

INTEGRATION OF OCCUPATION-BASED INTERVENTIONS IN HAND
THERAPY

A Thesis submitted to the faculty at Stanbridge University in partial fulfillment of the
requirements for the degree of Master of Science in Occupational Therapy

by

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Certification of Approval

I certify that I have read *Integration of Occupation-based Interventions in Hand Therapy* by Corinne Boyd, Kiana Roberts, Amanda Vargas, and Makayla Yoshimoto, and in my opinion, this work meets the criteria for approving a thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in Occupational Therapy at Stanbridge University.



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Abstract

This thesis was a pilot study that used a mixed quantitative and qualitative approach to survey and interview occupational therapists working in hand therapy regarding their experiences with occupation-based interventions (OBIs). The objective was to see the effectiveness of OBIs in hand therapy sessions, as well as the challenges therapists face in implementing them. Forty-three participants completed the survey, and three of those forty-three were interviewed. After analyzing our data, the importance of OBIs was evident regardless of the challenges they posed, however, participants emphasized how critical it was that OBIs are used appropriately in relation to type of injury and stage of healing. After analyzing our data, we were able to create a resource guide that addressed the challenges and limitations to OBIs, solutions to these challenges as reported by our participants, and intervention ideas for OBIs. The resource was given to our three interview participants for feedback; however, we did receive any responses which may be due to our present situation with COVID-19.

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Integration of Occupation-Based Interventions in Hand Therapy

Occupational therapists help people across the lifespan with a wide range of disabilities, injuries, and conditions to participate in the occupations they want and need through the therapeutic use of daily activities. Specifically, one of the many services occupational therapy has to offer includes rehabilitating conditions of the hand and arm, known as hand therapy. Both occupational and physical therapists occupy the hand therapy realm; however, occupational therapists focus on valued activities during intervention. This study focused on the role of occupational therapists in a hand therapy setting.

To become a certified hand therapist (CHT), practitioners must have three years as an occupational therapist or physical therapist, complete four thousand hours of practice, and take a board exam (Hand Therapy Certification Commission [HTCC], 2018). Courses are required for recertification only (HTCC, 2018). Often, hand therapy focuses on a biomechanical frame of reference, which targets range of motion and strength during intervention, which is distinct to the occupation-based approach used in occupational therapy. The biomechanical frame of reference focuses on rehabilitation using a bottom-up approach during intervention for each patient. Using this frame of reference is beneficial because it ensures uniformity within the treatments; however, incorporating occupation-based interventions (OBIs) in addition to the biomechanical frame of reference ensures that the treatment is patient centered. According to the American Occupational Therapy Association (AOTA) (2019), the goal of hand therapy is to optimize the functional use of the hand and arm by addressing the biomechanical issues while emphasizing the performance of desired activities as the primary goal. Due

to the fact that OTs focus on the patient as a whole, it is crucial that these principles are apparent during treatment in the hand therapy setting.

Statement of the Problem

Significance

Hand therapy consists of modalities, manual therapies, therapeutic exercises, range of motion, and splint fabrication, all instilled in the biomechanical model. However, if occupational therapists are involved in hand therapy, then the principles of occupational therapy should be incorporated. The Occupational Therapy Practice Framework discusses how occupation-centered interventions are selected and designed according to the patients' current and potential situation related to engagement in daily activities (AOTA, 2014, S15). According to the Accreditation Council for Occupational Therapy Education (2018), therapists must "utilize clinical reasoning to facilitate occupation-based interventions that address client factors. This must include interventions focused on promotion, compensation, adaptation, and prevention" (Standard B.4.3.). OBIs are defined as using purposeful and meaningful activities in treatment as both a means and an end to restore a patient's physical function (Che Daud, Yau, Barnett, & Judd, 2016a). Cooking, for example, can be used as a functional end goal to maintain an important familial role in the home, or as a means to develop fine motor and sequencing skills needed to get dressed, or perform other activities of daily living (ADLs).

Needs for Research

We hypothesized that hand therapy needs more OBIs because of the holistic approach to rehabilitation that directly helps patients restore function in their daily

activities. There is research supporting the benefits of OBIs in the hand therapy setting, however, there are many challenges that have been identified which hinder this integration.

Purpose

The purpose of this pilot study was to survey occupational therapists, ideally working in a hand therapy setting, about their use and attitudes towards using OBIs in hand therapy. We wanted to understand the barriers practitioners have faced when implementing OBIs in hand therapy, and then identify possible solutions. Finally, because OBIs are an option during treatment sessions in hand therapy, we wanted to create an easy to use guide to help therapists incorporate more OBIs within treatment. Through our research and data collection, our goal was to address the barriers and create activities that are more occupation-based and accessible in the hand therapy setting.

Anticipated Outcome

The main goal of the study was to gain insight about the implementation of OBIs in hand therapy. We hoped to improve hand therapy interventions by incorporating the principles of occupational therapy to better help patients with hand injuries get back to their daily occupations (AOTA, 2019). Our resource guide was designed to break down the barriers we found, and also provide clear examples of occupation-based activities that can be used in the hand therapy setting.

Target Population and Justification

The target population for this pilot study were occupational therapists with or without hand therapy certification, certified occupational therapy assistants (COTAs), and fieldwork II students with significant experience in hand therapy. Level two

fieldwork students needed to be near completion with their fieldwork or recently graduated. These participants are best able to shed light on the use of OBIs in hand therapy and to identify barriers to using an occupation-based approach. Occupational therapists, COTAs, and graduate students are trained to provide occupation-based approaches that allow them to understand the importance of providing OBIs in hand therapy.

Literature Review

Current Model of Practice

Hand therapists are primarily using the biomechanical frame of reference in their intervention approach because of the specialty's emphasis on post-operative, reconstructive therapy. The dominant paradigm for biomechanical rehabilitation is to treat the impairment, as then improvement in function will follow (Krebs, Scarborough, & McGibbon, 2007). Originally, orthopedic and plastic surgeons worked with therapists in military hospitals to develop specialized treatment protocols for soldiers with upper extremity injuries during World War II (HTCC, 2018). These protocols were used post-WWII in clinics with occupational and physical therapists treating only patients with upper extremity injuries (HTCC, 2018). Biomechanical principles are the dominant paradigm even outside of post-surgical treatment and where no dominant protocol has been adopted.

With upper extremity injuries, hand therapists focused on preventing dysfunction, restoring tissue function, and/or reversing the progression of pathology of the upper limb, and they continue to do so today. Because of this focus, biomechanical interventions include using physical agent modalities (PAMs) consisting of heat, ice, and electrical

stimulation; manual therapy consisting of soft tissue and joint mobilization and splinting; and therapeutic exercises to improve strength, flexibility, and range of motion (ROM).

Biomechanical interventions view the patient as a machine that needs repair (Robinson, Brown, & O'Brien, 2016). When compared to occupation-based models, the biomechanical model is said to be more time efficient, it requires less space, and necessary equipment is almost always available (Che Daud et al., 2016a).

Patients that are in the acute stage of rehabilitation need to work on regaining or establishing lost movement before incorporating an occupation-based activity that requires unwanted, excessive, and possibly dangerous movements (Colaiani & Provident, 2010). As an example, acute recovery for injuries, such as flexor tendon repairs, focused on immobilizing the affected hand for at least three weeks before beginning rehabilitation (Singh, Rymer, Theobald, & Thomas, 2015). This tactic was done to reduce the risk of tendon ruptures. Restricted motion is critical to support healing until the injury has reached a safe stage, which allows more functional motions of the hand.

Occupation-based Interventions

OBI are approaches that focus on the specific needs of each patient through purposeful and meaningful treatment activities. Jack and Estes (2010) stated “A shift to a patient-centered, occupation-based approach facilitated the patient’s adaptation, improved her motivation and outlook, and provided documentation of the clinically significant functional progress attained” (p. 86). Further, a patient-centered approach incorporates the use of adaptation to complete activities of daily living. Jack and Estes (2010) found that through teaching patients adaptation exercises and coping mechanisms,

the overall patient satisfaction and functional outcomes was significantly higher.

Occupational therapists' goal is to help return a patient to his or her normal daily activities to improve overall quality of life, which can be achieved by the use of adaptive equipment and techniques.

OBI focus on activities that are meaningful to the patient and incorporate them into rehabilitation. In addition, occupation-based assessments often focus on occupational performance of a patient during daily tasks, while taking into account what is meaningful to them, what motivates them, and how the environment affects their activities (Grice, 2015). In addition, OBIs not only effectively rehabilitate the patient during intervention to regain flexibility, range of motion, and strength, but they do so in a way that improves independence in the patient to improve their quality of life.

One of the core beliefs of occupational therapy is the use of occupations as a means to an end, emphasizing each patient's meaningful occupations as treatment goals (Grice, 2015). By facilitating meaningful, functional activities through OBIs, patients will be more motivated, more engaged in the intervention process, and will perform wanted activities without realizing that they are exercising (Colaianni & Provident, 2010). One study involving young adults with hand injuries discovered that the participants had more improvement in overall hand function when performing purposeful activities resembling activities of daily living (ADLs) as opposed to therapeutic exercise (TE) (Guzelkucuk, Duman, Taskaynatan, & Dincer, 2007). OBIs take a holistic approach, which in practice means OBIs are approaches that use activities that are meaningful and purposeful to the patient and incorporates interventions that are both important and motivating.

Challenges of Integrating OBIs

Although there are many appealing reasons to integrate OBIs in hand therapy, there are also many challenges. Through a mixed methods survey with 105 occupational therapists, Colaianni and Provident (2010) identified that logistic issues contributed to forestalling the incorporation of OBIs with the biomechanical model in hand therapy. A majority of rehabilitation centers have limited time, space, and supplies to conduct OBIs (Colaianni & Provident, 2010). Grice (2015) stated “the most common reasons cited for not using occupation-based intervention included time-constraints, lack of space and equipment, reimbursement issues, and lack of a ‘natural’ environment” (p. 303). Another study performed in South Africa showed that time constraints were the top issue for hand therapists. They found it challenging to implement OBIs because they do not have prior knowledge of referrals, therefore, they do not have the time to determine which OBIs to implement during sessions (Klerk, Badenhorst, Buttle, Mohammed, & Oberem, 2016). Due to the shorter timeframe for sessions, occupational therapists are forced to create reimbursable and productive goals in a shorter amount of time, which often means activities focusing on range of motion, strength, and endurance are substituted for specific and meaningful goals.

Other challenges include a lack of credibility among occupational therapists working in hand therapy with other professionals and patients (Colaianni & Provident, 2010). There are also issues with occupation-based treatment being covered by insurance companies (Colaianni & Provident, 2010). Focus on ROM and mobility is not typical for occupational therapists; however, it is necessary to improve these areas during the acute phase. The main reason for a lack of focus on OBIs is due to the inability to create goals

and intervention plans for individuals out of their natural settings of their home. In addition, it is typically not considered that patients need an objective or direct goal to improve their current state, beyond the goal to recover functionality (Colaianni & Provident, 2010).

Effectiveness of OBIs

OBIs will be appropriate and valuable to patients who are reintegrating back into their meaningful lifestyle after a hand or arm injury. Research supports the effectiveness of OBIs in the recovery of hand injuries (Che Daud et al., 2016a; Che Daud et al., 2016b; Omar, Hegazy, and Mokashi, 2012). There is also research to support the satisfaction of patients who received OBIs in hand therapy and occupational therapists who use it (Che Daud et al., 2016a; Che Daud et al., 2016b; Omar, Hegazy, and Mokashi, 2012). In a study by Che Daud et al. (2016a), occupational therapists in Malaysia were interviewed to discuss their experiences using OBIs despite the difficulties they faced. All participants responded positively (Che Daud et al., 2016a). Some of the emerging themes from these interviews were the enjoyable rehabilitation experiences, better representation of the identity of occupational therapy, cost effectiveness, and an improvement in patient satisfaction (Che Daud et al., 2016a).

Most often, the adult and aging populations are the main recipients of hand therapy, who are able to understand the importance and need for biomechanical approaches in treatment sessions. When working with the pediatric population, the most effective way to achieve treatment goals, while also making it enjoyable, is through OBIs. Children's main occupation is play, a powerful motivator to improve other areas of occupation such as ADLs and education. In a study by Omar, Hegazy, and Mokashi

(2012), a group of children with burn injuries were split up into two rehabilitation groups: the purposeful activity group and the rote exercise group. Children in the purposeful activity group were given a choice of activities through games and toys. This group had a higher reduction of pain and more improvements in ROM and hand function compared to the rote exercise group (Omar et al., 2012). It was observed by clinicians that purposeful activities distracted the children's attention away from the pain and increased their enjoyment in treatment sessions (Omar et al., 2012). Furthermore, during play activities, smooth and spontaneous movements of multiple joints occurred, as opposed to rote exercises, where movement only occurred in one joint at a time (Omar et al., 2012). When appropriate, OBIs are effective when working with the pediatric population because it gives a purpose, while also making therapy enjoyable to the patient.

Statement of Purpose

Integrating OBIs into treatment sessions comes as a challenge for many therapists in a hand therapy setting, where a biomechanical approach is primarily used. A biomechanical approach does not always focus on keeping treatment patient centered. We hypothesized that occupational therapists working in a hand therapy setting would more likely use OBIs if they had a resource guide.

In order to create the resource guide, we asked our participants several questions regarding their thoughts and attitudes towards OBIs in the hand therapy setting. Participants were also asked to choose which challenges they commonly faced when integrating OBIs in hand injury rehabilitation. In an open-ended question, we then asked how they addressed these challenges in their treatment plans in order to provide ideas and solutions in our resource guide. We also asked our participants to provide specific

examples of OBIs that they have used with their patients. By communicating with hand therapists and collecting different ideas and points of views, we wanted to create a guide that occupational therapists in hand therapy could use to increase their use of OBIs.

Theoretical Framework

Biomechanical and Rehabilitation

We used the biomechanical and rehabilitation frames of reference during our research. Our goal was to combine the biomechanical and rehabilitation frames due to the fact that the biomechanical frame is extremely relevant in current rehabilitation areas, such as musculoskeletal disorders and cumulative trauma. When using the biomechanical frame, therapists focus on improving deficits, ROM, strength, and endurance (Cole & Tufano, 2008). Therapists using the biomechanical frame alone, utilize a bottom-up approach to intervention, which moves away from patient-centered care. On the other hand, the rehabilitation frame is a top-down approach to intervention that focuses on patient-centered intervention. The rehabilitation frame focuses on adaptation of the task and environment for better quality of life for the patient, helping patients become as independent as possible (Cole & Tufano, 2008). The combination of the biomechanical and rehabilitation frames enables continued improvement in occupational performance (Cole & Tufano, 2008). This is done by incorporating remediation and continuing adaptation and compensation (Cole & Tufano, 2008).

Person-Environment-Occupation

In addition to the biomechanical and rehabilitation frame, we also wanted to incorporate the person-environment-occupation (PEO) model to provide further evidence as to why we were focusing on occupation. The PEO model focuses on the transaction of

the individual to their environment and occupation (Law et al., 1996). This model views the person holistically and recognizes how the individual processes information to perform a desired task (Law et al., 1996). The PEO model also takes into consideration the cultural, socio-economic, physical, and social aspects of each task (Law et al., 1996). Activity, task, and occupation are intertwined within the PEO model, but are all uniquely defined (Law et al., 1996). The interaction between these three components results in optimal occupation performance and continues throughout an individual's lifetime (Law et al., 1996).

Combination of Frameworks

We combined these two frameworks to provide optimal patient-centered care. While the biomechanical and rehabilitation frames focus on the patient's body mechanisms, the PEO model focuses on the patient's interaction between the occupation and environment. Previous studies have researched the importance of proper body mechanics, specifically in hand therapy, to prevent further injury; however, patient-centered care is neglected. On the other hand, the PEO model focuses on the occupations of the patient but neglects the importance of proper body function. We believed the combination of these two frameworks provided a holistic and patient-centered approach to intervention and could maximize a patient's overall function. Our survey focused on aspects from these frameworks to implement a reference guide that addressed both proper body functions and occupation-based treatment.

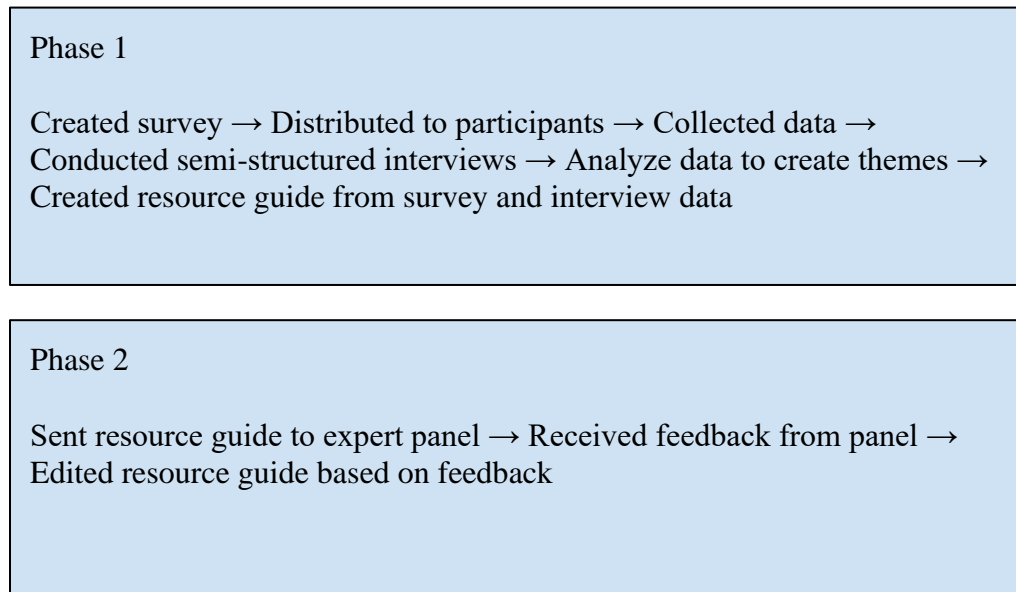
Methodology

Overview of Study

Figure 1 gives an outline of our study to provide a clear sequence of the various steps.

Figure 1

Sequence of study



Design

Our study was a mixed methods design. The quantitative method was used to collect demographic information along with other questions using a Likert scale. The survey consisted of questions relating to the use of OBIs in the hand therapy setting. The open-ended questions in the survey and interview were examined using a grounded theory qualitative approach. Stanley and Nayar (2014) have stated that grounded theory was often used in the health setting to measure the use of occupations to promote health among individuals. Furthermore, grounded theory looked at the social aspects that

occurred throughout interactions (Stanley & Nayar, 2014). This was important because it allowed us to analyze the data in relation to interactions among therapists.

Methods

The survey was available through Microsoft Forms. After all the surveys were reviewed and coded, five participants were randomly selected to be called back for a phone or in-person interview. To increase our response rate, we reached out to all of the participants who consented to participate in the semi-structured interview. Three participants responded and were interviewed. The semi-structured interview consisted of open-ended questions to receive more in-depth information on the limitations to implementing OBIs and suggestions for successful interventions. Once all the surveys and interviews were completed, a resource guide to implement OBIs was created based on the responses. However, due to the COVID-19 pandemic, the resource guide instructions were modified, and the participants were asked to provide feedback on ways to improve the guide. The resource guide was emailed to the participants who consented to participate in the expert panel, but no responses were received.

An advantage to using an online survey is the convenience for the participants. The participants were able to take the survey anywhere they had Internet access and a computer. It was also time effective because they did not have to travel and meet to complete an in-person survey. As for the phone interview, this was also flexible towards the participants' schedules and did not require any travelling. The expert panel was contacted and requested to give feedback via email. The remote design was especially appropriate given the COVID-19 pandemic. The expert panel would not have been able to meet in person given current travel and meeting restrictions.

Participants

Based on the criteria given, therapists participating in the study had to be currently treating or have had experience treating in a hand therapy setting. They ranged from licensed occupational therapists, CHTs, COTAs, and occupational therapy graduate students in level II fieldwork. In addition, we excluded physical therapists who were CHTs. The majority of participants targeted were from California, but due to our sampling method of snowballing we did not exclude participants outside of California. Our participants' experience ranged and were taken into account in our demographic information.

To obtain access to the population, we utilized the Stanbridge Alumni directory, the Occupational Therapy Association of California email list, the HTCC directory, CommunOT, American Society of Hand Therapy (ASHT), and the Hand Therapy Society of Greater Los Angeles. Our goal was to send out at least 300 survey links by using both purposive and snowball sampling methods. Purposive sampling is defined as the intentional selection of individuals based on certain criteria (Dickerson, 2017). Snowball sampling is the method where individuals that were initially selected provide names of others who qualify to participate in the study (Dickerson, 2017). Mulligan, White, and Arthanat (2014) had a 30% response rate with this method, and we were aiming for the same. To maximize response rate, we sent another email a week prior to the survey closing as a reminder to the participants that the due date was approaching. Overall, we had a maximum of a 4.3% response rate. To maintain the anonymity of participants, we were unable to separate responses from directly emailed participants versus those who participated through the CommunOT post and snowballing method.

Procedures

We created an online survey through Microsoft Forms, which was distributed to occupational therapists, certified hand therapists (CHTs), certified occupational therapy assistants, and graduate students in level II fieldwork. The survey consisted of seventeen questions, with ten being quantifiable, and seven being open-ended questions (see appendix E). It was divided into two parts. The first part consisted of seven questions regarding participants' demographics, while the second part consisted of questions relating to participants' experiences using OBIs in the clinic and the challenges they have faced with implementation. We distributed the survey, and after a week we sent out a reminder to complete the survey. The participants had a total of two weeks to complete the survey. Quantitative results from the survey were automatically calculated through Microsoft Forms and displayed in charts through Google Sheets. The qualitative data was manually analyzed into several themes.

Once participants completed the survey, they had the option to provide their contact information to participate in a semi-structured interview. From the participants that opted to be part of the semi-structured interview, we randomly chose five participants from the ten that consented to an interview using a number generator. However, we only got three responses out of the ten participants. We attempted to obtain five responses by randomly selecting two more participants, but we were unsuccessful in confirming an interview date. Originally, we had chosen five participants due to time constraints; we wanted to ensure that we had enough information to validate our research, but we did not have the ability to interview each individual participant. The interviews

were done via a phone call and consisted of five to seven short answer questions, which participants were able to answer (see Appendix F).

After the interview, we transcribed and recorded the data received. With this information, we created a resource guide consisting of the challenges practitioners face while implementing OBIs in treatment sessions. This guide was designed to provide different OBIs that hand therapists could implement in their practice (see appendix G). Originally, our plan was to ask the expert panel to implement the resource guide in their practice and provide feedback on its usefulness. However, due to the COVID-19 pandemic, this was unachievable. As a result, our resource guide was emailed to the individuals who participated in the semi-structured interview and asked if they were willing to evaluate and give feedback within one week. We hoped to use this information to improve our resource guide and enhance its usefulness for occupational therapists in the hand therapy field.

Limitations

Limitations for the first step of our study included a low response rate, especially during the semi-structured interview. We were hoping for a 30% response based on other studies but only received a 4.3% response rate. One reason for the poor response rate could have been due to the fact that the survey was voluntary, and no participant was required to participate. Another reason was due to the fact that the link was sent out via email or posted on an online forum, which individuals could have chosen to ignore. Also, due to human error, a date was not sent out with the first batch of surveys emailed, therefore, individuals were unaware of when they needed to complete the survey by. Additionally, there was no incentive, which required therapists to be internally motivated

to participate in the survey. The survey also allowed participants to skip questions or provide incomplete responses, which made it easy for participants to not fully complete the survey.

The second limitation was the sample size of our survey, which limited our ability to generalize the results. We needed to consider the type of practitioner responding and take into account any response bias; therefore, there was less diversity within the responses. Specifically, the majority of our surveys were sent to therapists within California, which significantly decreased the amount of responses due to the fact that California contains only approximately 7% of the nation's CHTs.

The third limitation was the sample size for our expert panel was limited to the three individuals that participated in our interview, which impacted the appropriateness of generalizing the feedback of our resource guide. The resource guide relied on practitioner feedback that we collected from our survey and semi-structured interview. The COVID-19 pandemic has had a profound impact on clinical practices. Due to these unforeseen circumstances, we did not ask participants to implement their resource guide in their facilities. This caused us to change the resource guide instructions and ask for recommendations on ways to improve the guide. We also did not receive any responses from the expert panel, so we were unable to update our resource guide with any feedback from our target population.

Ethical and Legal Considerations

Ethical guidelines were followed in the process of choosing our population and keeping all information confidential. Our study did not include the participation of vulnerable populations, nor were they discussed. There were no known risks in

participating in our study. To ensure anonymity, names were not connected with survey answers. The data was stored on a computer which was encrypted and password protected. At every level of our study, participants were required to sign a consent form (see Appendix B and C). For our survey, the consent form was the first question and stated what each participant was required to do. The next level of our study was a semi-structured interview, where participants were only contacted if they gave consent in the last question of our survey. Of those consenting participants, three were randomly selected, in which another consent form was emailed to them for the semi-structured interview. The last level of our study was participation in an expert panel to give feedback on our resource guide. Participants who were selected for the expert panel received another consent form regarding what was required. The survey was disseminated using Microsoft Forms, which automatically assigned a number to each response, ensuring the anonymity of each respondent. All consent forms were stored in a password protected computer ensuring confidentiality.

Results

The survey and follow up interviews concluded after a month and a half long data collection period, and the resource evaluation data concluded after one week.

Quantitative Survey Results: Demographics of Participants

All of the 43 individuals who completed the survey fit the required inclusion criteria for this study. Responses were received from 14 occupational therapists, 22 CHTs, 5 COTAs, and 2 level two-fieldwork students. Other areas of demographics that were asked of the survey participants were educational degree, years of experience, and current and past practice settings. The majority of the participants had either obtained

their master's degree (34.9%) or their bachelor's degree (30.2%), and 8 participants had received their doctorate (18.6%). Most participants also had several years of experience in hand therapy. The majority of the participants had over 21 years of experience (26%). Most of the participants had worked in an outpatient setting: 29 participants reported working in a hospital-based outpatient setting (38.2%), and 25 participants reported working in a private-practice outpatient setting (32.9%). Table 1 further displays the results regarding participant demographics.

Table 1

Participant Demographics

Survey Items		n	%
Credentials	Certified Hand Therapist	22	51.16
	Occupational Therapist	14	32.58
	Certified Occupational Therapy Assistant	5	11.62
	Fieldwork 2 Student (currently or previously was)	2	4.65
Degree	Associate degree (OTA)	3	6.98
	Bachelor's Degree (OTA)	2	4.65
	Bachelor's Degree (OTR)	13	30.23
	Master's Degree	15	34.88
	Doctorate Degree	8	18.60
	None (OTS Level II Student)	2	4.65
Experience	0-5 Years	7	16.28
	6-10 Years	0	0
	11-15 Years	2	4.65
	16-20 Years	8	18.6

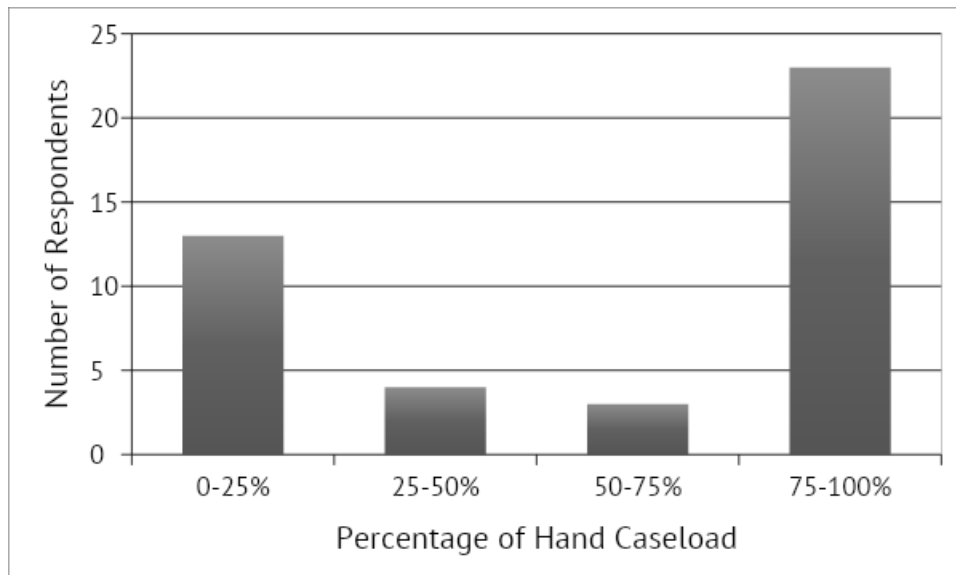
	21+ Years	12	26
Practice Setting	Hospital-based outpatient	29	38.16
	Hospital-based inpatient	12	15.79
	Private-practice outpatient	25	32.89
	Occupational medicine clinic	9	11.84
	Other	1	1.32

Quantitative Survey Results: Client Demographic

Question 7 pertained to the percentage of each therapist's current hand therapy caseload. This information gave us a clear picture of the demographics of our participants and how many are currently practicing in hand therapy. Additionally, the information collected allowed us to create a resource guide that pertains directly to hand therapists. Figure 2 displays the results of this question. For more than 50% of our participants, their current caseload of hand therapy patients is 75–100%.

Figure 2

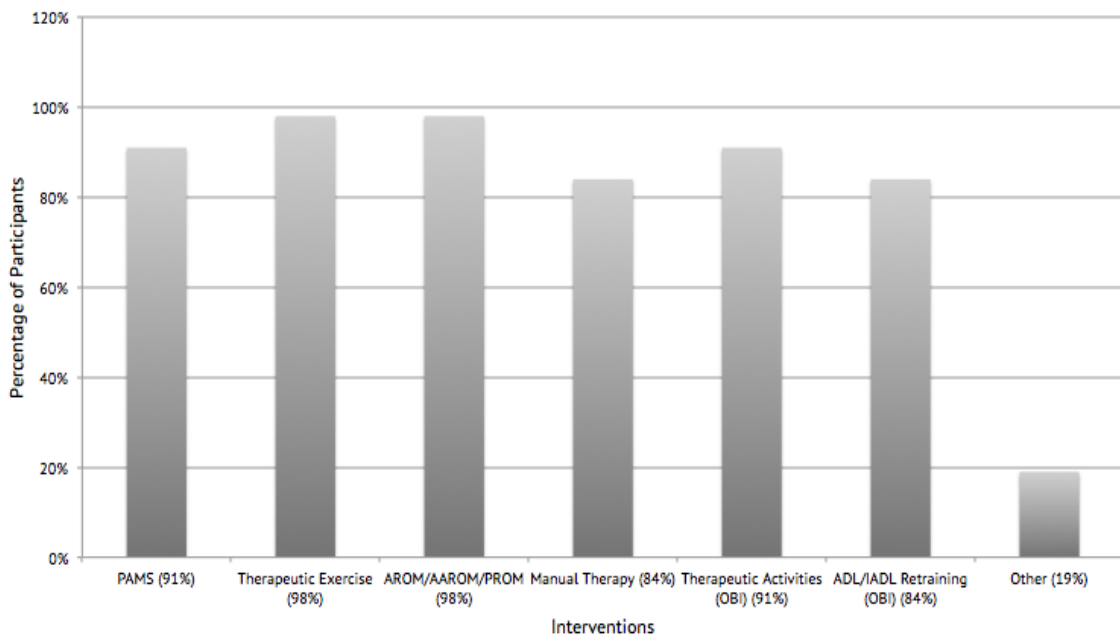
Caseload in Hand Therapy



Participants reported on specific types of intervention activities or modalities they used in hand therapy for question 9. The question listed several types of interventions or modalities for the participants to select. Participants were able to select all the answers that applied to therapy settings, including: PAMS, therapeutic exercise, active/active assertive/passive range of motion (AROM/AAROM/PROM), manual therapy, therapeutic activities (OBI), ADL/IADL retraining (OBI), and other. For the “other” option, participants filled in their own answer. Out of the 43 responses, 8 participants chose the “other” option, and their write-in responses included: work simulation activities, traditional crafts, orthotic fabrication, lifestyle modifications, ergonomic training, posture training, mirror training, sensory re-education, taping, work hardening, education, neuromuscular re-education, splinting, and biofeedback for cognitive or behavior retraining. Figure 3 displays the results from this question. The majority of the participants selected more than one intervention, as shown below.

Figure 3

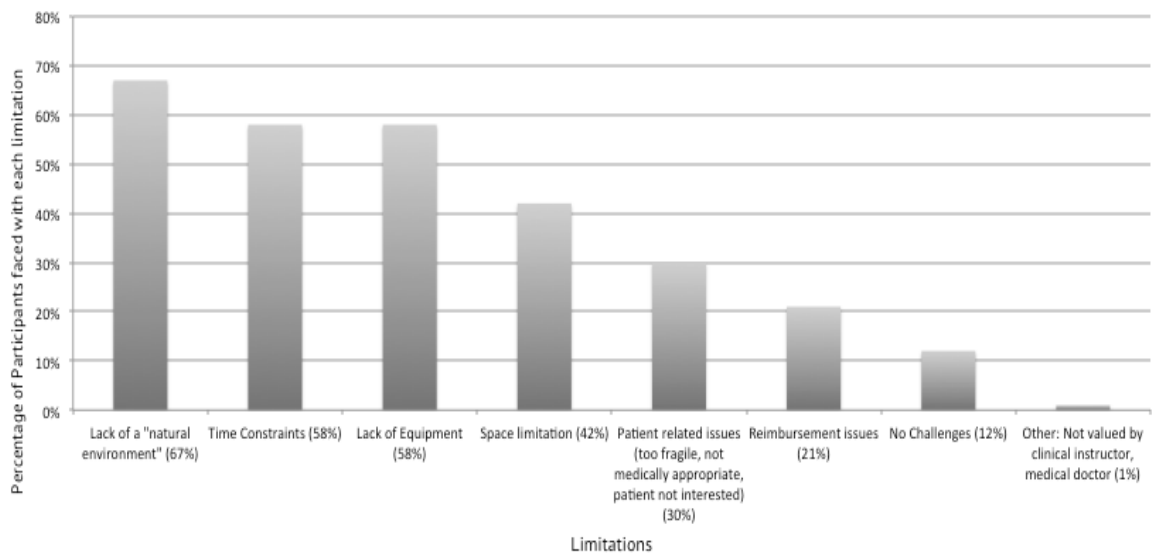
Types of Intervention



Participants were asked what kinds of challenges they are faced with when integrating OBIs into their treatment plan for hand injury rehabilitation in question 10. There were open ended questions that allowed the participants to elaborate more on these challenges. Figure 4 shows the different challenges the participants are faced with. The responses for “other” included not valued by clinical instructor, patient in too much pain to complete activities independently, injury guarding, and MDs.

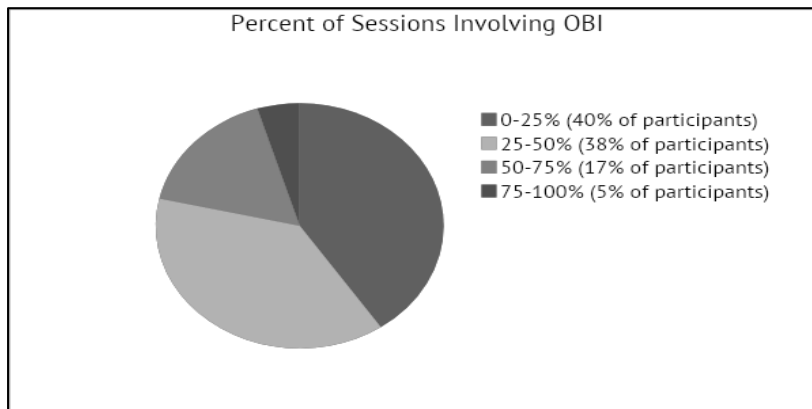
Figure 4

Challenges Using OBIs



Another area of interest in our study looked at the percentage of treatment sessions that involved OBIs versus strictly biomechanical interventions, which was question 13 in our online survey. This information allowed us to know how many of our participants had used OBIs in their treatment sessions. Figure 5 displays the results of percentages. From the results, 40.5% of our participants utilize OBIs in 25% or less of their treatment sessions. We can conclude that many of our participants are restricted by the previously mentioned limitations.

Figure 5

OBIs vs. Biomechanical Interventions**Qualitative Survey Results: OBIs Issues Identification**

There were several issues identified regarding OBIs. The open-ended questions in the survey allowed participants to elaborate on concerns with using OBIs. Even though there are limitations using OBIs, several participants emphasized the importance of incorporating OBIs.

Theme 1: Critical use of Integrating OBIs. Occupation is part of the foundation of occupational therapy and many participants highlighted the importance of utilizing OBIs, despite the limitations. One participant said they thought, “it’s important to address occupation, either with direct activities relating to those occupations or at least a discussion of those occupations.” Another stated that they felt, “that OBIs should be an integral part of rehabilitating hand injuries. When I have been able to treat on the worksite, I have found that the intervention was more meaningful and practical as well as questions that a patient might have been more relevant to their work.” Several participants stated that OBIs are a critical part in hand therapy. Another participant stated that, “Use of OBIs is essential for the patient to experience the use of their hands for

activities that are relevant and meaningful to them. OBIs are often what motivates patients and are the ultimate goal of therapy.” One participant stated, “OBIs are at the philosophical core of occupational therapy. If just exercise and modalities are used there isn't the opportunity to practice using the gains made through merely exercise. Hands are used in many ways, for many purposes OBIs allow the person to educate the hand to respond to more than the patterns of muscle use seen in exercise only. The hand becomes unified and internalized within the whole body.” Occupation based activities are what differentiates occupational therapy from other rehabilitative disciplines, as one participant noted: “It is crucial that it’s occupation-based as it is what sets OTs apart from other health professions (i.e. PT).” Another participant stated, “I think OBIs are an integral part of hand therapy and what often differentiates OT hand therapy vs. P.T hand therapy because of our education in activity analysis. I think having OBIs makes therapy more relevant, meaningful, and motivating to the patient and provides better outcomes in hand function when combined with biomechanical interventions.” From these answers, we concluded the importance of OBIs and the need to incorporate OBIs into treatment sessions.

Theme 2: Creativity to Address Challenges. The majority of our participants emphasized being creative to address challenges regarding OBIs in hand therapy. Other therapists did not address or used simulation techniques such as bringing items to therapy from their home, recreating aspects of their patient’s job, or creating a home program that utilized OBI techniques. More participants addressed creativity. A participant discussed how developing relevant OBIs is a creative process: “Implementing the treatment plan is the process, OBIs can be seen as the descriptive details of the goals of the treatment

plan.” OTs should then not be put off by a lack of equipment and should try to be creative and improvise: “the name of a clinical tool doesn't mean that is the only way to use it.”

Here, the participant stated that they use creativity to overcome challenges regarding OBIs and found ways to practice OBIs, but still have a goal that was reimbursable.

Another participant stated:

We try to create OBI equipment that can work well within our clinic environment.

We do not have too much space, so I try to focus on creating equipment that is

space conscious and can work on various occupation-based activities (i.e.

doorknobs, handles, keys, locks, buttons, shoelaces, coin pick-ups). For example,

we are working on creating a button board, and we also have a vertical wooden

board that consists of a variety of fine motor dexterity tasks (locks, doorknobs,

handles, etc.). Sometimes I'll give this challenge to my students as projects where

they are to create OBIs that work well within our clinic setting and space.

Another participant utilized group sessions to incorporate OBIs:

Honing your observational and listening skills so that you are providing means of treatment that will maximize patient participation and cooperation. Creativity.

One year, for example, I had several women who always seemed to have

appointments at the same time, and it was holiday season. I brought in ribbon and

we worked on making bows sort of a mini group class. They all thought it was fun

and it was really effective for working in dexterity . . . and they got to take home a

nice bow to use on a package or put on a gift.

Theme 3: Specific to Type of Exercise or Task. The type of exercise or task differentiates OBIs and biomechanical based interventions used in hand therapy. The

overwhelming majority of participants distinguished OBIs versus biomechanical based interventions by type of exercise; however, some participants viewed the two types of interventions as equal or stated that OBIs are more practical. One participant differentiated OBIs versus biomechanical as:

Biomechanical interventions include manual therapy (i.e., PROM, scar massage, proprioceptive neuromuscular facilitation etc.) modalities (i.e., heat, cold, ultrasound, electrical stimulation, iontophoresis) therapeutic exercise including AAROM, exercise with free weights, weight well, putty exercises, dowel exercises, ball toss etc. Occupation based interventions are basically ADL activities including simulated ADLs, instructing in ADL safety i.e., compensation for decreased sensation, adaptive ADL aides, pacing and energy conservation.

Another participant stated:

Occupation based interventions are therapeutic activities that focus on maximizing a patient's potential to complete daily tasks and routines. For example, buttoning, tying shoelaces, picking up coins, and manipulating door knobs and handles can all be considered occupation-based. Biomechanical based interventions are therapeutic exercises that typically have isometric, concentric, or eccentric muscle contractions. They also typically are completed in sets of repetitions (i.e. 1 set of 10 reps).

Additionally, a participant responded:

OBIs incorporate activities familiar to patients, may need to use the whole hand, and or arm, upper trunk, coordination as expected to develop with completing the long-term OBI rather than a specific part of hand or repetitive movements.

Biomechanical based incorporates and emphasizes tissue problems and potential for recovery using particular motions, repetition to regain neuroplasticity in all directions, sensory awareness, etc. Tolerances noted as measurable changes.

Sensory mapping incorporated for tactile progress with and without modalities.

Theme 4: Injury Dependent. One of our questions asked when a therapist should choose a non-occupation intervention over an OBI and vice versa. The majority of the participants stated that it depends on the type of injury. Other examples were edema and limited range of motion. Regarding injury dependency, one participant stated, “When a patient has a severe wound, fragile tendon reconstruction or a healing bone, sometimes all we can do is therapeutic exercises to get their ROM back in a timely manner.”

Additionally, another participant stated, “Initial treatments for tendon repairs followed a protocol written by the surgeon and did not include occupation-based interventions.”

Another participant talked about the precautions right after surgery. “Non-occupation-based intervention used when patients are fresh out of surgery where ROM, strength, and endurance is limited; precautions to their diagnosis.

Other areas addressed were specific examples of OBIs which are further elaborated in the reference guide.

Qualitative Interview Results

Common themes from our semi-structured interview addressed inhibiting factors such as time and space and the decision to use OBIs.

Theme 1: Time and Space. Common factors that inhibit integrating OBIs into treatment sessions are time and space. One participant addressed concern by stating, “by the time a patient is able to engage in an occupation that is important to them, it is time to

discharge them. If doing needle work is important to them and they are able to hold a needle, it is time to discharge.” Time is an inhibiting factor either due to reimbursement or number of sessions allocated to a patient. Another participant addressed concern by stating, “Space can be another problem. Having the supplies for those kinds of activities can take up a lot of space in a clinic.” Another participant stated, “folding laundry or going to the kitchen and picking up pots and pans and starting meal prep all requires more time and needs a lot more space which are the limiting factors of fully going into OBIs.”

Theme 2: Motivation. Motivation is a determinant when choosing to use OBIs during treatment sessions. A participant stated:

I definitely see that it can be something that can be therapeutic and can really get engaged with therapy . . . something that can be really motivating to them and encourage them and really believe in the therapy. I think it would make them much more confident in being more independent at home.

Qualitative Expert Panel Results

We expected to receive qualitative data from our expert panel; however, we received no feedback from participants. We were hoping to facilitate an evaluation of the resource guide we created based off of the data analysis we did after the survey and semi-structured interviews.

Discussion

Participants in the study reported on the importance of incorporating OBIs despite being faced with challenges. While the participants agreed that, in theory, OBIs should be a treatment focus, results indicated that, in practice, a biomechanical approach continues

to be more widely used. The foundation of the occupational therapy profession is built on a holistic, client-centered approach to treatment based on the patient's values, desires, needs, and goals (AOTA, 2014). Theoretically, this means that occupational therapists would want to place a high value on the patient's daily and meaningful occupations in practice, as shown in our survey results. However, incorporating OBIs is not always reasonable in the hand therapy setting due to challenges practitioners face, such as limited space, lack of time, and limited equipment. Due to the fact that our participants agreed that OBIs are an important component in hand therapy, the use of our reference guide could potentially provide solutions and ideas for therapists to overcome challenges when incorporating OBIs in their sessions.

Further studies could target a larger population, such as broadening to other states, since our study primarily looked at California. More research could compare findings from other states to see if challenges integrating OBIs are universal or vary by population. In addition, further research could elaborate more on specific examples of OBIs to overcome challenges in the hand therapy setting, such as creating activity kits to allow for easy access to OBI tools in the clinic. Finally, further outcome studies through randomized controlled trials should be done to determine the effectiveness of a combined approach of OBIs and biomechanical treatment on various upper extremity diagnoses.

Given our current circumstances, further research on the impact of COVID-19 in hand therapy clinics would be useful. Implementing OBIs may be more difficult in the context of social distancing and infection control; therefore, research on how to carry out interventions during COVID-19 could eliminate this barrier.

Future Implications for OT

Occupational therapists can utilize information concluded from the themes we have found to aid in treatment planning and addressing issues related to OBIs in the hand therapy setting. Therapists should consider the importance of OBIs in hand therapy when creating treatment plans and be creative to get around different challenges. Therapists should also collaborate with patients to create mutual goals that are centered around purposeful and meaningful activities. By overcoming the common challenges, therapists can begin to implement more OBIs and reemphasize the roots of occupational therapy in the hand therapy setting.

Conclusion

Currently, hand therapists are using the biomechanical frame of reference more often than OBIs during treatment sessions. Our study aimed to address the challenges limiting this use by asking current practitioners questions regarding how they viewed OBIs, what specifically limited their use, and how they would overcome these limitations in their practice. From this, we created a reference guide that could potentially help occupational therapists incorporate OBIs despite the barriers they may face. The use of OBIs provides a more client-centered approach that incorporates meaningful activities for each patient.

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6325&site=ehost-live

Appendix A
Recruitment Letter

Dear Healthcare Professional,

We are master's students of occupational therapy at Stanbridge University. We are conducting our thesis on integrating occupation-based interventions (OBI) in hand therapy. We define OBI as an approach that focuses on the specific needs of each patient, utilizing meaningful activities during intervention. We value being patient-centered and using meaningful occupations in our therapy interventions and want to make it more present in hand therapy. You have been identified because of your professional and educational background and are invited to participate in a short online survey regarding this topic. We are looking for therapists who have past or current experience in hand therapy including OTR, OTS level two fieldwork, COTA, or CHT excluding physical therapists.

The following questionnaire will require approximately 10-30 minutes to complete.

Participating is strictly voluntary and you may decline to participate at any point. Please complete this survey no later than DATE.

We would really appreciate your time to assist us in our thesis project. If you would like additional information or have questions please contact us at

OBIhandtherapy@my.stanbridge.edu. To participate in the survey, please follow the link below:

(Link to survey will be inserted here)

Thank you in advance for your time and for contributing to our research to support the advancement of hand therapy. We encourage you to send the link to interested colleagues.

Sincerely,

Corinne Boyd OTS, Kiana Roberts OTS, Amanda Vargas OTS, Makayla Yoshimoto
OTS

Faculty Advisor: Dr. Jeremy Seip OTD, OTR/L, CHT

Stanbridge University

Irvine, California

Appendix B

Electronic Survey Consent Form

(NOTE: This is the first question of the electronic survey)

You are invited to participate in a research study on integrating occupation-based interventions in hand therapy. You will be asked to complete a survey consisting of 17 questions. You will participate in an online survey and answer demographic questions regarding experience and title. You will then answer the survey questions regarding barriers to implementing occupation-based intervention and reasons for not successfully integrating it in treatment sessions. We will use this data to create a reference guide that hand therapists can use to implement occupation-based interventions in their various practice settings.

Your participation will take approximately 10 to 30 minutes. We are looking for therapists who have past or current experience in hand therapy including OTR, OTS level two fieldwork, COTA, or CHT excluding physical therapists.

There are no known risks to this study. Your participation will help improve OT interventions in hand therapy and increase the knowledge of occupation-based interventions in this setting. This study is volunteer-based and there will be no reimbursement or incentives given for participating.

If you have read and signed this form, you are consenting to participate in this study. Participation in this study is voluntary and you have the right to withdraw at any point without penalty. Your alternative is to not participate in this study. You have the right to refuse to answer specific questions. Your identity will not be disclosed at any time. The results of this study may be disseminated at professional meetings or published in scientific journals.

Do not hesitate to contact us at OBHandtherapy@my.stanbridge.edu if you have any questions regarding your participation in the study. If you have any further questions or concerns about this research you may contact the principal investigator: Dr. Jeremy Seip; 818.521.5817; jeremyseip@gmail.com.

If you are in some way dissatisfied with this research and how it is conducted, you may contact the Stanbridge University Vice President of Instruction at VP.instruction@stanbridge.edu or 949-794-9090.

Thank you for your participation!

Corinne Boyd, Kiana Roberts, Amanda Vargas, and Makayla Yoshimoto
Faculty Advisor: Dr. Jeremy Seip, OTD, OTR/L CHT

Stanbridge University
Irvine, California

Clicking the “Next” button below indicates that you are 18 years of age or older, and indicates your consent to participate in this survey.

Appendix C

Interview and Expert Panel Consent Form

(NOTE: The consent form will be emailed to the participants who give their information from the follow-up contact consent form)

You are invited to continue to participate in a research study on integrating occupation-based interventions in hand therapy. Upon consent you will be called on a scheduled time and day and asked a series of open-ended questions regarding the research topic. This phone call will be recorded and transcribed but will remain anonymous. Your participation will take approximately 20 minutes.

After the semi-structured interview, you will be invited to join an expert panel to review and provide feedback on our reference guide. This will all be done through email correspondence and will be explained further if agreed upon.

There are no known risks to this study. The benefits of this study are that it will increase the knowledge of occupation-based interventions in hand therapy. This study is volunteer-based and there will be no reimbursement or incentives given for participating.

If you have read and signed this form you are consenting to participate in this study. Participation in this study is voluntary and you have the right to withdraw at any point without penalty. Your alternative is to not participate in this study. You have the right to refuse to answer specific questions. Your identity will not be disclosed at any time. The results of this study may be disseminated at professional meetings or published in scientific journals.

Do not hesitate to contact us at OBHandtherapy@my.stanbridge.edu if you have any questions regarding your participation in the study. If you have any further questions or concerns about this research you may contact the principal investigator: Dr. Jeremy Seip; 818.521.5817; jeremyseip@gmail.com

If you are in some way dissatisfied with this research and how it is conducted, you may contact the Stanbridge University Vice President of Instruction at VP.instruction@stanbridge.edu or 949-794-9090.

Indicate Yes or No:

I give consent to participate in the interview.

Yes No

I give consent for the researchers to audio record and transcribe my interview.

Yes No

I give consent to be contacted regarding the expert panel.
 Yes No

I give consent to participate in the expert panel.
 Yes No

Please keep a copy of this signed and dated consent form for you.

Typed
Signature _____ Date _____

Appendix D

Expert Panel Email and Instructions

Dear Participant,

We hope you are well and healthy amidst the COVID-19 pandemic. We wanted to thank you again for participating in our phone interview in October 2019 regarding occupation-based interventions in hand therapy. When we spoke with you, you had given consent to review our resource guide and provide feedback. If you are still willing to participate, please see below for instructions. Due to the recent pandemic, we understand the difficulty of implementing our resource guide. If you could respond by **May 5th, 2020** with your professional opinion on the strengths and weaknesses of our resource guide that would be greatly appreciated.

Specific instructions are as follows:

1. Read through the reference guide. Reach out with any questions.
2. Please respond with how this reference guide could help you implement occupation-based interventions in your therapy sessions, along with strengths and weaknesses of the reference guide. Also include any recommendations on ways we can improve this guide for other hand therapists.
3. Also, if you have any recommendations in light of the COVID-19 pandemic, it would be very welcome and an excellent addition to our paper.

Thank you in advance for your time and for contributing to our research to support the advancement of hand therapy.

Sincerely,

Corinne Boyd OTS, Kiana Roberts OTS, Amanda Vargas OTS, Makayla Yoshimoto OTS

Faculty Advisor: Dr. Jeremy Seip OTD, OTR/L, CHT
Stanbridge University
Irvine, California

Appendix E

Online Survey Questions

In this survey, we are examining whether occupational therapists in hand therapy use occupation-based interventions in their treatments, what challenges they have in doing so, and how they have addressed them. This survey is divided into two parts:

1. Factors relating to you and your practice in hand therapy.
2. Your experience using occupation-based in interventions in hand therapy.

Part 1: Factors relating to you and your practice in hand therapy.

*Please note that question one is Appendix B, the online consent form.

2. I am a(n):

(RESPONSE: Choose all that apply)

- Certified Hand Therapist
- Occupational Therapist
- Physical therapist
- Certified Occupational Therapy Assistant
- Fieldwork 2 Student
- Other (FILL IN OPTION)

3. What is the highest occupational therapy degree you have earned?

(RESPONSE: Choose one, fill in if needed)

- Associate's Degree (OTA)
- Bachelor's Degree (OTA)
- Bachelor's Degree (OTR)
- Master's Degree

- Doctorate's Degree
- None (OTS Level II Student)
- Other (FILL IN OPTION)

4. How many years of experience do you have in Occupational Therapy?

(RESPONSE: Choose one)

- 0-5 years
- 6-10 years
- 11-15 years
- 16-20 years
- 21+ years

5. How many years of experience do you have in Hand Therapy?

(RESPONSE: Choose one)

- Currently in level 2 fieldwork in hand therapy
- Completed level 2 fieldwork in hand therapy
- 0-1 years
- 1-5 years
- 6-10 years
- 11-15 years
- 16-20 years
- 21+ years

6. What type of hand therapy setting have you worked in?

(RESPONSE: Choose all that apply, fill in if needed)

- Hospital-based outpatient
- Hospital-based inpatient
- Private-practice outpatient
- Occupational medicine clinic
- Other (FILL IN OPTION)

7. What percent of your current caseload is Hand Therapy?

(RESPONSE: Choose one)

- 0-25%
- 25-50%
- 50-75%
- 75-100%

8. What are your opinions of the role of OBI in rehabilitating a patient with a hand injury?

(RESPONSE: Fill in)

Part 2: Your experience using occupation-based interventions in hand therapy.

9. What intervention activities or modalities do you commonly use in Hand Therapy practice?

(RESPONSE: Choose all that apply, fill in if needed)

- Physical agent modalities
- Therapeutic exercise
- Active/active assertive/passive range of motion
- Manual therapy
- Therapeutic activities (OBI)

- ADL/IADL retraining (OBI)
- Other: (FILL IN OPTION)

10. What kinds of challenges do you face when trying to integrate occupation-based interventions in hand injury rehabilitation?

(RESPONSE: Choose all that apply, fill in if needed)

- Time-constraints
- Space limitation
- Lack of equipment
- Reimbursement issues
- Lack of a “natural environment”
- Patient related issues (too fragile, not medically appropriate, patient not interested)
- No challenges
- Other (FILL IN OPTION)

11. How have you addressed these challenges in your treatment plan?

(RESPONSE: Fill in)

12. How would you describe occupation-based interventions versus biomechanical based interventions used in hand therapy?

(RESPONSE: Fill in)

13. What percentage of your sessions involves OBI vs. strictly biomechanical interventions?

(RESPONSE: Choose one)

- 0-25%

- 25-50%
- 50-75%
- 75-100%

14. Can you provide specific examples of occupation-based interventions that you have used with your clients?

(RESPONSE: Fill in)

15. Can you provide a specific example of when you have chosen a non-occupation based intervention over an occupation-based intervention and vice versa?

(RESPONSE: Fill in)

16. How does your patient's stage of healing affect your treatment choices with regard to biomechanical vs. occupation-based methods? For example, the acute phase vs. remodeling phase.

(RESPONSE: Fill in)

17. If you are willing to participate in a semi-structured interview for further research, please respond yes. You will be directed to another page with a link to leave your contact information. The interview is voluntary and there are no known risks. Each interview will take approximately 20 minutes of your time. Your interview will be completed by the researchers with a series of open-ended questions. Interviews will be audio recorded and transcribed and all data will be kept confidential. If you select no, you will not be contacted. There is no compensation for your participation. The study will not cost you anything except

your time. Please contact us at OBHandtherapy@my.stanbridge.edu if you have any further questions or concerns regarding the interview.

Please mark Yes or No.

- Yes
- No

If they respond yes, they will be directed to the following page...

Thank you so much for participating! We appreciate your time and feedback.

Please use the following link to provide your contact information.

[link]

Appendix F

Semi-Structured Interview Questions

Semi-Structured Interview Questions

1. What do you see as the role of OBI in hand therapy?
2. What factors inhibit you from providing occupation-based intervention?
3. What factors affect the appropriateness of OBI in a postoperative patient?
Are there times when OBI is contraindicated?
4. What affects your decision to use OBI with a given patient (Dx, stage of healing, interests) or more extrinsic (MD, payers, clinic resources, colleagues)?
5. Given Q4 responses, what would support more OBI?
6. How does your decision to use OBI versus biomechanical change depending on whether the patient is post-surgical versus nonsurgical?
7. Is there anything else that you would like to add to this discussion?

Appendix G

Resource Guide

Integrating Occupation-Based Intervention (OBI) in Hand Therapy

Corinne Boyd, Kiana Roberts, Amanda Vargas, Makayla Yoshimoto

Advisor: Dr. Jeremy Seip, OTD, OTR/L, CHT

Master of Science in Occupational Therapy

Stanbridge University

The purpose of this resource guide is to provide information on challenges and treatment options for incorporating OBI in hand therapy. We interviewed occupational therapists with hand therapy experience and asked for their input on the possibility of using OBI in this setting. OBI is a powerful tool, but it is not always appropriate for some diagnoses or stages of healing. Therapists should use their best clinical judgment when deciding whether or not OBI is appropriate for their patient. We hope this guide gives you some guidance and ideas regarding OBI within the clinic.



"Occupation can be used both as a means and an end, and it is referred to as Occupation Based Intervention (OBI). One of the definitions of OBI is 'occupation as a means,' which refers to occupations or purposeful activities functioning as a remediation agent to restore a client's physical functions.

Occupation is defined as any daily living activities that people do to occupy themselves, that can be named, organized, and are meaningful and important to the individual or their culture...For instance, following a hand injury practicing writing, tying a shoelace and/or buttoning a shirt can improve fine motor skills and dexterity. OBI uses occupations and purposeful activities as a treatment medium" (p. 31)

(CHE DAUD ET AL., 2016)

Che Daud, A.Z., Yau, M.K., Barnett, F., Judd, J., Jones, R.E., & Mawawi, R.S.M. (2016). Integration of occupation-based intervention in hand injury rehabilitation: A randomized controlled trial. *Journal of Hand Therapy*, 29, p. 30-40.

What does Occupation-based Intervention (OBI) mean to us?

OBI is a form of treatment that is more holistic and focuses on restoring function through the use of daily activities. OBI can be defined as an intervention that is more meaningful to the client through the use of different occupations (ADLs, IADLs, leisure).

When OBI is Used?

Our survey participants reported using OBI as a means for therapeutic activity with patients who have a variety of diagnoses, including fractures, De Quervain's tenosynovitis, Dupuytren's contracture, adhesive capsulitis, and chronic conditions (e.g. fibromyalgia, arthritis, carpal tunnel). OBI has also been reported to be used towards the end of the healing process and after soft tissue swelling is controlled. However, there are times when OBI may not be appropriate, for example, in the early stages of healing following a flexor tendon repair. One of our participants stated that, "Typically, in the beginning phases, activities that require lifting, gripping, or pinching are contra-indicated. Mobility and exercises are protected and carefully guided. As the healing progresses more therapeutic activities are introduced." Again, it is important to use clinical judgment when deciding if and when OBI is appropriate to use.

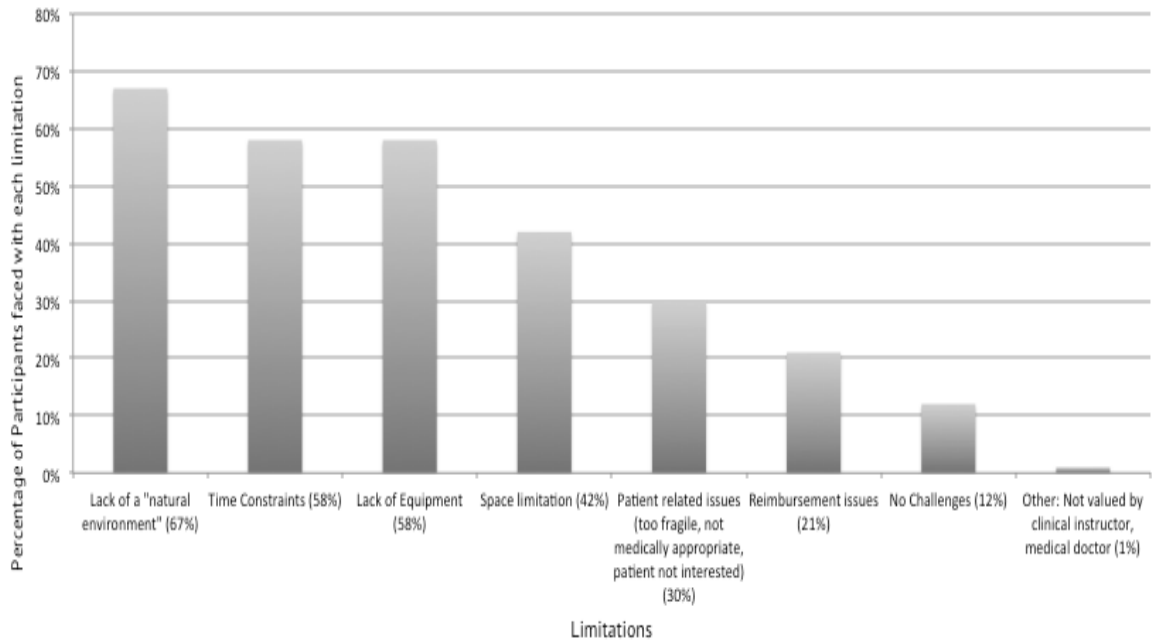
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"I feel that OBI should be an integral part of rehabilitating hand injuries. When I have been able to treat in the worksite, I have found that the intervention was more meaningful and practical, as well as questions that a client might have were more relevant to their work."

ANONYMOUS

Challenges & Limitations to OBI

Our research identified challenges and specific issues when it comes to integrating occupation-based interventions in hand therapy for occupational therapists. The majority of our participants in our survey were licensed occupational therapists and/or hand therapists with over 10 years of experience. The following graph shows the challenges our survey participants reported:



Solutions to the Challenges & Limitations of OBI

Our study has also given us some possible solutions or ideas in overcoming these challenges which is shown in the following chart:

Challenge	Possible Solutions/Ideas
Time Constraints	<ul style="list-style-type: none"> ● Make recommendations for home programs that are occupation based. ● Utilize OBI in short sessions with exercises and neuro rehabilitation blended in for reimbursement. ● Utilize 1-2 activities that are most pertinent to the client. ● Create activity kits.
Lack of space	<ul style="list-style-type: none"> ● Use the kitchen in the facility if there is one. ● Use tabletop equipment that is space conscious (e.g. keys, locks, buttons, shoelaces, coin pickups).
Resources	<ul style="list-style-type: none"> ● Encourage patients to bring their own items/tools with them. <ul style="list-style-type: none"> ○ For example, healthcare professionals, mechanics, carpenters, office workers, police officers, firefighters, etc. can bring their own instruments/tools to therapy to work on upper extremity function. ● Bring in common items yourself for a client to practice on. ● Use a baby doll with caregivers to practice body mechanics and proper positioning while putting on diapers and other caregiving activities.
Reimbursement Issues	<p>Although this wasn't mentioned by participants:</p> <ul style="list-style-type: none"> ● There are codes for OBI that can be billed. ● Consult with the billing experts at your facility.

Challenge	Possible Solutions/Ideas
Lack of a “natural environment”	<ul style="list-style-type: none"> ● Go to the patient's place of work/home which helps take problem solving and their potential solution back to the clinic setting. ● Incorporate exercises that relate back to their occupational role in their natural home/work environment. For example, pinching putty to work on pinch strength which allows them to pull on socks, pants, tear open bags, etc. ● Have patients take pictures of work and home environment to help simulate their natural environment to create a customized treatment program. <ul style="list-style-type: none"> ○ Move furniture (tables, chairs, etc.) in the facility to simulate their environment. ○ Place equipment around the facility in similar areas as the patient’s home. For example, adjusting the angle of theraband to better mimic a task or placing cones in a cupboard to mimic the location of dishes in a cabinet.
Patient related issues	<p>Issues include patient being too fragile to participate in OBI, patient not medically appropriate for OBI, or patient not interested may affect OBI in hand therapy. However, some options are:</p> <ul style="list-style-type: none"> ● If fragile <ul style="list-style-type: none"> ○ Modify activity (up-grade and down-grade) to adapt to the patient’s abilities. ● If not Medically Appropriate <ul style="list-style-type: none"> ○ Understand protocol for rehabilitation and consult with MD. ● If not Interested <ul style="list-style-type: none"> ○ Be Creative! ○ Find out what occupations your patient is interested in and adapt those activities to fit their needs/goals.
Lack of equipment	<ul style="list-style-type: none"> ● Improvise/creative use of available supplies/equipment. The name of a clinical tool doesn’t mean that is the only way to use it. <ul style="list-style-type: none"> ○ For example, a scar stick can mimic a pencil and can be used to work on a tripod grip needed for writing. ○ Refer to the following chart for additional ideas.

Ideas for Occupation-Based Interventions

We asked our survey participants to provide specific examples of occupation-based interventions that they have used with their clients. The following page consists of different ADLs, IADLs, work, leisure, and therapeutic activities that can be used in hand therapy clinics despite any of the discussed challenges.

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"Use of OBI are essential for the patient to experience use of their hands for activities that are relevant and meaningful to them. OBI are often what motivates patients and are the ultimate goals of therapy."

ANONYMOUS

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"[Therapist] created a 'tooth' made out of thermoplastic and attached it to a thick rubber band. Patient used pliers to twist and pull on the 'tooth.' This activity promoted grip and wrist strengthening while simulating performing a tooth extraction."

ANONYMOUS

OBI Intervention Ideas	
ADLs	<ul style="list-style-type: none"> • Dressing <ul style="list-style-type: none"> ○ E.g. donning/doffing shirt, pants, socks, and shoes, buttoning • Bathing <ul style="list-style-type: none"> ○ E.g. washing body/reaching behind to wash back with a specific focus on movement at the shoulder • Grooming <ul style="list-style-type: none"> ○ Hair Care <ul style="list-style-type: none"> ■ E.g. brushing, braiding, washing hair, manipulating shampoo bottles ○ Oral Care <ul style="list-style-type: none"> ■ E.g. brushing teeth, squeezing toothpaste, flossing ○ Makeup <ul style="list-style-type: none"> ■ E.g. holding a makeup brush, opening mascara tube, opening makeup containers, makeup application ○ Body Care <ul style="list-style-type: none"> ■ E.g. opening/closing soap bottles • Feeding <ul style="list-style-type: none"> ○ E.g. practice using utensils, drinking out of a cup
IADLs	<ul style="list-style-type: none"> • Home maintenance tasks <ul style="list-style-type: none"> ○ E.g. sweeping, dusting, washing dishes, putting dishes away • Food preparation/Cooking <ul style="list-style-type: none"> ○ E.g. cutting vegetables, scooping rice, using measuring cups, opening food containers, reaching for items in cabinets and refrigerator/freezer, stirring • Laundry tasks <ul style="list-style-type: none"> ○ E.g. sorting laundry, folding clothes/towels, carrying laundry basket • Grocery shopping <ul style="list-style-type: none"> ○ E.g. taking items off a shelf, putting items in cart, pushing the cart • Using cell phone <ul style="list-style-type: none"> ○ E.g. dialing phone numbers, picking up phone from table and holding to ear • Opening doors with a focus on specific doorknobs that are personal to the patient's home • Opening containers <ul style="list-style-type: none"> ○ E.g. medicine bottles, peanut butter, grooming products

	<ul style="list-style-type: none"> • Caring for pets <ul style="list-style-type: none"> ○ E.g. scooping food into a bowl, taking a leash on and off, brushing a pet • Driving <ul style="list-style-type: none"> ○ E.g. gripping steering wheel, buckling seat belt, shifting gears
<p>Work</p>	<ul style="list-style-type: none"> • Ergonomics <ul style="list-style-type: none"> ○ E.g. proper body positioning, computer at correct eye level, keyboard at appropriate level for wrist position, chair with support • Office skills <ul style="list-style-type: none"> ○ E.g. writing, typing, filing, stapling, hole punching • Hand tool use <ul style="list-style-type: none"> ○ E.g. hammering nails, using a screwdriver
<p>Leisure</p>	<ul style="list-style-type: none"> • Gardening <ul style="list-style-type: none"> ○ E.g. scooping dirt into pot, potting, trimming plants • Golfing <ul style="list-style-type: none"> ○ E.g. golf swing with appropriate force and range of motion, picking up golf balls from holes • Needlework <ul style="list-style-type: none"> ○ E.g. knitting, sewing, crochet • Paper crafts <ul style="list-style-type: none"> ○ E.g. origami, card making, collages, papier mâché • Adult coloring books <ul style="list-style-type: none"> ○ E.g. gripping pens/colored pencils, manipulating pages • Games <ul style="list-style-type: none"> ○ Playing cards - holding cards in hand, pinching cards to put down <ul style="list-style-type: none"> ■ E.g. Go Fish, War, Gin Rummy ○ Board games - manipulating game pieces <ul style="list-style-type: none"> ■ E.g. Candyland (pediatrics), bingo • Building blocks to work on dexterity and hand manipulation • Fishing <ul style="list-style-type: none"> ○ E.g. casting a fishing rod, tying knot on fishing hook, threading line through a pole • Wrapping gifts <ul style="list-style-type: none"> ○ E.g. cutting pieces of tape, folding the wrapping paper, tying ribbon • Playing instruments <ul style="list-style-type: none"> ○ Piano <ul style="list-style-type: none"> ■ E.g. manipulating piano keys ○ Guitar <ul style="list-style-type: none"> ■ E.g. holding guitar pick, manipulating fingers to different chords

Therapeutic Activities	<ul style="list-style-type: none">• Sorting items<ul style="list-style-type: none">○ E.g. tabletop, putting things into shelving unit after session, carrying different objects, various bulk, weight, one-handed, two-handed• Ball exercises, toys, climbing ladders, trapeze swings, cooking and crafts<ul style="list-style-type: none">○ Each object requires a different grasp pattern, postural stability, UE strength and coordination
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Institutional Review Board Approval

IRB Review 2019 - #01939

Dear Researcher,

After an expedited review of your IRB Proposal #01939, it is approved with minor/moderate changes by the Stanbridge IRB.

Please review the feedback from the committee and let me know of any possible concerns.

This proposal needs resubmission with the proposed changes.

You may start developing your thesis or your data collection at this time. This approval is limited to the activities described in the IRB application.

Congratulations and we wish you success with your thesis project.

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If the proposal states that personal email and server will be used for consent forms, this is not permitted. Please reach out to support@stanbridge.edu for Stanbridge email and drive access for research purposes.
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Sincerely,

Lakshmi Kodeboyina, Ph.D. | IRB Chair | Scientific Writing Specialist and GE/Science Instructor