Rehabilitation Treatment Specification System in Occupational Therapy: A Systematic Review

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Abstract

Importance: The Rehabilitation Treatment Specification System (RTSS) was developed to improve the specification and communication of rehabilitation interventions by identifying treatment targets, ingredients, and mechanisms of action. Understanding the benefits, barriers, and facilitators of the RTSS is important for advancing occupational therapy research, education, and clinical practice.

Objective: To identify, evaluate, and synthesize the current literature regarding the benefits, barriers, and facilitators of using the RTSS in occupational therapy research, education and clinical care.

Data Sources: A literature search was conducted between May 15, 2026 and May 21, 2026 utilizing Hawai‘i Pacific University's online library gateway, with follow-up searches conducted on May 21, 2026. Databases searched through Hawai‘i Pacific University's online library included PubMed, CINAHL, and MEDLINE. Search terms included the Rehabilitation Treatment Specification System (RTSS), occupational therapy (OT), and benefits, as well as combinations of these terms barriers, facilitators OT research, OT education and clinical care.

Study Selection and Data Collection: This systematic review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Published studies on the RTSS were included in the systematic review. Peer-reviewed, full-text articles published in English between 2021 and 2026 were included. Data from presentations, non-peer-reviewed literature, systematic reviews, scoping reviews and dissertations were excluded.

Findings: Four studies were included consisting of one Level II study and three Level IV studies according to the American Occupational Therapy Association’s Levels of Evidence. These levels

of evidence were included to capture controlled comparative data and practice-based implementation outcomes regarding the available literature on the RTSS. The outcomes of these studies indicate that the core RTSS components–including, ingredients, mechanisms of action and treatment targets–serve as a standardized guide for rehabilitation therapy practitioners to facilitate client-centered and evidence-based practice. Studies demonstrate that the implementation of RTSS education can address limitations including isolating mechanisms of action and managing non-specific client factors.

Conclusion and Relevance: The RTSS framework is effective and improves intervention planning for rehabilitation therapy practitioners. Additional research and educational resources are needed to support implementation and expand the use of the RTSS across rehabilitation settings.

Keywords: Barriers, clinical reasoning, facilitators, occupational therapy, rehabilitation treatment specification system, RTSS

Rehabilitation Treatment Specification System in Occupational Therapy: A Systematic Review

In the field of rehabilitation, the "black box" phenomenon describes a lack of standardization and replicability in therapeutic treatments (Bonnechère, 2024). To address this challenge, the Rehabilitation Treatment Specification System (RTSS) was developed to deconstruct and articulate clinician-delivered treatments. The RTSS provides a framework to ensure that treatment planning remains intentional and client-centered while comprehensively promoting clinical reasoning. Fundamentally grounded in treatment theory, the RTSS framework seeks to delineate how and why a specific treatment works (Lyons et al., 2024). The framework comprises three core components: ingredients (the clinician's behavior), mechanisms of action (the processes driving clinical efficacy), and targets (the functional changes the clinician aims to accomplish with the patient). In clinical practice, understanding how these three components interconnect allows practitioners to design interventions that address client-specific functional limitations, establishing a measurable foundation to demonstrate the efficacy of this framework.

Theoretically, the RTSS framework is vital for improving interdisciplinary communication, facilitating meaningful rehabilitation sessions between the clinician and client, and accelerating critical thinking for current and future practitioners. The framework holds the potential to provide a standardized taxonomy for OTs, physical therapists, and speech-language pathologists to establish common ground, foster functional progress, and refine documentation (Van Stan et al., 2023). The RTSS framework guides clinicians in critically analyzing treatment intentions, developing causal reasoning, and organizing clinical components. Beyond advancing clinical reasoning, the framework can dissect varying outcomes in experimental and control treatments by simplifying differences in ingredients across proximal and distal outcomes (Lyons

et al., 2024). Additionally, incorporating the RTSS into rehabilitation curricula and clinical practice can promote critical thinking to develop theory-driven, intentional clinicians (Recigno, 2024).

However, while the RTSS serves as an invaluable framework for rehabilitation treatment, several critical gaps remain in the current literature. Preliminary implementation reveals that the framework's ongoing complexity, limited application in clinical trials, and an overall lack of RTSS educational resources contribute to limited clinician knowledge regarding the system (Van Stan et al., 2023). By addressing these barriers, practitioners would be able to provide consistent intervention and documentation within daily practice. To bridge the gaps, this systematic review aims to provide a roadmap for the adoption of the system within the OT profession.

Methods

The systematic review adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) and incorporated recommended processes for conducting a systematic review. The guiding research question for this systematic review was, “What are the benefits, barriers, and facilitators of using the Rehabilitation Treatment Specification System (RTSS) in OT research, education, and clinical care?”

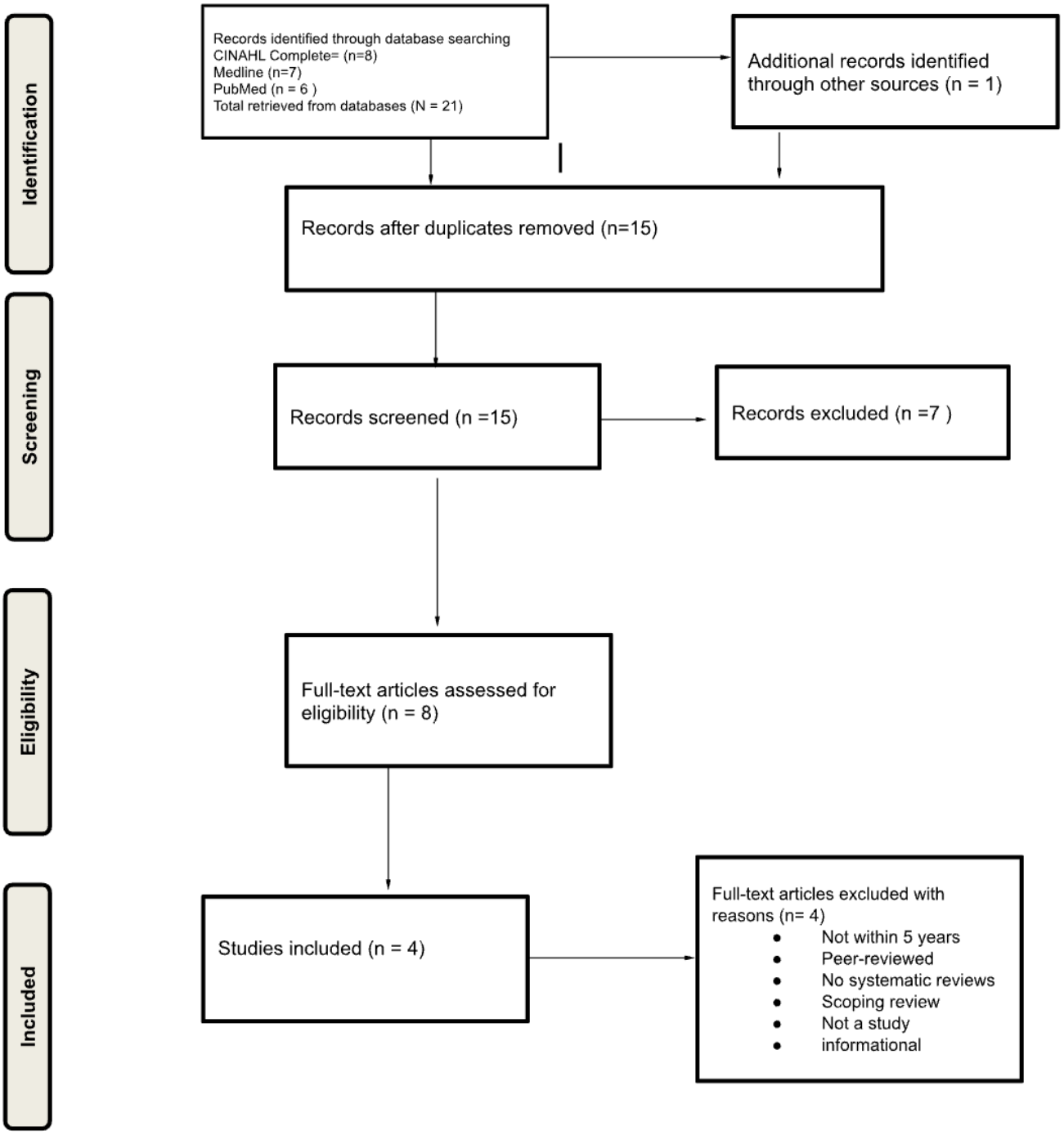
A broad search of the literature occurred between May 15, 2026 and May 21, 2026 to identify relevant databases and to refine the systematic review protocol and search strategy. Databases were searched through the Hawai‘i Pacific University library. An extensive search for relevant literature was completed on May 21, 2026 using PubMed, CINAHL and MEDLINE through Hawai‘i Pacific University’s online library databases. Search terms included Rehabilitation Treatment Specification System (RTSS), Occupational therapy (OT), and benefits,

as well as combinations of these terms barriers, facilitators, OT research, OT education and clinical care. Additional searching included Boolean operators, parentheses, and the "Cited by" or "Similar Articles" functions. Appendix A provides the search terms used for this systematic review. The inclusion criteria for studies in this systematic review were as follows: peer-reviewed, published in English. Eligible study types included quantitative, qualitative and mixed-methods designs. Additionally, studies had to be full-text articles, and involve rehabilitation professionals, occupational therapists, occupational therapy students or occupational therapy researchers. Finally, selected papers examined the efficacy, implementation, or application of the RTSS in occupational therapy research, and studies were published within the previous five years, dated between 2021 and 2026. Exclusion criteria comprised articles that did not meet the inclusion criteria, such as systematic reviews, scoping reviews, dissertations, and conference proceedings. Other exclusions that did not meet the criteria were professionals unrelated to the rehabilitation field, studies unrelated to occupational therapy, studies unrelated to the efficacy and application of the RTSS in occupational therapy, study types that are systematic reviews, study protocols, dissertation, abstract-only and citation-only articles, studies published in languages other than English and studies published more than 5 years ago.

The initial search included 21 articles (CINAHL = 8, MEDLINE = 7, PubMed = 6) related to the research topic (Figure 1). After the removal of duplicates there were 15 records remaining for screening. Four independent reviewers completed the screening and selection of the studies, assessed their quality, and extracted the data.

Figure 1

PRISMA Flow Diagram



Results

The literature search yielded a total of 21 articles with 1 additional article identified through other sources. After duplicate removal, 15 studies were screened by title and abstract, resulting in the exclusion of seven articles that did not meet the inclusion criteria. Eight articles were then assessed for full-text eligibility. Following a full-text review, the remaining articles were assessed for risk of bias, level of evidence, and quality. This systematic review ultimately included four studies that contained relevant information regarding the benefits, barriers, and facilitators of using the Rehabilitation Treatment Specification System (RTSS) in OT research, education, and clinical care. The information from these articles was divided into three themes: benefits, barriers, and facilitators. An evidence table is provided in Appendix B. The Cochrane risk-of-bias assessments for each article are detailed in Appendix C.

De La Cour et al. (2023) highlighted the use of the RTSS in determining facilitators and formulating testable hypotheses of individual treatment components that can guide clinical reasoning and decision-making in individualized treatment (De La Cour et al., 2023). The intervention included analyzing how the RTSS framework defines the intention and quality behind Energy Management (EM), a clinical practice used to reduce the burden of fatigue (De La Cour et al,. 2023). The researchers found that the benefits of using the RTSS in acquired brain treatment and energy management account for the multiple factors that impact fatigue which makes treatment tailored to the individual (De La Cour et al., 2023). Understanding the patient factors in fatigue through targets in the RTSS can improve clinical outcomes in facility and daily fatigue management and inform how the timing of treatment components, outcome patterns, and understanding of certain groups who may benefit more from a specific treatment component (De La Cour et al., 2023).

Lyons et al. (2024) examined treatment ingredients and the utility of the RTSS in different rehabilitation settings. The study analyzed the use of the RTSS in Behavioral Activation and Problem Solving (BA/PS) and whether it improved participation in valued activities for women who completed treatment for stage 1-3 breast cancer within the past year (Lyons et al,. 2024). The study consisted of two groups, the experimental group receiving an active treatment from occupational therapists on goal setting and self-management and the control group receiving client education information on self-management strategies (Lyons et al., 2024). Both groups received treatment via telerehabilitation over nine sessions. The RTSS identified treatment items in the BA/PS intervention such as education, goal setting, problem-solving goal attainment, adherence to action plans, treatment rationale, and therapeutic relationship. Overall, the researchers found that RTSS helped to clarify treatment ingredients and conceptual models and may improve future trial design and reproducibility (Lyons et al., 2024).

Recigno (2024) explored the use of the RTSS in occupational therapy education as a tool to develop clinical reasoning for intervention planning for students. Students were provided with education about core concepts for the RTSS through a descriptive phenomenological approach. Through retrospective analysis of de-identified student reflective writings, and an end of course reflection on their perceived areas of growth based on the six taxons of Fink's Taxonomy of Significant Learning, results were analyzed using the systematic text condensation (STC) approach to qualitative research (Recigno, 2024). As a result, reflective writing from all the students enrolled in the course was reviewed (n=76) and using the STC method, 29 students (38%) writings were reviewed (Recigno, 2024). Students reported that the RTSS was difficult to understand at first and required significant practice to learn. Although, students also found that the RTSS helped improve their clinical reasoning and better prepared them for practice by

helping them identify treatment targets, select appropriate intervention strategies, and justify their clinical decision-making using a structured framework (Recigno, 2024). The two main themes identified by students were “RTSS is a bridge to practice” and “Growth takes practice” (Recigno, 2024). The students' reflections described the use of the RTSS as challenging but supportive of their growth to support OT practice (Regigno, 2024).

Van Stan et al. (2023) utilized a cross-sectional design consisting of 111 rehabilitation professionals who explored the use and application of the RTSS for clinical care, education, or research. This was achieved by implementing RTSS framework strategies in rehabilitation sessions through educational meetings, distributing educational materials, accessing new funding, advocating for RTSS use and promoting adaptability (Van Stan et al., 2023). They found that barriers to using the RTSS framework are the complexity of the system, lack of available RTSS resources, and limited knowledge and beliefs about the RTSS (Van Stan et al., 2023). For example, participation reports reported that limited training and educational resources made it difficult to understand and consistently apply RTSS concepts in everyday clinical practice (Van Stan et al., 2023). These barriers are significant because they may prevent clinicians from consistently implementing the RTSS in practice, reducing the effectiveness and standardization of rehabilitation interventions.

The four studies on the topic (De La Cour et al., 2023, Lyons et al., 2024; Recigno, 2024; Van Stan et al., 2023) discussed the efficacy of using the Rehabilitation Treatment Specification System (RTSS) in occupational therapy education and clinical practice. Two of these studies were Level IV studies (see Appendix B). All studies provided evidence that the RTSS is effective and potentially beneficial.

Limitations of these studies included small sample sizes, qualitative study designs, lack of control groups and reliance on participants' self-reported experiences which may limit the generalizability of the findings across the articles (Recigno, 2024; Van Stan et al., 2023). These limitations are significant because they reduce the generalization of the findings to larger populations and make it difficult to determine whether the RTSS alone caused the reported outcomes. However, these findings are significant because they provide insight into the perceived benefits of the use of the RTSS and the consistency of positive outcomes reported by participants suggests the value of implementation of the RTSS in practice.

Discussion

The findings across the literature suggest that the Rehabilitation Treatment Specification System (RTSS) has significant potential to strengthen occupational therapy practice by improving the clarity and intentionality of interventions. As occupational therapy emphasizes evidence-based and client-centered practice, the RTSS is a framework that helps practitioners identify and connect treatment targets, ingredients, and mechanisms of action.

The results of this systematic review suggest that the RTSS can strengthen occupational therapy practice by improving the clarity and consistency of intervention planning. The RTSS is useful for identifying treatment ingredients within a variety of settings to distinguish intervention components. Lyons et al. (2024) highlighted how the RTSS identifies common factors between both the BA/PS intervention and control condition to understand factors in treating fatigue, allowing for greater confidence that the observed outcomes were due to the intervention rather than attention from a therapist. By using the RTSS to identify treatment ingredients, researchers were able to form inferences on treatment rationale and trail design for reproducibility.

Current research outlines barriers in RTSS research, specifically being able to identify treatment ingredients but experiencing difficulty understanding how ingredients impact treatment. According to De La Cour et al. (2023)**,** although the RTSS helped to individualize treatment, researchers had difficulty understanding why certain treatments worked as mechanisms of action were not identified. Furthermore, Lyons et al. (2024) emphasized how the RTSS can clarify rehabilitation methods, but it does not account for non-specific factors in behavioral interventions that include the patient-therapist relationship and participant expectations which can affect treatment outcomes. Further development of the RTSS framework and education to understand mechanisms of action in a variety of rehabilitation settings are implicated to improve intervention design.

Overall, knowing the need for RTSS research and its complexity across different rehabilitation settings, education on the RTSS can help practitioners implement the framework and strengthen clinical reasoning skills. Recigno (2024) found that occupational therapy students initially found the RTSS challenging but viewed it as a valuable tool for intervention planning and professional growth. This finding aligns with conclusions in Van Stan et al. (2023), who reported that rehabilitation professionals often struggle to understand and skillfully apply the framework due to its complexity with a barrier being the lack of educational resources. Recommendations on developing educational resources on the RTSS include skill building resources like continuing education credits, access to funding, case-based workshops, use in student and fieldwork education, and advocacy for RTSS use and promotion of adaptability. Furthermore, previous research by Gibson et al. (2023) supports Recigno (2024) as a RTSS teaching program can improve a clinician's clinical reasoning in treatment planning. Effective use and application of the framework for RTSS requires repeated exposure in a variety of

settings and guided practice to provide structured educational support. Implementation of the RTSS in research, clinical practice, and continuing education can help build confidence, standards in practice, and may improve effectiveness in treatment processes.

Strengths and Limitations

This systematic review followed established reporting guidelines such as the PRISMA framework which increases transparency throughout the review process. Additionally, the review included a PRISMA flow diagram, a risk-of-bias table, and an evidence table. These components strengthen the transparency, rigor and organization of the review by clearly illustrating the study selection process, the study characteristics and key findings, and evaluating the quality of evidence to clearly interpret the findings. There were clear eligibility criteria that established what studies would be included in the systematic review while focusing on the research question. The use of clear inclusion and exclusion criteria, as well as the use of keywords and filters made the article screening process structured and easy to follow. A group of four researchers participated in the screening and data collection process. This reduced the risk of selection bias, increased reliability, and enhanced the quality of the review.

Several limitations should also be considered. This systematic review only included full-text studies published in English. These details may have introduced potential selection bias and language bias. Another limitation of the review was the limited number of studies available on the RTSS in occupational therapy research, education, and clinical care. This restricted the amount of evidence and limited the generalizability of the findings.

Implications for Occupational Therapy Practice

Implications for occupational therapy practice include the need for further education on the RTSS in a variety of rehabilitation settings. Settings include interventions that have behavioral components to better identify mechanisms of action throughout treatment. Recigno (2024) found that repeated use of the RTSS strengthened students' clinical reasoning and intervention planning skills, suggesting that continued exposure during coursework and fieldwork may improve confidence in applying the framework. Additionally, Van Stan et al. (2023) identified limited knowledge, training, and educational resources as barriers to RTSS implementation. Therefore, expanding educational opportunities, developing teaching modules, and providing mentorship may improve practitioners' ability to identify treatment targets, treatment ingredients, and mechanisms of action, leading to more consistent implementation of the RTSS in research, education, and clinical practice.

The results of this study have the following implications for occupational therapy practice:

- The RTSS can support more intentional, client-centered intervention planning across a variety of rehabilitation settings.
- Occupational therapy education programs and continuing education courses should incorporate RTSS concepts and provide repeated exposure to strengthen clinical reasoning and application of the framework.
- The development of educational resources, training modules, and mentorship opportunities may reduce implementation barriers and promote more consistent use of the RTSS in practice.

Conclusion

Studies included within this systematic review provide evidence on the effectiveness of the RTSS across OT research, education, and clinical care. By collectively emphasizing ingredients, mechanisms of action, and treatment targets, the RTSS framework serves as a vital tool for improving clinical reasoning and clarity in OT practice. Although the framework provides a standardized structure for clinicians, a prevalent struggle remains regarding the identification of mechanisms of action and the recognition of non-specific client factors that can further impact outcomes. Moving forward, to strengthen the use of the RTSS framework, additional research is necessary to implement RTSS educational materials. Addressing the "black box" phenomenon through the RTSS can elevate intervention planning, enhance clinical documentation, and improve reproducibility. Educating and advocating for the RTSS framework among current and future rehabilitation practitioners will ultimately result in meaningful, client-centered therapy interventions.

AI Disclosure Statement: During the preparation of this systematic review, the authors used ChatGPT to improve grammar and readability. After using this tool, the authors reviewed and edited the content. The authors take full responsibility for the final content.

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Appendix A

Systematic Review Search Terms

Rehabilitation Treatment Specification System or RTSS
AND
Occupational therapy or occupational therapist or occupational therapists or OT
AND
Rehabilitation or therapy or treatment or intervention
Limited to (Filters): Past 5 years and peer-reviewed and English language

Appendix B

Evidence Table for the use of Rehabilitation Treatment Specification System (RTSS) in Occupational Therapy

Author/Year	Level of Evidence Study Design Risk of Bias	Participants Inclusion Criteria Study Setting	Intervention and Control Groups	Outcome Measures	Results
Dornonville de la Cour et al. (2023) https://doi.org/10.3390/jcm12093192	Level of Evidence: Level IV Study Design: Qualitative, multi-phase case study Risk of Bias: Low risk	Participants: Include both service providers and service users. Five healthcare professionals including occupational therapists, physiotherapists and a neuropsychologist (service providers). The service users include all individuals referred to vocational rehabilitation that were then screened for eligibility over 13 months. Inclusion Criteria: (For service users) Participants were 18-65 years old, have acquired brain injury, 3-24 months post-injury and showed signs of clinical significant fatigue Study Setting: Rehabilitation center in Denmark	Intervention: The specific intervention used in this study was analyzing how the RTSS framework defines the intention and quality behind the Energy Management (EM), a clinical practice used to reduce the burden of fatigue. Control Groups: Since this is a qualitative, multi-phase case study, there is no control group present.	Outcome measures -DMFS -IF (11–55) -SC (9–45) -MF (7–35) -PF(6–30) -CF (5–25) -DASS-21 - Depression (0–42) - Anxiety (0–42) -Stress (0–42) -EQ-5D-5L -Index (-0.624–1.000) -PSQI Global (0–21) -GSEtotal(10–40) -RRTW-PC (3–15) -RRTW-C (3–15) -RRTW-E (4–20) -RRTW-B (3–15)	Five major treatment components were identified. Knowledge and understanding of fatigue Interoceptive attention of fatigue Acceptance of fatigue Activity management Self-management of fatigue Overall, the RTSS supplements the EM model with a theoretical framework to best support fatigue self-management post acquired brain injury. The RTSS model helps to refine the EM model through the emphasis of client centeredness and strength of autonomy in rehabilitation.
Lyons et al. (2024)	Level of evidence: Level II	Participants:	Intervention:	Outcome measures:	Results:

https://doi.org/10.1097/01.REO.0000000000000373	Study Design: Secondary analysis of a randomized controlled trial using RTSS Risk of bias: Moderate	303 women who had completed treatment for stage 1-3 breast cancer within the past year. 3 members in the research team developed BA/ PS protocol, 5 RTSS experts reviewed and provided feedback on the protocol. Inclusion criteria: Women with stage 1-3 breast cancer who completed breast cancer treatment within the past year and scored less than or equal 10 on the Work Limitations Score. Study Setting: Telephone-delivered intervention for 9 sessions, once weekly for 6 weeks, monthly for 3 months and conducted by licensed occupational therapists.	The intervention group received Behavioral Activation and Problem Solving (BA/PS), a 9-session telephone-delivered intervention delivered by occupational therapists. This intervention was designed to improve participation in valued activities through rewarding activities and problem solving with interventions. The control group received an attention control intervention that offered 9 telephone calls from occupational therapists focused on self-management strategies outlined in the Springboard Beyond Cancer Website. Both groups completed the Canadian Occupational Performance Measure (COPM), had personal goals, and interaction from therapists.	The PROMIS Satisfaction and Ability scale Work Limitations Questionnaire Short Form Canadian Occupational Performance Measure (COPM) Outcomes of surveys were administered at baseline, 8 weeks, 20 weeks, and 44 weeks.	In the intervention group: The BA/PS showed significantly increased occupational performance (Cohen's d = 0.76). Satisfaction with occupational performance in the COPM (Cohen's d = 0.60) Both groups reported improvements in social participation and quality of life. RTSS identified treatment items in the BA/PS intervention such as education, goal setting, problem-solving goal attainment, adherence to action plans, treatment rationale, and therapeutic relationship. Overall the researchers found that RTSS helped to clarify treatment ingredients, conceptual models, and may improve future trail design and reproducibility.

Recigno (2024) https://doi.org/10.1016/j.apmr.2024.02.121	Level of evidence: Level IV Study design: descriptive phenomenological approach and retrospective analysis of deidentified student reflective writings Risk of bias Moderate risk	Participants: Second-year occupational therapy students enrolled in either the master's or doctoral entry-level occupational therapy program who completed the physical disabilities intervention course. Sample size: total reflections reviewed n = 76, reflections analyzed using STC methodology = 29 (38%) Study setting: physical disabilities intervention course with an entry level occupational therapy program at an academic medical institution in the northeastern US	Intervention group: Students were first provided with a lecture that outlined the core concepts for RTSS, Then each week for 10 weeks, a lab assignment required students to integrate the elements of the RTSS for one specific target. Students were given feedback on their assignments. Control group: none	Outcome measures: Students completed an end of course reflection on their perceived areas of growth based on the six taxons of Finks Taxonomy of Significant Learning which was analyzed using systematic text condensation (STC) approach to qualitative research.	Results: As a result, reflective writing from all the students enrolled in the course was reviewed (n=76) and using the STC method, 29 students (38%) writings were reviewed. The two main themes that were identified were: (1) RTSS is a bridge to practice; (2) Growth takes practice. The students' reflections described the use of the RTSS as challenging but supportive of their growth and a toll to support OT practice.
Van Stan et al. (2023) https://doi.org/10.1016/j.apmr.2022.09.021	Level of evidence: Level IV Study design: Cross sectional, qualitative descriptive analysis Risk of bias: Low	Participants: 111 rehabilitation professionals (speech language pathologists, occupational therapists, physical therapists, physicians, psychologists, researchers, clinical directors) who explored use/application of Rehabilitation Treatment Specification System (RTSS) for	Intervention: Implementing RTSS framework strategies in rehabilitation sessions through educational meetings, distribute educational materials, access new funding, advocate for RTSS use and promote adaptability. Control Groups:	Outcome Measures: The frequency of using CFIR barriers and facilitators; related to Consolidated Framework for Implementation Research (CFIR) and Expert Recommendations for Implementing Change (ERIC) constructs.	The barriers to using the RTSS framework are the RTSS complexity, lack of available RTSS resources, reduced access to knowledge and information about RTSS and limited knowledge and beliefs about the RTSS.

		clinical care, education or research. Inclusion Criteria: Rehabilitation professionals Exposure to RTSS Completion of RTSS implementation survey regarding experiences Study Setting: Online cross-sectional survey	Since this is a cross-sectional study there are no control groups present.		

Note. DMFS = Dutch Multifactor Fatigue Scale (greater score indicates worse problems); IF = Impact of Fatigue; SC = Signs and Direct Consequences of Fatigue; MF = Mental Fatigue; PF = Physical Fatigue; CF = Coping with Fatigue; DASS-21 = 21-item Depression Anxiety Stress Scales (greater score indicates more symptoms); EQ-5D-5L = 5 level EQ-5D (greater score indicates better quality of life); PSQI = Pittsburgh Sleep Quality Index (greater score indicates worse sleep quality); GSE = Global Self-Efficacy scale (greater score indicates higher self-efficacy); RRTW = Readiness for Return to Work (greater score indicates more engagement in stage-related behavior); PC = Precontempla- tion; P = Contemplation; E = Prepared for action – self-evaluative; B = Prepared for action – behav- ioral. * One missing item score was imputed by the item mean. Behavioral Activation and Problem Solving (BA/PS); Canadian Occupational Performance Measure (COPM); PROMIS (Patient-Reported Outcomes Measurement Information System

Appendix C

Risk-of-bias Tables

Risk of Bias for Before-After (Pre-Post) Studies with No Control Group (One Group Design)												
Citation	Study question or objective clear	Eligibility or selection criteria clearly described	Participants representative of real-world patients	All eligible participants enrolled	Sample size appropriate for confidence in findings	Intervention clearly described and delivered consistently	Outcome measures pre-specified, defined, valid/reliable, and assessed consistently	Assessors blinded to participant exposure to intervention	Loss to follow-up after baseline 20% or less	Statistical methods examine changes in outcome measures from before to after intervention	Outcome measures were collected multiple times before and after intervention	Overall risk of bias assessment (low, moderate, high risk)
Dornonville de la Cour, Norup, Andersen & Schow (2023)	Y	NR	NR	NR	NR	Y	N	NR	NR	N	N	Low risk
Lyons et al. (2024)	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Low risk
Recigno (2024)	Y	Y	NR	Y	Y	Y	Y	N	Y	N	N	Low risk
Van Stan et al. (2023)	Y	Y	Y	NR	Y	Y	Y	N	NR	NR	N	Low risk

Note. Y = yes; N = no; NR = not reported. Scoring for overall risk of bias assessment is as follows: 0–3 N, Low risk of bias (L); 4–8 N, Moderate risk of bias (M); 9–11 N, High risk of bias (H).

Citation. Table format adapted from National Heart Lung and Blood Institute. (2014). Quality assessment tool for before–after (pre–post) studies with no control group. Retrieved from https://www.nhlbi.nih.gov/health-topics/study-quality-assessment-tools