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Commentary
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Implementation Costs of Evidence-Based Occupational Therapy in Adult Stroke Rehabilitation: A State-of-Science

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Commentary

A stroke is one of the leading causes of long-term disability worldwide [1]. Stroke survivors are often admitted to inpatient rehabilitation hospitals and other post-acute care facilities for rehabilitation therapy services for stroke rehabilitation. In conjunction with physical therapists and speech-language pathologists, Occupational Therapy (OT) practitioners address decreased performance with self-care, mobility impairments, and cognitive deficits to restore or maximize an individual's independence and functional status [2]. As allied health professionals, OT practitioners are expected to implement patient-centered plans utilizing Evidence-Based Practices (EBP) to provide the highest quality of OT services to give patients the best care and support the best outcomes [3]. While clinical effectiveness research supports the benefits of OT in stroke rehabilitation, OT practitioners continually meet complex barriers when implementing EBP into clinical practice [4,5].

Implementation research has progressed in recent years; however, findings are only emerging regarding allied health professions [6]. Jones et al. [6] conducted a systematic review examining the literature on implementation strategies in the rehabilitation profession (occupational therapy, physical therapy, and speech-language pathology) [6]. They emphasized the need for more methodological rigor and research reporting and propositioned that the complex system of research dissemination into clinical rehabilitation practices will require implementation strategies specific to each rehabilitation discipline's scope of practice and values. Later, Juckett et al. [4] added to this knowledge by reviewing the barriers and facilitators to implementing EBP for occupational therapy in stroke rehabilitation [4]. These authors emphasized the need to identify effective implementation strategies to facilitate EBP by OT practitioners in stroke rehabilitation [4]. While there is some promising evidence of implementation strategies to increase the uptake of EBP, there is little guidance on how to operationalize them in stroke rehabilitation [6].

This research-to-practice and knowledge gap is particularly concerning given the heightened interest from payers in EBP, patient outcomes, and reducing healthcare costs [7]. For example, in the United States, since 2017, the Centers for Medicare and Medicaid Services (CMS) has been overhauling reimbursement for rehabilitation therapy services across the post-acute healthcare continuum [8]. The CMS hopes to install a payment system that focuses less on the number of patients treated and more on the value of services delivered. In other words, rehabilitation service providers are reimbursed based on the quality of services implemented (as measured by improvements in patient outcomes) rather than the quantity of services provided. The increased attention on patient outcomes from the policy level (i.e., CMS) warrants the immediate need for OT practitioners to implement the highest quality of interventions with patients, such as stroke survivors, to improve stroke survivor outcomes and ensure that rehabilitation stakeholders are adequately reimbursed [9].

Murrell et al. recently conducted a scoping review examining implementation strategies and outcomes and Theories, Models, and Frameworks (TMFs) used to guide the implementation of occupational therapy EBP in stroke rehabilitation [3]. To facilitate more unity amongst the interdisciplinary divide in implementation nomenclature, the authors utilized the 73-item Expert Recommendations for Implementing Change (ERIC) implementation strategy taxonomy and the Implementation Outcomes Framework (IOF) to synthesize and explain reported strategies [10,11], outcomes, and findings [3]. In their review, Murrell et al. [3] found that none of the studies evaluated the outcome implementation cost for implementing occupational therapy EBP in stroke rehabilitation, similar to the results of Howard-Wilsher et al. [12] systematic overview of economic evaluations of health-related rehabilitation [12].

Economic evaluations may be defined as comparing two or more interventions and examining both the costs and consequences of the intervention alternatives [13]. Economic evaluations

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most commonly consist of Cost-Effectiveness Analysis (CEA) but can consist of cost-utility, cost-benefit, cost-minimization, or cost-identification analysis [14,15]. Consideration of resource allocation and costs is needed to make clinical and policy decisions about occupational therapy interventions [12]. Recently, Morrow and Simpson published an article illustrating a CEA performed using a hypothetical OT intervention in stroke rehabilitation [16]. Furthermore, they demonstrate how this tool can help decision-makers understand the impact of implementing OT interventions [16].

However, Proctor et al. [11] found that cost-effectiveness studies commonly combine intervention costs with patient outcomes, excluding implementation costs or the cost impact of an implementation effort [11]. This approach is problematic because the actual cost of implementing an intervention depends on intervention costs, the cost of the implementation strategies used, and the service delivery location. The lack of evaluating implementation costs still exists, as indicated by Powell et al. in a recent publication of a healthcare research agenda [17]. One of the research priorities on the agenda calls for increased economic evaluations on implementation strategies.

Of the 64 Systematic Reviews (SRs) examined by Howard-Wilsher et al. [12], only seven of the SRs addressed stroke as a health condition and only four evaluated interventions for occupational therapy. Moreover, The US Veterans Health Administration (VHA)'s Quality Enhancement Research Initiative (QUERI) has found that there are few economic analyses of implementation interventions [15]. While the diversity in health conditions and interventions perhaps makes it impossible to estimate the overall cost-effectiveness and cost-benefits of rehabilitation services [12], there is room for improvement in evaluating and reporting costs regarding occupational therapy in adult stroke rehabilitation.

There is some debate about whether the acceptable threshold for cost-effectiveness ratios should be increased, but the current acceptable threshold is between $50,000 and $100,000 per Quality-Adjusted Life Years (QALY) in the US [18,19]. Howard-Wilsher reported that several SRs stated that the estimated cost-effectiveness ratios for some rehabilitation interventions were within this acceptable range compared to conventional medical treatments [12]. Although the study was not specific to stroke rehabilitation, Rogers et al. [20] found that higher spending on occupational therapy is associated with lower readmission rates [20].

While some of these studies and reviews are perhaps limited in their generalizability, there seems to be a consensus and support for the need and benefits for occupational therapy researchers and decision-makers to utilize more economic evaluations to examine and understand the implementation costs associated with implementing occupational therapy interventions in adult stroke rehabilitation.

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