agreement with the potential value of a therapist-led educational session before surgery to improve comprehension of the surgical procedure and the subsequent recovery process (Figure 5).

*Figure 5: Presurgical education session would improve understanding*




## Discussion

The objective of this study was to examine the opinions of persons who received CMC arthroplasty regarding their understanding of the treatment and the ensuing time of rehabilitation. Additionally, the study aimed to evaluate the participants' perspectives on the potential advantages of preoperative education that specifically focuses on improving health literacy about CMC arthroplasty surgery and postoperative recovery. The data collection occurred through the administration of an 18-item survey to persons in a private Facebook community known as "CMC - hand joint arthritis sufferers- United."

The study utilized the PEOP model as a complete theoretical framework to analyze occupational performance and its associated influencing elements. These elements encompass both the abilities and constraints of individuals in relation to their performance, as well as the situational factors that can either support or impede accomplishment. Consequently, this approach facilitated the development of an intervention strategy that aligns with the prevailing circumstances. The incorporation of a preoperative educational session has the potential to greatly impact a patient's understanding of environmental challenges in the postoperative period, hence offering substantial advantages to their own understanding of occupational performance in the future.

Based on the research findings, a significant percentage of the participants (72%) exhibited a full comprehension of the postoperative healing process and expressed a sense of preparedness. However, it is important to recognize that a subset of these participants (33.3%) still had misconceptions regarding the surgical technique, and the expected duration of the recovery period. Considering the potential scenario wherein the healthcare provider may have overstated the patient's level of health literacy, as highlighted by the findings of Hadden et al. (2016).

The capstone study validated perspectives identified in the literature about client education, and added depth in understanding client needs following CMC arthroplasty surgery. The study conducted by Stern et al. (2019) revealed that client education is established as an important therapeutic intervention. Occupational therapists demonstrate the ability to proficiently convey information and are encouraged to advocate the significance of enhanced comprehension regarding the context of therapeutic and surgical outcomes (Montgomery, 2023). A gap in healthcare exists with respect to patients undergoing CMC arthroplasty. The existence of the gap is further supported by the acknowledged advantages of educational interventions for patients undergoing total hip replacement, as underscored in Spalding's seminal article from 2003.

As a result, with the provision of comprehensive client education before CMC arthroplasty, clients can have a more extensive understanding of the surgical procedure itself, as well as the anticipated duration of the postoperative rehabilitation period. By placing emphasis on the significance of individuals' ability to improve their understanding of immediate obstacles in their environment, they can effectively equip themselves to achieve improved occupational

performance during the period of recovery. Further research could determine whether the implementation of a preoperative educational session aimed at improving client health literacy would lead to a decrease in client concerns and an enhancement in their understanding of the recovery process, as well as their ability to resume work and leisure activities.

**Implications for OT**

The importance of client education is underscored in the Occupational Therapy Practice Framework 4th edition (AOTA, 2020). The primary objective of this effort is to improve client comprehension, facilitate the acquisition of knowledge, and promote holistic well-being. The main objective of this method was to enhance an individual's ability for independent decision-making by providing them with the necessary knowledge and resources to foster their comprehension and active engagement in their healthcare experience. An area of opportunity for occupational therapy practitioners to make a meaningful impact on the promotion of health equity is by actively cultivating health literacy and engaging in good communication with their clients (Montgomery, 2023). The AOTA Vision 2025 places significant importance on the adoption of a client-centered approach and the active involvement of individuals in collaborative efforts to achieve favorable results. Occupational therapists have the potential to significantly contribute to the provision of preoperative education, which can effectively improve clients' understanding of surgical procedures and their potential effects on their daily activities.

The recognition by the advisory committee to the secretary underscores the acknowledgment made by Healthy People 2030 regarding the growing responsibility imposed on organizations and professionals involved in the delivery and distribution of health information and services to actively advocate for health literacy, in addition to individual responsibility

(*History of Health Literacy Definitions - Healthy People 2030 | Health.gov*, n.d.). As a result, occupational therapists possess the capacity to play a vital role in educational practice, both before and after CMC arthroplasty surgeries, aligning with this essential principle.

On a global scale, the CHT population comprises 7,322 individuals, of which 87% are designated as occupational therapists by professional accreditation (*The CHT Credential*, n.d.). Occupational therapy, by virtue of its global influence, can effectively illustrate the importance of supporting the seventeen sustainable development goals (SDGs) established by the United Nations. In particular, it can highlight the significance of goal #3, which is committed to the advancement of health literacy worldwide by means of promoting good health and well-being (United Nations, n.d.). Thus, advocacy and policy roles are fostered for the profession of occupational therapy.

**Strengths and Limitations**

One of the notable strengths of the study was the utilization of survey piloting, wherein the questionnaire was administered to persons who were not part of the study but were receiving care at a specialized hand clinic. The utilization of this approach was implemented to ensure that the questions were thoroughly comprehended by the intended population. The questionnaire was carried out using an anonymous approach to mitigate potential bias arising from the participants. The study was not limited by geographical constraints and finally, the years of experience the researcher has working with CMC arthroplasty.

An inherent limitation of the study was the absence of a clearly defined operationalization for the term "normal activities". In order to adopt a client-centered approach, it may have been beneficial to incorporate additional questioning, such as asking whether the

participant successfully resumed the task that was most important as anticipated. Also, the researcher neglected to inquire about participants' prior exposure to education regarding the surgery, aftercare, and the means through which this knowledge was conveyed. Additionally, the study includes a relatively limited sample size and the poor diversity within the sample group.

## Conclusion

The implementation of a preoperative educational session has the capacity to enhance health literacy and facilitate comprehension of the immediate postoperative restrictions and healing timeline among individuals who are scheduled to undergo CMC arthroplasty. This educational intervention can provide clients with a more comprehensive awareness of their upcoming experiences. Enhancing the available knowledge pertaining to the surgical procedure, appropriate orthosis wear schedule, and relevant precautions could assist individuals in forming more realistic expectations and minimizing any potential concerns that may arise.

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# Appendices

## Appendix A

# CMC Arthroplasty

Start of Block: Default Question Block

You are invited to take part in a study on educating patients on their thumb joint surgery before they have the surgery. The purpose of the study is to examine if patients
1) Felt prepared for their thumb joint surgery
2) Understood the surgical procedure and recovery process
3) Knew how long they would wear the brace/splint and how long it would take to return to normal activities.
By completing the survey, you are providing the researcher with information about how much education you received prior to your thumb joint surgery and if you felt it was helpful.

By choosing to participate in the study, it should be because you are volunteering, and you have the choice to withdraw from completing the survey at any time. You will not receive any payment or reward for taking part in this study. This survey is completed online and should take no longer than 10 minutes to complete. As with any electronic survey, potential risks of participating include boredom, possible headache, and eye strain. The survey is not timed, and participants are encouraged to take breaks as necessary to minimize these risks.

Email addresses will not be collected, so participation is anonymous and the data from the completed surveys will be combined with information from other peoples' completed surveys with data being reported in an aggregated form. Researchers will not be able to identify participants who have completed the survey.

Feel free to contact the primary researcher AJ Mullholand OTR/L, CHT at alice_mullholand@mymail.eku.edu with any questions regarding this research study. If you have questions about your rights as a research volunteer, contact the staff in the Division of Sponsored Programs at Eastern Kentucky University at 859-622-3636. By proceeding with answering the survey questions, you are indicating that you have thoroughly read this document, understand its contents, have been given an opportunity to have your questions answered, and agree to participate in this research project.

Please rate your responses to questions 1-8

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I felt prepared for the surgery

- ○ strongly agree (1)
- ○ Somewhat agree (2)
- ○ Somewhat disagree (3)
- ○ Strongly disagree (4)

---

I had a strong understanding of the recovery process prior to undergoing surgery

- ○ Strongly Agree (1)
- ○ Somewhat agree (2)
- ○ Somewhat disagree (3)
- ○ Strongly disagree (4)

---

I had a better understanding of the surgical procedure after my first therapy visit

- ○ Strongly Agree (1)
- ○ Somewhat agree (2)
- ○ Somewhat disagree (3)
- ○ Strongly disagree (4)
- ○ I did not attend therapy (5)

---

I understood that I would wear a brace/splint for 6-8 weeks following surgery

- ○ Strongly agree (1)
- ○ Somewhat agree (2)
- ○ Somewhat disagree (3)
- ○ Strongly disagree (4)

---

I did NOT understand how long it would take to return to normal activities

- ○ Strongly agree (1)
- ○ Somewhat agree (2)
- ○ Somewhat disagree (3)
- ○ Strongly disagree (4)

My concerns about surgery and rehab increased because I was unaware of how long it would take to heal

- ○ Strongly agree (1)
- ○ Somewhat agree (2)
- ○ Somewhat disagree (3)
- ○ Strongly disagree (4)

After attending therapy, my understanding was improved and my concerns decreased

- ○ Strongly agree (1)
- ○ Somewhat agree (2)
- ○ Somewhat disagree (3)
- ○ Strongly disagree (4)
- ○ I did not attend therapy (5)

I feel that an educational session provided by a therapist prior to surgery would be help improve my understanding of the surgery and recovery process

- ○ Strongly agree (1)
- ○ Somewhat agree (2)
- ○ Somewhat disagree (3)
- ○ Strongly disagree (4)

---

How old are you?

- ○ 45-54 years old (1)
- ○ 55-64 years old (2)
- ○ 65-74 years old (3)
- ○ 74+ years old (4)

---

What gender do you most closely identify? (Please choice only one of the following)

- ○ Male (1)
- ○ Female (2)
- ○ Non-Binary (3)
- ○ Prefer not to answer, Prefer to Self Identify (4)

---

What race or ethnicity best describes you? (Please choice only one.)

- ○ Black or African American (1)
- ○ White/ Caucasian (2)
- ○ Asian/ Pacific Islander (3)
- ○ Hispanic (4)
- ○ American Indian or Alaskan Native (5)
- ○ Multiple ethnicity/ Other (6)
- ○ Prefer not to answer (7)

What is the highest level of education you have completed?

- ○ Some high school or less (1)
- ○ High school diploma or GED (2)
- ○ Some college, but no degree (3)
- ○ Associates or technical degree (4)
- ○ Bachelor's degree (5)
- ○ Graduate or professional degree (MA, MS, MBA, PhD, JD, MD, DDS etc.) (6)
- ○ Prefer not to say (7)

What region of the country do you live in?

- ○ Northeast (1)
- ○ South (2)
- ○ Mid-West (3)
- ○ West (4)

---

Is this your first thumb surgery

- ○ No (1)
- ○ Yes (2)

---

What was the date of your thumb surgery? (Month/Day/Year)

_____

---

Were you aware that there are different CMC joint replacement surgical procedures?

- ○ Yes (1)
- ○ No (2)

---

Do you know what procedure you had? ( If yes, please identify in the box below)

- ○ Yes (1) _____
- ○ No (2)

---

Was the surgery performed on your dominant hand?

- ○ Yes (1)
- ○ No (2)

**Appendix B**

Initial Facebook Posting

Hi everyone!

I am an Occupational Therapist and work with people who have a variety of hand conditions. I am working on a doctorate from Eastern Kentucky University. I am interested in patients knowing more about thumb joint surgery before having it. I would greatly appreciate your completing a short survey which will take no longer than 10 minutes. This research will help to demonstrate how important it is to educate future patients' having thumb joint surgery.

Thank you in advance,

AJ Mullholand, OTR/L, CHT