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Research Article

Assessment of the effectiveness of the ReAttach Protocol for Oncology Patients with the Symptom Amplification Model? A study protocol

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Abstract

Oncology is a psychosocial condition that significantly affects both cancer patients and their families. A transdiagnostic, multimodal approach, such as ReAttach therapy, may play a crucial role in the recovery from this complex condition by targeting underlying mechanisms and influencing the networks associated with persistent symptoms [1]. This is the first study protocol to assess the effectiveness of ReAttach therapy in oncology patients. The protocol outlines a prospective observational cohort study to evaluate the effectiveness of ReAttach therapy in this population, using the Symptom Amplification Model (SAM) and continuous real-world data collection via NeuroLog [2]. This protocol is part of a systematic research program that investigates ReAttach therapy across various psychobiosocial conditions (functional neurological disorder [3], post-concussion syndrome [4], oncology, fibromyalgia and Parkinson's Disease).

Keywords: Oncology, ReAttach, OT, Symptom Amplification Model, Psychobiosocial Conditions

Introduction

Oncology as a Psychobiosocial condition

The diagnosis of cancer and the journey through oncology treatment exemplify the intricate and multifaceted nature of the psychobiosocial condition—a complex interplay where biological, psychological, and social factors are deeply intertwined, each shaping the course of the disease and influencing the burden of its symptoms [5,6]. The reality of living with cancer transcends the confines of mere physical illness or psychological turmoil; it is fundamentally shaped by the dynamic interplay between these domains, which ultimately dictates symptom intensity and the path to recovery [7].

Cancer-related fatigue (CRF) vividly illustrates this psychobiosocial dynamic. It impacts an astonishing 25-99% of patients undergoing active treatment and lingers in the lives of about 30% of survivors long after treatment has ended [8]. This pervasive fatigue cannot be understood solely through the lens of cellular damage or the toxic effects of treatments. Instead, it is exacerbated by the profound stress that triggers dysregulation within the autonomic nervous system, emotional strain that feels all-consuming, the isolating shadows of social disconnect, and the haunting specter of existential uncertainty. Within this context, each biological, psychological, and social component feeds into a self-reinforcing cycle, where the presence of one factor intensifies the others, creating a nuanced tapestry of challenges that shape the cancer experience [9,10].

Biological Foundations of Psychobiosocial Interaction

The relationship between psychological stress and oncological processes is not a simple one, as revealed by cellular-level research studies. Winter et al. (2022) found that stress-induced mitochondrial dysfunction creates direct linkages between cellular respiration and apoptotic pathways [11]. This discovery highlights the complex bidirectional interactions between psychological state and physiological processes at the molecular level. It is an interesting mechanism that explains how chronic stress not only exacerbates symptoms but can potentially undermine biological recovery processes. In a study of Miaskowski et al. (2020), they found that during the COVID-19 pandemic, oncology patients reported significantly elevated stress, coupled with increased symptom severity—a pattern consistent with psychobiosocial amplification dynamics [12]. Symptom Amplification as Core Mechanism Beyond fatigue, oncology patients experience a broad symptom spectrum: emotional dysregulation, cognitive impairment ("chemo-brain"), pain, autonomic dysregulation, and sensory hypersensitivity. These amplified symptoms often show minimal direct correlation with tumor burden or treatment intensity. Nevertheless, they demonstrate strong sensitivity to stress exposure, emotional state, and social context [13, 14].

This pattern suggests that symptom amplification—the magnification of symptoms through dysregulation of emotional and autonomic systems—represents a core mechanism in the oncological experience. The Symptom Amplification Model (SAM), a crucial tool in our understanding and measurement of these symptom dynamics, provides a framework for conceptualizing them [2]. SAM distinguishes arousal-mediated amplification (heightened sympathetic activation, emotional hyperreactivity) from depletion-mediated amplification (energy depletion, diminished recovery capacity). Both mechanisms are prominent in oncology populations and interact with biological disease effects to determine total symptom burden.

Psycho-oncology and the need for Transdiagnostic interventions

Psycho-Oncology is dedicated to understanding and treating the psychological, social, and behavioral dimensions of cancer [2,5,13]. Psychosocial interventions have demonstrated their efficacy in the management of pain, fatigue, and emotional distress in a heterogeneous group of patients with oncology [11,12]. However, integration of evidence-based psychological interventions into standard cancer care remains inconsistent, and many patients lack access to specialized psycho-oncological support [14,15].

ReAttach therapy as transdiagnostic approach for psychobiosocial conditions.

ReAttach therapy offers a transdiagnostic intervention specifically designed to address emotional dysregulation and autonomic nervous system imbalance across diverse psychobiosocial conditions [1]. The intervention focuses on restoring co-regulation capacities and reducing both arousal-mediated and depletion-mediated symptom amplification—mechanisms that transcend specific diagnoses and represent core processes across a broad spectrum of conditions in which biological, psychological, and social factors interact. The application of ReAttach in oncology is part of a larger research program that investigates its effectiveness across psychobiosocial conditions. This protocol, alongside parallel investigations of persistent post-concussion syndrome [1] and fibromyalgia, establishes a coherent framework for examining whether identical transdiagnostic mechanisms demonstrate therapeutic efficacy across distinct clinical presentations sharing common psychobiosocial etiology. Measurement Challenge and Digital Innovation: The challenge in evaluating interventions for psychobiosocial conditions lies in capturing the dynamic, fluctuating nature of symptoms that vary temporally in response to stress, emotion, activity, and social context. Traditional outcome measures—episodic questionnaires administered at fixed timepoints—miss this temporal granularity and may underestimate therapeutic effects that manifest as improved regulatory capacity rather than complete symptom absence [2]. The NeuroLog platform addresses this measurement challenge by integrating continuous, patient-driven symptom monitoring with emotional state tracking and trigger documentation [2]. This research approach transforms subjective patients' experiences into quantifiable longitudinal data, rendering psychobiosocial interactions visible. As a result, the data will show how emotions influence symptoms, how triggers precipitate flares, and how recovery patterns vary. SAM, as a measurement framework, is particularly suited for psychobiosocial conditions because it explicitly models these multidimensional temporal relationships, encouraging the audience about the potential of ReAttach therapy to improve regulatory capacity.

Study framework

The NeuroLog platform functions as a standardized digital protocol and methodological infrastructure for research on psychobiosocial conditions, offering a replicable framework for future clinical trials. This standardization directly addresses a longstanding challenge in psycho-oncology research: the lack of consistent measurement approaches across studies, which limits comparability, meta-analytic synthesis, and cross-study interpretation (Carlson, 2023). Within this protocol, daily symptom tracking uses uniform 1–10 severity scales to generate quantitative, comparable data across participants and conditions. For oncology populations, this enables systematic documentation of multidimensional symptom profiles, including fatigue, pain, cognitive difficulties, nausea, and emotional distress, while preserving individual variability. NeuroLog also incorporates structured flare-event documentation, including defined severity thresholds (≥8/10), temporal characteristics, identified triggers, and functional impact, transforming episodic symptom exacer-

bations into analyzable clinical events suitable for pattern recognition and predictive modelling. Emotional-state measurement follows a consistent categorization of affective domains—such as anxiety, frustration, sadness, hope, and contentment—each rated for intensity. This facilitates examination of temporal relationships between emotional states and symptom fluctuations, and supports cross-condition comparisons, for example, between oncology, post-concussion, and fibromyalgia populations. Additionally, the platform's adaptive assessment features dynamically adjust questioning based on symptom patterns, reducing patient burden while maintaining data quality, an essential feature for oncology patients with high symptom load.

The standardized protocol offers significant advantages for replication and scalability. An identical digital infrastructure allows seamless implementation across research sites, enabling multi-centre trials and larger, more diverse samples. Longitudinal consistency in categories and scales supports extended tracking of symptom trajectories, which is critical for studying survivorship and long-term recovery. Shared methodology across studies also enables direct cross-condition comparison, strengthening the investigation of therapeutic mechanisms and phenotypic patterns. Furthermore, complete documentation of the digital protocol enhances methodological transparency and reproducibility, addressing concerns regarding variability in psychosocial oncology research (Grassi et al., 2024).

For doctoral-level research, the NeuroLog infrastructure provides a unified measurement system that supports systematic investigation of ReAttach therapy across multiple psychobiosocial conditions. By applying the same assessment framework in oncology, post-concussion syndrome, and fibromyalgia populations, this approach facilitates the identification of therapeutic mechanisms, validation of arousal- and depletion-based phenotypes, exploration of dose–response relationships, and development of a coherent publication strategy across studies. In this way, the NeuroLog protocol transforms individual case series into an integrated and cumulative research programme, strengthening the empirical foundation for developing evidence-based, transdiagnostic interventions for psychobiosocial conditions.

Study design

Study objectives and scientific positioning

This study protocol outlines a comprehensive prospective observational cohort study to evaluate the effectiveness of ReAttach therapy in oncology patients. It utilizes the Symptom Amplification Model (SAM) and continuous real-world data capture through NeuroLog. This protocol is part of a systematic and thorough research program that examines ReAttach therapy across various psychobiosocial conditions. By employing consistent theoretical foundations (ReAttach's transdiagnostic model), standardized measurement methodologies (SAM via NeuroLog), and comparable study designs across different conditions (post-concussion syndrome, oncology, fibromyalgia), this research program facilitates:

1. The identification of standard therapeutic mechanisms functioning across psychobiosocial conditions.

2. The investigation of condition-specific effects, determining which mechanisms are most prominent in each scenario.

3. The establishment of an evidence base for ReAttach as a transdiagnostic intervention.

4. The creation of a coherent framework for future doctoral research focused on ReAttach and psychobiosocial conditions.

By integrating the theoretical foundations of ReAttach with the measurement tools provided by SAM, this protocol aims to produce objective evidence of therapeutic impact in oncology. This study is designed with a deep understanding of the individual variability and complexity inherent in cancer patients' psychobiosocial experiences, with the ultimate goal of improving their quality of life.

This investigation utilizes a prospective observational cohort design with continuous longitudinal measurement. The observational approach allows for evaluating the effectiveness of ReAttach therapy in natural clinical settings while maintaining the integrity of patient-centered care. Individual patient trajectories are analyzed both at the aggregate level and through N-of-1 methodology, recognizing that oncology populations can vary significantly in terms of treatment histories, cancer types, and symptom presentations.

Study Population: Eligible participants include adults (aged 18 years and older) with a confirmed cancer diagnosis (any type or stage) who are currently undergoing treatment or are in the survivorship phase. Participants must receive ReAttach therapy as part of their standard care and should have the capacity for digital monitoring using the NeuroLog platform.

Study duration

Based on the extensive clinical experience of the researchers in implementing ReAttach therapy in neurological rehabilitation settings, the researchers propose the following practical framework for the oncology study:

Session Structure: The intervention will consist of 6-8 ReAttach sessions. Six sessions form the core protocol, with an additional two sessions available for patients who present with more complex symptom clusters. This flexible approach acknowledges the diverse nature of the oncology population while maintaining protocol standardization. The rationale behind this structure is to provide a comprehensive yet adaptable treatment plan that can cater to the varying needs of oncology patients.

Treatment schedule: During weeks 1-2, patients will receive two sessions per week to establish a therapeutic foundation and activate the co-regulation process. From weeks 3-6, the schedule shifts to weekly sessions, allowing for integration of

the ReAttach effects while respecting the energy limitations many oncology patients experience. If additional sessions are necessary, they will occur biweekly during weeks 7 and 8. This schedule is designed to provide a gradual and manageable treatment plan that respects the patient's energy levels and allows for the integration of the therapy's effects.

Session duration: The initial session will combine the intake assessment with the first ReAttach intervention, lasting 45 minutes. Sessions 2-5 will be streamlined to focus solely on the ReAttach protocol and will last 30 minutes each. The final session will allocate 45 minutes to accommodate both the intervention and evaluation components.

Implementation timing: ReAttach therapy can be initiated either during active oncological treatment or in the survivorship phase. For patients undergoing chemotherapy or radiation, sessions will be scheduled to avoid treatment days when fatigue typically peaks. The timing of the interventions will remain flexible and patient-centered, responding to individual capacities and treatment schedules. This patient-centric approach is essential given the varying trajectories patients experience across different cancer types and treatment modalities.

Practical adaptations: The protocol is designed to accommodate the realities of oncology care through built-in flexibility. Session scheduling will work around chemotherapy cycles, and a hybrid delivery model will allow combining in-person sessions with remote follow-ups when travel becomes burdensome. Close coordination with the oncology team will ensure that the ReAttach intervention complements rather than complicates the primary treatment plan. This adaptability ensures the protocol's applicability to diverse patient populations.

Ethical framework

All participants will continue to receive standard oncological care throughout the study period. The ReAttach intervention is intended to provide psychosocial support in addition to, not as a substitute for, medical treatment. Recognizing the vulnerability of cancer patients and the ethical obligation to ensure ongoing care, this study does not feature a non-treatment control period. Instead, comparisons will be made between each participant's baseline data and their post-intervention results. This approach acknowledges the ethical concerns associated with withholding potentially beneficial psychosocial support from cancer patients, which outweigh any scientific benefits of a control condition. Additionally, it aligns with the ethical guidelines of psycho-oncology research, emphasizing patient welfare and the integration of supportive interventions within comprehensive cancer care. This within-subject design offers strong evidence while upholding the ethical standards necessary for caring for vulnerable populations facing significant symptom burdens.

Participant selection: inclusion criteria

Adults between the ages of 18 and 70 who have received a cancer diagnosis and are battling a combination of at least three ongoing symptoms such as debilitating headaches, persistent dizziness, overwhelming fatigue, pervasive pain, emotional turmoil, or profound grief will be invited to take part in this transformative study. Recruitment efforts will be conducted in a variety of ways: through the compassionate outreach of general practitioners, referrals from occupational therapists, and direct engagement with potential participants. To ensure a systematic approach, a detailed recruitment log will be meticulously maintained, documenting each step of participant enrollment. Individuals must exhibit a strong desire for therapeutic intervention and be willing to provide written informed consent, affirming their commitment to participate in this vital research.

Exclusion criteria

Individuals experiencing acute psychiatric crises or those grappling with conditions that hinder their ability to engage, such as profound cognitive impairments that make reliable self-reporting impossible, may find it challenging to utilize smartphone-based applications effectively.

Intervention components

ReAttach face-to-face sessions will be combined with OT-care as usual (goal-directed activity coaching, energy management, and graded participation tasks).

Data collection procedures

Neurolog is an innovative digital platform meticulously crafted to unravel the intricate web of emotional, biological, and societal factors that shape symptom severity in biopsychosocial conditions. Leveraging the groundbreaking Symptom Amplification Model, this platform shines a light on subtle trends and patterns in patient presentations, equipping practitioners with invaluable insights to refine and elevate their clinical interventions. Patients are empowered to document their physical and emotional symptoms on an intuitive scale from 1 to 10, while noting any pertinent societal or environmental triggers that may contribute to their condition. This holistic approach provides a vivid portrait of how their health challenges affect daily life and the overall quality of life. Clinicians benefit from a user-friendly dashboard that delivers real-time insights, fostering a dynamic, collaborative relationship between patients and practitioners. With a commitment to privacy, all data is meticulously anonymized at the source and stored in compliance with General Data Protection Regulation, ensuring patient confidentiality remains a top priority.

NeuroLog Provides a Template For:

- **Daily tracking protocols:** Defined symptom categories with 1–10 severity scales.
- **Flare documentation:** Standardized fields for triggers, duration, severity, and recovery.
- **Emotion measurement:** Consistent emotion categories

with sentiment classification.
- **Adaptive questioning:** Dynamic follow-up items driven by symptom patterns.

Data analysis

The researchers' focus on data analysis will be on the intricate changes in symptom dynamics, regulatory capacity, and amplification patterns throughout the intervention period, harnessing the wealth of continuous, real-world data generated by NeuroLog. At the heart of this exploration lies the Symptom Amplification Model (SAM), which will function as our primary analytical framework. This model enables us to conduct a multidimensional assessment of the interplay between arousal and depletion, revealing how these phenomena evolve. Our main objective is to examine changes in SAM-derived amplification indices from baseline to the post-intervention phase. Key components of our analysis will include arousal-mediated amplification, which highlights the effects of sympathetic overactivation and emotional hyperreactivity, and depletion-mediated amplification, which sheds light on diminished energy availability and hindered recovery processes. Additionally, we will assess the composite amplification load, a critical indicator of overall regulatory imbalance. These indices will be meticulously calculated from a rich tapestry of longitudinal symptom ratings, nuanced tracking of emotional states, and the contextual triggers that accompany these experiences. Our goal is to paint a comprehensive picture of the dynamic landscape of symptoms and their regulation during the intervention.

Discussion

This oncology protocol is part of a comprehensive research program that investigates the effectiveness of ReAttach therapy across various psychobiosocial conditions. These conditions are characterized by a complex interplay of biological, psychological, and social factors, resulting in symptom burdens that cannot be fully explained by physical or psychological mechanisms alone. Standard features include symptom fluctuations in response to emotional stress and environmental context, autonomic nervous system dysregulation, symptom amplification via pathways related to arousal or depletion, limited effectiveness of conventional biomedical treatments, and significant functional impairment disproportionate to objective clinical findings.

Within this broader research framework, five parallel studies employ a shared methodological approach tailored to different clinical populations. The first study assesses the effectiveness of ReAttach techniques on Functional Neurological Disorder.

The second study is a case series focused on persistent post-concussion syndrome, where neurological trauma triggers a chronic psychobiosocial symptom profile. This study combines functional and symptom-based outcome measures and is scheduled for presentation at the Global ReAttach Summit in 2026.

The third study is the current oncology protocol, which explores how cancer and its treatments may initiate or exacerbate psychobiosocial symptoms such as fatigue, emotional dysregulation, pain, and autonomic imbalance. The fourth study, which is planned for the future, will investigate fibromyalgia, a chronic pain condition marked by widespread pain, cognitive difficulties, and autonomic dysregulation.

The fifth study, which is planned for the future, will investigate the ReAttach Protocol for Parkinson's Disease, a neurodegenerative condition marked by motor symptoms and non-motor symptoms, widespread pain, cognitive difficulties, and autonomic dysregulation. Consistent symptom monitoring and phenotyping across all studies will be conducted using NeuroLog and the Symptom Amplification Model (SAM) to ensure methodological uniformity.

Utilizing the same measurement strategy across these diverse conditions offers significant scientific advantages. It allows for direct comparisons of arousal- and depletion-mediated phenotypes across populations, enabling researchers to determine if similar patterns arise regardless of the condition's underlying cause. This approach also aids in identifying therapeutic mechanisms that may be universal—such as autonomic regulation or emotional co-regulation—as well as those that may be specific to particular conditions. Additionally, applying SAM across various contexts reinforces the validity of the arousal/depletion phenotype model and provides evidence of its relevance across disorders. For future doctoral research, this consistent methodology creates a coherent narrative that positions ReAttach as a transdiagnostic intervention capable of addressing the psychobiosocial dimensions of diverse health conditions.

Integrating the oncology study into this larger research framework offers several benefits. It ensures theoretical coherence through the consistent use of SAM terminology, supports the choice of NeuroLog as a suitable measurement platform, and informs the analytical strategy by using comparable phenotyping methods across studies. Furthermore, it enables coordinated publication efforts to build a cumulative scientific argument. Ultimately, while each study independently contributes valuable insights, collectively they provide a strong foundation for understanding ReAttach as an intervention for psychobiosocial conditions that span neurological, oncological, and chronic pain populations.

Conclusions

This study protocol establishes a rigorous framework for evaluating the effectiveness of ReAttach therapy in oncology patients through continuous, patient-driven digital monitoring via the NeuroLog platform. The protocol is explicitly positioned within a systematic research program examining ReAttach across psychobiosocial conditions, with oncology—alongside persistent post-concussion syndrome and fibromyalgia—constituting a core component of a coherent scientific narrative regarding the transdiagnostic therapeutic mechanisms.

Key Innovations

Psychobiosocial Framework: Explicit conceptualization of oncology as a psychobiosocial condition wherein biological (tumor burden, treatment effects), psychological (emotional dysregulation, stress), and social (isolation, role changes) factors interact to amplify symptom burden. This framework moves beyond purely biomedical or purely psychological models to address the complex interplay determining patient experience.

Symptom Amplification Model (SAM): Application of a transdiagnostic measurement framework differentiating arousal-mediated from depletion-mediated mechanisms. These mechanisms are not all oncology-specific but represent core processes across diverse psychobiosocial conditions, enabling cross-condition comparison and mechanism identification.

Real-World Continuous Measurement: NeuroLog's digital infrastructure transforms episodic assessment into longitudinal data, capturing temporal relationships between emotion, triggers, and symptoms. This approach reveals the dynamic nature of psychobiosocial interactions, which are invisible to traditional fixed-timepoint questionnaires, adding extra valuable information.

Cross-Condition Methodology: Shared measurement instruments (SAM via NeuroLog) across parallel post-concussion syndrome and fibromyalgia studies enable comparative analysis, supporting the identification of universal versus condition-specific therapeutic mechanisms. This systematic approach strengthens evidence for transdiagnostic intervention models.

Doctoral Research Infrastructure: This protocol, especially if combined with parallel investigations, provides a coherent framework for future doctoral research focused on "ReAttach and psychobiosocial conditions." Each study constitutes an empirical pillar supporting a larger transdiagnostic principle, with oncology representing the somatic disease component alongside neurological (post-concussion), chronic pain (fibromyalgia) and neurodegenerative (Parkinson's disease) manifestations.

Ecological Validity and Scalability: Observational design within routine clinical practice balances scientific rigor with ethical care for vulnerable oncology populations. Digital infrastructure enables multi-site replication and international collaboration, establishing standardized protocols applicable across diverse cancer types and treatment contexts. Clinical and Scientific Significance: This protocol directly addresses ASCO and the Society for Integrative Oncology's guideline recommendations for fatigue management through evidence-based psychological interventions [6]. NeuroLog provides measurement infrastructure to objectively evaluate the impact of interventions across the multidimensional symptom profile experienced by oncology patients—conceptualized not as purely somatic disease effects but as psychobiosocial amplification amenable to interventions targeting emotional and autonomic regulation. Expected outcomes include quantified evidence of ReAttach therapy's effectiveness in: - Reducing symptom severity across multiple domains (fatigue, pain, emotional distress) - Enhancing emotional regulation and autonomic nervous system balance - Improving functional stability and quality of life - Decreasing flare frequency and accelerating recovery trajectories Critically, analysis will examine whether therapeutic mechanisms demonstrate consistency with findings from parallel post-concussion syndrome and fibromyalgia investigations. Cross-condition consistency would support transdiagnostic efficacy claims and validate the psychobiosocial framework underlying the research program. The continuous data stream will elucidate temporal relationships between emotional state, trigger exposure, and symptom manifestation—mechanistic insights essential for validating psychobiosocial models and refining intervention targeting. Understanding whether arousal-mediated or depletion-mediated mechanisms predominate in individual patients enables personalized treatment optimization.

This protocol represents collaborative Synthesis of: Clinical Expertise (Reitsma): Three decades of neurorehabilitation experience, first-line practice specializing in psychosocial conditions, including post-concussion syndrome and stress-related disorders [4]. Direct clinical knowledge of oncology patients' symptom profiles and functional challenges informs protocol design and outcome selection.

Digital Health Innovation (Painter): NeuroLog platform development and Symptom Amplification Model framework. Technical infrastructure enabling continuous real-world data capture and phenotypic analysis transforms traditional episodic assessment into a dynamic measurement suited for psychobiosocial research [2,3].

ReAttach Methodology (Bartholomeus): Transdiagnostic intervention development grounded in autonomic nervous system regulation and co-regulation principles. Theoretical foundation supporting application across diverse clinical presentations with a shared psychobiosocial etiology [1].

Academic Rigor (Mehrad): University research infrastructure, international collaboration, and scientific methodology ensuring peer-reviewed publication standards and doctoral research quality [3,4].

Research Program Impact: The resulting framework delivers multiple levels of impact: Immediate Clinical Utility: An evidence-based intervention for oncological care that addresses persistent gaps in psychosocial support accessibility. Demonstrates the feasibility of integrating digital monitoring and remote therapy delivery into comprehensive cancer care.

Scientific Infrastructure: Systematic research program across psychobiosocial conditions establishing standardized methodology, shared measurement platforms, and coordinated publication strategy. Supports cumulative evidence development through cross-study comparison.

Doctoral Foundation: Coherent narrative for future PhD research examining ReAttach's transdiagnostic mechanisms. Three parallel protocols (post-concussion, oncology, fibromyalgia) provide an empirical foundation for a dissertation investigating core regulatory processes across psychobiosocial presentations.

International Impact: Publication-ready protocols and de-identified datasets enabling peer review, replication, and meta-analysis. Contributes to the global psycho-oncology knowledge base while advancing digital health measurement methodology. Broader Implications: This systematic approach transforms individual case investigations into a scientific program with the potential to influence the conceptualization and treatment of psychobiosocial conditions. By demonstrating that common regulatory mechanisms (autonomic balance, emotional co-regulation, symptom amplification reduction) operate across diverse clinical presentations, this research challenges condition-specific intervention models. It supports the development of efficient transdiagnostic approaches. For oncology specifically, this protocol addresses the critical gap between recognizing psychosocial needs and the availability of evidence-based interventions. Remote delivery via standardized protocols offers scalability and accessibility advantages, particularly relevant for patients managing treatment schedules, travel burdens, and fluctuating energy levels. The integration of continuous digital monitoring with therapeutic intervention represents a methodological advancement applicable beyond oncology and ReAttach specifically. This approach offers a template for evaluating any psychosocial intervention targeting dynamic, fluctuating symptom presentations characteristic of psychobiosocial conditions. NeuroLog provides a continuous, patient-led data infrastructure to measure the impact of ReAttach remote therapy objectively It transforms subjective progress into quantifiable change through:

1. Real-world symptom tracking
2. Emotional and behavioral analytics
3. Automated longitudinal comparisons
4. Integration of qualitative patient voice

Future directions

Future research endeavors should embrace the rigor of randomized controlled trials to validate the effectiveness of ReAttach therapy specifically within oncology patients. It is essential to conduct long-term follow-up studies to assess the sustainability of treatment effects. Furthermore, it is vital to deepen our understanding of the underlying mechanisms of change by employing the Symptom Amplification Model and to evaluate how innovative, continuous real-world monitoring tools, such as NeuroLog, can facilitate a more tailored approach to personalized care. Lastly, studies that focus on the feasibility and implementation of this intervention in clinical practice, as well as those that capture patients' rich experiences, will be crucial for optimizing and scaling this transformative therapy.

Declaration of Interest

Dr. Paula Zeestraten-Bartholomeus is the developer of ReAttach, Steven Painter is the developer of the Neurolog Platform and the Symptom Amplification Model.

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