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HAND THERAPY OUTCOMES: THERAPISTS' PERCEPTIONS OF OCCUPATION-BASED INTERVENTIONS IN PRACTICE

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HAND THERAPY OUTCOMES: THERAPISTS' PERCEPTIONS OF OCCUPATION-
BASED INTERVENTIONS IN PRACTICE

by

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Master of Occupational Therapy, University of North Dakota, 2020

Advisor: Professor Jessa Hulteng, MOT, OTR/L, CLT

An Independent Study

Submitted to the Occupational Therapy Department of the

University of North Dakota

in partial fulfillment of the requirements

for the degree of

Master of Occupational Therapy

Grand Forks, North Dakota

May 2020

This Independent Study, submitted by Cheyenne Hanson and Molly Maudal in partial fulfillment of the requirement for the Degree of Master of Occupational Therapy from the University of North Dakota, has been read by the Faculty Advisor under whom the work has been done and is hereby approved.



Signature of Faculty Advisor

4/15/2020

Date

PERMISSION

Title: Hand Therapy Outcomes: Therapists' Perceptions of Occupation-Based Interventions in Practice

Department: Occupational Therapy

Degree: Master of Occupational Therapy

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Cheyenne Hanson, MOTS

Cheyenne Hanson

4/15/2020

Date

Molly Maudal, MOTS

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4/15/2020

Date

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~Cheyenne and Molly

ABSTRACT

Purpose: It is well known that hand therapists frequently use biomechanical-based interventions in their treatment of upper extremity injuries and pathologies. There is a push to return to the occupational therapy profession's roots of occupation-based practice, which has recently been further reinforced with the introduction of the American Occupational Therapy's (AOTA) Choosing Wisely® Initiative (Gillen et al., 2019). Hand therapy is one area in which occupation-based practice could become more prevalent. This study will enhance the existing research on occupation-based hand therapy through the use of focus group interviews with occupational therapists who have a majority of their caseload classified as hand therapy. The purpose of this study is to examine hand therapists' perceptions of occupation-based hand therapy to develop an improved understanding of the connection between hand therapy and the overarching field of occupational therapy.

Methodology: This study was approved by the Institutional Review Board (IRB) at the University of North Dakota in Grand Forks, ND. A phenomenological approach was used to guide this study. Convenience and snowball sampling were used to gather participants. Participants were primarily recruited through the use of the University of North Dakota Occupational Therapy Fieldwork Database. Participants received an email invitation and then were asked to attend one of two focus group sessions. Data was audio recorded and then transcribed verbatim.

Results: Data from the two focus groups was used to create a total of four categories and 13 themes. The data was analyzed using a phenomenological theoretical framework. Three assertions were developed. Results suggest that hand therapists have a tendency of using a top-to-bottom-up approach (Fisher & Jones, 2017) throughout the therapeutic process; however, the end goal of occupational performance drives intervention. It was found that hand therapists do keep occupation at the forefront of practice, despite the misconceptions that exist. The participants did not feel that the benefits of maintaining an AOTA membership justified that annual cost; thus, there is potential for a disconnect and lack of communication between hand therapists and the profession of occupational therapy.

Conclusion: The lack of hand therapist membership in AOTA creates challenges for the entire profession because there is potential for a disconnect between occupational therapists practicing as hand therapists and the field of occupational therapy as a whole. It serves as a barrier for dissemination of information crucial to occupational therapy practice, such as research, best practice standards, and mandates from legislation or third-party payers. It also contributes to the lack of understanding of hand therapists' use of occupation-based practice.

CHAPTER I

INTRODUCTION

Statement of the Problem

Occupational therapists practicing in the field of hand therapy have received criticism for a perceived lack of focus on occupation. This criticism has the potential to create disconnect within the field of occupational therapy and poses problems for reimbursement due to new mandates by legislation and third-party payers to report functional outcomes (Gillen et al., 2019). The Choosing Wisely® Initiative has created recommendations that can be directly applied to hand therapy practice with the intent of increasing the use of occupation-based and purposeful interventions (Gillen et al., 2019). Many barriers related to space, time, tissue healing, reimbursement, negative perceptions from other professionals, and lack of support from management were found to inhibit the implementation of occupation-based interventions (Burley et al., 2017; Che Daud et al., 2016a; Colaianni et al., 2015; Oxford Grice, 2015). It is the responsibility of practitioners to remain true to the core of occupation to uphold the profession's identity and to receive reimbursement. This study seeks to better understand the use of occupation-based practice in hand therapy to foster a stronger relationship between hand therapists and the overarching field of occupational therapy.

Rationale

Occupation-based practice in the field of hand therapy is a necessary topic of research due to the release of the Choosing Wisely® Initiative by the American Occupational Therapy Association (AOTA). The Choosing Wisely® Initiative created a list of recommendations to improve occupational therapy practice. This list contains two recommendations that directly pertain to hand therapy (Gillen et al., 2019). A criticism of hand therapy is that its focus is largely on exercise and modalities rather than functional outcomes and occupation (Langer et al., 2014; MacDermid et al., 2010; O'Brien & McGaha, 2014). New documentation standards mandated by legislation and third party payers require the reporting of functional outcomes (Gillen et al., 2019). These newly established documentation standards highlight the importance and necessity of occupation-based practice now more than ever. Current literature reveals inconsistencies in common perceptions of occupation-based practice in hand therapy and exposes gaps in the therapy process.

Research indicated a high frequency of therapists addressing occupation with their clients which challenges the common perception that hand therapists only utilize biomechanical approaches during intervention (Langer et al., 2014; MacDermid et al., 2010; O'Brien & McGaha, 2014). A majority of research did, however, confirm a low utilization of occupation-based assessments and reporting of occupation-based outcomes in documentation (Oxford Grice, 2015; Weinstock-Zlotnick & Bear-Lehman, 2015). This research provides evidence that a potential disconnect exists between occupational therapists practicing in hand therapy and the rest of the occupational therapy field, as well as infrequent use of occupation-based practice during the evaluation and outcome stages

of the therapy process. This evidence is problematic because it exposes a potential divide within the field of occupational therapy and a possibility for reimbursement denials.

Theoretical Framework

A phenomenological qualitative framework was used to guide this research study. Phenomenology is used to better understand a phenomenon and how it is experienced by those in the context in which the phenomenon occurs (Giorgi & Giorgi, 2008). The way a person interprets a phenomenon is key to this research design (Giorgi & Giorgi, 2008). The researchers sought participants' interpretations of the usefulness of biomechanical-based and occupation-based interventions, as well as perceptions related to reimbursement and how hand therapy is perceived by others in the occupational therapy profession. This theoretical framework was applied when gathering, analyzing, and interpreting data.

Research Questions

The following research questions were developed to address the possible disconnect between hand therapy and occupational therapy as whole and to better understand the ways in which hand therapists incorporate occupation-based practice in the therapy process.

1. What is the relationship between hand therapists and the rest of the occupational therapy profession?
2. How is occupation-based practice structured and implemented in hand therapy throughout all stages of the therapy process?

Assumption

The researchers anticipate the results of the study to expand the understanding of hand therapists' use of occupation-based practice. It is our assumption that an improved understanding of occupation-based practice in hand therapy will decrease the likelihood of any potential disconnect between hand therapists and the overarching field of occupational therapy.

Scope and Delimitation

The purpose of this independent study was to understand the experiences of occupational therapists implementing occupation-based practice in hand therapy and the relationship between hand therapists and the occupational therapy profession as a whole. A series of two focus groups consisting of occupational therapists practicing in hand therapy were conducted to understand and gather data on this phenomenon. The inclusionary criteria required therapists to have experience in hand therapy either through a hand therapy certification or one year of occupational therapy practice with 1,000 hours of hand therapy experience. Hand therapists were excluded if their primary degree was in physical therapy. This study consisted of eight participants with hand therapy experience ranging from one year to over 30 years. Focus groups ranged in length from 21 minutes to 40 minutes and were conducted in the North Central United States.

Importance of the Study

There is currently adequate quantitative research that has analyzed the prevalence of occupation-based interventions, evaluations, and outcome measurements in hand therapy and has identified the barriers and benefits to implementing occupation-based practice. Current research recommends including a more in-depth analysis using

qualitative methods to gain a deeper understanding of the use of occupation-based practice by hand therapists. This study will enhance the already existing literature through the use of focus groups. It also serves to advance the profession by increasing the understanding of the use of occupation-based practice in hand therapy. This increased understanding will facilitate a stronger connection between hand therapy and the overarching field of occupational therapy. This study will also demonstrate the value of the hand therapy profession returning to the profession's roots in occupation. It is a crucial research topic at this time because occupation-based practice is becoming increasingly more necessary to obtain reimbursement and to maintain the profession's identity in healthcare.

The following is a list of key terms and concepts that are used throughout the study.

Key Terms and Concepts

- **Biomechanical approach:** Therapy focused on range of motion, endurance, ergonomics, pain, and strengthening (Cole & Tufano, 2008).
- **Bottom-up approach:** A therapy approach focused on “identifying and remediating deficits underlying goal-oriented performance issues. These approaches are based on the premise that remediating deficits will improve performance” (Polatajko, 2017, p. 190).
- **Choosing Wisely®:** An initiative that the AOTA joined which contains recommendations to ensure that therapists are providing interventions that are purposeful and related to occupational performance (Gillen et al., 2019).

- **Frame of reference:** “An established guideline for therapy” (Hinojosa & Kramer, 2017, p. 73).
- **Hand therapists:** Occupational therapists who are either certified hand therapists (CHTs) or have one year of occupational therapy practice experience with at least 1,000 hours of hand therapy practice.
- **Hand therapy:** Rehabilitation focused on the upper extremity (HTCC, 2018a).
- **Occupation:** Meaningful and purposeful activities that people engage in as part of their daily life (Occupations, 2014).
- **Occupation as a means:** Occupation is used as intervention to remediate abilities or capacities that are impaired (Occupation as means, 2014).
- **Occupation as an end:** The occupation that is to be learned or re-learned as the end goal of therapy (Occupation as end, 2014).
- **Occupational performance:** The client is able to actively participate in their desired occupation (Hinojosa et al., 2017).
- **Occupation-based:** The occupational therapist chooses to use evaluation tools and interventions in which the client is engaged in an occupation (Fisher, 2013; Fisher & Jones, 2017).
- **Top-down approach:** A therapy approach in which clients directly work on goal-oriented performance (Polatajko, 2017). Goal-oriented performance is addressed throughout the entire therapy process.
- **Top-to-bottom-up approach:** A therapy approach in which therapists begin an evaluation by assessing who the client is and their occupation-related needs (consistent with the top-down approach), but then transition the focus to person

factors, environmental factors, or body functions (consistent with the bottom-up approach) that may be impairing occupational functioning (returning to the top) (Fisher & Jones, 2017).

Following this introduction is Chapter II, which contains an extensive literature review of current research regarding the frequency of occupation-based interventions and assessments used in hand therapy, as well as research findings related to barriers and facilitators of occupation-based practice. Chapter III addresses methodology, which describes the process researchers used to conduct their independent study. Chapter IV is the product itself, which contains the results and data collected from the study. Chapter V analyzes the results and discusses their implications on current clinical practice and future research. This independent study concludes with list of references used throughout and an appendix.

CHAPTER II

LITERATURE REVIEW

Introduction

Occupational therapy is a health sciences profession that focuses on occupation. Occupations are “the things that people do that occupy their time and attention; meaningful, purposeful activity; the personal activities that individuals choose or need to engage in and the ways in which each individual actually experiences them” (Occupations, 2014, p. 1237). Hand therapy is an advanced area of practice within occupational therapy which requires therapists to have a wide knowledge base of upper extremity conditions and effective intervention methods to assist clients in increasing occupational performance. Hand therapists use specialized skills of the hand, wrist, elbow, and shoulder girdle to maximize function and occupational performance of the upper extremity (Hand Therapy Certification Commission [HTCC], 2018a). Occupational therapists working in hand therapy have the goal of assisting clients in regaining function of their affected upper extremity to be able to return to active participation in their occupations (Bonjuklian, 2014). There is a push in the modern paradigm of practice to return to the profession’s roots in occupation and implement more occupation-based interventions in practice as it is considered best practice by current research (Gillen et al., 2019). However, biomechanical-based intervention approaches are also used frequently in treatment, specifically in hand therapy (Cole & Tufano, 2008). The lack of

understanding about when it is best practice to implement occupation-based versus biomechanical interventions is creating an area of contention within occupational therapy.

There are three main stages of the occupational therapy process: evaluation, intervention, and outcome measurement (American Occupational Therapy Association [AOTA], 2014). Occupation is utilized as the main modality of intervention throughout the therapeutic process (AOTA, 2014). Occupational therapy uses occupation as a means and occupation as an end to assist clients in achieving their goals of improved occupational performance (Dickie, 2014). Occupation as a means refers to using occupation as the primary means of intervention throughout the therapy process, while using occupation as an end refers to occupation serving as the end goal rather than the main intervention method (Gillen, 2014a).

There are three main approaches to the therapy process: top-down, bottom-up, and one defined by Fisher and Jones (2017) as the top-to-bottom-up approach. In the top-down approach, evaluation of occupational performance ideally occurs in the client's specific context and then progresses to intervention involving occupations rather than addressing client factors right away (Swinth, 2014). It uses occupation as the primary modality during intervention and is synonymous with the occupation-based approach to therapy (Swinth, 2014). Implementation of occupation-based approaches also involves the use of assessment tools and intervention strategies that either engage the client in occupations or simulate occupational performance (Fisher & Jones, 2017).

The bottom-up approach, also referred to as the biomechanical approach, opposes the top-down theory (Verrier Piersol, 2014). Therapists utilizing the bottom-up approach

instead begin the therapy process with evaluation and intervention focused on the specific client factors that are limiting the client's occupational performance, such as joint instability, fine motor coordination, endurance, range of motion (ROM), edema, and pain (Gillen, 2014b). Occupation is primarily used in the biomechanical approach as an end to enable clients to gain skills with the goal of being able to engage in occupational performance at the end of the therapy process (Gillen, 2014a).

A third therapeutic approach has recently been recognized and is defined as the top-to-bottom-up approach (Fisher & Jones, 2017). This approach can be viewed as a combination of the top-down and bottom-up therapy approaches. Fisher and Jones (2017) described the top-to-bottom-up approach as therapists beginning an evaluation by assessing who the client is and their occupation-related needs (consistent with the top-down approach), but then transitioning the focus to person factors, environmental factors, or body functions (consistent with the bottom-up approach) that may be impairing occupational functioning (returning to the top). There is a push for occupational therapists to return to the profession's roots in occupation by using the top-down approach, but the bottom-up approach is still frequently used. The top-to-bottom-up approach (Fisher & Jones, 2017) could potentially bring compromise to the occupational therapy field regarding this issue by combining these two schools of thought.

Currently, there is controversy regarding the prevalence and effectiveness of biomechanical-based versus occupation-based interventions in the field of occupational therapy, specifically hand therapy (Burley et al., 2017). An increase in positive physical and psychological outcomes have been reported across the literature regarding the use of occupation-based interventions and occupation-based assessments throughout the hand

therapy process (Che Daud et al., 2016b; Colaianni et al., 2015). However, many hand therapists have reported biomechanical interventions such as, fitting orthoses, physical agent modalities (PAMs), and exercises as a necessary step of intervention unique to hand therapy due to the need to consider the safety of the client's healing tissues (Colaianni et al., 2015).

Hand therapy is a complex area of practice where choice of intervention is dependent on each case and each therapist's clinical judgement in order for clients to achieve optimal, functional outcomes. Occupational therapists work in a variety of practice areas and approximately 5,555 occupational therapists in the United States are Certified Hand Therapists (CHTs) (HTCC, 2018b), accounting for approximately 4% of occupational therapists (U.S. Bureau of Labor Statistics, 2019). These statistics do not take into consideration the number of occupational therapists who are doing hand therapy without a certification. Hand therapists work in a variety of settings including outpatient clinics, hospitals, private practices, and some may address ergonomics in the workplace. There is a lack of understanding concerning the implementation of occupation-based practice within the field of hand therapy. This lack of understanding is potentially creating a divide between hand therapists and the greater field of occupational therapy which makes this phenomenon a necessary topic of research.

Choosing Wisely®

AOTA joined the Choosing Wisely® Initiative to increase the use of occupation as a means and to help guide the practice of occupational therapy practitioners. Choosing Wisely® was originally founded in 2012 by the American Board of Internal Medicine (ABIM) as an initiative to promote discussions among health care professionals about

quality, efficient, cost-effective, and evidence-based care (Gillen et al., 2019). In 2016, AOTA joined the Choosing Wisely® initiative and published “Five Things Patients and Providers Should Question” (Gillen et al., 2019). AOTA created its contribution to Choosing Wisely® through a three-phase process of research and development (Gillen et al., 2019). The first phase focused on developing a project plan and building member awareness (Gillen et al., 2019). This phase included completion of a SWOT (strengths, weaknesses, opportunities, and threats) analysis to develop the initial project and then the selection of Glen Gillen as the “member champion” to be the face and leader of the initiative (Gillen et al., 2019). The purpose of the second phase was to collect the input of AOTA members through a series of online surveys (Gillen et al., 2019). These online surveys were used to generate a list of interventions warranting discussion and then to further refine the topics of discussion (Gillen et al., 2019). Recommendations were disseminated in the final phase through publication on ABIM’s Choosing Wisely® Website, AOTA literature, social media, a press release, and other online outlets (Gillen et al., 2019).

The developers concluded that a list of recommendations was necessary in order to reduce health care costs and improve quality of care (Gillen et al., 2019). The published list included two recommendations that promoted the use of occupation-based intervention:

1. Limit intervention activities that are non-purposeful (e.g., cones, pegs, shoulder arc, arm bike) (Gillen et al., 2019).
2. Provide purposeful, occupation-based intervention activities following the application of PAMs (Gillen et al., 2019).

The goal of these recommendations was to challenge therapists to implement interventions that are more meaningful to clients which will ultimately increase the client's ability to participate in valued occupations that are a part of their daily routine. Further justification for these recommendations stemmed from the Patient Protection and Affordable Care Act and the Improving Medicare Post-Acute Care Transformation Act of 2014 (Gillen et al., 2019). These pieces of legislation reformed payment models to consider quality of services rather than quantity (Gillen et al., 2019). This transition requires therapists to use efficient and evidence-based practice to shift service delivery to meet these standards and to report functional outcomes (Gillen et al., 2019). Occupation-based interventions are a necessary topic of research for practitioners due to the release of Choosing Wisely® and new requirements imposed by legislation and third party payers. The information regarding the Choosing Wisely® initiative, legislation, and reimbursement was foundational for this study and used in the development of the focus group questions.

Hand Therapy

Hand therapy is a specialized area of occupational therapy practice that requires extensive knowledge and experience. Hand therapy is defined as:

The art and science of rehabilitation of the upper limb, which includes the hand, wrist, elbow and shoulder girdle. It is a merging of occupational and physical therapy theory and practice that combines comprehensive knowledge of the structure of the upper limb with function and activity. Using specialized skills in assessment, planning and treatment, hand therapists provide therapeutic interventions to prevent dysfunction, restore function and/or reverse the

progression of pathology of the upper limb in order to enhance an individual's ability to execute tasks and to participate fully in life situations (HTCC, 2018a).

Hand therapists are viewed as therapeutic experts of the upper extremity and use a set of specialized skills in assessment and interventions throughout the therapy process (HTCC, 2018a). The process of obtaining a hand therapy certification is rigorous. Certified hand therapists must be licensed occupational or physical therapists, with a minimum of three years of practice experience and 4,000 hours of direct practice experience in the upper extremity (HTCC, 2018a). Therapists are eligible to sit for the hand therapy certification examination once they have completed all pre-requisites (HTCC, 2018a). Hand therapists must be recertified every five years and provide proof of professional development to maintain their credentials (HTCC, 2018a). Approximately 86% of hand therapists are occupational therapists and 13% are physical therapists, while 1% are both registered occupational and physical therapists (HTCC, 2018b). Both occupational and physical therapists have an extensive education on upper extremity anatomy and offer their own unique strengths to the hand therapy field. Physical therapists are considered movement experts who improve quality of life through prescribed exercise and hands-on care (American Physical Therapy Association [APTA], 2019). Occupational therapists specialize in providing individualized intervention through the use of therapeutic activities to develop client factors and increase participation in everyday life (AOTA, 2014). Hand therapists have the knowledge and expertise required to treat complex hand injuries and pathologies. A great deal of time and effort is necessary in order to become a competent hand therapist, making them extremely devoted practitioners.

Conditions Typically Treated

It is important to be familiar with common conditions treated by hand therapists in order to understand the role that both occupation-based and biomechanical-based approaches serve in the therapy process. The conditions most commonly treated by hand therapists, as evidenced by the literature, included nervous system disorders, arthritic conditions, joint pathologies, tendon injuries, and burns (Stormbroek & Buchanan, 2017; Takata et al., 2017). Nervous system disorders include nerve lacerations and nerve entrapments, such as carpal tunnel syndrome (Bonjuklian, 2014). Tendonitis, lateral epicondylitis, medial epicondylitis, De Quervain's syndrome, stenosing tenosynovitis, and sprains are all examples of conditions involving tendons and ligaments that are treated in hand therapy (Bonjuklian, 2014). Other frequent conditions encountered by hand therapists included pain syndromes, fractures, work related disorders, and unspecified, complex injuries (Stormbroek & Buchanan, 2017; Takata et al., 2017). Hand therapists are skilled in treating nerve, tendon, and joint injuries of the upper extremity, in addition to a variety of other pathologies. Extensive knowledge is necessary in order to appropriately address the aforementioned complex conditions.

It is often necessary for hand therapists to manage specific symptoms of the conditions being treated. Clients are frequently referred to hand therapy for splinting of upper extremity joints for immobilization purposes which assists in tissue healing, stopping the spread of infection, and preventing contractures (Rogers, 2010). Hand therapists also play a role in treating hand infections, including wound care and notifying physicians of suspected infections (Rogers, 2010). Cellulitis, paronychia, flexor tenosynovitis, osteomyelitis, felons, deep space infections, septic arthritis, and animal

bites are some of the infections hand therapists encounter (Rogers, 2010). All of these conditions are contributing components to the specialization of the hand therapy area of practice. Hand therapists must accurately treat conditions and understand various ways that hand therapy conditions can present.

Once hand therapists have completed a comprehensive evaluation of the client's occupational needs and physical condition they determine appropriate interventions. Often they begin by managing specific symptoms of the conditions being treated prior to advancing to occupational performance. Treatment of upper extremity injuries is complex, and therapists must have a thorough understanding of the injury and recommended rehabilitation process.

Biomechanical Approaches

The biomechanical frame of reference is commonly used by occupational therapists and hand therapists working with clients who have physical disabilities to address body functions (Cole & Tufano, 2008). Biomechanical approaches are considered preparatory or non-purposeful methods which are included in the list of interventions that the Choosing Wisely® campaign is trying to minimize and to promote following-up with occupation-based interventions (Gillen et al., 2019). The biomechanical frame of reference focuses on ROM, endurance, and strengthening (Cole & Tufano, 2008). Splinting is a common component of the biomechanical frame of reference used in hand therapy (Cole & Tufano, 2008). Graded exercise, as used in most traditional home exercise programs, would also be considered biomechanical (Cole & Tufano, 2008). The biomechanical approach to hand therapy is commonly classified as bottom-up, with a focus on occupation as an end. Hand therapists have traditionally relied on

biomechanical-based interventions because they have been shown to provide nutritional benefits to healing tissues, as well as assist with building rapport with clients and ensuring tissue integrity.

Benefits of Biomechanical-Based Interventions

The use of the biomechanical frame of reference by hand therapists has been supported in the literature as an effective treatment approach (Aiello, 2016; Kurtz, 2016; Leadbetter, 2016). It is a technical process in which protocols are often used to guide rehabilitation of upper extremity conditions, such as lateral epicondylitis, arthritis, and carpal tunnel syndrome (Aiello, 2016; Kurtz, 2016; Leadbetter, 2016). Protocols incorporating both concentric and eccentric strengthening have been proven effective in providing the most significant and longest lasting symptom relief in chronic cases of lateral epicondylitis (Leadbetter, 2016). Interventions for carpal tunnel syndrome that have yielded the greatest positive outcomes included the use of an orthosis within the first three months of symptoms, tendon gliding exercises, and lumbrical strengthening (Aiello, 2016). The efficacy of biomechanical-based intervention for the conservative management of arthritis, including active range of motion (AROM), passive range of motion (PROM), mobilization, strengthening, and proprioceptive training have been supported as providing significant benefits in recent research (Kurtz, 2016). Weight bearing and ROM techniques have been proven to create a nutritional effect on the articular cartilage to decrease symptomology in joints affected by arthritis (Kurtz, 2016). Strengthening exercises are considered clinically effective treatment for both osteoarthritis and rheumatoid arthritis; however, it is crucial to monitor the stabilization of each joint when prescribing resistive-based exercises in arthritis to avoid aggressive

strengthening (Kurtz, 2016). The use of biomechanical approaches in conjunction with occupation-based approaches have been proven to be effective in hand therapy in the treatment of a wide range of conditions, including stenosing tenosynovitis, lateral epicondylitis, carpal tunnel syndrome, and other unspecified upper extremity tendon or nerve injuries (Che Daud et al., 2016b; Langer et al., 2014; MacDermid et al., 2011). Research supports the effectiveness of biomechanical interventions when this approach is implemented correctly.

Prevalence of Biomechanical-Based Interventions

Research indicated hand therapists commonly prioritize the safety of the client's tissues over occupational needs (Colaiani et al., 2015). Occupation is often viewed as a future goal in acute cases, and it may be deemed inappropriate to begin with occupation-based interventions in these situations (Colaiani et al., 2015). Takata et al. (2017) assessed the frequency of various intervention types. The authors concluded that exercise was utilized in intervention most often and included in nearly 75% of studies (Takata et al., 2017). Education and orthotic-based interventions were used in over half of the studies (Takata et al., 2017). Manual therapy techniques were implemented in approximately 25% of the studies (Takata et al., 2017). Physical agent modalities were used as intervention in approximately 18% of studies (Takata et al., 2017). Many of the intervention approaches utilized by hand therapists are considered biomechanical. The literature confirmed that hand therapists have frequently relied on modalities, exercise, and manual therapy because they have been effective, safe, and easy to implement.

The frequency of intervention methods utilized was also found to be dependent on each client's individual needs and the upper extremity condition being addressed. Fitting

the client to an orthosis was reported as one of the most frequent and necessary interventions across hand therapy literature when treating stenosing tenosynovitis, lateral epicondylitis, and carpometacarpal (CMC) arthritis (Langer et al., 2014; MacDermid et al., 2010; O'Brien & McGaha, 2014). The most widely utilized and “core triad” of intervention for acute and chronic lateral epicondylitis included education on rest and activity modification, home exercise, stretching, and an orthosis (MacDermid et al., 2010). Langer et al. (2014) surveyed hand therapists on the treatment of stenosing tenosynovitis and concluded the most frequently reported intervention method was fitting the client to an orthosis with 100% of therapists fabricating splints. The second most frequently reported intervention in the treatment of stenosing tenosynovitis was the use of PAMs, followed by activity/environment modification, and then exercise (Langer et al., 2014). In treating CMC arthritis, the most widely reported intervention used was joint protection (97%), followed by custom/prefabricated orthoses (87.8%), paraffin baths (79.3%), and strengthening exercises (78.8%) (O'Brien et al., 2014). Biomechanical interventions were found to be used frequently in hand therapy with many therapists deeming this as a necessary step to protect healing tissues, especially in acute cases (Colaiani et al., 2015). However, activity/environment modification, education, and joint protection, which are all considered occupation-based interventions, were also among the most frequently used interventions in the treatment of lateral epicondylitis, CMC arthritis, and stenosing tenosynovitis (Langer et al., 2014; MacDermid et al., 2010; O'Brien & McGaha, 2014). Biomechanical interventions can be used to protect joints and promote healing while enabling clients to participate in occupation.

Drawbacks of Biomechanical-Based Interventions

Biomechanical-based interventions have been proven effective in treating various upper extremity pathologies; however, evidence has also indicated some drawbacks of using this approach. Fabrizio and Rofols (2014) concluded that clients achieved less range of motion when being treated with a biomechanical approach because they were more tense and anticipating more pain while engaging in rote ROM than they would anticipate while engaging in ROM during the completion of an occupation. Results from a recent scoping review indicated that clients placed a higher value on engagement in occupation over biomechanical interventions, such as increased ROM, strength, or endurance (Burley et al., 2017). Many clients also demonstrated higher motivation when engaging in occupation-based intervention rather than biomechanical intervention (Colaianne et al., 2015). Another common issue discovered by the scoping review was that many therapists expected clients to identify their own occupational performance issues without direct assessment or intervention from the therapists, since many therapists felt that clients often adapt naturally to necessary tasks (Burley et al., 2017). Research indicated clients achieved better outcomes when engaging in occupation-based intervention and preferred occupation-based interventions over biomechanical interventions (Burley et al., 2014; Colaianne et al., 2015; Fabrizio & Rofols, 2017). Using occupation-based interventions increases client satisfaction and has been reported to improve the way clients reacted to therapy. This evidence highlights the necessity to increase the implementation of occupation-based interventions in hand therapy practice. Additionally, it cannot be assumed that clients will naturally implement and carry over interventions to occupations when therapists only use biomechanical approaches.

Occupation-Based Approaches

Occupational therapy is unique in its use of occupation as a treatment intervention. Occupation is what sets the profession apart from other health sciences professions. Occupation-based interventions use a top-down approach and occupation as a means to tailor treatment in accordance with each client's daily routines and roles (Gillen, 2014a; Swinth, 2014). There has been a large initiative to promote the use of occupation-based approaches during treatment and to limit the use of non-purposeful interventions (Gillen et al., 2019).

Benefits of Occupation-Based Interventions

Occupation-based interventions can serve as a way to maintain the profession's identity through the use of occupation (Che Daud et al., 2016a). By not incorporating occupation in intervention, occupational therapists risk losing their identity to other healthcare professionals. The integration of occupation-based interventions and assessments are supported in the literature as producing positive and effective outcomes for clients and therapists (Che Daud et al., 2016a; Che Daud et al., 2016b; Colaianni et al., 2015; Weintstock-Zlotnick & Bear-Lehman, 2015). The positive outcomes identified included a plethora of psychosocial and physical benefits (Colaianni et al., 2015). Clients who had received occupation-based intervention demonstrated increased satisfaction in the outcomes of the therapeutic process (Che Daud et al., 2016b). They also reported that they perceived they were gaining more benefits from the treatment session and that therapy was more cost effective due to the focus on functionality (Che Daud et al., 2016b).

The positive psychosocial effects produced through the use of occupation-based interventions were far-reaching and further support implementation of this practice. Che Daud et al. (2016b) reported that the use of occupation-based interventions created a more enjoyable therapy process than hand exercises, and that clients felt more comfortable expressing concerns and problems to their therapist. Using occupation as a means throughout the therapy process has been shown to increase the motivation and sense of responsibility clients possessed which increased the likelihood of successful outcomes and client follow-through with recommendations from the care team (Colaianni et al., 2015; Colaianni & Provident, 2010). Occupation-based interventions were also found to provide clients with a sense of ownership of the activities they completed in therapy (Colaianni & Provident, 2010). Evidence reveals that fear and pain decreased with the use of occupation-based interventions because clients became distracted as they began naturally integrating their hand into common daily activities (Che Daud et al., 2016b; Colaianni & Provident, 2010). Clients were also able to more easily identify stages of progress and benchmarks in their recovery through the use of occupations because they were able to visibly notice their independence increase as daily occupations became easier to complete (Colaianni et al., 2015). The psychosocial benefits produced by occupation-based interventions improved clients' experiences throughout the entire therapy process by enabling them to feel comfortable, take ownership, gauge progress, and decrease pain (Che Daud et al., 2016b; Colaianni et al., 2015; Colaianni & Provident, 2010).

Positive physical outcomes resulting from occupation-based hand therapy have been supported by evidence in addition to the psychosocial benefits of this intervention

approach. Che Daude et al. (2016b) investigated the effects of therapeutic exercise compared to therapeutic exercise used complementary with occupation-based intervention in six weeks of supervised hand therapy with four additional weeks of home-based hand therapy. The authors concluded that the group who received therapeutic exercise and occupation-based intervention had significantly higher total active range of motion, higher satisfaction based on the Canadian Occupational Performance Measure (COPM), lower neuropathic pain, and lower Disabilities of the Arm, Shoulder and Hand (DASH) disability/symptom scores than the group that only received therapeutic exercise (Che Daud et al., 2016b). These results indicate that therapeutic exercise, when combined with occupation-based interventions, can result in significantly improved outcomes.

Occupation-based interventions have also yielded many benefits for therapists (Colaianne et al., 2015; Che Daud et al., 2016a). Using occupation in intervention requires the therapist to address more than just the client's physical impairments because of the complex and holistic set of skills required to complete occupations (Colaianne et al., 2015). Therapists who have used occupation-based intervention once and experienced the benefits are more likely to continue to utilize this intervention approach (Colaianne et al., 2015). Research has indicated that therapists experienced an increased sense of reward and fulfillment in the overall therapy process when they implemented occupation-based interventions (Colaianne et al., 2015).

Overall, using an occupation-based approach to intervention has been shown to create an enjoyable experience for both the clients and the occupational therapists throughout the therapeutic process (Che Daud et al., 2016a; Che Daud et al., 2016b). Occupational therapy is set apart from other professions because of the unique

phenomenon that occurs between the client and therapist when meaningful occupations are integrated throughout the therapy process. This study is necessary because there are perceptions that hand therapists do not use occupation as intervention which is creating a potential area for disconnect in the field of occupational therapy. In order to ensure unity across the occupational therapy profession, this specialized area of practice and hand therapists' use of occupation must be further understood and researched.

Prevalence of Occupation-Based Interventions

Occupation-based practice is able to be implemented into all stages of the therapy process, including evaluation, intervention, and outcome measurement. Choosing Wisely® aims to shift current practice towards a more occupation-based approach; however, it does not address all stages of the therapy process or the actual frequency of occupation-based interventions occurring in current practice (Gillen et al., 2019). In a survey of hand therapists who were occupational therapists, 85% reported using occupation-based interventions (Oxford Grice, 2015). Researchers reported hand therapists used activity and environment modification as intervention 97% of the time when treating CMC arthritis, 89% of the time for chronic lateral epicondylitis, 81% of the time for acute lateral epicondylitis, and 75% of the time for stenosing tenosynovitis (Langer et al., 2014; MacDermid et al., 2010; O'Brien & McGaha, 2014). Research indicated that a majority of hand therapists do address occupation in intervention; however, it is mostly through activity/environment modification, joint protection, and education (Langer et al., 2014; MacDermid et al., 2010; O'Brien & McGaha, 2014). Based upon the literature, it is reasonable to infer that inconsistencies between common perceptions and research of hand therapists' use of occupation-based intervention exist

because hand therapists primarily implement occupation-based intervention through adaptation and education approaches, rather than traditional occupation-based intervention approaches in which the therapists would physically complete the occupation in person with the client during the therapy session.

Research did confirm a lack of occupation-based practice in the assessment portion of the therapy process. Oxford Grice (2015) concluded 52% of therapists utilized occupation-based assessment daily and 25% weekly. Assessments of body structure were the most widely and commonly utilized tools during the evaluation process and following intervention to assess outcomes (Langer et al., 2014; Leshner et al., 2017; Oxford Grice, 2015). Research supported a high utilization rate of occupation-based interventions in hand therapy; however, there was a lack of occupation-based outcomes reported and few occupation-based assessments used (Langer et al., 2014; MacDermid et al., 2010; O'Brien & McGaha, 2014). The lack of occupation-based assessments discussed in the literature may be one reason why the bottom-up approach is more widely used. The lack of occupation-based assessments, combined with a different set of intervention approaches being utilized to incorporate occupation into intervention, could be potential contributors to the misconceptions about the lack of occupation-based practice in hand therapy. The quantitative research suggests that hand therapists are using occupation-based interventions frequently, but they are not using occupation-based assessments. This warrants further exploration through qualitative means to gain a better understanding of these findings.

Barriers to Occupation-Based Interventions

Barriers that limit hand therapists from providing occupation-based intervention included pressures to conform to the medical model, productivity requirements, reimbursement, physical barriers, and inconsistent terminology (Burley et al., 2017; Colaianni et al., 2015; Oxford Grice, 2015). Therapists also struggle to persist with holistic practice in hospital settings because other healthcare professionals are using a medical model (Colaianni et al., 2015). Many occupational therapists working in hand therapy perceived that other health professionals did not understand the skills that were being targeted and improved through the use of occupation (Colaianni, et al., 2015). Occupational therapists felt that this led to being perceived in these settings as the “play lady” and, therefore, less respected in the workplace (Colaianni et al., 2015). This evidence suggests that misperceptions about the complexity and the scope of knowledge needed to practice in hand therapy extend beyond the occupational therapy profession. Therapists expressed that referring doctors lacked knowledge of the scope of occupational therapy and what occupational therapists can offer (Che Daud et al., 2016a). It was also reported that hand therapists were concerned about carrying out occupation-based interventions due to perceptions of its credibility among clients, therapists, and other professionals (Oxford Grice, 2015). Some hand therapists felt there was a lack of support from upper management about this form of intervention (Che Daud et al., 2016a). Concerns about how hand therapists are perceived by colleagues and clients are common and have been proven to limit implementation of occupation-based practice.

Hand therapists have cited wound healing stages, restrictions/precautions, and treatment protocols as barriers to implementing occupation-based hand therapy due to the

need to prioritize tissue integrity and joint stability in the initial stages of recovery over function (Colaianni et al., 2015). Many times, barriers such as productivity demands, documentation, full caseloads, and physicians sending clients to therapy without prior communication leave therapists with limited time to execute and plan occupation-based interventions (Colaianni et al., 2015; Oxford Grice, 2015). Hand therapists reported that it is quicker to identify specific limitations in performance and address those factors (Oxford Grice, 2015). Lack of resources, such as a lack of space and/or equipment, have also been viewed by hand therapists as a barrier to implementing occupation-based intervention in the clinical setting (Colaianni et al., 2015; Che Daud et al., 2016a). Some barriers were more personal, such as hand therapists feeling as though they lacked the creative skills necessary to implement occupation-based hand therapy or did not have a model to base their intervention on if occupation-based models were not included in the curriculum at the university they attended (Che Daud et al., 2016a). Hand therapists faced several barriers which impacted their ability to implement occupation-based practice. The barriers outlined in the research suggest there are multiple factors that inhibit the use of occupation-based practice in hand therapy, making it necessary to explore hand therapists' perceptions to gain a better understanding of this phenomenon.

Utilization of Occupation-Based Assessments

A lack of assessments incorporating occupation has been identified in multiple research studies as a barrier to the implementation and successful reporting of occupation-based outcomes (Oxford Grice, 2015; Weinstock-Zlotnick & Bear-Lehman, 2015). Therapists have cited time limitations, unfamiliarity, low availability, and high

costs of occupation-based assessments as barriers to incorporating occupation into the evaluation stage of the therapy process (Oxford Grice, 2015).

A variety of outcome measures are used to assess progress, and a majority measure physical client factors rather than function (Oxford Grice, 2015; Weinstock-Zlotnick & Bear-Lehman, 2015). Body functions and physiological assessments were the most frequently used outcome measures in hand therapy across the literature, specifically measurements of ROM, pain/symptom severity, and strength (Takata et al., 2017). Assessments that are commonly used to measure physical client factors included the box and block test, Jebsen-Taylor Hand Function Test, Purdue Pegboard Test, Semmes-Weinstein Monofilaments, ROM, grip strength, pinch strength, and static 2-point discrimination (Weinstock-Zlotnick & Mehta, 2018). While these forms of assessment measure progress, they do not acknowledge whether a client is able to complete their desired occupations.

Outcome measurements for function and performance were common but used significantly less frequently than outcome measurements for body functions and physiology (Takata et al., 2017). The assessments available to evaluate function and occupational performance included the DASH, which is an assessment analyzing the amount of difficulty a client has using their affected upper extremity to complete daily tasks (Institute for Work & Health, The American Academy of Orthopedic Surgeons, & Council of Musculoskeletal Specialty Societies, 1997). The DASH is also available in an abbreviated form called the QuickDASH (Institute for Work & Health, The American Academy of Orthopedic Surgeons, & Council of Musculoskeletal Specialty Societies, 1997). Another common function-based assessment is the Patient-Rated Wrist Evaluation

(PRWE) which is used to measure and quantify a client's perception of their pain and disability that stems from their wrist (Esakki et al., 2018). The COPM has also been implemented successfully in hand therapy settings and measures the client's perception of their performance with self-care, productivity, and leisure (COPM, 2020; Langer et al., 2014). The Modified Hand Injury Severity Scales (MHISS) was also utilized in the literature and is an occupation-based assessment used to describe how severe a hand injury is and predict when a client can return to work (Bonjuklian, 2014). The DASH and QuickDASH were the most common standardized questionnaires used as outcome measures of symptomology and ability to perform activities, with the capability of measuring change over time (Takata et al., 2017). While occupation-based assessments are available, hand therapists more often elect to use assessments that measure client factors due to increased accessibility and time constraints. Therefore, hand therapists are documenting assessments of body functions and physiology rather than activity and occupational performance.

A recent survey examining methods of completing occupation-based assessment concluded that the most common tool used by hand therapists to evaluate occupational performance was informal discussion about activities of daily living (ADLs) (Weinstock-Zlotnick & Bear-Lehman, 2015). In the literature, behavioral outcomes, psychosocial outcomes, and quality of care were among the outcome measurements used the least by hand therapists (Takata et al., 2017). These results are problematic in the current paradigm of health care as the requirements for client-reported and functional outcome measures by third-party payers are rising quickly (Weinstock-Zlotnick & Bear-Lehman, 2015). Informal discussion as an assessment tool does not specify progress with enough

detail and could lead to reimbursement issues in documentation (Weinstock-Zlotnick & Bear-Lehman, 2015). As a result, it is a reasonable prediction that increasing awareness about occupation-based assessments and increasing accessibility to them may increase the prevalence of occupation-based assessments utilized by hand therapists.

Documentation and Reimbursement Concerns

Concerns exist about the way that hand therapists are documenting and the potential impact that it could have on reimbursement. Inconsistent terminology in documentation has been cited as a barrier to occupation-based intervention (Burley et al., 2017). An example of this is the use of the term ‘function’ interchangeably with occupation which was found to take the emphasis away from the unique role and abilities of occupational therapy in the health care realm (Burley et al., 2017). Additionally, researchers concluded that language was a pivotal factor when occupational therapists were involved in professional differences and power was challenged in institutional contexts (Burley et al., 2017). Across the literature, the most effective and encompassing term to describe the contribution of occupational therapists was determined to be “enabling occupation” (Burley et al., 2017). By not using the term ‘occupation,’ therapists risked losing some aspect of professional identity.

Inconsistencies in how therapists describe specific occupations have also been found in the literature (Burley et al., 2017). Some studies used general categories of occupation in documentation and others used specific terms for self-care, productivity, and leisure occupations (Burley et al., 2017). Rose, Kasch, Aaron, and Stegink-Jansen (2011) concluded that hand therapy literature consistently addressed body functions and structures, but activities, participation, and environment were included less often. Lack of

occupation based outcomes being reported poses a problem in health care due to many regulations by third-party payers, such as Medicare, to include information about personal factors, roles, activities, and environment in the treatment plan and functional outcomes to receive reimbursement (Gillen et al., 2019). Payers have also mandated a large increase in self-reported outcome measures, such as the DASH, as a method to justify further intervention (Weinstock-Zlotnick & Bear-Lehman, 2015). These requirements are necessary for clients, third-party payers, and other stakeholders to ascertain the effects of occupational therapy intervention on overall function and occupational performance (Leshner et al., 2017).

Some occupational therapists stated reimbursement concerns when reporting occupation-based approaches in documentation (Colaianni et al., 2015). Other therapists expressed worry that occupation-based interventions would not be covered by insurance (Colianni & Provident, 2010). Therapists have also reported struggling while documenting occupation-based interventions because it requires a great deal of contextual description which is perceived to be time consuming and working against productivity requirements (Colianni & Provident, 2010). Impairment-based assessments have traditionally been used to show progress for reimbursement purposes (Oxford Grice, 2015). As a result, occupational therapists lack familiarity with occupation-based assessments which is another barrier impacting documentation (Oxford Grice, 2015). Despite the literature showing that occupation-based interventions lead to enhanced functional outcomes, hand therapists continue to be hesitant to use occupation-based interventions and assessments due to the barriers they are experiencing (Oxford Grice, 2015). Ultimately, the ability to gain reimbursement is a driving factor when therapists

decide whether or not to incorporate occupation-based practice. If occupational therapists utilized more consistent terminology, the ways in which occupation is incorporated into their practice may become more evident; thus, decreasing some of the criticism hand therapists received about a perceived lack of occupation-based practice.

Purpose

Researchers from multiple studies have established that occupational therapists in the hand therapy field have a strong desire to engage in occupation-based practice (Colaianne et al., 2015). Though occupational therapists often do implement occupation-based intervention, this practice is not consistently reflected in the documentation of outcomes or the assessment portion of the therapy process (Oxford Grice, 2015; Weinstock-Zlotnick & Bear-Lehman, 2015). Research indicated the increased effectiveness of occupation-based intervention over other intervention approaches due to the ability to easily gauge progress, decrease fear, and increase motivation in clients (Che Daud et al., 2016b; Colainni et al., 2015; Colainni & Provident, 2010). However, a number of barriers continue to persist that inhibit therapists from implementing occupation-based interventions, such as institutional pressures, reimbursement, physical barriers, and inconsistent terminology (Burley et al., 2017; Colaianne et al., 2015; Oxford Grice, 2015).

The purpose of this study is to better understand the role that both biomechanical and occupation-based frames of reference serve in the field of hand therapy. Occupation-based interventions are more holistic, use a top-down approach to the therapy process, and are generally considered best practice across the occupational therapy profession (Tombly Latham, 2014). However, due to the uniqueness of the hand therapy practice

area, some research indicated a necessity to use biomechanical-based intervention or a more bottom-up approach to the therapy process to prioritize the safety of the client's tissues and meet the needs of acute practice (Colaianni et al., 2015). The common perception of hand therapy is that it is a practice area that predominantly utilizes biomechanical-based intervention methods. Across the literature, this perception was proven to be correct in terms of assessment, documentation, and reporting of outcomes (Rose et al., 2011; Oxford Grice, 2015; Weinstock-Zlotnick & Bear-Lehman, 2015). Yet, the research contradicts this perception in some aspects of the therapy process. Therapists reported frequently addressing occupation with the client in the intervention stage of the therapy process through activity/environment modification, joint protection, and education (Langer et al., 2014; MacDermid et al., 2010; O'Brien & McGaha, 2014). Inconsistencies between common perceptions and research data may exist because occupation-based intervention is occurring when therapists discuss and educate clients on ways of adapting their environment and occupations to match their abilities, rather than clients physically completing the occupations with the therapist present.

Current practice patterns are likely to become problematic when considering the implementation of the Choosing Wisely® initiative and requirements by third party payers and recent legislation to report functional, quality based outcomes rather than quantity of services provided (Gillen et al., 2019). Due to the research creating discrepancies with perceptions and occupation-based ideals, a potential disconnect is evident between occupational therapists practicing as hand therapists and the rest of the occupational therapy field. Occupation-based practice in hand therapy is a necessary research topic to determine where hand therapists are utilizing occupation-based

approaches and if there is justification for utilizing a more bottom-up approach in specific cases. Increased understanding of this topic will determine areas of potential growth within hand therapy. Doing so will assist hand therapists in adhering to best practice standards and mandates by third-party payers, while facilitating a stronger relationship between this specialized area of practice and the entire occupational therapy profession.

CHAPTER III
METHODOLOGY
Research Design

A phenomenological qualitative research framework was used to design this study as a way of connecting personal experiences of hand therapists and relating their experiences to the push for occupation-based practice in hand therapy (Lune & Berg, 2017). The goal of the study was to provide a better understanding of hand therapists' perceptions of occupation-based practice. The results from the study provided insight into the barriers and benefits of implementing occupation-based practice. This study built upon the already established literature that used surveys to gather quantitative information from hand therapists, such as frequency of occupation-based intervention and assessment utilized in the treatment of specific upper extremity conditions. A qualitative research design was selected to provide a more narrative explanation of hand therapists' perceptions about the benefits of and barriers to the use of occupation-based practice in the field of hand therapy.

This study was originally approved by the University of North Dakota Institutional Review Board (IRB) to include two focus groups with occupational therapists who are CHTs or have 70% of their caseload classified as hand therapy (See Appendix A). A revision was made to the IRB to include the use of an online transcription software and to have the option of completing focus groups using Zoom

video conferencing software. The revision also broadened the inclusion criteria to include therapists with one year of occupational therapy practice with at least 1,000 hours of hand therapy practice. The IRB was amended to include the option of two to four focus groups. The IRB revision was approved (See Appendix B); however, due to COVID-19, additional focus groups were not conducted.

A phenomenological framework was used to guide this qualitative study. Phenomenology is used to study human experiences, situations, meanings, and behaviors that occur in ordinary life (Seamon, 2014). Phenomenology aims “to capture as closely as possible the way in which the phenomenon is experienced within the context in which the experience takes place” (Giorgi & Giorgi, 2008, p. 28). To better understand participants’ lifeworlds, participants chose where they wanted the focus groups to be conducted and remained in their natural contexts during the focus groups (Giorgi & Giorgi, 2008). Researchers were interested in exploring the phenomenon of occupation-based intervention in hand therapy. With the recent introduction of the Choosing Wisely® recommendations, researchers were interested to learn about how the recommendations were being applied by hand therapists. Researchers additionally sought to examine perceived relationships between hand therapists and the overarching field of occupational therapy.

Sources of Data

The participants were occupational therapy clinicians who had experiences in hand therapy. Eight participants from the North Central United States were selected to be interviewed through convenience and snowball sampling methods. Out of eight participants, 50% had obtained their CHT and the other 50% met the experiential criteria

required to participate in the study. Participants' years of experience in hand therapy ranged from one year to 36 years (see Table 2). The researchers conducted a series of two in vivo focus groups at a location of the therapists' choosing.

Population/Sampling

The inclusionary criteria required therapists to have experience in hand therapy either through a hand therapy certification or through one year of occupational therapy practice with 1,000 hours of hand therapy experience. Hand therapists were excluded if their primary degree was in physical therapy. Convenience sampling was used to recruit hand therapists from the already established fieldwork database at the University of North Dakota Occupational Therapy Department. The therapists recruited from the fieldwork database served as gatekeepers and assisted with snowball sampling to contact other potential participants who met the inclusion criteria. An email invitation explaining the purpose of the study was sent to the gatekeeper hand therapists (see Appendix C). The gatekeeper hand therapists then forwarded the email on to potential participants. There were a total of eight participants in this study. Five of the participants were male and three were female. Five participants took part in focus group 1 (F1). Three participants took part in focus group 2 (F2).

Table 1
Occupational Therapy Degree Obtained

| Level of OT Education | Number of Participants |
|-----------------------|------------------------|
| Bachelor's Degree | 3 |
| Master's Degree | 5 |

Table 2
Occupational Therapy Practice Experience

| Years Practicing as an OT | Number of Participants |
|---------------------------|------------------------|
| 0-5 | 2 |
| 6-10 | 2 |
| 11+ | 4 |

Instrumentation and Data Collection

Two semi-structured focus group interviews were conducted in vivo to collect data (see Appendix D). Focus groups were chosen as the primary mode of data collection due to interactive opportunities for participants to elaborate, challenge, and reflect on each other's contributions which increased the trustworthiness of the overall findings (Lune & Berg, 2017). Potential participants were recruited via an email invitation (see Appendix C). The focus groups began by having participants read and sign the informed consent (see Appendix E) and complete a demographics questionnaire (see Appendix G). The purpose of the demographics questionnaire was to gather general information about the participants included in the study and to allow them to identify a code name of choice. Participants then engaged in the focus groups. Focus groups ranged from 21 to 40 minutes. Interviews were audio recorded using two Sony audio recorders and a password protected mobile device as a back-up recording device. Interviews were transcribed verbatim using REV online transcription software. Data was stored on a password protected computer and all handwritten notes and documents were stored in a locked cabinet in the research advisor's office. Only principal researchers and the research

advisor had access to the data. Following transcription, all notes were shredded and disposed of and audio recordings were deleted as a means of maintaining confidentiality of research participants.

Various triangulation methods were utilized to ensure trustworthiness in the data gathered. Data triangulation was achieved by collecting data from three main sources: participants, literature, and researchers (Curtin & Fossey, 2007). An extensive literature review was conducted prior to execution of the focus groups to identify relevant and evidence-based topics for discussion. The Choosing Wisely® Initiative published by AOTA was utilized as the rationale for the study. The AOTA Evidence-Based Practice Board contributed input on the translation of the Choosing Wisely® Initiative into discussion topics which further increased the trustworthiness of the focus group question script (H. Richardson, personal communication, February 3, 2020). The AOTA Evidence-Based Practice Board recommended referring to the first and third recommendations from the Choosing Wisely® Initiative as background for this study (H. Richardson, personal communication, February 3, 2020). It was also recommended by the AOTA Evidence-Based Practice Board to gather data about the types of outcome measures hand therapists use, as well as experiences with documentation and reimbursement (H. Richardson, personal communication, February 3, 2020). Research triangulation is achieved when two or more researchers are involved in the data analysis portion of a qualitative research study (Curtin & Fossey, 2007). Two principal researchers were involved in the data analysis. The research advisor also supervised and provided feedback on the entire data analysis process. Research data was analyzed

independently by the principal researchers and then compiled to decrease groupthink and subjectivity.

The focus group script was semi-structured which allowed the researchers to ask clarification and probing questions throughout the interviews to ensure the understanding of the participants' experiences were credible. Member checking was implemented when analyzing data to ensure the participants' input was accurately captured which also contributed to the credibility of the results. Reflexive journaling was utilized throughout the research process to increase confirmability. An insurance question which asked, "Is there anything we should have talked about but did not?" was included at the end of the focus group script to acknowledge reflexivity by eliminating researcher bias and to ensure all pertinent topics had been discussed in their entirety (Krueger & Casey, 2000). The questioning route proposed by Krueger and Casey (2000) was also utilized to develop the focus group script. Data was collected in two geographical locations and served as a pilot study given the small number of participants.

Tools for Data Analysis

The researchers of this study gathered, analyzed, and interpreted the data provided in the focus groups. Focus groups were audio recorded and transcribed verbatim using an online transcription service. The researchers listened to the audio recordings from each focus group two times through while making edits to the transcript to improve accuracy. Following completion of the transcription process, researchers coded the data and developed themes. A synopsis of each focus group was emailed to the gatekeeper in each respective focus group as a means of ensuring accurate interpretation of the data and member checking.

Throughout the research process, researchers completed reflexive journaling to ensure qualitative rigor and decrease bias. This was especially important considering that the researchers had prior professional relationships with some of the study participants. The reflexive journals and discussions among researchers helped reduce subjectivity and increase objectivity in the study findings.

CHAPTER IV
DATA ANALYSIS

Data analysis was completed by the two primary researchers, with additional guidance and recommendations from the research advisor. From the transcription, 14 codes were developed using the following inclusion and exclusion criteria. Inclusion criteria required category codes to include a multitude of quotes that illustrate similar meaning. Exclusion criteria included category codes that consisted of a single quote. However, all the data shared in each focus group was coded to ensure that no information was left out. Next, 13 themes emerged. Four categories were developed from the established codes and themes. The following table outlines the data analysis process and findings (see Table 3).

Table 3
Data Analysis

| Codes | Codes | Codes | Codes |
|--|---|---|---|
| AOTA Choosing Wisely® Barriers Research | Documentation Assessment Reimbursement | Bottom-up Occupation-based Biomechanical Strengths | Caseload CHTs Perceptions of Hand Therapists |
| Category One | Category Two | Category Three | Category Four |
| Effects of Professional Resources | Implications of Evaluation and Outcome Measurement | Therapeutic Approaches | Hand Therapy Scope of Practice |

| Themes | Themes | Themes | Themes |
|--|--|---|--|
| <p>There is a shortage of hand therapists in the field due to experiential requirements and educational barriers.</p> <p>There is low AOTA membership among hand therapists which poses implications on the entire profession.</p> <p>Hand therapy settings have institutional, temporal, and physical barriers impacting the implementation of occupation-based practice.</p> | <p>There is a lack of standardized and formal assessments to evaluate occupational performance in the hand therapy field.</p> <p>Objective measurements of physical deficits and gains are necessary for reimbursement.</p> <p>There is a higher likelihood of reimbursement if functional progress is evident in documentation.</p> | <p>The use of biomechanical interventions is necessary to prioritize safety and tissue integrity in the conditions treated and for clients to gain trust and confidence in the therapy process.</p> <p>The therapy processes typically implemented in hand therapy are reflective of a top-to-bottom-up approach (Fisher & Jones, 2017).</p> <p>Hand therapists can continue to improve their therapeutic approaches through implementing more occupation-based interventions in adherence to the Choosing Wisely® recommendations.</p> <p>Occupation-based intervention approaches differ between hand therapy settings and more traditional occupational therapy practice settings.</p> | <p>Perceptions of hand therapists vary depending on the setting.</p> <p>A higher level of specialized knowledge is required in hand therapy to appropriately treat clients.</p> <p>Hand therapy is a complex area of rehabilitation that occupational therapists are uniquely qualified for.</p> |

The categories and themes are described below with supporting direct quotes from the participants in the study. Final assertion statements were created to encompass the overall implications and findings of this qualitative study (see Table 4).

Category One: Effects of Professional Resources

Theme 1: There is a shortage of hand therapists in the field due to experiential requirements and educational barriers.

Participants expressed that there is a current shortage of hand therapists in practice. F1 participants identified many barriers specific to new graduates and novice therapists who are trying to enter the field of hand therapy that contribute to the shortage. They reported that experience is needed to become a CHT; however, hand therapy clinics typically will not hire therapists without previous experience in hand therapy. F1 participants stated that this creates a cycle of experience being needed to gain experience, so it is very difficult to find a place to start. The participants came to the consensus that there is a high demand for hand therapists, but it is a difficult area of practice to break into and receive training.

F1 participants reported that they feel professors in academic settings impose stereotypes and misconceptions onto students about hand therapists which limits the amount of new graduates who are actively attempting to enter the hand therapy field. F1 participants explained that many students have reported that their professors do not believe hand therapy is true occupational therapy because therapists are not engaging in ADLs with the client. F1 participants elaborated on this statement and reported that they do address ADLs with clients; however, it is not necessarily utilizing that same approach that therapists would use in an inpatient or skilled nursing facility (SNF) setting. F1

participants stated that they feel this stereotype exists because occupation-based intervention occurs mostly through education and adaptation or by identifying musculoskeletal and neurological components that need to be treated so that the client is able to engage in their valued occupations. An F1 participant described a recent experience with a client who was having difficulty toileting after a right hand nerve injury. The F1 participant stated,

One of the questions I ask is, 'Is there anything that you used to be able to do but . . . because nerves have changed that you cannot do now?' And one of the things was just wiping [after toileting]. Because I asked him specifically this is your right hand that's involved, 'Is there something now that you have to do with your left hand?' And that was one of the things . . . His solution to that was wiping with the other hand, but obviously that's a big functional change in the right. . . . but I think that's part of what we do in hand rehab all the time, as you look at what are they having problems doing. And then, how can we help them do it better or what do we need to facilitate to heal in order so that they can do that again?

Participants identified a shortage of hand therapists because of the experience and specialized knowledge necessary to practice in the field, as well as the misconceptions about hand therapy that limit the amount of new graduates and novice therapists entering the field.

Theme 2: There is low AOTA membership among hand therapists which poses implications on the entire profession.

Zero F1 participants were members of AOTA, and only one of the F2 participants was a current registered member of AOTA. When asked why they were not members of AOTA, an F1 participant responded, “I kept it up for years, and then just decided the cost versus the benefits was not worth [it].” F1 participants came to the consensus that as hand therapists they did not get enough out of an AOTA membership to justify the cost. F1 participants reported that they still had access to the American Journal of Occupational Therapy (AJOT) through the research resources provided by their employers.

All participants of F1 and F2 reported that they were members of the American Society of Hand Therapists (ASHT). A majority of participants identified ASHT as their primary professional organization. Participants stated that they gain access to research and updates in their practice area through ASHT, research engines with hand therapy specific articles, or through the informational resources provided by their workplace.

All participants of F1 and F2 reported that they had no previous knowledge of the Choosing Wisely® initiative released by AOTA. Participants in both groups did not feel there were enough benefits included in an AOTA membership for hand therapists to maintain membership and subsequently identified ASHT as their primary professional organization. The lack of AOTA membership among hand therapists indicates a potential area of disconnect between the specialized field of hand therapy and the field of occupational therapy as a whole.

Theme 3: Hand therapy settings have institutional, temporal, and physical barriers impacting the implementation of occupation-based practice.

Participants identified various barriers within hand therapy practice that inhibit occupation-based practice. F2 participants identified many physical barriers and temporal

barriers to occupation-based practice. These barriers included lack of treatment space, resources, and number of visits to engage in occupation-based intervention. An F2 participant reported that they lack access to ADL treatment areas in their outpatient setting, such as simulated bedrooms or kitchens, and the materials needed to engage in occupation-based practice. The participant continued to explain that they do have access to a Baltimore Therapeutic Equipment (BTE) Work Simulator which enables them to incorporate occupation-based activities into intervention. An F2 participant also stated, “I started off [in] inpatient rehab and we did a lot of occupation-based cooking evals, things like that, but then [I] moved to private practice hand therapy and there was no focus on that [occupation]. Due to limited numbers of visits, you have to get the function back.”

Another F2 participant explained that due to time limits, biomechanical interventions, such as splinting or PAMs, are prioritized during treatment time, and the client is often required to complete occupation-based tasks essential to their recovery on their own time. F1 participants also identified temporal barriers, such as back to back clients consistently throughout their day as inhibiting to their practice.

F1 participants identified various institutional barriers to the delivery of occupation-based practice, including delayed communication between referring physicians and outpatient. An F1 participant explained that delayed communication creates uncertainty in discharge and intervention planning. F1 participants reported that these communication errors can inhibit occupation-based practice by causing therapist uncertainty about how long a client should be immobilized post-surgery, which could delay the client’s return to daily occupation. F1 participants also identified professional isolation as a barrier. They explained that in many clinic settings, especially rural areas,

there may be only one occupational therapist or CHT in the entire clinic. F1 participants reported this is a barrier to occupation-based practice because they do not have another colleague with the same expertise of occupation to brainstorm ideas and to aid them in problem-solving while creating interventions. Institutional, temporal, and physical limitations were the main barriers identified by participants across both focus groups that inhibit occupation-based practice in hand therapy.

Category Two: Implications of Evaluation and Outcome Measurement

Theme 1: There is a lack of standardized and formal assessments to evaluate occupational performance in the hand therapy field.

F1 and F2 participants reported informal interviews with clients as the most frequent assessment method used to evaluate occupational performance in hand therapy settings. F1 and F2 participants both reported occasional use of the DASH and the QuickDASH to evaluate occupational performance. F2 participants also reported occasionally using the Focus on Therapeutic Outcomes (FOTO) assessment to evaluate clients' function. An F1 participant reported that they had used the QuickDASH more frequently when the disability/symptom percentage produced by the test was required by Medicare. The same participant also reported that they continue to utilize the QuickDASH to facilitate conversation on occupational performance with the client. Another F1 participant reported utilizing workability tests to assess occupational performance in the context of a client's job.

F1 participants explained that informal interviews with clients are more effective than standardized assessments, such as the DASH, to assess initial occupational

performance and progress throughout therapy than standardized assessments. An F1 participant stated,

So just this morning I had somebody who has pain using their mouse. They have carpal tunnel syndrome, so I gave them a little rice bag . . . to give them better alignment. And we talked a lot about ergonomics and sitting with good posture and stuff at her desk. So she's going to try that over the next week. And then next time I see her, it will just be informal—Did that feel better or not?

An F2 participant additionally stated in reference to this topic, “The main way therapists across all fields analyze occupational performance is just informal interviews because they find it works best.”

F1 participants also reported utilizing observation of occupational performance as an evaluation method. An F1 participant provided an example of this and stated,

It might involve—someone’s having problems working at the computer. Okay, grab my computer. Put it on a Word document. Let me watch you type. Because that way you can tell if when they're typing, they're really pulling up into extension and putting a lot of tension through those extensors. Well, okay, maybe that's the reason why they're having that wrist pain.

F1 participants reported that they utilize objective assessments, such as pain rating scales and measurements of fatigue or endurance, in conjunction with observation of occupational performance. An F1 participant stated,

I know [a colleague, name omitted for confidentiality] sees quite a few musicians . . . , so her goals would be for the patient to be able to pain free strum a guitar for 30 minutes. And oftentimes she will actually say, ‘Bring your

instrument in. Let's make this splint. Let's make sure it fits.' It's a lot of that kind of thing.

An F1 participant also reported utilizing photos to assess the client's environment when a home visit or assessment in their natural environment is not an option. This participant stated, "I have a coworker take a picture of them on their cell phone, and they bring it in, and then I can do several changes just by looking at their desk and what they're doing."

Participants overall identified informal discussion as the primary and most effective method they use to evaluate occupational performance in their clients.

Theme 2: Objective measurements of physical deficits and gains are necessary for reimbursement.

F1 and F2 participants expressed that reporting objective measurements of physical deficits and gains are necessary to gain reimbursement. F1 participants reported that common objective measurements they document include edema, nerve paresthesia, pain, fatigue, endurance, range of motion, tissue tightness, and grip strength. F1 participants also reported that all functional progress must be backed up by objective measurements. In reference to achieving reimbursement an F1 participant stated, "As long as you're documenting numbers, you have no issue." The participant continued, "That was really hammered in our brains. . . . make it objective, make it measurable, and make it occupation."

An F1 participant explained that standardized tests, such as the QuickDASH, are also helpful because they offer a disability/symptom percentage that can be utilized to gain reimbursement. Participants expressed that reporting of objective physical measures to payers is necessary to achieve reimbursement and convey progress in therapy.

Theme 3: There is a higher likelihood of reimbursement if functional progress is evident in documentation.

F1 and F2 participants explained that it is ideal to report as much functional progress in documentation as possible. An F2 participant mentioned two recent cases where insurance companies had requested more documentation of their clients' functional gains for reimbursement purposes. The F2 participant explained that they would like to personally increase the frequency of including functional progress in their documentation.

F1 and F2 participants expressed that the most common way they include function in documentation is through reporting progress on occupation-based goals. In reference to this topic, an F2 participant stated, "You'd see it [occupation] in my documentation . . . in my goals. How we set our goals and update them as we note progress." Another F2 participant commented on this topic,

Our goals are set off of the interview and then we attend visits. We have to, if it's that length or at discharge, you have to review the goals and see if they are able to drive, are they sleeping through the night, are they able to fasten buttons?

This same participant continued to explain that they objectify documentation of occupations by including levels of assistance needed to complete the occupations and progress toward occupation-based goals. An F1 participant reported,

When you talk about doing an occupation-based intervention, like whether it's utilizing a craft or whether you're putting something together. Some of those types of things. I think the main thing is that you comment on how it is specifically goal directed. And then after doing that, where were you at moving towards that goal.

Participants identified that it is necessary to include functional outcomes in documentation, and the most frequent way they do this is through documenting progress on occupation-based goals.

Category Three: Therapeutic Approaches

Theme 1: The use of biomechanical interventions is necessary to prioritize safety and tissue integrity in the conditions treated and for clients to gain trust and confidence in the therapy process.

Participants in both F1 and F2 commented on the need to ensure that tissues have time to heal before engaging clients in more rigorous therapy interventions. As a result, biomechanical interventions are frequently used, especially in the early stages of therapy. An F1 participant commented, “. . . we might have four weeks of just biomechanical and preparatory.” They continued, “And then we'll have another four weeks of purposeful, and trying to get into occupation-based. And then we'll hit the week or two of occupation.” Therapists felt that using biomechanical interventions was a safer approach to begin with in the therapy process.

Therapists in F1 also discussed how clients sometimes have more confidence during intervention if they do not advance directly into occupation. For those reasons, biomechanical or non-purposeful interventions are used initially. An F1 participant reported that cones, for example, “Gives them [clients] that confidence to know that they can do it.” Participants felt that it was necessary for clients to engage in biomechanical interventions to develop tissue integrity and to build confidence before advancing to occupation-based interventions.

Theme 2: The therapy processes typically implemented in hand therapy are reflective of a top-to-bottom-up approach (Fisher & Jones, 2017).

Participants in both F1 and F2 reported that they gather data concerning clients' occupational needs and goals during the evaluation process but then transition to bottom-up interventions which is reflective of the top-to-bottom-up approach (Fisher & Jones, 2017). An F2 participant stated that they begin evaluation with informal interview and objective measurements but then transition to bottom-up because, "You're looking at tissue integrity, range of motion, edema, sensation." The healing process of hand injuries and protocols can be a limiting factor in following a true top-down therapeutic approach. One way that hand therapists assure their clients that their occupational needs are being addressed is through client education. An F2 participant explained that "Even with patient education, . . . I'll tell them the goal is to decrease your edema, to increase your range of motion, and then we're going to focus on strength to get you back to what you need to do." The therapeutic process primarily reported by participants began by assessing the client's occupational needs and desires in the evaluation process, and then addressed client factors and performance skills during intervention with the end goal being occupational performance.

Theme 3: Hand therapists can continue to improve their therapeutic approaches through implementing more occupation-based interventions in adherence to the Choosing Wisely® recommendations.

F1 and F2 participants reported frequently using PAMs for a variety of reasons, such as pain management and rapport building. Through the use of PAMs, clients feel

better, have decreased pain, and are more likely to want to return to therapy. An F1 participant reported,

I always think of PAMs as prep. And do I use heat packs? All the time. Do I use heat packs with a stretch? Most of the time, because I may as well do a stretch while they're in the heat. . . . But that's before I do the other stuff.

Another F1 participant elaborated on this quote and stated,

Make them feel good, make them want to come. . . . So now you're a mechanic. So now when we have enough range of motion and strength and feeling, now you can try actually doing like nuts and bolts. And if there's something they can bring in, heck yeah, let's do it.

Both F1 and F2 participants acknowledged that their practice methods do not always align with the Choosing Wisely® recommendations related to hand therapy. An F2 participant stated in reference to this topic, "You have to justify the use of your accounts. . . . So frequently we'll do the ultrasound stuff and follow it up with strengthening, which isn't quite . . . occupation-based, but it's a means to an end." Another F2 participant expanded on this quote by stating,

But you might do ultrasound and follow it up with some pegboard activities to increase that fine motor coordination or the range of motion. Which in the big picture is going to relate to, can I zip my coat, can I button my shirt, can I brush my teeth?

While occupations are not always used as intervention, hand therapists have the end goal of occupational participation in mind when selecting interventions.

Hand therapists reported using non-purposeful intervention such as cones and the shoulder arc, which is one of the things that the Choosing Wisely® Initiative is hoping to reduce. An F1 participant stated,

And yeah, if you trick them, because they're like 'Oh, I can't put my dishes away.' Well if you start [with a cone or arc], and then you're like, 'Oh wait, you're doing this. Now, let's go to the kitchen and go into the dishwasher.'

An F1 participant shared a similar situation about a client who had a bicep tendon repair.

The F1 participant stated,

He's at 10 weeks and the doctor wanted to release him [from therapy]. And he goes, 'Well gosh, I just don't know if I can pull myself up.' So within his restrictions, well I brought him to the lat pull. A non-purposeful activity made him feel comfortable to try. So he pulled that, no problem. He's like, 'Oh my gosh, this feels exactly like it would on my bulldozer.'

In these instances, therapists used non-purposeful interventions because it was necessary to motivate the clients to overcome self-limiting beliefs through a means that clients perceived to be "safe." Overall, the participants' views in both F1 and F2 about non-purposeful activities can be best described by this statement made by an F1 participant, "So it's not a bad thing, but it just depends on how you use it and how you incorporate it."

Theme 4: Occupation-based intervention approaches differ between hand therapy settings and more traditional occupational therapy practice settings.

Aiding clients in return to valued daily occupations was the primary goal of the therapists participating in this study. However, the approach and process in which

occupations are implemented in intervention can appear different in hand therapy settings. An F1 participant shared that they may be “Teaching people how to use bigger muscles instead of the tiny joints in your [the client’s] hand or your [the client’s] sore thumb, and built up equipment, and how to do this [occupations] differently.” One of the F2 participants commented on occupational therapists’ ability to complete activity analysis and how that can assist with breaking down tasks and adapting activities to clients’ needs. Similarly, an F1 participant discussed a client who highly valued cooking and suggested to her that she should bring in a spoon to get the handle built up. As a result of that adaptation, she was more easily able to perform her cooking occupations. Hand therapists also used grading in their approaches. An F1 participant shared an example of a UPS driver needing to return to work, “And you [the client] have to be able to lift 150 pounds. We start at two, and work all the way up to 150 . . .” Another F1 participant explained some scenarios of ways they have incorporated occupation in intervention in the past,

If you have a little lady with arthritis, you might be looking at crocheting. I have a complex regional pain syndrome patient that I’m seeing right now, that also has just some psychological things going on. . . . So, for her, I bought a tie blanket, and that was her homework. And that also gave her . . . the positives in terms of looking at [it] from the psych standpoint She gave it away to a friend who just had a baby.

The hand therapists in this study were able to consider the occupational needs of clients and approach intervention in safe ways to address occupational performance and to provide holistic benefits while using an intervention process unique to hand therapy.

Category Four: Hand Therapy Scope of Practice

Theme 1: Perceptions of hand therapists vary depending on the setting.

Hand therapists are often perceived to be experts in upper extremity rehabilitation. An F2 participant explained that at their place of employment, hand therapists are viewed positively. The participant commented, “. . . You’re willing to go that extra step. Put in extra time, do research, or know the research.” This same participant later commented that their colleagues “Refer to you [hand therapists] as an expert in the field.” Another F2 participant added, “I think hand therapists are probably more respected than general OTs.” F2 participants believed that the background and additional education were the reason for the perceived higher level of respect.

F1 participants felt that academia portrayed a different, more negative view of hand therapy. An F1 participant explained, “. . . Some of them [the students] had said, professors say, ‘Well, don’t do hands because you’re not doing toileting, you’re not doing bathing. . . . You’re doing PT for the arm’.” The story shared regarding academia’s perception of hand therapists does not accurately capture the reality of the hand therapy profession. This picture painted by some professors within academia may be part of the reason that negative perceptions of hand therapy persist and may serve as a contributing factor to the potential disconnect between hand therapy and the greater occupational therapy profession.

Theme 2: A higher level of specialized knowledge is required in hand therapy to appropriately treat clients.

F1 and F2 participants discussed the specialized knowledge necessary to practice in hand therapy. They concluded that being a hand therapist requires increased

knowledge and specialized training that is acquired from experience and self-study. An F1 participant commented,

I think the knowledge based in hand rehab, just regarding particularly the anatomy and the physiology stuff, it has to be there. Because if it is not there, you're going to hurt somebody. Where if you are in more of a general setting, I think that is not as intense.

Another F1 participant elaborated,

We've got our core group of hand therapists, and we do hands. . . . But if one of us is sick or gone or whatever, they can't just pull somebody down from upstairs [inpatient acute], because they don't have the same skill set that we have here. All of us can go up there and cover without a question or a problem. But it isn't the reverse, because it is a different skill set that not all OTs have.

An F1 participant described hand therapy as “experience based.” Overall, participants felt that entry-level knowledge was not sufficient to practice in hand therapy and that this concept combined with the misconstrued perceptions from the field of academia regarding hand therapy contributed to a lack of qualified hand therapists.

Theme 3: Hand therapy is a complex area of rehabilitation that occupational therapists are uniquely qualified for.

F1 participants discussed the necessity of hand therapists to understand the stages of healing. Protocols typically serve as a general guideline for intervention progression; however, hand therapists have the experience and background to know when it is appropriate to deviate from the protocol, while still protecting tissue integrity and promoting the healing phases correctly. The complexity of the clients seen by hand

therapists validates the need for competency, skill, and experience for therapists entering the field.

Participants in both focus groups commented on the ways in which occupational therapists are well suited to work in hand therapy. An F2 participant described hand therapy as a niche area of practice for occupational therapists and stated “. . . hand therapists in general are mainly occupational therapists. There are PTs also, but by far the percentage-wise is greatly OT. So we’ve kind of developed our own niche there.” An F1 participant also stated in reference to this topic, “Honestly, hand therapy is OT. Completely cream of the crop OT.” Occupational therapists have the skill set and clinical reasoning necessary to succeed as hand therapists.

Relationship of Themes

Relationships emerged through the analyzation and development of the 13 themes based upon the experiences of the eight participants. Low AOTA membership among hand therapists was determined to have the most influential effect on other key themes. Although all participants were members of ASHT and had access to best-practice evidence through that association, most were not members of AOTA. As a result, they do not have access to research, best practice standards, and information on reimbursement or legislative mandates published by AOTA. AOTA membership predicted the access hand therapists had to resources, such as research, best practice standards, and information on reimbursement or legislative mandates. The access, or lack of access, to these resources impacted the therapeutic approach selected, research utilization, and implementation of occupation-based practice by hand therapists.

The utilization of the top-to-bottom-up approach (Fisher & Jones, 2017) by therapists also greatly impacted other key themes discussed. While evaluation and goals were consistently found to be related to occupational performance, there were various reasons that justified the emphasis hand therapists place on biomechanical interventions. Reasons for using biomechanical-based interventions and top-to-bottom-up approaches (Fisher & Jones, 2017) included consideration for the healing process, tissue integrity, protocols, sensation, edema, and range of motion. Through the use of bottom-up and biomechanical-based interventions, rapport was built with clients and clients are perceived to be more trusting of the therapy process. Occupations were found to be directly addressed through intervention approaches, such as client education and activity adaptation. It is important to keep in mind that despite the utilization of biomechanical interventions and the top-to-bottom-up therapy approach (Fisher & Jones, 2017), enabling clients to develop the skills necessary to increase independence in meaningful occupations is still the main priority throughout the hand therapy process.

Assertions

Three final assertions were created to summarize the key findings and implications of occupational therapists' perceptions of occupation-based practice in hand therapy. The assertions can be found in Table 4.

Table 4
Final Assertion Statements

Final Assertions

The majority of hand therapists are not members of AOTA which has the potential to create a divide between hand therapists and the rest of the occupational therapy profession.

Hand therapists typically use a top-to-bottom-up therapy approach (Fisher & Jones, 2017) because it is necessary to consider stages of healing and tissue integrity after surgical intervention, repetitive stress, and bodily injury or trauma. Despite the top-to-bottom-up approach (Fisher & Jones, 2017) to therapy, the end goal of clients returning to meaningful occupations drives intervention.

Occupation consistently remains at the forefront of hand therapy practice. Misconceptions concerning hand therapists not addressing occupation likely exist because hand therapists are more likely to engage in occupation-based intervention through education or adaptation, rather than traditional occupation-based interventions involving actual completion of the occupation with the client.

Verification of Interpretation

Triangulation was established through a variety of methods. The focus group interviews were semi-structured and ended by asking the participants if there was anything else they felt should have been covered. This question was included to prevent researcher bias. Summaries of each focus group were sent via email to the participants as a means of member-checking. Additions and changes proposed by the participants were implemented into the focus group summaries. Audio recorders were used to ensure accuracy during the transcription process.

CHAPTER V

CONCLUSION

Discussion

The data indicated that the majority of hand therapists do not maintain an active AOTA membership despite being AOTA members during their occupational therapy education. All participants were members of ASHT and identified ASHT as their primary professional organization because the resources were more applicable to their specialized area of practice. While it is essential that hand therapists are members of ASHT, it is just as necessary that occupational therapists practicing in hand therapy also maintain a current AOTA membership. An example of this necessity is demonstrated by the Choosing Wisely® initiative released by AOTA which provided a series of recommendations that challenged current practice methods that were utilized incorrectly by occupational therapists or lacked supporting evidence (Gillen et al., 2019). Two of the recommendations within the Choosing Wisely® initiative were directly applicable to hand therapy and had major implications for occupational therapists to continue to receive reimbursement in accordance with new mandates from legislation and third-party payers (Gillen et al., 2019). None of the participants in this study had any knowledge of the Choosing Wisely® initiative or the recommendations pertinent to their practice. This finding is problematic because it indicates a lack of access to research, reimbursement

mandates, and best practice standards, as well as creates a potential area of disconnect between hand therapists and the greater occupational therapy profession.

Another finding from this study pertains to the approach in which occupation is incorporated into the therapy process. Hand therapists have received apprehensive feedback from other occupational professionals who have perceived that hand therapy intervention is not occupation-based (Burley et al., 2017). The data provided by participants suggests that hand therapists gravitate towards utilizing a more top-to-bottom-up therapy approach (Fisher & Jones, 2017). This approach is essential in hand therapy practice for multiple reasons. A top-to-bottom-up approach (Fisher & Jones, 2017) is necessary to protect tissue integrity and facilitate stages of healing. This finding is congruent with evidence found in the literature review that indicated hand therapists typically prioritize the integrity of the client's tissues and often view occupation inappropriate to begin with due to safety concerns (Colainni et al., 2015). The top-to-bottom-up approach (Fisher & Jones, 2017) is also crucial for the client to develop trust in the therapy process, rapport with the therapist, and confidence in their physical abilities. This study reveals that hand therapists do continue to prioritize occupation despite common misconceptions. Their intervention approaches may not consistently reflect traditional occupation-based practice in which the therapist completes the actual occupation with the client. However, hand therapists do engage in occupation-based intervention; it is just via different intervention approaches, specifically education and adaptation. This finding is congruent with evidence from the literature review which indicated that a majority of hand therapists address occupation in intervention through activity/environment modification, joint protection, and education (Langer et al., 2014;

MacDermid et al., 2010; O'Brien & McGaha, 2014). Research within the literature review also indicated that there is a lack of standardized, formal occupation-based assessments which negatively impacts the consideration of occupation during the evaluation stage of the therapy process (Oxford Grice, 2015; Weinstock-Zlotnick & Bear-Lehman, 2015). Data gathered from participants did confirm the lack of use of standardized occupation-based assessments. Informal interviews with clients regarding their occupational needs was found to be the most common assessment of occupational performance. Hand therapists would then follow-up the informal interviews with standardized physical measurements to objectify occupational performance components for documentation and reimbursement purposes. Our findings did contrast with the literature in the aspect that the participants did not feel that the lack of standardized formal occupation-based assessments was an issue in practice. Instead, participants indicated that informal interviews with clients about occupational challenges was more effective. Participants would then objectify the information from clients by using standardized physical measurements which worked well with the top-to-bottom-up approach (Fisher & Jones, 2017) necessary in hand therapy practice.

Implications for Occupational Therapy

Hand therapists are choosing to not maintain an active AOTA membership because of a perceived lack of benefit. As a result, hand therapists are not consistently being informed of changes in the profession and initiatives, such as Choosing Wisely[®], which have direct implications for hand therapy. Lack of information on best practice standards, research, and reimbursement or legislative mandates disseminated by AOTA directly impacts the implementation of occupation-based and evidence-based practice by

hand therapists. Hand therapists' lack of membership in AOTA also fosters a potential area of disconnect within the occupational therapy profession and may be a contributing factor to misconceptions about hand therapists. It would be in the best interest of AOTA to consider options targeted at hand therapists to increase membership, assist in keeping specialty areas of practice connected to the profession, and decrease any potential disconnect among practitioners.

Limitations

One limitation was that this study took place during the early part of the COVID-19 pandemic. Following a revision to the IRB, the researchers received permission to complete a focus group via Zoom video conferencing to increase the number of participants. Participants had been contacted, but the researchers did not proceed with the focus group due to the COVID-19 pandemic and therapists needing to focus their energies elsewhere. As a result, this study was limited to eight participants. Another limitation is that the participants were all living and practicing in the North Central United States, although it should be noted that some participants attended college and had previously worked in other regions of the United States. Their experiences may not be reflective of hand therapy practice patterns across the entire United States.

Recommendations

It is recommended that future research be conducted to gather data on what AOTA can provide for hand therapists in order to retain their membership. It is also recommended that a Scholarly Project be created outlining preparatory, purposeful, and occupation-based interventions for conditions commonly treated by hand therapists. Having this would be a way that occupational therapists could more easily implement the

Choosing Wisely® recommendations while following the top-to-bottom-up approach (Fisher & Jones, 2017) necessary in hand therapy settings.

Summary

The lack of hand therapist membership in AOTA creates challenges for the entire profession because it creates a potential area of disconnect and a communication barrier between occupational therapists practicing as hand therapists and the overarching occupational therapy field. It serves as a barrier for dissemination of crucial information pertaining to occupational therapy practice, including research, best practice standards, and mandates resulting from legislation and third-party payers. It is also problematic because it is a contributing factor that separates hand therapy from the greater field of occupational therapy, in turn fostering misconceptions about hand therapy practice and challenging the professional identity of hand therapists.

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APPENDIX A IRB Approval



DIVISION OF RESEARCH & ECONOMIC DEVELOPMENT

UND.edu

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August 9, 2019

| | |
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| Principal Investigator: | Cheyenne Hanson and Molly Maudal |
| Project Title: | Hand Therapy Outcomes: Therapists' Perceptions of Occupation-Based Interventions in Practice |
| IRB Project Number: | IRB-201908-026 |
| Project Review Level: | Expedited 7 |
| Date of IRB Approval: | 08/08/2019 |
| Expiration Date of This Approval: | 08/07/2020 |
| Consent Form Approval Date: | 08/08/2019 |

The application form and all included documentation for the above-referenced project have been reviewed and approved via the procedures of the University of North Dakota Institutional Review Board.

Attached is your original consent form that has been stamped with the UND IRB approval and expiration dates. Please maintain this original on file. **You must use this original, stamped consent form to make copies for participant enrollment. No other consent form should be used.** It must be signed by each participant prior to initiation of any research procedures. In addition, each participant must be given a copy of the consent form.

Prior to implementation, submit any changes to or departures from the protocol or consent form to the IRB for approval. No changes to approved research may take place without prior IRB approval.

You have approval for this project through the above-listed expiration date. When this research is completed, please submit a termination form to the IRB. If the research will last longer than one year, an annual review and progress report must be submitted to the IRB prior to the submission deadline to ensure adequate time for IRB review.

The forms to assist you in filing your project termination, annual review and progress report, adverse event/unanticipated problem, protocol change, etc. may be accessed on the IRB website:
<http://und.edu/research/resources/human-subjects/>

Sincerely,

Michelle L. Bowles, M.P.A., CIP
IRB Manager

MLB/sb
Enclosures

Cc: Jessa Hulteng, MOT, OTR/L, CLT

APPENDIX B
Amended IRB Approval



UND.edu

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March 5, 2020

| | |
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| Principal Investigator: | Cheyenne Hanson and Molly Maudal |
| Project Title: | Hand Therapy Outcomes: Therapists' Perceptions of Occupation-Based Interventions in Practice |
| IRB Project Number: | IRB-201908-026 |
| Project Review Level: | Expedited 7 |
| Date of IRB Approval: | 03/02/2020 |
| Expiration Date of This Approval: | 08/07/2020 |

The Protocol Change Form and all included documentation for the above-referenced project have been reviewed and approved via the procedures of the University of North Dakota Institutional Review Board.

You have approval for this project through the above-listed expiration date. When this research is completed, please submit a termination form to the IRB. If the research will last longer than one year, an annual review and progress report must be submitted to the IRB prior to the submission deadline to ensure adequate time for IRB review.

The forms to assist you in filing your project termination, annual review and progress report, adverse event/unanticipated problem, protocol change, etc. may be accessed on the IRB website:
<http://und.edu/research/resources/human-subjects/>

Sincerely,

Michelle L. Bowles, M.P.A., CIP
IRB Manager

MLB/sy

Cc: Jessa Hulteng, MOT, OTR/L, CLT

APPENDIX C
Invitation to Participate

Dear _____,

Our names are Cheyenne Hanson, OTS, and Molly Maudal, OTS, and we are Master of Occupational Therapy students at the University of North Dakota. We are reaching out to you because of your experience as an occupational therapist in the field of hand therapy. We are looking for occupational therapy practitioners working in hand therapy to aid in our qualitative research study for our Independent Study.

The purpose of this study is to understand the experiences of occupational therapists working in hand therapy, specifically the use of occupation-based and biomechanical intervention approaches. Based on research that has already been completed on this subject, more in-depth interviews are recommended to develop a better understanding of occupation-based interventions in hand therapy. We believe that occupational therapists offer a unique and valuable role in hand therapy departments; therefore, research to support this role would be beneficial.

Participation would include an in-person or phone conference focus group interview with 2-5 other participants that would take approximately 1-2 hours. An additional 30 minutes to an hour of participation may be required to confirm the main themes identified by researchers after the transcription of the interviews. Focus group interview questions will focus on the benefits and challenges of using occupation-based and biomechanical intervention approaches in hand therapy, understanding the experiences of occupational therapists in hand therapy, and recommendations for addressing the needs of occupational therapists in hand therapy. Participants will be asked to respond to other participants in the focus group to develop main ideas for the researchers to use in analyzing therapists' perceptions of intervention approaches.

Your participation in our study would be greatly appreciated. If you would be willing to participate in our study, please contact us through the following emails so we can provide more information about our study and arrange an interview time that would work best for you.

cheyenne.hanson@und.edu
molly.maudal@und.edu

Sincerely,
Cheyenne Hanson, OTS
Molly Maudal, OTS

APPENDIX D

Focus Group Script

Intro: We are both Master of Occupational Therapy students at the University of North Dakota. We have a strong interest in the physical dysfunction area of practice, especially related to hand therapy. Based on our literature review, we have found that biomechanical and occupation-based frames of reference (FOR) are used in hand therapy. The purpose of this focus group is to investigate the role of both of these FORs in clinical hand therapy practice.

1. Choose a code name that you would like to go by for this study and tell us about your experience in hand therapy.
 1. How long have you been an OT? What settings have you worked in? How long have you been working in hand therapy? What does your practice look like?

2. Choosing Wisely® is an initiative that was started by the American Board of Internal Medicine (ABIM) Foundation to ensure health care interventions are evidence-based, quality, efficient, and cost-effective (Gillen, Hunter, Liebermann, & Stutzbach, 2019). The American Occupational Therapy Association (AOTA) joined this initiative in 2016 and created a list of 5 recommendations to OT practice (Gillen et al., 2019). One of the recommendations pertains to the use of purposeful interventions versus non-purposeful interventions (Gillen et al., 2019). This initiative is the foundation of our project and we will focus our discussion on the role of these two interventions within the field of hand therapy.
 1. Have you heard anything about the Choosing Wisely® initiative?
 2. Are you a member of AOTA? Have you ever been a member?
 3. What access do you have to evidence-based research?

3. Thinking back on your therapy experiences, how do you define occupation-based vs. biomechanical interventions?
 1. Are they separated or integrated in your practice?
 2. When you think of hand therapy and occupation-based interventions, what comes to mind?
 1. Describe what you generally provide as a home program to clients.
 3. What do you see as the pros and cons of occupation-based practice? How about the pros and cons of biomechanical approaches?
 4. Research indicates that some hand therapists believe that using occupation during intervention will not be effective in meeting client goals (Colianni & Provident, 2010). Others believe that occupation is not necessary or that

there is a lack of research supporting the use of occupation in hand therapy (Colianni and Provident, 2010). How do your personal beliefs about the credibility of occupation influence your practice in hand therapy?

4. Are there situations in which you feel one approach is more crucial to use over the other?
 1. If so, can you describe to us a specific clinical situation?
5. Research indicates that Occupational Therapists have reimbursement concerns when including occupation-based interventions in documentation (deKlerk, Badenhorst, Buttle, Mohammed, & Oberem, 2016). What is your experience with this?
 1. How do you feel the consistency of this is across therapists?
 2. How do you convey the use of occupation in your documentation?
 3. Is this something that is easy for therapists or a challenge?
6. How do you assess occupational performance in your clients?
 1. Are there certain formal assessments you use or is it more of an informal process?
 1. Probing question: Do you feel there is a lack of standardized/formal assessments?
 2. What do you use as outcome measures?
7. As hand therapists, what differences, if any, do you notice in intervention methods used between hand therapists who are OTs and hand therapists who are PTs?
8. Thinking back to the Choosing Wisely® initiative and the push to incorporate occupation into practice, what issues do you see in hand therapy and its relationship to the Choosing Wisely® initiative?
 1. What strengths do you see in hand therapy and its relationship to the Choosing Wisely® initiative?
9. *Provide a short summary of key points discussed followed by*:
 1. Is this an adequate summary? How well does this capture what was discussed here?
10. **Insurance question:** Is there anything we should have talked about but did not?

Closing Statement: Thank you for participating in our focus group today. We appreciate you donating your time and expertise on the topic. This data will be analyzed and disseminated in our independent study project as a requirement of our Master's degree. If you wish to view the results of this study, you may attend the presentation of our project at UND OT Oral Comprehensive Examinations on April 24, 2020, or we can email you a handout highlighting the main implications upon completion of the project.

APPENDIX E

Participant Consent Form

THE UNIVERSITY OF NORTH DAKOTA CONSENT TO PARTICIPATE IN RESEARCH

Project Title: Hand therapy outcomes: Therapists' perceptions of occupation-based interventions in practice

Principal Investigator: Cheyenne Hanson & Molly Maudal

Phone/Email Address: cheyenne.hanson@und.edu; molly.maudal@und.edu

Department: Occupational Therapy

Research Advisor: Jessa Hulteng, MOT, OTR/L, CLT

Phone/Email Address: 701-777-3099; jessa.hulteng@und.edu

What should I know about this research?

- Someone will explain this research to you.
- Taking part in this research is voluntary. Whether you take part is up to you.
- If you don't take part, it won't be held against you.
- You can take part now and later drop out, and it won't be held against you.
- If you don't understand, ask questions.
- Ask all the questions you want before you decide.

How long will I be in this research?

We expect that your taking part in this research will last approximately 3 hours.

Why is this research being done?

The purpose of this research is to understand the experiences of occupational therapists working in hand therapy, specifically the benefits and challenges of using occupation-based and biomechanical approaches.

What happens to me if I agree to take part in this research?

If you decide to take part in this research study, you will participate in focus group interviews via in-person or phone conference using semi-structured interview questions. Each interview will take approximately 1-2 hours to complete. The interviews will be recorded and transcribed verbatim. The themes and main points will be pulled from each interview to identify the common trends. You will then be asked to review and confirm the main themes identified by researchers from the focus groups, which should take you no more than one hour.

| | |
|--------------------------------|------------|
| Approval Date: | AUG 8 2019 |
| Expiration Date: | AUG 7 2020 |
| University of North Dakota IRB | |

Date: _____
Subject Initials: _____

Could being in this research hurt me?

The most important risks or discomforts that you may expect from taking part in this research include emotional response or distress when reflecting on experiences; however, the risk is minimal.

Will being in this research benefit me?

It is not expected that you will personally benefit from this research. Possible benefits to others include supporting the role occupational therapy has in hand therapy, specific to the use of occupation-based intervention.

How many people will participate in this research?

Approximately six to twelve people will take part in this study for the University of North Dakota. The participants will be grouped into two separate focus groups which will occur in-person or via phone conferencing.

Will it cost me money to take part in this research?

You will not have any costs for being a participant in this research study.

Will I be paid for taking part in this research?

You will not be paid for being a participant in this research study.

Who is funding this research?

The University of North Dakota and the research team are receiving no payments from other agencies, organizations, or companies to conduct this research study.

What happens to information collected for this research?

Your private information may be shared with individuals and organizations that conduct or watch over this research, including:

- the Institutional Review Board (IRB) that reviewed this research,
- Government agencies, or
- The research advisor, Jessa Hulteng.

We may publish the results of this research. However, we will keep your name and other identifying information confidential. We protect your information from disclosure to others to the extent required by law. We cannot promise complete secrecy. You should know, however, that there are some circumstances in which we may have to show your information to other people. For example, the law may require us to show your information to a court or to tell authorities if we believe you have abused a child or pose a danger to yourself or someone else. Data collected in this research will not be used or distributed for future research studies, even if identifiers are removed. Confidentiality will be maintained by means of pseudonyms by removing names or other personal information that may lead to identification.

| |
|--|
| Approval Date: <u> AUG 8 2019 </u> |
| Expiration Date: <u> AUG 7 2020 </u> |
| University of North Dakota IRB |

Date: _____
Subject Initials: _____

APPENDIX F
Demographics Survey

The purpose of this demographics survey is to gather information on your professional experience and to identify a code name to preserve confidentiality. The informed consent (filled out on the day of the focus group) and this survey are the only forms that will contain your legal name. On all other documents and throughout the focus group, your code name will be used.

Name: _____

Gender: _____

Please identify a code name you would like to use:

(ex. common male or female name)

Where did you complete your occupational therapy education? Include graduation year.

What level of occupational therapy education do you hold? *(circle one)*

Bachelor's Master's OTD PhD

Other: _____

How long have you been practicing as an occupational therapist? _____

Are you a Certified Hand Therapist? Yes

No

If yes, how long have you had your hand therapy certification? _____

What settings do you have past experience in?

What setting are you currently employed in?
