Commentary

Palliative Care, Psychological Interventions, Personalized Medicine: The Triple "P" Hypothesis For Enhancing Quality of Life in Palliative Care

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Patients in palliative care face complex and multidimensional challenges, including physical, psychological, and spiritual difficulties, that significantly impact their quality of life (QoL). Traditional care often addresses these needs through a holistic lens, yet the diversity in patient characteristics demands a more personalized approach. The Triple "P" Model integrates Palliative Care, Psychological Interventions, and Personalized Medicine to create a tailored framework that accounts for individual factors such as personality, special needs, biological profiles, and emotional demands. This model emphasizes the use of tools like biomarkers, genetic counseling, and neuroimaging to guide precise and effective interventions, while also addressing the psychological and existential concerns of patients. By transitioning from a generalized holistic view to an individualized approach, the Triple "P" Model aims to improve care outcomes and QoL in palliative care settings. This article explores the conceptual foundation of the Triple "P" Model, its alignment with the Biopsychosocial-Spiritual framework, and its potential to reshape palliative care through a more comprehensive and patient-centered strategy.

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Introduction to re-definition of Palliative Care

In an era where patient-centered care has evolved into a cornerstone of modern healthcare, the convergence of palliative care, psychological interventions, and personalized medicine forms a potent

triad that has the potential to redefine the care landscape. Our article embarks on a journey to explore this synergy, unpacking the layers of palliative care and the transformative impact of psychological interventions while championing the essence of personalized medicine. Palliative care, often referred to as the art of compassionate care[1], is the active holistic care of individuals across all ages with serious health-related suffering because of severe illness and especially of those near the end of life. It aims to improve the quality of life of patients, their families, and their caregivers by focusing on pain management, and symptom relief, and addressing the emotional, psychological, and spiritual aspects of life[2]. The infusion of palliative care into medical practices has revolutionized the quality of care provided to patients. By shifting the emphasis from curative treatments alone to embracing holistic well-being, palliative care engenders a profound impact on the patient's journey. This shift is rooted in the acknowledgment that medical interventions, while crucial, are only one facet of a patient's experience[3]. Palliative care redefines the care landscape by prioritizing patient comfort[4], enhancing communication[5], and fostering collaboration among healthcare professionals from diverse disciplines[6]. By integrating the expertise of physicians, nurses, social workers, counselors, and more, patients receive a comprehensive continuum of care. This collective effort ensures that the complex tapestry of patients' needs - physical, emotional, psychological, and spiritual - is woven into a coherent and harmonious fabric of support[7].

While palliative care encompasses several dimensions, the psychological aspect often remains underestimated[8]. Addressing patients' emotional well-being is crucial to providing comprehensive care. Facing a serious illness brings about fears, anxieties, and existential concerns that can significantly impact a patient's quality of life[9]. The psychological dimension of palliative care acknowledges and addresses these emotional challenges, aiming to improve patients' overall sense of well-being[10]. By offering emotional support, coping strategies, and resources, palliative care professionals can alleviate emotional distress and enhance patients' psychological resilience[11].

The application of psychological interventions within palliative care emerges as a powerful strategy to enhance the quality of care provided. These interventions are designed to address the emotional distress and psychological challenges that often accompany serious illnesses. By equipping patients with coping mechanisms, fostering emotional resilience, and alleviating anxiety and depression, psychological interventions contribute to more positive care outcomes and patients are better equipped to navigate the complex emotions that arise during their illness, promoting a sense of empowerment and improving their overall quality of life[12]. In this perspective article, we will discuss the re-definition of palliative care by

introducing the triple P model; this model can give insight into having both holistic and patient–centered approaches in a palliative care setting with a focus on psychological aspects.

Current status of psychological intervention uses in palliative care programs

Patients dealing with palliative care settings suffer from complex conditions. For example, end-of-life patients can feel demoralized and hopeless even after treatment for pain and physical symptoms. According to the Biopsychosocial-Spiritual model in palliative care, there is a need for the integration of interventions to address the spiritual needs of patients, alongside psychological and physiological care in a palliative care setting[13].

Despite the importance of psychological interventions in palliative care, in many palliative care settings, patients are deprived of these interventions. In the United States, psychologists and psychiatrists are usually not part of a palliative care team[14]. In this way, a recent systematic review and meta-analysis on more than 6000 patients and 150 caregivers in 2023, reported most of the included studies do not reduce psychological distress in palliative care conditions, and even many of these studies systematically exclude patients with psychological conditions, this issue can have ethical challenges for whether palliative care studies fulfill purposes of palliative care or not[15].

There are different psychological interventions that a growing body of evidence shows to be effective for palliative care patients. A study involving 50 patients with severe chronic diseases demonstrated that hypnosis as an adjunct therapy statistically significantly reduced pain and anxiety in patients, and the use of pharmacological treatments was four times lower than the control group after 1 and 2 years of follow-up[16].

Cognitive Behavioral Therapy (CBT) is another psychological treatment that studies show can have a long-lasting effect on various measures of pain[17]. Additionally, combining CBT with hypnosis (Cognitive Hypnotherapy) could have additive effects, for example, a randomized clinical trial on the effect of four non-pharmacologic interventions (Cognitive Therapy, Hypnosis, Cognitive Hypnotherapy, and Pain Education) on pain after a 12-month follow-up demonstrate that cognitive hypnotherapy has greater effects on pain reduction than pain education, while hypnosis and cognitive therapy have not statistically significant difference than pain education[18]. Existential anxieties (Death-Related Anxieties, Grief, Isolation, Loneliness, etc.) are common in end-of-life patients, especially during the COVID-19 pandemic

when these symptoms were more pronounced. Therefore, including existential needs as a key factor in palliative care interventions is important[19]. The psychological approach can be one of the key components in palliative care and it is important to place more emphasis on that in future studies, psychological interventions are not enough to effectively target patients' psychological demands, the early intervention is also critical, the analyses from 2011-2013 form 2472 palliative care patients demonstrated that 90 % of patients no longer continue their psychological consultation sessions and 30% of them are in the advanced stage of disease, according to this study the role of the psychologist in palliative care was very limit and late effective[20].

Personalization and tailoring interventions in a palliative care setting

In Psychiatry and Behavioral Sciences, a novel framework developed by the National Institute of Mental Health (NIMH), called Research Domain Criteria (RDoC), is considered a potential alternative to the Diagnostic and Statistical Manual of Mental Disorders (DSM). In contrast to the DSM, which attempts to categorize patients based on subjective symptoms, RDoC aims to divide patients into different biotypes according to their biomarkers and more objective criteria. With a range of units of analysis from genes to self-reports, it provides a more precise and personalized approach to mental disorders. This framework helps in providing interventions based on heterogeneity among patient groups[21].

According to the main concept of RDoC, we can adopt a personalized approach to patients in a palliative care setting. For example, genetic counseling services can provide important information for patients in Palliative Care settings and their family members at every stage. This data can assist health professionals in tailoring support and providing more personalized genetic risk assessments, etc.[22]. Pain studies revealed although some types of pain, such as Irritable Bowel Syndrome (IBS) and migraines, share similar phenotypes, neuroimaging studies have identified distinct subtypes of these pains[23]; Also, treatment responses to painkiller drugs can be categorized into three groups: responder, poor responder, and adverse drug reaction[24]; these data help to have a personalized approach to prescribing drugs (see Fig -1).

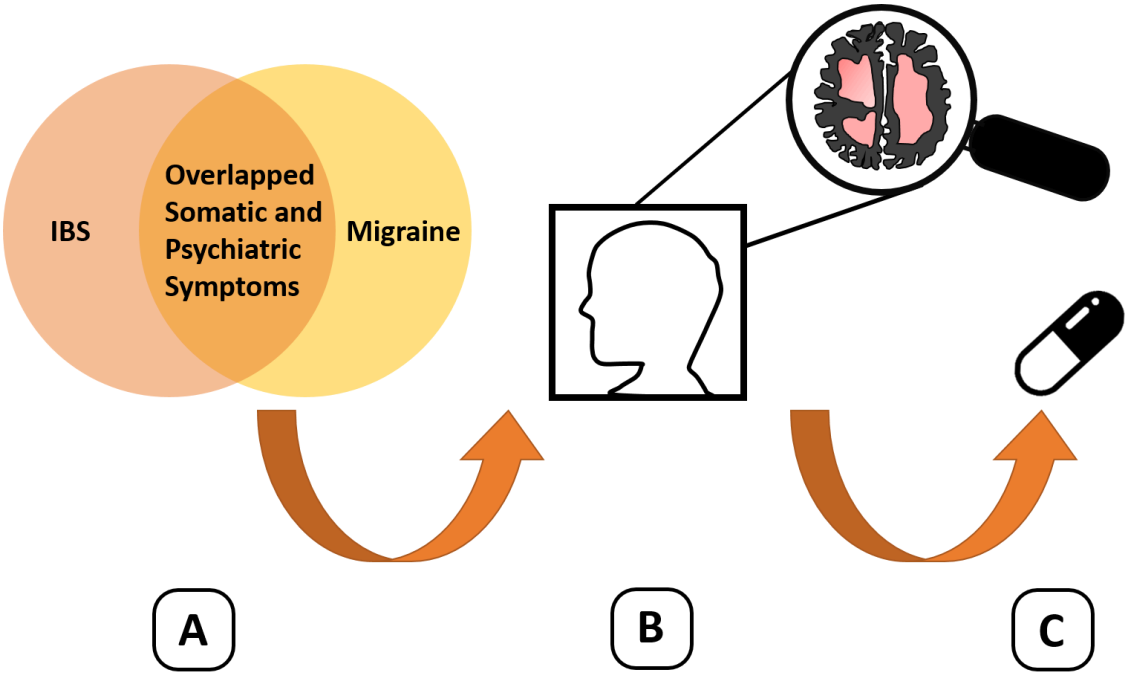

Figure 1. A: Some types of pain may have high similarity in symptomology (e.g. IBS and Migraine). B: Some measures like neuroimaging can help to more precise different conditions determine subtypes of these pains and predict treatment response. C: Having a personalized approach to the treatment of patients.

Recent studies in psychological treatments also go beyond the question of whether a treatment is effective or not. Instead, these studies aim to determine which treatment is more effective for each individual. In a study conducted by Jensen et al. in 2023, randomized controlled trials on four Psychological Interventions for pain reduction (cognitive therapy, hypnosis focused on pain reduction, hypnosis focused on changing pain-related cognitions and beliefs, and a pain education control condition) were analyzed. They were able to predict the response of patients to the provided treatment based on potential mediators[25].

Electroencephalography (EEG) data is one of the common mediators used for predicting responsiveness to psychological treatments in different studies. Dickey et al., in 2023, demonstrated that EEG signals can be a predictor for the treatment response of CBT for depression symptoms in adolescents by recognizing neurophysiological measures of positive and negative emotional processing[26].

Along with different methods and mediator factors that allow us to tailor interventions to each patient, there are some innovative models for patient-centered Palliative Care. For instance, the 6S model places self-image as a core concept, with self-determination, symptom relief, social relationships, synthesis, and strategies as other related concepts (see Fig-2)[27]. A comprehensive umbrella review in 2022 emphasized

the importance of person-centered Palliative Care in the treatment of patients with debilitating non-communicable diseases[28].

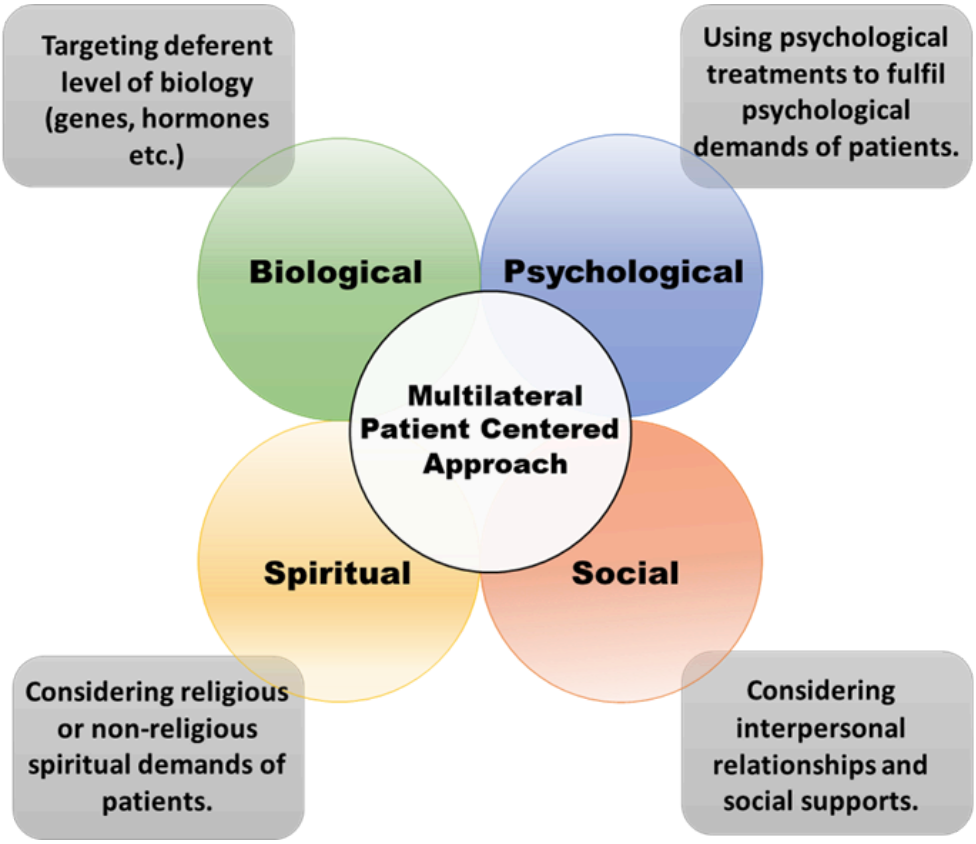

Figure 2. The 6s model is one of the patient-centered models in palliative; Österlind et al described this model to fulfill individuals' basic common needs. The self-image is the center of this concept that reveals the patient's point of view of the situation. Other levels of this model can interact with self-image.

Personalization of intervention can have its specific challenges, for instance, a study showed both personalized and non-personalized Virtual Reality can effectively be used for people with advanced illness in hospice settings but there are no statically differences between these two groups for reducing the Edmonton Symptom Assessment Scale scores[29]. It is important to evaluate the effectiveness of personalized interventions in studies with a greater number of participants and better methodology.

Triple “P” approach

A holistic perspective is fundamental for achieving an effective therapeutic framework in palliative care. Traditionally, this approach emphasizes assessing patients through the Biopsychosocial-Spiritual model, integrating biological, psychological, social, and spiritual dimensions[30]. Among these, psychological demands hold significant importance as they influence patients’ emotional well-being, resilience, and overall QoL. However, many palliative care teams lack trained mental health professionals, limiting the scope and quality of care[14]. This gap is particularly concerning given the growing body of evidence underscoring the importance of psychological interventions in palliative care.

The Triple “P” Model bridges this gap by integrating Palliative Care, Psychological Interventions, and Personalized Medicine. It represents a transition from a purely holistic perspective to an individualized approach tailored to each patient's unique characteristics. This model considers psychological needs as central, alongside other factors such as biology, personality, and social context. For example, Pakenham and Martin[31] emphasized that while ‘psychosocial support’ is a common intervention in palliative care, its application often lacks clarity and specificity, underscoring the need for well-defined psychological strategies within this framework[31].

An important limitation in current palliative care is the absence of psychologists in many care teams. This raises the question of whether the Triple ″P″ Model should be implemented by psychologists specializing in palliative care or by general psychologists with minimum competencies in palliative care. Establishing baseline competencies and integrating trained psychologists into palliative teams is crucial to ensuring the effective delivery of psychological interventions. Furthermore, this approach should align with internationally recognized frameworks, such as those from the National Institute for Health and Care Excellence (NICE) and the European Association for Palliative Care (EAPC), to uphold care standards.

Moreover, the Triple “P” Model extends the Biopsychosocial-Spiritual framework by incorporating personalized medicine to address patient heterogeneity. This approach recognizes that patients vary widely in their responses to care based on a combination of biological, psychological, and social factors. Tools such as biomarkers and genetic counseling guide individualized interventions by identifying unique physiological and genetic predispositions. Neuroimaging further enhances precision by differentiating pain subtypes, enabling tailored and effective pain management strategies. Alongside these advanced tools, factors such as personality traits and special needs are integral to the Triple ″P″ Model. These factors influence patients′ coping mechanisms, emotional responses, and treatment adherence, ensuring

that care plans are not only biologically informed but also aligned with the psychological and social realities of each patient. By addressing these interconnected elements, the model provides a holistic yet personalized approach to palliative care, ultimately improving patient outcomes and quality of life. Respecting individuality in care delivery aligns with the model's focus on tailored interventions[32].

The integration of psychological and personalized care within the Triple "P" Model ensures a patient-centered approach that adapts to the evolving needs of diverse populations. By aligning with the Biopsychosocial-Spiritual framework, this model provides a structured pathway for comprehensive and individualized care, addressing the physical, psychological, social, and spiritual dimensions of patient well-being (Figure 3). Future research should explore the model's efficacy across various healthcare settings and its scalability in resource-limited environments.

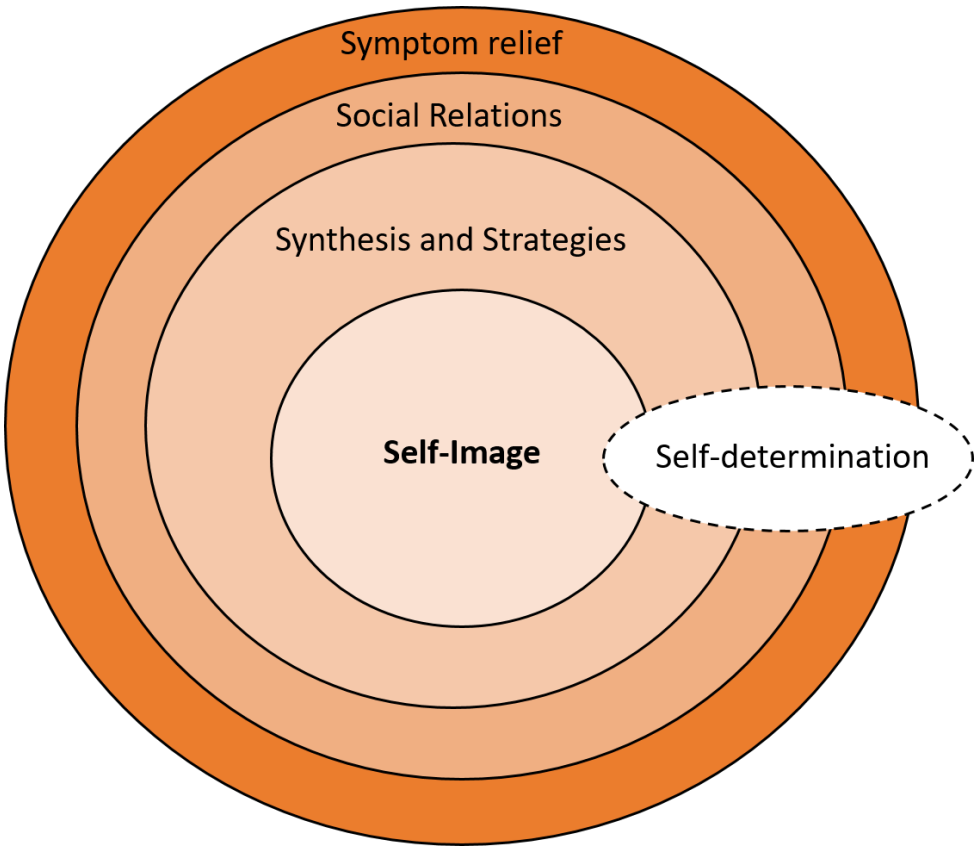

Figure 3. The Triple " P" model can be a part of a wider concept in the Biopsychoposial-Spritual model, each part or interfration of each part of this model can tailored to patients.

Statements and Declarations

Funding

The authors received no specific funding for this work.

Conflicts of Interest

The authors declare no conflict of interest.

Data Availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Declarations

Funding: No specific funding was received for this work.

Potential competing interests: No potential competing interests to declare.