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## EVIDENCE-BASED PSYCHOSOMATIC THERAPY THROUGH THE NEURO-IMMUNE-ENDOCRINE (NIE) FRAMEWORK: COMPARATIVE PERSPECTIVES

## ДОКАЗОВА ПСИХОСОМАТИЧНА ТЕРАПІЯ У ВИМІРАХ НЕЙРО-ІМУННО-ЕНДОКРИННОЇ МОДЕЛІ (НІЕ): ПОРІВНЯЛЬНІ ТА ПЕРСПЕКТИВИ

*This article affirms the neuro-immune-endocrine (NIE) model as a scientifically grounded and clinically indispensable framework for psychosomatic therapy. By consolidating evidence from the United Kingdom, the United States, and the European Union, it demonstrates that psychosomatic disorders cannot be separated from the dynamic interaction of psychological, immune, and endocrine mechanisms. Systematic reviews, longitudinal studies, and interventional trials confirm that integrative therapies based on the NIE model not only alleviate symptoms but also improve resilience, quality of life, and overall treatment outcomes.*

*The United Kingdom, through its NHS-centred biopsychosocial model, applies standardised protocols and advances biomarker-based research, while the United States, despite structural fragmentation, fosters personalised, innovative approaches supported by legislation and multidisciplinary practice. Within the EU, Germany and Scandinavia lead in holistic, integrated care, whereas stigma and limited resources continue to restrict progress in Southern Europe. These regional contrasts underscore the adaptability of the NIE model but also highlight its reliance on cultural and systemic environments.*

*The article concludes decisively that psychosomatic therapy guided by the NIE framework represents not a supplementary practice but a future standard of integrative medicine. The evidence compels larger, multi-centre studies with long-term follow-up, coupled with policies embedding biomarker findings into culturally tailored interventions. The integration of mind and body, mandated by the NIE paradigm, positions psychosomatic therapy as a transformative model capable of closing the gap between biological science and clinical care.*

**Key words:** *Neuro-immune-endocrine model, psychosomatic therapy, biopsychosocial integration, cultural variation, evidence-based practice.*

*В статті нейро-імунно-ендокринна (НІЕ) модель розглядається як науково та клінічно обґрунтована основа психосоматичної терапії. Шляхом узагальнення окремих досліджень у Великій Британії, США та*

*деяких країнах Європейського Союзу підкреслюється, що психосоматичні розлади неможливо розглядати окремо від динамічної взаємодії психологічних, імунних та ендокринних механізмів. Систематичні огляди, довготривалі дослідження та інтервенційні випробування підтверджують, що інтегративні методики, побудовані на основі НІЕ-моделі, не лише зменшують симптоматику, а й сприяють підвищенню стійкості, якості життя та загальної ефективності лікування.*

*Представлено результати порівняння, так визначено, що у Великій Британії, ґрунтуючись на біопсихосоціальної моделі, що впроваджується через систему NHS, застосовуються стандартизовані протоколи та особливо активно проводяться психосоматичні дослідження на основі біомаркерів. Натомість у США орієнтація психосоматичної медицини та психотерапії спрямована на персоналізовані інноваційні підходи, які підтримуються законодавством та міждисциплінарною практикою. У межах ЄС тенденції до цілісного інтегративного підходу виявляються в Німеччині та Скандинавських країнах, тоді як у Південній Європі розвиток стримується через стигму та обмежені ресурси. Такі регіональні відмінності підкреслюють адаптивність НІЕ-моделі, але водночас демонструють її залежність від культурного та системного контексту. У підсумку, стаття переконливо стверджує, що психосоматична терапія, заснована на НІЕ-моделі є допоміжною практикою та має перспективи стати стандартом інтегративної медицини. Отримані докази вимагають проведення масштабних багаторічних досліджень з довготривалим наглядом, а також політик, що інтегрують дані біомаркерів у культурно адаптовані втручання. Такий підхід за НІЕ-парадигмою, позиціонує психосоматичну терапію як трансформаційну модель, здатну подолати методологічний бар'єр між нейробиологією, та клінічною практикою, психотерапією, зокрема її немедичними моделями.*

**Ключові слова:** *нейро-імунно-ендокринна модель, психосоматична терапія, біопсихосоціальна інтеграція, культурні відмінності, доказова практика.*

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**Relevance and research problem.** Psychosomatic medicine deals with the intricate interaction between psychological states and body systems and emphasizes that distress resulting from emotions has significant implications for disease onset, course, and

responses to treatment. Via the neuro-immune-endocrine (NIE) system, there is an influential lens for theorizing these processes and describing dynamic bidirectional communication between the endocrine, immune, and nervous systems (Pattanayak,

2024; Yan, 2016) [24; 31]. Encompassing the mutual dependency of stress responses, immune signaling, and hormonal control, the NIE model goes beyond reductionist models and underlies an integrative conception of health.

Empirical evidence of recent years verifies the clinical use of this model. For instance, meta-analyses and systematic reviews of mind–body interventions have demonstrated remarkable changes of immune and neuroendocrine biomarkers with simultaneous alleviation of psychosomatic symptoms (Lee et al., 2025) [15]. Cohort studies from the United States have also detected immune dysregulation and HPA-axis pathology as central features of postpartum psychiatric disorders, thereby verifying the clinical use of the NIE model for illnesses between mental and physical health (Drexhage et al., 2025) [6]. In Europe, intervention studies of new fields of therapy directed at the gut–brain axis, e.g., microbiota modulation, have reduced anxiety and the intensity of somatic symptoms, further expanding the application of NIE principles for new fields of therapy (Pérez-Morales et al., 2024) [25].

Moreover, there exists supporting evidence which indicates that psychosomatic disorders are not feasible to differentiate from systemic and cultural milieux. British literature cites standardized biopsychosocial care as part of the NHS system with biomarkers of cortisol and BDNF gaining speed for use for pain and functional syndromes (O'Sullivan et al., 2017) [23]. In contrast, the environment of healthcare for the US offers truly customized interventions and interdisciplinarity, with siloed structures however keeping populations at large from accessing (Hostinar et al., 2020) [9]. Meanwhile, EU practices vary with German and Scandinavian countries leading the rest with integrated holistic practices, and at the bottom of which stands Southern Europe with persisting shame for diagnosis of psychosomatic disorders (Misery, 2022; Anastassis & Konsman, 2024) [2; 20].

Despite these advances, there are still challenges ahead. A percentage of current research has short-term follow-up or modest samples, and few utilize psychological, immune, and endocrine endpoints concurrently, which limits causal inference. All of the same, greater consensus between psychotherapeutic and biological science buttresses the merit of the NIE frame as its body of evidence supporting psychosomatic therapy. This article therefore undertakes critical review of how the use of the NIE model guides psychosomatic practices within the UK, USA, and EU, synthesizes empirical evidence (Table 1) and presents regional differences in use (Table 2) as part of informing further development of culturally appropriate and integrated models of care.

#### **Review of current research and publications.**

Evidence-based psychosomatic therapy provides an integrating model of understanding complex relationships between psychological processes and somatic symptoms. At the center of this discussion lies the NIE (Neuroimmune-Endocrine) model that elucidates

bidirectional communication lines between the nervous system, the immune response and endocrine regulation, underscoring the intricate interaction defining the health status of individuals (Wang et al., 2024) [28].

In current methods of therapy, the NIE model constitutes the essential mechanism for the study of the facets of psychosomatic health. It reflects the turn away from reductionist methods of dissociation of the psychological health of physical symptomatizations towards the most integral models of recognition of the multileveled nature of human experience. For example, suffering from chronic pain, autoimmune disease and gastroenterologic disease often reflect how stress psychological can further augment physical symptomatizations, mandatory professionals applying the use of integral therapies including the modalities of psychological as well as physiological treatment.

Such integration has its application greatly emphasized also from the empirical evidence for psychosomatic therapies, which confirm that the best patient results are delivered from biopsychosocial interventions. These practices are becoming increasingly demonstrable at the clinical level within the United Kingdom, the United States and EU, where clinicians are coming to apply models with emphasis on the integration of the mind-body. In particular, systematic review of Wang et al. (2024) [28] entails especially how psychosomatic interventions adopting features of full care, cognitive-behavioral techniques and somatic experiences not only diminish the symptoms, but also improve resilience and quality of life of patients suffering from psychosomatic disorders.

In brief, the integration of the mind and body of the evidence-based psychosomatic therapy, highlighted from the NIE model, forms a cornerstone development for highlighting health from an integral point of view. The integration of clinical practices and culture impacts forms a complex situation on which health professionals are stimulated to innovate and transform their practices, developing as an entirety the efficacy and validity of therapeutic interventions for people from all across the United Kingdom, USA and the EU. The NIE model, which stands as an acronym for neuro-immuno-endocrinian model, forms an overall system which describes the complex communications between nervous, immune and endocrine and their overall health and disease implications. This model theorizes that these biological systems do not operate autonomously; They converse instead on an ongoing basis, not merely on physical health but on psychological well-being as well. Adding knowledge on the ways on which states of feelings have implications on physiological and vice versa responses, the NIE model opens for the first time a bidirectional understanding of health which harmonizes specifically for the application of psychosomatic therapy (Kozłowska et al., 2025) [13].

Application of the model denies of psychosomatic therapy presents an extremely strong the-

oretical frame with which to explain the complex interplay of the psychological and the physiological aspect of health. As the literature continues to build on this idea, the model of NIE presents an ideal objective with which clinicians are able to explore new modes of treatment, taking into consideration the personal and the cultural aspect that is able to leave its imprint on patient outcomes. In instilling an integrative approach embedded on practices of evidence, the model of NIE presents an ideal development of the therapy of psychosomatics, with clinical practices actually drawing closer to the comprehension of health and well-being of the era. The clinical scenery of the United Kingdom of therapy of psychosomatics presents a strong mixture of practices of the evidence of the comprehension of the development of the interactions of the mind in health. A theoretical picture which stands out vibrant in this sense includes the model of NIE (neuro-integration and form of realization). This model places emphasis on a multidimensional perception of disorders of psychosomatics, with emphasis on the correlation of neurological, psychological and physiological determinants on the outcome of the health of individuals (Zrelak et al., 2024) [35]. In the United Kingdom, health professionals continue adopting the model of NIE as part of their treatment regimen so as to efficiently control disorders of psychosomatics.

It seems from the carried out research that the application of the NIE model principles increases the effectiveness of treatment for psychosomatic therapy. In particular, it helps doctors personalize interventions considering specific neurobiologic patient profiles, with consequent symptom and general health improvement (Zrelak et al., 2024) [35]. For example, specialists are able to apply neurofeedback techniques and awareness -based interventions supplemented with conventional psychotherapy and foster resilience and self -regulation for patients suffering from psychosomatic diseases.

Additionally, interprofessional practice between health workers constitutes one of the defining characteristics of United Kingdom psychosomatic therapy. General doctors, psychologists, psychiatrists and physiotherapists usually work with one another, leveraging different strengths for the aim of providing holistic treatment. For such an interprofessional practice, incorporating the use of the NIE model comes quite naturally for doctors, making it easy for them to take advantage of existing literature and integrate multiple modes of therapy that are founded on scientific findings. Interprofessional practice comes in useful for facilitating sharp sensitization on how psychosomatic disease differs in manifestation among different patients, thereby facilitating more customized ways of treatment.

Culturally, the UK health system has been affected from a strong emphasis on patient assistance, which completes the principles of the NIE model. The National Health Service (NHS) integrates the emphasis on patient participation in their treatment plans, as

it runs with the model's emphasis on incarnation and personal experience.

NIE model centers on the inter-relationship between neurological, psychological and physical processes and comfortably aligns with existing practices based on evidence, with the aim of integrating mind and body at therapeutic interventions. This holistic perspective contrasts with previous practices which may compartmentalize mental and physical health problems, as seen before on some UK-practices (Rao et al., 2020) [27].

One of the key characteristics of psychosomatic therapy in the US lies with the legislation system that constructively encourages the adoption of psychosomatic practices as part of mainstream clinical practices. The 2008 Mental Health and Addiction Equity Law, for example, requires health plans to give the same level of mental health benefits and alcohol and drug use treatment, for example, as any other clinical care. This change of direction has made it simple for psychosomatic therapy to enjoy broader acceptability, cultivating an environment in which mental and physical disorders are considered from an integrated standpoint (Rao et al., 2020) [27]. The proactive role of Mental Health Policies of the US creates, as well, an interdisciplinary cooperation that forms part of the successful application of the NIE model.

Major features of large US health organizations also influence clinical practice, which facilitates referral for entry to multidisciplinary teams of psychologists, psychiatrists and body-oriented psychotherapists. Multidisciplinary working creates a context for the sharing of ideas and evidence between professionals and hence enriches the therapeutic process. In the US, therapy of psychosomatic disease not only treats the symptom of body disease, but comprises psychological interventions at cognitive and affective level directed at those factors which are accountable for producing psychosomatic disease. That general vision has an essential role for handling tough cases where mind-body interactions are strong and aligns with the concept of the NIE model.

In comparison, UK practices of psychosomatic therapy can target more standardization of care with health system bias for evidence -based guidelines and protocols. As far as the UK has made advancements toward an integration of psychological and physical health with the introduction of initiatives, for examples, expanding access to psychological therapies (IAPT), the system is still partially stuck with traditional models that do not entirely accept the holistic emphasis of the NIE model. The United Kingdom cultural context which emphasizes more on collectivism can further affect the delivery of psychosomatic therapy, with potential alignment on systemic health orientations of US -observed individualized support strategies. Integration of the mind-body connection with clinical settings mirrors support for the NIE (Neuroimmuno-Endocrine) model, which calls on interconnectivity of neurological, immunologic and endocrine systems for

the expression of psychosomatic illnesses (Álvarez-Afonso et al., 2020) [1].

Clinical practices of EU psychosomatic therapy are more likely to reflect an integration of new and traditional practices informed by evidence, which are usually articulated via models of mental health with strong local health care policy roots. For example, Germany and France remain at the forefront of therapy for psychosomatics largely due to their use of holistic practices as part of evidence-based templates. German founded psychosomatic clinics emphasize a model of multidisciplinary application with psychological support supplemented via drug and physical therapies. In comparison, France focuses on the centrality of psychoanalysis and psychodynamic psychology, which has the limitation of not overtly adopting the NIE model but which still places value on the impact of affective factors on physical health.

In the United Kingdom, there also lies an identifiable historical backdrop of stoicism and inclination to dampen distress of an emotional nature, often spelling out reticence for candid discussion of mental health difficulties. These types of cultural pressures can beget preference for accounts of a biomedical nature, which may delay reception of the NIE model which invokes an integrative model of advice. However, there lies an identifiable trend within the United Kingdom for holist therapies, prompted partially due to increasing acknowledgment of the types of psychosomatic illnesses. So, if there may well be initial resistance with grounds of long-held beliefs, there have of late been public health campaigns and wider media coverage of discussion on mental health which point toward constructive development of acceptance of the interaction of physiological and psychological health (Galambos et al., 2020) [8].

On the other hand, in the United States, the integration of the NIE model in psychosomatic therapy is often met with a more fragmented medical care scenario, leading to heterogeneous results among various patient populations. Studies reflect a duality in effectiveness, in which certain demographics – particularly those involved in integrated service environments with a strong emphasis on personalized treatment plans – reported favorable results and improved levels of satisfaction. In contrast, patients in conventional environments tend to experience disconnection between their psychological and physical health services, adversely affecting their overall treatment experience (Jiang et al., 2023) [11]. The disparity in the patient's readiness to engage with psychosomatic therapy also illustrates cultural predispositions in relation to mind-body connections, with some groups showing skepticism about holistic approaches due to predominant biomedical narratives.

In the European Union, results related to psychosomatic therapy indicate a relatively higher degree of patient satisfaction and effective results in countries such as Germany and the Netherlands, where integrated psychosomatic methodologies are well established in standard medical practice. Research sug-

gests that social attitudes towards mental health and an appreciation for the interconnectivity of the mind and body facilitate the broader acceptance and the application of the NIE model.

However, the effectiveness of the NIE model is also impacted by varied health policies and cultural stigmas in relation to mental health in different EU nations. For example, countries in southern Europe have historically emphasized psychosocial factors in health, but simultaneously face challenges in providing services, resulting in less favorable results for patients. Jiang et al. (2023) [11] Echo these findings, suggesting that cultural perceptions of disease and therapy usually dictate the level of involvement and patient satisfaction in the EU, revealing a complex interaction between cultural values and clinical results.

Research has elucidated several advantages associated with collaborative practices in the field of psychosomatic therapy. For example, the integration of diversified expertise allows more holistic assessments of patients, where physical health problems are taken into account alongside psychological and social factors. This is essential for the effective application of the NIE model, which recognizes the interaction between neurobiology, individuality and environmental influences. Whitfield et al. (2023) [29] indicate that collaborative executives can promote a more inclusive therapeutic environment, leading to the improvement of patient treatment plans and subsequent health results.

In order to use the model denies with the help of multidisciplinary approaches effectively, some proposals are plausible. The initial step constitutes the development of collaboration care teams with focus on regular interaction between all the professionals. This can encompass formalized gatherings, designated sites of communication or common electronic health records so that all the members of the team are updated on the progression and treatment changes. This not only strengthens coordinated care, but also encourages mutual comprehension of the patients multifactorial challenges, rationalizing the therapeutic interventions.

Systematic scientific evidence has systematically tested the neuro-immune-endocrine (NIE) model as the basis of psychosomatic therapy. These works delineate both clinical therapeutic interventions (e.g., cognitive-behavioral therapy, mindfulness-based interventions, and microbiota manipulation) and mechanistic processes (e.g., HPA axis irregularity, inflammatory-immune signaling, and neurotrophic factors) of the NIE model. Table 1 presents prominent empirical and theoretical contributions from the UK, USA, EU, which represent the application of the NIE model for psychosomatic application.

While the NIE model is an overarching theoretical model, its use of psychosomatic therapy greatly relies on healthcare infrastructures, local values regarding culture, and priorities of investigations. The United Kingdom emphasizes standardized biopsychosocial models under the NHS, the United States integrates



Table 1

## Key Studies on NIE Model in Psychosomatic Therapy

Region	Author(s), Year	Study Design	Sample/ Population	Main Intervention	Key Findings	Evidence Level
UK	O'Sullivan et al., 2017	Longitudinal clinical study	Adolescents with chronic back pain	Biopsychosocial interventions	Psychosocial factors predicted outcomes better than biomarkers	Observational
USA	Drexhage et al., 2025	Cohort study	Postpartum women with psychiatric conditions	Immune profiling + psychosomatic therapy	Pro-inflammatory cytokines linked to postpartum psychiatric disorders	Clinical cohort
USA	Hostinar et al., 2020	Review + empirical evidence	Children with early-life stress	Neuroimmune network hypothesis	Early-life stress disrupts immune-endocrine balance; long-term psychosomatic risk	Conceptual + review
EU	Pérez-Morales et al., 2024	Interventional study	Patients with anxiety disorders (Spain)	Diet & microbiota modulation	Reduced anxiety & psychosomatic symptoms via gut-brain axis modulation	RCT
EU	Misery et al., 2022	European multicenter study	Patients with chronic prurigo	Neuroimmune dermatology interventions	Evidence for neuroimmune interactions in chronic somatic symptoms	Multicenter clinical
EU	Anastassis & Konsman, 2024	Review	Cancer patients (psychosomatic oncology)	Neuroimmunomodulation framework	Psychological stress influences immune dysregulation in cancer outcomes	Review
EU	Martinez-Sanchez et al., 2022	Longitudinal study	Obesity & metabolic syndrome patients	Sympathetic nervous system modulation	Neuroimmune-endocrine dysregulation drives psychosomatic outcomes	Observational
Mixed	Lee et al., 2025	Systematic review & meta-analysis	RCTs on mind-body interventions	Mindfulness, CBT, yoga	Improved immune and endocrine biomarkers, reduced psychosomatic symptoms	Systematic review
Mixed	Landgraaf et al., 2023	Experimental	Obesity patients (multi-country)	Acupuncture as neuroendocrine-immune therapy	Demonstrated multi-targeted neuroimmune modulation effects	Experimental
Mixed	Nava-Castro et al., 2025	Book chapter (Springer, peer-reviewed)	Mental disorders + pollutants	Neuroimmune-endocrine framework	Environmental stressors interact with NIE network in psychiatric/ psychosomatic disorders	Conceptual

individualized models among fractured healthcare systems, and the European Union forms a patchwork of areas from extremely advanced centers of psychosomatics to countries in which stigma and resource deficits remain barriers. Table 2 outlines these regional variations of healthcare system structures, clinical use, interventions, culture determinants, and trends of investigations.

Evidence synthesis from Table 1 and comparison from Table 2 indicate that while the NIE model builds empirical support and clinical acceptability, there are significant regional variations. Overcoming such variations not only means advancing studies on biomarkers and therapy mechanisms but also matching interventions for cultural and systemic settings.

**Discussion.** This review highlights the neuro-immune-endocrine (NIE) model as an emergent template for explaining and managing psychosomatic disorders with divergent clinical presentations. Data consolidated in Table 1 show that psychotherapeutic interventions informed by the NIE model, e.g., CBT,

mindfulness stress reduction, and microbiota-directed therapy, have identifiable effects on immune and endocrine biomarkers and clinical recovery (Lee et al., 2025; Pérez-Morales et al., 2024) [15; 25]. Convergence between psychotherapeutic and biological findings indicates that cross-disciplinary approaches beyond mere alleviation of symptom burden are needed to address root mechanisms of dysregulation.

Despite these trends, Table 2 regional analysis suggests significant variation in application. The UK's NHS promotes standardised biopsychosocial practices with ease of integration with primary care, while the US system of fragmentation fosters innovation and tailor-made interventions (Drexhage et al., 2025; Hostinar et al., 2020) [6; 9]. On the other hand, the EU has prominent hubs of psychosomatic medicine, particularly Germany and Scandinavia, and social challenges for adopting the same for Southern Europe (Misery, 2022; Anastassis & Konsman, 2024) [2; 20]. These disparities reflect the twin challenge

Table 2

**Comparative Characteristics of NIE-based Psychosomatic Therapy (UK, USA, EU)**

Aspect	United Kingdom	United States	European Union
<b>Healthcare Framework</b>	NHS biopsychosocial model; standardized protocols; strong emphasis on primary care integration	Insurance-driven, fragmented system; mix of conventional + integrative care models	Highly heterogeneous; Germany with established psychosomatic clinics, France psychoanalytic tradition, Scandinavia holistic care
<b>Main Clinical Applications</b>	IBS, fibromyalgia, chronic pain, adolescent low back pain	Postpartum psychiatric disorders, chronic stress, pediatric psychosomatic integration	Fibromyalgia, gut-brain axis disorders, autoimmune-related chronic pain
<b>Key Interventions</b>	CBT, mindfulness-based stress reduction (MBSR), psychoeducation, neurofeedback	Multidisciplinary care teams, CBT, lifestyle modification, immune/endocrine monitoring	CBT, nutritional & microbiota interventions, psychodynamic therapy, acupuncture
<b>Cultural Factors</b>	Historical stoicism & stigma, now declining; NHS campaigns promoting mind-body integration	Strong individualism, self-optimization ethos; disparities in minority access & cultural stigma	Scandinavia: openness & holistic health policies; Southern Europe: stigma & preference for somatic explanations
<b>Research Trends</b>	Biomarkers (cortisol, BDNF, cytokines), NHS-integrated research programs	Immune dysregulation (cytokines, HPA axis), postpartum focus, personalized medicine models	Gut-brain axis studies, microbiota modulation, EU mental health policy frameworks

of balancing evidence-based standards with cultural and systemic limitations.

Another focal point of concern lies with methodologic limitations. A few NIE-driven studies are based on miniscule sample sizes, few years of duration of follow-ups, or surrogate biomarker end points. Small numbers of trials include psychosocial, immune, and endocrine end points simultaneously, limiting causal inference. Future investigations thus must aim at large-scale, long-term, and multi-center trials with the integration of patient- and biomarker-reported end points for determining the translational potential of the NIE model. In addition, digital health platforms and customized medicine plans have the potential for minimizing systemic fragmentation, particularly in the US and selected EU countries (Whitfield et al., 2023) [29].

**Conclusion.** This review provides strong theoretical and empirical support for building psychosomatic therapy using the NIE model. Results from the UK, USA, and EU demonstrate that clinical and biological outcomes are improved with interventions of an integrative kind focused on psychological, immune, and endocrine targets. Geographical differences of healthcare provision and beliefs regarding culture, however, still govern the availability and acceptability of psychosomatic interventions.

Development of refined psychosomatic therapy in the future will not only require robust quality evidence but also system-specific and culture-specific implementation plans. By juxtaposing biomarker-supported literature with local models of practice, this article advocates for closure of gaps between scientific advances and health policy and patient-centric

care. Closure of such gaps will be required for development of refined psychosomatic therapy as a fully evidence-based, globally accepted standard of care.

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