

Are occupational therapists in hand therapy working in an occupation-centered way? A cross sectional survey

Randsby, Thea Birch; Schøler Jacobsen, Nicolaj; Hansen, Alice Ørts

Published in:
Hand Therapy

DOI:
10.1177/17589983241268188

Publication date:
2024

Document version:
Accepted manuscript

Citation for pulished version (APA):

Randsby, T. B., Schøler Jacobsen, N., & Hansen, A. Ø. (2024). Are occupational therapists in hand therapy working in an occupation-centered way? A cross sectional survey. *Hand Therapy*, 29(3), 124-134.
<https://doi.org/10.1177/17589983241268188>

Go to publication entry in University of Southern Denmark's Research Portal

Terms of use

This work is brought to you by the University of Southern Denmark.
Unless otherwise specified it has been shared according to the terms for self-archiving.
If no other license is stated, these terms apply:

- You may download this work for personal use only.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying this open access version

If you believe that this document breaches copyright please contact us providing details and we will investigate your claim.
Please direct all enquiries to puresupport@bib.sdu.dk

Are occupational therapists in hand therapy working in an occupation-centered way? A cross sectional survey.

Short title: Is hand therapy occupation-centered?

Abstract

Introduction: The dominance of the biomedical approach has previously caused a limited focus on occupation within hand therapy. This study aimed to investigate the rehabilitation offered to patients with a hand-related disorder (HRD) in Denmark including to determine the extent to which occupation-focused and/or occupation-based assessments and interventions are used and to identify barriers against their use.

Methods: A cross-sectional survey with 45 questions was conducted among members of the Danish Association for Hand Therapy. Data were analysed with descriptive statistics. Categorical variables were reported with frequency and percentage, and continuous variables with average and standard deviation.

Results: One hundred and six occupational therapists working as hand therapists ($n=106$) completed the survey. They reported common use of assessments measuring range of motion, pain, edema, and occupational performance. Occupational performance was assessed by non-standardized occupation-focused assessments, such as informal conversations. Exercise, pain management, and occupation-focused informal conversations were reported as the most frequently used interventions. Out of 82 respondents, 74 (91.4%) reported that they used interventions focused on body function and structures to the extent they wanted. Only 41 (50.0%) used occupation-focused or occupation-based interventions to the extent they wanted.

Discussion: Assessment and interventions reporting body function and structure were used most frequently whereas assessments and interventions reporting activity and participation were used to a lesser extent. Occupation-focused assessments and interventions were used more commonly than occupation-based. Hand therapists considered occupation-based assessments and interventions to be important in rehabilitation after HRD, despite using them with few patients. Several barriers were reported regarding the implementation of an occupation-centered approach: habit, workload, time constraints, and setting.

Keywords

Occupation-centered, occupation-focused assessment, occupation-based assessment, occupation-focused intervention, occupation-based intervention.

Introduction

Patients with a hand-related disorder (HRD) are often characterized as cognitively well-functioning, living in their own homes, self-reliant, and working (1). As we use our hands in almost all activities of everyday life, an HRD often causes impaired functioning which can last for years. However, the degree to which patients are affected in their activities of everyday life varies (2–4). The HRD and reduced functioning can negatively affect patients' quality of life (1,5). HRD also leads to major health economic costs, related to treatment, rehabilitation, and prolonged sick leave (6,7).

In healthcare, the perception of illness has gradually changed from a narrow biomedical approach focusing on body function and structure to a broader biopsychosocial approach with a more holistic perspective. Despite the change, the biomedical approach remains dominant among health professionals, including hand therapists (4,8). In hand therapy, treatment success is often measured by improvements in range of motion (ROM) and grip strength, rather than a return to meaningful occupations (4,8,9). Emphasizing a biopsychosocial approach to assessing functioning, the World Health Organization recommends addressing all aspects of the International Classification of Functioning, Disability, and Health (ICF) (10). According to the ICF, rehabilitation outcomes are influenced not only by body functions and structures and the severity of the injury but also the patient's roles, activity demands, and environmental and personal factors (10). Thereby, the dominance of the biomedical approach limits focus to assessing body functions and structures, hindering hand therapists from addressing activity and participation and having an occupation-centered perspective (4,8,11).

In Denmark, rehabilitation after an HRD occurs at a hospital or municipal clinic. Patients requiring specialized treatment or those with severe injuries are initially treated at hospital. Later, they continue their rehabilitation in the municipality, alongside patients with less severe disorders. In this setting, treatment is administered either at the clinic or within the patient's home. Around the world, rehabilitation after HRDs is provided by both physiotherapists and occupational therapists. However, in Denmark it is most often provided by occupational therapists.

Occupational therapists focus on humans as occupational beings, who perform and engage in occupations that impact their health and well-being within the context of their environments (12,13). In occupational therapy, occupation is the core of the profession, and the profession-

specific perspective is to ensure that occupation is placed in the center of the professional reasoning (being occupation-centered) (12,13). Engagement in occupation is therefore valued as both the primary therapeutic agent and the goal of any intervention in occupational therapy (12).

Occupations are defined as meaningful activities, and the ability to perform activities of everyday life is a complex phenomenon. In occupational therapy a distinction is made between being occupation-focused and occupation-based. The term occupation-focused means to focus one's attention on occupation without performing the activity. This can be achieved, for example, through a questionnaire, a structured interview or through a conversation about how to perform an activity (12), while occupation-based refers to the patient's being engaged in occupation during the rehabilitation process, performing the activity as realistically as possible (12). Being occupation-centered aligns well with a biopsychosocial approach.

Studies that have explored patients' perspectives on hand therapy have found that patients value both the evaluation of body function and evaluation of the ability to perform activities of everyday life, as important rehabilitation outcomes (1,14). Additionally, patients want their rehabilitation to include the performance of activities of everyday life, or at least instructions on how to perform the activities, enabling them to perform the activities at home (1,14). Furthermore, studies have shown that a focus on occupation in hand therapy improves client motivation (4,15). However, these studies also revealed that hand therapists expect patients to independently address their occupational needs, leading to the belief that it is unnecessary to address them as a part of the rehabilitation (4,15,16).

A scoping review from 2018 revealed limited focus on occupation within hand therapy (4). The focus on occupation was mainly in the assessment and evaluation phase and was not transferred to the interventions (4). Similarly, a mapping review from 2019 highlighted exercise as the predominant intervention in hand therapy, with occupation-based interventions being the least used (17). This indicates a potential risk for loss of an occupation-centered focus in interventions, as seen in a Danish study from 2017, where patients with HRD did not experience hand therapy to be as focused on occupation as the patients wanted (1). In support of prioritizing occupation-based interventions, a randomized controlled study found statistically significant improvement in occupational performance among those receiving occupation-based interventions for upper limb conditions, as measured by the Canadian Occupational Performance Measure (COPM). However, no significant difference was found in functioning, measured with the Disabilities of the Arm,

Shoulder, and Hand questionnaire (DASH), between the group receiving an exercise and occupation-focused intervention and the group receiving an exercise and occupation-focused intervention along with an occupation-based intervention (5).

Studies show that assessment of body function does not reflect the ability to perform activities of everyday life (8,9,18,19). Despite that, tools that measure body function are still preferred by most hand therapists but are often complemented by an informal occupation-focused conversation about activities of everyday life (4,8,9,20).

Studies found that it can be challenging to implement both occupation-focused and/or occupation-based assessments and interventions, especially within the orthopedic surgery field, which is often based on a biomedical approach instead of a biopsychosocial approach (8,21–24). The patient's ability to perform activities of everyday life is a complex phenomenon that makes the assessment more time-consuming than, for example, an assessment of muscle strength (18,25). The lack of the occupational perspective in hand therapy can make it difficult for occupational therapy hand therapists to maintain occupation-centered hand therapy, and to distinguish occupational therapy hand therapy services from those offered by other professions (12,21).

Based on our findings from the literature there is a limited focus on occupation in assessments and interventions within hand therapy (1,4,15–17). This might also apply in Denmark, even though most hand therapists are occupational therapists. However, the focus on occupation within hand therapy has not previously been systematically investigated in Denmark. To be able to assist in providing an evidence-based rehabilitation with an occupation-centered approach in the future, it is necessary to ascertain what patients with an HRD are currently receiving. The overall aim of this study is to investigate the rehabilitation offered to patients with HRD in Denmark with the following objectives:

1. Determine the extent to which occupation-focused and occupation-based assessments and interventions are used.
2. Identify barriers hindering the utilization of occupation-focused and/or occupation-based assessments and interventions.
3. Determine whether the biopsychosocial or biomedical approach is predominant in rehabilitation after an HRD.

Methods

Study design

A cross-sectional study, structured as a web-based (online) survey, was conducted to investigate the use of assessments and interventions in hand therapy in Denmark. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guideline was used to guide the reporting of the study (26). The study was registered with the Danish Data Protection Agency, no. 21/23461. Due to the nature of the study, approval by the Research Ethics Committee was not required, in accordance with Danish legislation on research ethics.

Respondents

Respondents were occupational therapists working with patients with HRD, at hospitals, in municipalities, or in a private practice. Respondents were recruited using purposeful sampling to ensure that the inclusion criteria were met. The survey was distributed via email to active members of the Danish Association for Hand Therapy (DSF Hand Therapy) and via a group for Danish hand therapists on Facebook. The survey was open for completion for one month. Out of the 281 members of DSF Hand Therapy, 277 are occupational therapists, 274 of them with a valid email address. The survey was sent to all members; however, only occupational therapists were included in the analysis. To reach those without a registered email address, and to motivate more hand therapists to answer the survey, we sent messages and two reminders on Facebook. The survey was designed to allow each respondent to complete it only once. At the beginning of the survey, respondents gave their written consent. Respondents were assured of anonymity in the reporting and they were told that data would be used for research purposes only. No compensation was offered to participants.

Survey

The electronic survey was developed for this study by the first and last authors (TBRA and AØH), based on the literature on the topic, other surveys, and knowledge of experienced hand therapists (18,27,28). It was designed to cover the main elements of the ICF and the Occupational Therapy Intervention Process Model (OTIPM) to ensure that the entire rehabilitation process was covered (10,13). The OTIPM is an occupation-centered reasoning model that guides the occupational therapist through a top-down and client-centered approach where occupation is placed in the center and where occupation-focused and occupation-based assessments and interventions are used (13).

During the development of the survey, the content was discussed by all three authors until consensus was reached. The final survey consisted of 45 questions, most with nominal or ordinal multiple-choice response categories. However, some were formed as open-ended questions to collect qualitative data. An example of a question using a five-point ordinal scale is: *“how often do you use the following standardized occupation-focused/-based measurement tools to assess patients with hand-related disorders”* with the following response options: *“with all patients”, “with most patients”, “with few patients”, “never”, “don’t know about this tool”*. An example of an open-ended question: *“What advantages/disadvantages do you see in using occupation-focused/-based measurement tools? Write the most important ones. Indicate whether you see it as an advantage or disadvantage”*. Opportunities to elaborate on the response category *Other* were given as an open-ended response category. The survey was divided into three sections with questions related to the ICF elements and the entire rehabilitation process: (I) Demographic information with questions including age, gender, experience, workplace/setting, and training facilities/equipment available; (II) Assessment phase, with questions about how the therapists assess their patients in relation to both body function and structure and activity and participation. Questions consisted of their use of different types of typically used assessments and included the options to add other measurement tools not listed in the survey. In addition, they were asked about frequency and perceived importance of various assessments. (III) Intervention phase, with questions on the content of the intervention in relation to both body function and structure and activity and participation. The respondents were asked how they chose interventions and how often they used traditional interventions, with provision of options to add other, unlisted interventions. In addition they were asked how important they considered the interventions. Furthermore, they were asked if they used interventions focusing on physical function and occupation-focused or occupation-based to the extent they would like. If they did not use the interventions to the desired extent, they were questioned about the underlying reasons such as the physical environment, workload, and adherence to clinical guidelines. Additionally, they were asked about their goal-setting practice with patients, and about the criteria they applied to determine the completion of hand therapy. In both sections II and III, respondents were asked to give advantages and disadvantages related to using or not using occupation-focused or occupation-based assessments and interventions or/and assessments and interventions that focused on physical function. The Danish survey has been translated into English only for this article (see Appendix A).

The survey was pilot-tested in the population of hand therapists using a three-step test interview (TSTI), which consisted of both an interview and completion of the survey (29). Before the pilot test, the survey was peer-reviewed by an expert in hand therapy and survey development; this led to minor changes.

The areas of TSTI comprise three distinct stages. Initially, the hand therapist completes the survey while asked to think aloud. The interviewer collects both observational data and data by attentively listening to their verbal expressions. In a follow-up probing phase, the interviewer asks the hand therapist to clarify and supplement the primary data. Finally, a debriefing elicits the hand therapists' experiences and opinions. Four hand therapists from different workplaces (municipality $n=3$ and hospital $n=1$) pilot-tested the survey. Thereafter, all three authors discussed the comments and made changes, removing some questions and adding an extra response option for one question. When, as a final test, we interviewed another hand therapist (hospital) to see if any new comments would arise, there were no new comments. The purpose of conducting a pilot test was to strengthen the survey's relevance and to ensure that the questions were comprehensive for the target group, to improve face validity.

Data collection

Data were collected and stored in Research Electronic Data Capture (REDCap) hosted at Open Patient data Explorative Network. The online link to the survey was open from 14 January 2022 to 20 February 2022. Reminder emails were sent out after 14 and 21 days to improve the response rate.

Data analysis

Quantitative data were analysed using Stata 17 (StataCorp, College Station, Texas). Nominal and ordinal variables were reported with frequency and percentage, and continuous variables were reported with average and standard deviation. The sample included all participants fulfilling the inclusion criteria, including those with missing data (Thus we report n in all analyses). Qualitative data from the open-ended questions were analysed with an inductive content analysis (30). All statements were open-coded and grouped into categories; main points from the categories were reported if they were not already included in the results from the multiple-choice responses.

Results

A total of 276 hand therapists received the survey, and 106 occupational therapists responded by either fully or partially completing it. This represents a response rate of 38%. Most were female, mean age 45.1 ± 10.47 years. Most respondents worked either in the municipality (51%) or in a hospital (46%) (See Table 1).

Insert Table 1.

Assessment (section II)

Joint mobility, pain, edema, and occupation-focused assessment such as informal conversation about how to perform activities of everyday life were used with almost all patients (Illustrated by the y-axis in Figure 1). Respondents assessed it to the same extent as they considered them important (see Figure 1). Self-reported occupation-focused questionnaires (e.g. DASH, PRWHE) or structured interviews (e.g. COPM, PSFS) and occupation-based observations (e.g. AMPS) were used with fewer than half of the patients. These assessments were used to a lesser extent than considered important by the respondents (see Figure 1).

Insert Figure 1

Most respondents used standardized measurement tools regarding body function and structure to assess pain, ROM, and strength in all or most patients: ROM (Goniometer (95%)), pain (VAS/NRS (88%)), and strength (dynamometer (83%)). Standardized measurements of edema (figure of eight/volumeter (11%)), stereognosis (STI-test/tactile gnosis (10%)), coordination (box and block (4%)), and activities of everyday life (AMPS (1%), COPM (22%), and PSFS (17%)) were used to a limited extent (see Tables 2 and 3). Most respondents (78%) never used COPM or only used it with few patients. AMPS, the only standardized occupation-based assessment, was used to a very limited extent. Eightythree % never used it (see Table 3).

Insert Table 2

Insert Table 3

Most (79.0%) of the respondents answered that they used standardized measurement tools to evaluate body function and structure to the extent they wanted, while fewer (39.8%) reported using standardized occupation-focused or occupation-based measurement tools to measure activity and participation to the extent they would like.

The respondents who did not use standardized occupation-focused or occupation-based measurement tools to the extent they wanted (n=56) reported habit (64.3%), workload (57.1%), and time constraints (51.8%) as the main reasons for not using them as extensively as they wanted (See Table 4). Additionally, in the open-ended responses, elaborating on advantages and disadvantages of using occupation-focused or occupation-based measurement tools, respondents mentioned restrictions as a barrier, in that some patients do not have permission to use their hand(s) in activities of everyday life. Furthermore, documenting these assessments is more complex than documenting assessments of body function. Expectations of other health professionals were also a barrier to using these tools. Advantages mentioned included help from occupation-focused or occupation-based assessments for the hand therapist to target interventions towards meaningful occupations, support goal setting, and motivate patients. However, according to the responders, assessments of body function are equally motivating for some patients and are better to capture small changes.

Insert Table 4.

Intervention (section III)

Most of the respondents had an occupation-centered focus in their choice of intervention since it was based on what motivated the patient (76%), or on the meaningful occupations the patient had in his/her life (75%). Half of the respondents (54%) reported they chose the intervention based on the recommendation of clinical guidelines (see Table 5).

Insert Table 5

Most (88%) of the respondents reported that they always or often set goals with the patient.

Exercises and occupation-focused interventions, such as informal conversations about how to perform activities of everyday life despite restrictions or functional impairment, along with pain and edema management, were used with almost all patients and to almost the same extent as the respondent considered important illustrated by the y-axis in (Figure 2). Occupation-based interventions where the patients perform activities and orthoses were used with few patients and to a lesser extent than the respondent considered important illustrated by the x-axis in Figure 2 (Figure 2). Purposeful activities where the patients are performing part of the activity or imitating it were used with more than half of the respondents but to a lesser degree than they considered important.

Occupation-based interventions were the patients perform the activity as realistic as possible were used to a much lesser extent than respondents considered important (24% versus 63%).

Insert figure 2

Out of 82 respondents, 74 (91.4%) reported that they used interventions focused on body function and structures to the extent they wanted. Only 41 responders (50.0%) used occupation-focused or occupation-based interventions to the extent they wanted.

The following reasons were the most frequently given for not using occupation-focused and occupation-based interventions: setting (63.4%), greater time consumption than other interventions (61.0%), habit (58.5%), and workload (37.5%). Additionally, in the open-ended responses about advantages and disadvantages using occupation-focused or occupation-based interventions, some respondents mentioned restrictions as a barrier, in that some patients are not allowed to use their hand(s) in activities of everyday life soon after the injury. Some responders mentioned that they believed that most patients expected interventions to be focused on body function because they are familiar with the emphasis on this aspect by surgeons and physiotherapists. Additionally, referrals to hand therapy are often based on reduced physical function. Stated advantages of occupation-focused and occupation-based interventions include their motivational aspect, especially when activities are relevant to the patients. Furthermore, they are transferable to everyday life activities. Physical exercises can be tedious for some patients, and motivating for others, but they are harder to transfer to everyday life activities.

The following reasons were mentioned by over 50% of the therapists as the reasons for ending hand therapy: no more or only small challenges in activities of everyday life; stagnation in progress and nothing further to provide; and waiting for a new operation or other treatment.

Discussion

Our results indicated that hand therapists considered occupation-based assessments and interventions to be important in the rehabilitation process following an HRD, despite using them with few patients. Occupation-focused assessments and interventions using informal conversations about occupational performance were used with almost all patients. The predominant emphasis on assessments and interventions focused on body function and structure is inadequate from an occupation-centered perspective, as they do not align with the occupational therapy profession's core focus on occupation. Several barriers were reported for not using occupation-focused and/or occupation-based assessments and interventions.

In this study, occupation-focused assessments were used with almost all patients, while occupation-based assessments were used with few and not to the extent considered important by the respondents. Furthermore the finding that occupation-focused assessments, albeit mostly non-standardized in the form of informal conversations, were used more routinely than occupation-based assessments, is similar to findings of other studies. Those studies found that occupation-based assessments were not utilized in hand therapy as much as hand therapists would like, but that the majority of the hand therapists informally addressed occupation in their assessment (18,23). The lack of occupation-based assessment is problematic in an occupation-centered perspective, as studies found that self-reported occupation-focused assessments and observational occupation-based assessments do not necessarily correlate well, indicating a need for both types of assessment to address the patient's occupational performance problems and to measure rehabilitation effect (31,32). Due to the findings that most assessments in this study are non-standardized an increased use of standardized occupation-focused and occupation-based assessments is needed to improve the trustworthiness of the assessments. To increase the trustworthiness of the occupation-focused assessments it would be relevant for occupational therapy hand therapists to use standardized occupation-focused assessments as COPM and PSFS instead of informal conversation about occupation. COPM and PSFS are used to a limit extent in the current study.

Only 24% of the respondents in the current study provide occupation-based interventions, despite considering it important to do so. However, more than half of the respondents used purposeful activities in their interventions, targeting occupational components, although not to the extent they considered important. Therefore, a focus on increasing occupation-based interventions is recommended for an occupation-centered perspective in Danish hand therapy. Other studies also showed that occupation-based interventions are used to a limited extent (17,24,27,33), even though occupational therapy hand therapists often acknowledge the advantages of occupation-based practice (24,33). Valuing an occupation-based practice does not always correspond to regular implementation (24,33). Although the use of occupation-based interventions in hand therapy may be expanding, occupational therapy hand therapists have a role in overcoming the remaining barriers (24).

The main barriers for not using occupation-focused or occupation-based assessments to the extent the respondent found important were habit, workload, and time constraints whereas setting, greater

time consumption than other interventions and habit was mentioned as the main reason for not using occupation-focused or occupation-based interventions. Time constraints were the main reason given by therapists for not utilizing occupation-based assessments in a 2015 survey (18), whereas it was only one of more reasons in the current study. In other studies, time constraints, factors related to the client and therapist, physical space and equipment, setting, regime, treatment protocol, and expectations of others influenced the use of occupation-based interventions (23–25,33,34). The current study and the other studies identify some of the same barriers, but the primary barriers vary slightly from study to study. This indicates that to ensure alignment with evidence, patient preferences, and the occupation-centered approach, it is necessary to focus on changing habits and making it easier to include these assessments and interventions in clinical practice. A cross-sectional study from 2022 mentioned education and training in occupation-based interventions for occupational therapists, as well as specific guidelines on the occupation-based interventions as a way of overcoming the barriers to using them (25). Becoming more proficient in utilizing occupation-based interventions might make them less time-consuming for occupational therapists. Another cross-sectional study mentioned a greater focus on occupation-based interventions during the occupational therapy educational program (24). Both of these studies recommended that occupational therapists should use their creativity to overcome barriers and to communicate the evidence for an occupation-based approach to patients and professionals (24,25). One method to enhance the accessibility and integration of occupation-based assessments and interventions within clinical practice is by implementing activity boxes. These boxes contain sets of equipment and supplies required for conducting commonly performed activities. The relevant boxes for the individual patient can be readily utilized in the clinic without the need for extensive preparation (22,35,36).

Focus on body functions and structures in assessment were dominant in the current study, as in other studies, with measures such as range of motion, pain, and edema most often used (17,18,20,37). The most frequently used measurement tools were dynamometry, goniometry, and VAS scale, similar to the findings by Alotaibi et al. and Grice (18,20). The dominance of the biomedical approach is problematic since it does not align with patient preferences; as assessment of body functions and structures cannot predict occupational performance, both types of assessment are essential (8,9,18,19). In both the open-ended responses in the current study and in the literature, it was emphasized that both assessment of body function and structure and activity and participation

can be motivational. From a biopsychosocial approach, both assessments of body functions and structures and activity and participation are required to uncover all aspects of functioning and to plan interventions. One reason for the predominant emphasis on body function and structure in assessment and intervention could be the longstanding dominance of the biomedical approach, leading occupational therapists to prioritize assessments such as ROM and grip strength because of traditional protocols. Respondents in this study reported that they set goals with their patients, that the choice of intervention was based on the meaningful occupations the patients has in his/her life and that the main reason for ending hand therapy was the decrease in challenges in occupational performance. This and the use of non-standardized occupation-focused assessments and occupation-focused intervention indicating some degree of an occupation-centered perspective within hand therapy and in some degree a biopsychosocial approach involving the patient, his or her goals and the ability to perform everyday life activities in real context. A comprehensive biopsychosocial and occupation-centered approach within hand therapy requires a focus on changing habits.

Limitations

Although the survey was emailed to all Danish hand therapists with an email address in DSF Hand Therapy, and the survey was live for more than a month, not all occupational therapists working as hand therapists responded to the survey. The low response rate (38%) is a limitation of the study. However, the high representation of women and respondents with substantial experience accurately reflects the Danish hand therapist community as well as the distribution of work settings. There are very few private clinics, and most therapists working in this field are primarily employed elsewhere as well. With a low response rate, the results may not be a comprehensive representation of the opinion of occupational therapists working with rehabilitation after a HRD in Denmark. However, the response rate was similar to that of other online surveys in the field of hand therapy (18,23,38). The response rate may have been influenced by the survey being sent out at the height of the COVID-19 pandemic. Therapists may have been struggling to maintain their jobs and practices, and could not find the time and energy to complete the survey. Another issue that might have influenced the response rate is survey fatigue, which could have been caused by the number of questions (45 questions) and the amount of time it took to complete the survey (20-30 minutes). However, all responders in the pilot test found it feasible and considered all questions relevant.

Most questions were generated by the authors and although the survey was pilot-tested in the population and reviewed by an expert in hand therapy and survey development, it is a limitation that

the survey was not validated. A strength of the survey is that it was inspired by the ICF framework and an intervention process model, to ensure that all elements in hand therapy were covered. A limitation of this study is that the respondents did not always answer all questions, resulting in missing data points. We do not know if missing data is due to limited time, survey fatigue, or refusal to answer. However, no sensitive questions were asked, and we cannot find any pattern in the missing responses. Social desirability bias may occur in surveys when participants refrain from providing truthful answers due to concerns about being judged. However, if this were the case, we would have expected to see positive answers regarding occupation-based assessments and interventions, since they are core aspects in occupational therapy and thereby would be perceived as the most valuable and “correct” answer.

Conclusion

This study set out to investigate whether the biomedical or biopsychosocial approach is dominant in rehabilitation offered to patients with HRD in Denmark including whether occupation-focused and occupation-based assessments and interventions is used. Assessments and interventions regarding body function and structure were used most frequently whereas assessments and interventions about activity and participation were used to a lesser extent. Occupation-focused assessments and interventions were more commonly used than occupation-based, indicating some degree of an occupation-centered perspective within hand therapy. Hand therapists considered occupation-based assessments and interventions to be important in rehabilitation after an HRD, despite using them with few patients. Several barriers were reported regarding the implementation of an occupation-centered approach: habit, workload, time constraints, and setting. The predominant emphasis on assessments and interventions focused on body function and structure and the limited use of occupation-based assessments and interventions are inadequate from an occupation-centered perspective, as they do not align with the profession’s core focus on occupation.

The findings from this study are valuable for practice as they indicate that, to ensure a comprehensive biopsychosocial and occupation-centered approach in hand therapy, there is a need to increase the utilization of occupation-based assessments and interventions, as well as standardized measurement tools, in assessing occupational performance. Future research should aim to address the barriers hindering such progress, especially investigation into how these barriers can be mitigated.

Declarations

The authors report that there are no competing interests to declare.

References

1. Hansen AØ, Kristensen HK, Cederlund R, Lauridsen HH, Tromborg H. Client-centred practice from the perspective of Danish patients with hand-related disorders. *Disability & Rehabilitation*. 2018;40(13):1542–52.
2. Nielsen TL, Dekkers MK. Progress and prediction of occupational performance in women with distal radius fractures: A one-year follow-up. *Scand J Occup Ther*. 2013;20(2):143–51.
3. Bell J, Gray M, Kingston G, Hannah S, Adams J. The longer term functional impact of a traumatic hand injury on people living in a regional metropolitan Australian location. *Int J Ther Rehabil*. 2011;18(7):370–82.
4. Burley S, Di Tommaso A, Cox R, Molineux M. An occupational perspective in hand therapy: A scoping review. *British Journal of Occupational Therapy*. 2018;81(6):299–318.
5. Hansen AØ, Kristensen HK, Cederlund R, Möller S, Tromborg H. An occupation-based intervention in patients with hand-related disorders grouped using the sense of coherence scale—A randomized controlled trial. *Journal of Hand Therapy*. 2020;33(4):455–69.
6. Rosberg HE, Carlsson KS, Cederlund RI, Ramel E, Dahlin LB. Costs and outcome for serious hand and arm injuries during the first year after trauma – a prospective study. *BMC Public Health*. 2013;13(1):501.
7. de Putter CE, Selles RW, Polinder S, Panneman MJM, Hovius SER, van Beeck EF. Economic Impact of Hand and Wrist Injuries: Health-Care Costs and Productivity Costs in a Population-Based Study. *Journal of Bone and Joint Surgery*. 2012;94(9):e56.
8. Robinson LS, Brown T, O'Brien L. Embracing an occupational perspective: Occupation-based interventions in hand therapy practice. *Aust Occup Ther J*. 2016;63(4):293–6.
9. Leshner DAM, Mulcahey MJ, Hershey P, Stanton DB, Tiedgen AC. Alignment of Outcome Instruments Used in Hand Therapy With the Occupational Therapy Practice Framework: Domain and Process and the International Classification of Functioning, Disability and Health: A Scoping Review. *Am J Occup Ther*. 2017;71(1):7101190060p1–12.
10. World Health Organisation. International Classification of Functioning, Disability and Health (ICF) [Internet]. 2023 [hentvist 11. maj 2023]. Tilgængelig hos: <https://www.who.int/standards/classifications/international-classification-of-functioning-disability-and-health>
11. Wade D. Rehabilitation – a new approach. Overview and Part One: the problems. *Clin Rehabil*. 2015;29(11):1041–50.
12. Fisher AG. Occupation-centred, occupation-based, occupation-focused: Same, same or different? *Scandinavian Journal of Occupational Therapy*. 2014;21:96–107.
13. Fisher AG, Marterella A. *Powerful practice : a model for authentic occupational therapy*. Fort Collins: CIOTS - Center for Innovative OT Solutions; 2019. 384 s.

14. Collis JM, Mayland EC, Wright-St Clair V, Signal N. “The more I do, the more I can do”: perspectives on how performing daily activities and occupations influences recovery after surgical repair of a distal radius fracture. *Disabil Rehabil.* 2022;44(19):5440–9.
15. Bates E, Mason R. Coping strategies used by people with a major hand injury: a review of the literature. *Br J Occup Ther.* 2014;77(6):289–95.
16. Burley S, Cox R, Di Tommaso A, Molineux M. Primary Contact Occupational Therapy Hand Clinics: The pull of an occupational perspective. *Aust Occup Ther J.* 2018;65(6):533–43.
17. Takata SC, Wade ET, Roll SC. Hand therapy interventions, outcomes, and diagnoses evaluated over the last 10 years: A mapping review linking research to practice. *J Hand Ther.* 2019;32(1):1–9.
18. Grice KO. The use of occupation-based assessments and intervention in the hand therapy setting - A survey. *J Hand Ther.* 2015;28(3):300–6.
19. Powell RK, von der Heyde RL. The inclusion of activities of daily living in flexor tendon rehabilitation: A survey. *Journal of Hand Therapy.* 2014;27(1):23–9.
20. Alotaibi NM, Reed K, Nadar MS. Assessments used in occupational therapy practice: an exploratory study. *Occup Ther Health Care.* 2009;23(4):302–18.
21. Asaba E, Nakamura M, Asaba A, Kottorp A. Integrating Occupational Therapy Specific Assessments in Practice: Exploring Practitioner Experiences. *Occupational Therapy International.* 2017;2017:1–8.
22. Colaianni DJ, Provident I, DiBartola LM, Wheeler S. A phenomenology of occupation-based hand therapy. *Aust Occup Ther J.* 2015;62(3):177–86.
23. Valdes K, Naughton N, Téllez RC, Szekeres M. The use of occupation-based interventions and assessments in hand therapy: A cross-sectional survey. *Journal of hand therapy.* 2023;36(1):214–20.
24. Colaianni D, Skuthan A, Coscomb B, Nost L, Schray A, Hahn A, m.fl. The use of occupation based interventions among certified hand therapists. *Work.* 2022;72(2):667–75.
25. Che Daud AZ, Azera Wan Azeland WS, Rahman PA, Kounosuke Tomori, Mohamad Sabri MQ. Perceived barriers to implementing occupation-based intervention. *Brazilian Journal of Occupational Therapy / Cadernos Brasileiros de Terapia Ocupacional.* 2022;30:1–15.
26. von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP, m.fl. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement: guidelines for reporting observational studies. *Int J Surg.* 2014;12(12):1495–9.
27. Valdes K, Naughton N, Téllez RC, Szekeres M. The use of occupation-based interventions and assessments in hand therapy: A cross-sectional survey. *J Hand Ther.* 2021;S0894-1130(21)00157-5.

28. Powell RK, von der Heyde RL. The inclusion of activities of daily living in flexor tendon rehabilitation: A survey. *Journal of Hand Therapy*. 2014;27(1):23–9.
29. Tony Hak, Kees van der Veer, Harrie Jansen. The Three-Step Test-Interview (TSTI): An observation-based method for pretesting self-completion questionnaires. *Survey Research Methods*. 2008;2(3).
30. Eto S, Kyngäs H. The qualitative content analysis process. *Journal of Advanced Nursing (Wiley-Blackwell)*. 2008;62(1):107–15.
31. Wæhrens E, Bliddal H, Danneskiold-Samsøe B, Lund H, Fisher A. Differences between questionnaire- and interview-based measures of activities of daily living (ADL) ability and their association with observed ADL ability in women with rheumatoid arthritis, knee osteoarthritis, and fibromyalgia. *Scand J Rheumatol*. 2012;41(2):95–102.
32. Nielsen KT, Wæhrens EE. Occupational therapy evaluation: use of self-report and/or observation? *Scand J Occup Ther*. 2015;22(1):13–23.
33. Henrichon KA, Toth-Cohen SE. Perspectives and Influences on Occupation-Based Hand Therapy. *Can J Occup Ther*. 2022;89(3):294–306.
34. Colaianne D, Provident I. The benefits of and challenges to the use of occupation in hand therapy. *Occup Ther Health Care*. 2010;24(2):130–46.
35. Poulsen HS, Hansen AØ. Occupational performance problems identified by 507 patients: An insight that can guide occupation-based hand therapy. *Hand Therapy*. 2018;23(4):121–9.
36. Killian AA. Making occupation-based practice a reality: part 1: Administration & Management Special Interest Section Quarterly. *Adm Manage Spec Interest Sect Q*. 2006;22(2):1–4.
37. De Klerk S, Buchanan H, Pretorius B. Occupational therapy hand assessment practices: Cause for concern? *South African Journal of Occupational Therapy*. 2015;45(2):43–50.
38. O'Brien VH, McGaha JL. Current practice patterns in conservative thumb CMC joint care: Survey results. *J Hand Ther*. 2014;27(1):14–22.

Tables

Table 1: Characteristics of participants in the study (n=106)

Demographic characteristics		
Gender	Male n (%)	7(6.5)
	Female n (%)	99 (93.5)
Age	Mean (sd)	45.1 (10.47)
	Median (25-75 percentiles)	44 (37-55)
Work setting	Hospital n (%)	49(46.2)
	Municipality n (%)	54(50.9)
	Private practice, n (%)	1(0.9)
	Other, n (%)	2(1.9)
Years of experience as hand therapist	Fewer than 10 years n (%)	44(41.5)
	More than 10 years n (%)	62(58.5)
Patients per week	<3 patients per week n (%)	5(4.7)
	3-5 patients per week n (%)	18(17.0)
	6-9 patients per week n (%)	21(19.8)
	≥10 patients per week n (%)	62(58.5)

Table 2: Frequencies and percentage distributions of tools measuring body functions and structures(n=100)

Measurement tools measuring body function	With all patients	With most patients	With few patients	Never	Don't know the measurement tool
Goniometer (ROM) n(%)	62 (62.0)	33(33.0)	5(5.0)		
Pain scale VAS/NRS (Pain) n(%)	44(44.0)	44(44.0)	8(8.0)	4(4.0)	
Dynamometer (Strength) n(%)	29(29.0)	54(54.0)	15(15.0)	2(2.0)	
Edema measures, such as figure of eight/Volumeter (edema) n(%)	3(3.0)	8(8.0)	45(45.0)	42(43.0)	2(2.0)
Monofilament (Sensibility) n(%)	3(3.0)	22(22.0)	50(50.0)	24(24.0)	1(1.0)
Purdue Pegboard (dexterity) n(%)	1(1.0)	5(5.0)	37(37.0)	54(54.0)	3(3.0)
Box and block (coordination) n(%)	1(1.0)	3(3.0)	30(30.0)	65(65.0)	1(1.0)

Shape-texture-identification (STI-test) (Tactile gnosis) n(%)	1(1.0)	9(9.0)	31(31.0)	45(45.0)	14(14.0)
---	--------	--------	----------	----------	----------

Table 3: Frequencies and percentage distributions of activity and participation (n=100)

Occupation-focused/occupation-based measurement tools	With all patients	With most patients	With few patients	Never	Don't know the measurement tool
PSFS n(%)	10(10.0)	7(7.0)	16(16.0)	46(46.0)	21(21.0)
COPM n(%)	5(5.0)	17(17.0)	49(49.0)	29(29.0)	
DASH or Quick DASH n(%)	3(3.0)	12(12.0)	34(34.0)	49(49.0)	2(2.0)
ADL taxonomy n(%)	2(2.0)	4(4.0)	30(30.0)	64(64.0)	
PRWHE n(%)	1(1.0)	14(14.0)	32(33.0)	43(43.0)	10(10.0)
AMPS n(%)		1(1.0)	16(16.0)	83(83.0)	
Jebsen Taylor n(%)		1(1.0)	2(2.0)	57(57.0)	40(40.0)
Michigan Hand Questionnaire (MHQ) n(%)				56(56.0)	44(44.0)

Note to: Patient Specific Functional Scale (PSFS), Canadian Occupational Performance Measure (COPM), Disabilities of the Arm, Shoulder, and Hand (DASH), Activities of Daily Living (ADL), Patient-Rated Wrist/Hand Evaluation (PRWHE), The Assessment of Motor and Process Skills (AMPS)

Table 4: Reasons for not using occupation-focused or occupation-based measurement tools (n=56)

	N (%)
Habit	36(64.3)
Workload (patients per day)	32(57.1)
It takes longer than tests of body functions and structures	29(51.8)
Practice setting	22(39.3)
Lack of/don't know suitable measurement tools	9(16.1)
Documentation is time-consuming	8(14.3)
Follows or is limited by treatment programs/clinical guidelines, etc.	7(12.5)
The patient's condition	3(5.4)

Other	2(3.6)
-------	--------

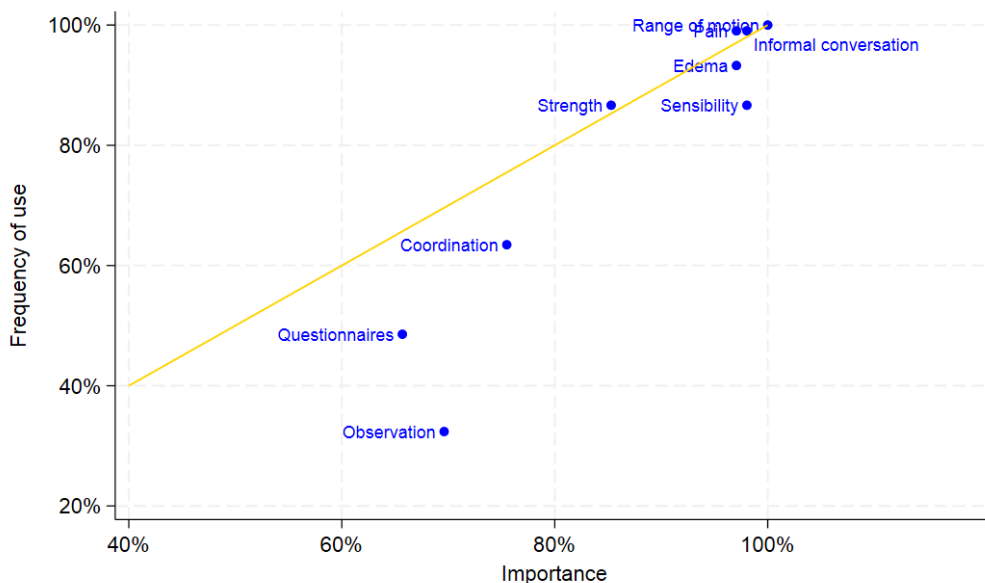
Table 5: Reasons for chosen intervention (n=106)

	N (%)
What motivates the patient	80(75.5)
Meaningful activities the patient has in his/her everyday life	79(74.5)
Clinical guidelines	57(53.8)
Patient desires	48(45.3)
What is possible	30(28.3)
What assessment has shown	30(28.3)
What is possible in the time available	13(12.3)
Usual hand therapy	9(8.5)
Other	

Note: it was possible to give multiple answers.

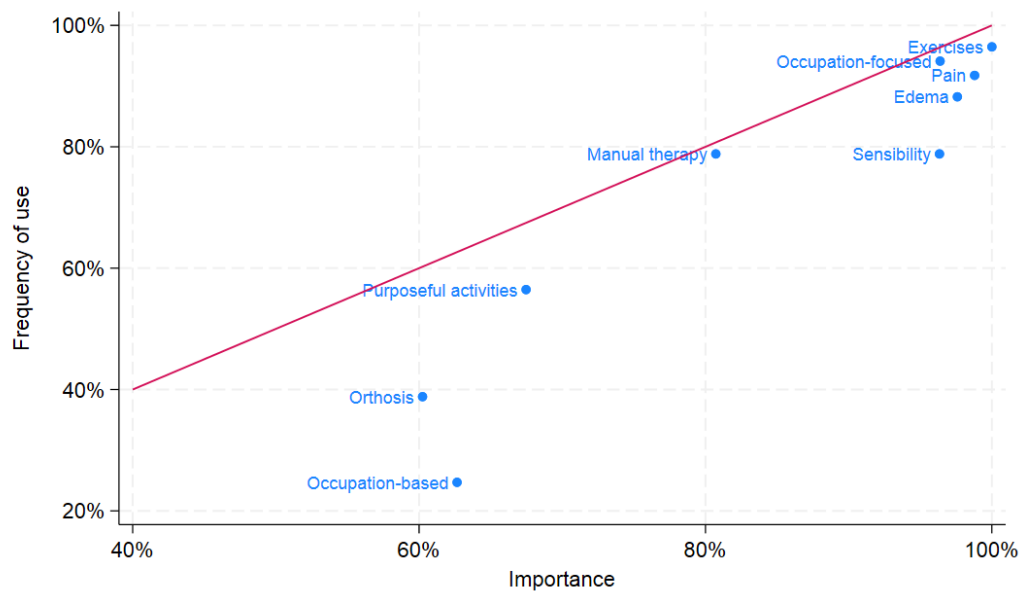
List of Figures and captions

Figure 1: Frequency distributions of the various assessments and the therapists' perceived importance of providing these assessments (n=100)



Note to Figure 1: The dots in the upper right corner which are on top of each other represent range of motion (ROM), informal conversation, and pain. Questionnaires include structured interviews. Observation refers to observed activities.

Figure 2: Frequency distributions of the various interventions and the therapists' perceived importance of providing these interventions (n=83)



Note to Figure 2: Purposeful activities: Activities that target components of occupations, but which do not involve the occupations themselves.