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Examining Occupation-Based Outcome Measure Use in a Neurologic Outpatient Occupational Therapy Setting: A Knowledge Translation Initiative

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Abstract

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Importance: Occupation-based outcome measures (OBOMs) are an evidence-based recommendation for occupational therapy evaluations. Knowledge translation (KT) is a process used to help integrate evidence into clinical practice. The authors identified a KT opportunity to examine occupational therapy practitioners' (OTPs) use of outcome measures in an outpatient practice setting and assess a Know-Do Gap as the first step in the Action phase of a KT initiative.

Objective: Describe the frequency and types of outcome measures documented in occupational therapy (OT) evaluations, with a focus on OBOMs.

Design: Cross-sectional descriptive study.

Setting: Three outpatient clinic sites (under one parent company) in the Midwestern United States, serving clients with neurologic conditions.

Participants: Retrospective chart reviews.

Data Collection and Analysis: Data included client age, diagnosis, and all documented outcome measures by seven OTPs during OT evaluations over a 6-month period.

Results: Researchers analyzed 173 charts. Forty-six different outcome measures were documented and categorized. Out of the 46 measures, one was occupation-based, the Spinal Cord Independence Measure, and was administered six times (3.5%) out of 173 evaluations.

Conclusion: OBOMs were underutilized in this neurologic outpatient setting, constituting a Know-Do Gap between evidence-based recommendations and practice.

Knowledge Translation Takeaway: Findings signify the first step in a site-specific KT initiative, establishing a need for KT intervention to increase the use of OBOMs and standardization of practice.

Plain Language Summary: Experts say that occupational therapists (OTs) should use tests that look at real-life activities when they check their patients. This study looked at the types of tests OTs used. Results showed that most of the tests did not look at real-life activities. This difference between what is suggested and what is done is called a gap. With this information, our researchers and the OT team can start working together to close the gap.

Keywords

Knowledge translation, outcome measures, outpatient practice, occupational therapy

Cover Page Footnote

The authors would like to acknowledge and thank the occupational therapy practitioners and the outpatient clinic leadership members for their willingness to participate in this study. We would also like

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ABSTRACT

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Examining Occupation-Based Outcome Measure Use in a Neurologic Outpatient Occupational Therapy Setting: A Knowledge Translation Initiative

Occupations are a central tenet of the occupational therapy (OT) profession and integral to a top-down evaluation and intervention process (American Occupational Therapy Association [AOTA], 2020; Hocking, 2001; Luna, 2021). Occupations are the everyday activities that people need, want, and are expected to do (World Federation of Occupational Therapists, 2012a). Occupation-based outcome measures (OBOMs) offer an ecologically valid method of assessing occupational performance and highlight the OT professions' unique contribution to the healthcare field (D'Amico, 2017; Fisher, 2013; Gillen, 2013; Wood et al., 2022).

The definition of *occupation-based* has varied throughout the OT literature, but was first clarified by Fisher (2013) as, "to use occupation as the foundation - to engage a person in occupation (i.e., the performance of chosen daily life tasks that offer desirable levels of pleasure, productivity, and restoration, and unfold as they ordinarily do in the person's life) as the method used for evaluation and/or intervention" (p. 167). This definition has since been integrated into the Occupational Therapy Practice Framework: Domain and Process – Fourth Edition (OTPF-4), which similarly defines occupation-based as a "characteristic of the best practice method used in OT, in which the practitioner uses an evaluation process and types of interventions that actively engage the client in occupation" (AOTA, 2020, p. 79). Examples of OBOMs include the Assessment of Motor and Process Skills (Fisher, 1993), Kettle Test (Hartman-Maeir et al., 2009), and Performance Assessment of Self-Care Skills (Holm & Rogers, 2008). Similar terms described in the literature include *performance-based* or *top-down*, in which the client is observed performing a real-world task or simulation of a task (Goodchild et al., 2023; Hocking, 2001; Skidmore 2017).

OT Practice Guidelines are tools that synthesize best available evidence surrounding a specific topic to guide clinical decision-making (Hildebrand et al., 2023). Current OT Practice Guidelines recommend that practitioners use OBOMs to evaluate individuals with a variety of neurologic conditions, including stroke, traumatic brain injury, Parkinson's disease, Alzheimer's disease, and related neurocognitive disorders (Hildebrand et al., 2023; Smallfield et al., 2024; Wheeler & Acord-Vira, 2023; Wood et al., 2022). Additionally, Hildebrand et al. (2023) stated that when evaluating stroke survivors, "occupational therapy practitioners and researchers should focus on occupation-based rather than impairment-based assessments and interventions" (p. 37).

Impairment-based or bottom-up outcome measures offer another type of assessment for occupational therapy practitioners (OTPs) and have been defined in the literature as assessing underlying body structures and functions, such as muscle strength and fine motor coordination (Alotaibi et al., 2009; Fisher & Marterella, 2019; Romli et al., 2019). Impairment-based measures do not involve direct engagement in occupation, with examples including dynamometric grip strength (Hamilton et al., 1992), the Nine Hole Peg Test (Kellor et al., 1971), and the Trail Making Test (Reitan & Wolfson, 1995). Impairment-based measures are not to be discouraged during the OT evaluation, but rather, informed by both OBOMs and the client's identified priorities.

A client's priorities are often captured by the occupational profile and a third category of assessment, patient-reported outcome measures (AOTA, 2020). Patient-reported measures involve gathering the client's perspective through their self-report to facilitate client-centered care (Briggs et al., 2020; Stern, 2022). They focus on the client's wants, needs, and values, guiding clinical reasoning throughout the occupational therapy process (AOTA, 2020; Stern, 2022). Examples of patient-reported

measures include the Canadian Occupational Performance Measure (Law et al., 1990) and the Disabilities of Arm, Shoulder, and Hand (DASH) Questionnaire (Hudak et al., 1996).

Patient-reported, occupation-based, and impairment-based measures all play an integral role within the OT evaluation process, but the literature indicates that OBOMs have been historically underutilized (Alotaibi et al., 2009; Goodchild et al., 2023; Grice, 2015; Lin et al., 2019; Stapleton & McBrearty, 2009). Alotaibi et al. (2009) surveyed 260 OTPs across various practice settings in the United States and found that the most frequently reported outcome measures used were impairment-based. A survey study by Stapleton & McBrearty (2009) examining outcome measure use in a variety of practice settings found that OTPs reported lower frequency and less consistent use of OBOMs compared to impairment-based measures. Goodchild et al. (2023) surveyed OTPs on their use of functional cognition assessments in traumatic brain injury rehabilitation, and reported that informal observation, care-partner/self-report, and impairment-based measures far surpassed the use of OBOMs. In his Eleanor Clarke Slagle lecture, Glen Gillen (2013) issued a call to action to increase the use of OBOMs to highlight OT's distinct value and contribution to the healthcare field. To our knowledge, no studies within the last decade have empirically investigated the documented use of OBOMs beyond clinician surveys.

Knowledge translation (KT) is an iterative process used to help clinicians integrate evidence into practice to improve health outcomes and efficiency (Graham et al., 2006; Moore et al., 2018). KT is a relevant issue in OT (Juckett et al., 2022), with the Knowledge-to-Action (KTA) cycle a well-known framework (Graham et al., 2006). The KTA cycle guides the KT process using two phases – Knowledge Creation and Action (Graham et al., 2006; Straus et al., 2016). Once knowledge is created and synthesized for a given area, researchers may determine whether a discrepancy exists between what is known and what is being done. For example, OT Practice Guidelines (i.e., Knowledge Creation) recommend that OBOMs be used as part of OT evaluations (Hildebrand et al., 2023; Wheeler & Acord-Vira, 2023; Wood et al., 2022). To initiate the Action phase, researchers must first identify to what extent clinicians are using OBOMs in practice and whether a discrepancy exists, a Know-Do Gap. If a Know-Do Gap exists, the KTA cycle can progress to intervention and sustainment (Straus et al., 2016).

The authors identified a KT opportunity through collaboration with a local outpatient rehabilitation clinic, where a need for assessing and improving practice with their neurologic client population was reported by leadership and clinicians. This study was initiated to examine the OTPs' documented use of outcome measures, with a focus on the use of OBOMs. With this information, we sought to determine whether a Know-Do Gap exists. We posed the following research questions pertaining to this outpatient practice:

1. What are the frequency and types of outcome measures documented in OT evaluations?
2. How often are occupational-based outcome measures being documented in OT evaluations?

Method

Study Design

This study used a cross-sectional descriptive design, executing retrospective chart reviews of OT evaluations completed with clients with neurologic conditions. This study was approved by the Institutional Review Board.

Setting

Investigators obtained charts from a private outpatient rehabilitation practice with three clinic sites in the Midwestern United States. The clinics specialize in the rehabilitation of individuals with neurologic conditions, providing OT, physical therapy, and speech-language pathology services.

Data Collection

All initial evaluations for clients receiving OT services for a neurologic condition from July through December 2021 were de-identified and shared electronically with the research team. Based on discussions with the clinic, investigators used average monthly OT volume data to determine a time frame that would yield an adequate number of charts. An electronic spreadsheet was created to track extracted data, including client age, diagnosis, and all outcome measures documented by the OTP during initial OT evaluations. Three of the authors completed the chart reviews, and each chart was reviewed by a minimum of two authors to ensure accuracy. A third author reviewed and corrected discrepancies. Data extraction was completed using only information documented in OT evaluations and did not include other disciplines, treatment sessions, or intake forms.

Guided by definitions in the OTPF-4 (AOTA, 2020) and Rice et al. (2019), investigators included any measure that met the following criteria: 1) uses a specific test or procedure, 2) follows specific scoring instructions, 3) produces quantifiable results, and 4) has one or more established psychometric properties. We excluded informal observations without the above criteria, such as sitting balance or dressing, as these can be challenging to replicate and produce measurable results of an intervention's effectiveness over time (Chan et al., 2017; Tse et al., 2023).

Data Analysis

Data were analyzed using IBM SPSS Statistics, Version 28 (IBM Corporation, 2021). Descriptive statistics were used to describe client age, diagnosis and frequency of outcome measures administered. We then categorized each outcome measure as occupation-based, impairment-based, or patient-reported, using the definitions described earlier. To be considered an OBOM, the measure had to involve the client directly engaging in an occupation, using the definition from the World Federation of Occupational Therapists (2012a) and the index of occupations in the OTPF-4 (AOTA, 2020). If the measure assessed body structures and functions, it was categorized as impairment-based, and if it measured the client's self-report, it was categorized as patient-reported.

Consultation with two authors occurred throughout data collection and analysis, as both had previously completed this process as part of a physical therapy KT project at the same clinic sites. They provided guidance on organizational strategies and coding for SPSS. Consensus was achieved among all authors, with additional external peer review completed by four OTPs with experience in neurologic rehabilitation, KT, and clinical practice leadership.

Results

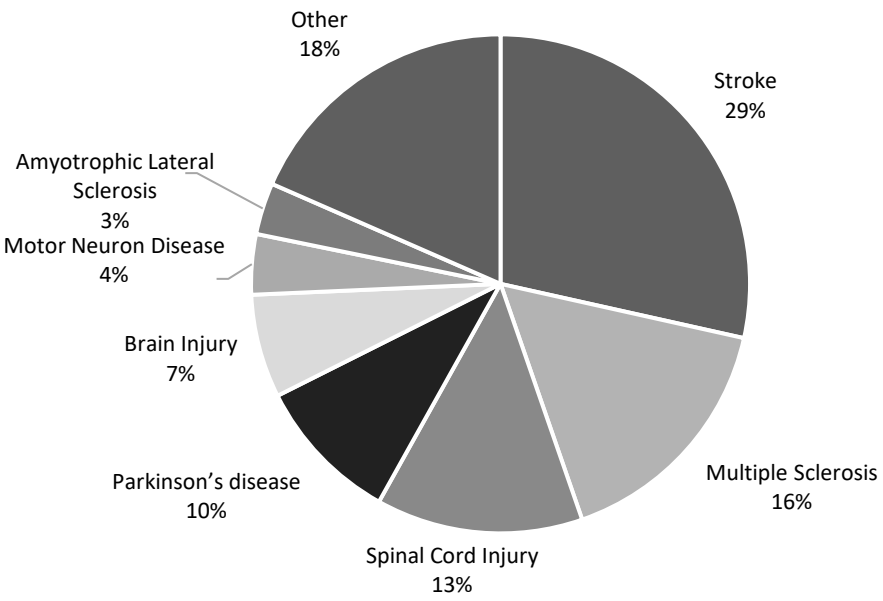
Investigators reviewed 173 OT evaluations of clients with neurologic conditions from three clinic sites (Location 1: n = 30, Location 2: n = 36, Location 3: n = 107). Seven OTPs completed the evaluations over a six-month period. Client diagnoses and frequency are presented in Figure 1, with stroke, multiple sclerosis, and spinal cord injury as the most frequently documented. "Other" diagnoses included cancer, peripheral neuropathies, trauma, and inflammatory diseases. Client ages ranged from 16-93 years.

Outcome Measures Administered

Forty-six different outcome measures were administered across client diagnoses. Of the 46 measures, one (2.2%) was occupation-based (Spinal Cord Independence Measure [SCIM]), 23 (50%) were impairment-based, and 22 (47.8%) were patient-reported.

Figure 1

Types and Frequency of Diagnoses in Reviewed Charts



Note. N = 173 reviewed charts

Of the 173 evaluations, the most frequently used measures were either impairment-based or patient-reported (Table 1). 98.8% of evaluations included at least one impairment-based measure, 90% included at least one patient-reported measure, and 3.5% included an OBOM. Of note, traditionally, the Barthel Index for Activities of Daily Living (ADL) can be administered via interview and/or observation of ADL performance (Quinn et al., 2011). Discussion with the OTPs revealed that it was primarily used as a patient-reported measure. The full list and frequency of measures is available as a Supplemental File.

Table 1

Top Ten Most Frequently Used Outcome Measures

Name of Outcome Measure		Type of Measure	Number of Times Administered (%)
1.	Active Range of Motion	Impairment-based	161 (93.1)
2.	Grip Strength	Impairment-based	143 (82.7)
3.	Manual Muscle Test	Impairment-based	137 (79.2)
4.	Pinch strength	Impairment-based	134 (77.5)
5.	Numeric Pain Rating Scale	Patient-reported	115 (66.5)
6.	Box and Block Test	Impairment-based	99 (57.2)
7.	Nine-Hole Peg Test	Impairment-based	99 (57.2)
8.	Passive Range of Motion	Impairment-based	59 (34.1)
9.	Barthel Index for Activities of Daily Living	Patient-reported	56 (32.4)
10.	DASH or QuickDASH	Patient-reported	45 (26.0)

Note. N = 173 reviewed charts

Discussion

Our study aimed to describe the types and frequency of outcome measures documented in an outpatient OT setting, with a focus on OBOMs. Our results indicated that OBOMs were documented far less frequently than impairment-based and patient-reported measures, and that there was high variability among the latter two types of measures. Both findings indicate a Know-Do Gap.

Underutilization of Occupation-Based Outcome Measures

The underutilization of OBOMs in clinical practice has been documented in prior studies, primarily through use of surveys and clinician self-report. Our data adds new, objective support suggesting even less frequent OBOM use at this outpatient setting compared to existing studies that utilized self-report. Goodchild et al. (2023) found that 43.9% of OTPs reported *frequent use* of an OBOM, the Cooking Task, and 27.3% reported use of another, the Kettle Test. In Stapleton and McBrearty's 2009 survey, 16% of OTPs reported *consistent use* of one OBOM, the Functional Independence Measure. Grice (2015) found that 52% of hand therapists reported daily use of OBOMs, although it should be noted that several patient-reported measures and unspecified *ADL Assessments* were included in this category. Furthermore, given that nominal categories, such as *daily, consistently, and frequently* do not provide exact frequencies of use, our comparison can only be speculative (Goodchild et al., 2023; Grice, 2015; Stapleton & McBrearty, 2009).

Other differences in methodology made it difficult to compare our results to prior studies. We gathered concentrated data from one outpatient practice setting and seven OTPs as part of a site-specific KT initiative, whereas prior studies surveyed large volumes of OTPs across a wide range of settings, including, but not limited to, outpatient alone. Additionally, prior studies analyzed the frequency of OTPs that reported using each outcome measure, as opposed to quantifying the frequency of outcome measures administered (Alotaibi et al., 2009; Lin et al., 2019). Self-report provides a valuable perspective, but chart reviews add a layer of objectivity when measuring actual use in practice (Adams et al., 1999). Regardless of these differences, our results suggest that the underutilization of OBOMs remains a contemporary issue in OT.

Numerous internal and external factors may affect a clinician's selection of outcome measures, (Juckett et al., 2022). For the focus of this discussion, we briefly describe variables that could potentially be addressed with the KTA cycle. Studies examining barriers to OBOM use have consistently identified time and environmental constraints, familiarity with, and availability of assessments (Asaba et al., 2017; Goodchild et al., 2023; Grice, 2015). A qualitative study by Asaba et al. (2017) identified limited physical space in the clinic as a barrier for occupation-based assessments to occur. As an example, one OTP in the study described the difficulty of administering an OBOM, like the Assessment of Motor and Process Skills, in a small, busy clinic shared by multiple therapists and clients (Asaba et al., 2017). Observing authentic occupational performance, particularly ADLs and instrumental ADLs, requires equipment and task-specific space (i.e., bathroom, kitchen) that may not be specifically available to clients in an outpatient clinic. An important part of the KTA cycle will be to assess barriers and facilitators to OBOM use to generate site-specific solutions.

High Variability of Outcome Measures

Another finding that contributed to a Know-Do Gap was the high variability of outcome measures administered, with forty-six different assessments documented across 173 evaluations, several of which measured similar outcomes, such as the Montreal Cognitive Assessment and Saint Louis University Mental Status. While some variability is beneficial to provide client-centered care across a variety of diagnoses, there may be opportunities to optimize outcome measure selection.

Standardization of practice may improve provider communication, allow for better comparison of intervention effectiveness, and increase efficiency of services (Chu, 2022; Kegelmeyer et al., 2014; Lien et al., 2023; Moore et al., 2018).

Studies described in the literature to increase standardization of outcome measure use frequently involve KT intervention and for some, the development of a core outcome measure battery. For example, Lien et al. (2023) implemented an interdisciplinary outcome measure battery to be used by OTPs, physical therapists, and speech-language pathologists across the continuum of care for clients after stroke. In 2018, physical therapy researchers published clinical practice guidelines recommending a core set of outcome measures to be used with clients with neurologic conditions (Moore et al., 2018). Through KT initiatives, researchers have worked to implement these recommendations to increase standardization of physical therapy practice (Yorke et al., 2021). Finally, OT researchers in Canada developed an outcome measure toolkit for spinal cord injury rehabilitation to facilitate effective monitoring of client progress and implementation of best practice (Chan et al., 2017).

OT promotes standardization of practice in additional ways, such as the creating and disseminating synthesized knowledge tools, including Practice Guidelines (Fields & Smallfield, 2022; Wood et al., 2022) and the Choosing Wisely® campaign, which provides clinicians with actionable, evidence-based recommendations to implement into practice (Gillen et al., 2019). These help tailor OT's knowledge and may provide a foundation for future KT intervention to decrease practice variability.

Limitations

This study examined outcome measures documented by seven OTPs at three outpatient clinic sites. For this reason, our results may not be generalizable to other outpatient settings in the United States. Our data collection included initial evaluations and did not account for additional outcome measures that may have been administered during treatment, progress, or discharge visits. It is possible that more outcome measures are being used in the clinics that were not included in the results of this study. Additionally, chart reviews provided quantitative data pertaining to outcome measure use but did not assess qualitative perspectives of the OTPs' clinical reasoning behind their selections. Assessing barriers and facilitators to knowledge use is a key feature of the KTA cycle, and one that will be addressed in future studies.

Conclusion

Researchers identified a primary Know-Do Gap at the clinic sites in the limited use of OBOMs. A secondary gap was the high variability of outcome measures administered. Determining gaps in practice allows researchers to proceed with the Action phase of the KTA Cycle. This study shows that OBOMs and practice variability are a current need and would benefit from targeted KT intervention. Bridging the Know-Do Gap through academic-clinician partnerships contributes to calls for KT initiatives in the OT community. This study has implications in improving practice, education, and research to continue KT efforts.

Knowledge Translation Takeaway

Our study highlights the need to address the Know-Do Gap in this outpatient setting and establishes KT priorities of increasing OBOM use and standardization for specific health conditions. Despite this study's implementation at the local level, the methodology could be applied in a broader context (i.e., larger systems, multi-site studies) to gain a deeper understanding of contemporary OT practice patterns. It has implications for OTPs, researchers, practice leaders, educators, and clients to collaborate in long-term partnerships to increase the capacity of the profession for KT work. Our

exploration of current outcome measure documentation was a necessary first step before implementing solutions. The next steps will be to progress through and revisit, as needed, the other processes in the KTA cycle, including adapting knowledge (i.e., choose OBOMs and prioritize outcome measures) to fit our sites' context and assessing barriers and facilitators to OBOM use. Future studies will describe and assess the effectiveness of KT interventions as investigators move through the KTA cycle.

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