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Meaning-Making and Emotional Resilience in Cancer Patients: A Qualitative Study of Mesenchymal Stem Cell Treatment Experience

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ABSTRACT

Mesenchymal stem cell (MSC) therapy represents a groundbreaking advancement i regenerative medicine, especially for individuals facing cancer. However, while it biological mechanisms are increasingly understood, the subjective experiences o patients remain underexplored. This study investigates how cancer patients undergoin MSC therapy construct meaning, cope emotionally, and engage with the uncertainty o novel treatment pathways. Using an interpretative phenomenological approach (IPA), in depth semi-structured interviews were conducted with ten purposively selected patient from regenerative medicine centers in Southeast Asia between January and April 2025 Data were analyzed using thematic analysis following Smith's IPA framework, allowin for the extraction of idiographic and cross-case themes.. Analysis revealed four centra themes: fear and ambiguity in facing medical uncertainty, the sustaining function o hope, emotional ambivalence shaped by shifting physical states, and culturall embedded interpretations influenced by spirituality and family roles. These finding emphasize the psychological resilience that patients develop, reframing them not just a recipients of therapy but as active participants in meaning-making. The stud underscores the importance of acknowledging patients' emotional landscapes an sociocultural frameworks within regenerative care. By integrating these insights int clinical practice, healthcare providers can foster more compassionate, responsive, an context-aware therapeutic environments. This research contributes to a mor comprehensive understanding of patient-centered care by highlighting the interpretiv and existential dimensions of healing through advanced biomedical innovation.

INTRODUCTION

Advancements in regenerative medicine have introduced innovative therapies that challenge traditional biomedical paradigms, especially for chronic and life-threatening conditions like cancer (Ferreri dkk., 2023; Smrke dkk., 2020). Among these, mesenchymal stem cell (MSC) therapy stands out for its potential to regenerate tissue, modulate immune responses, and support systemic healing (Arjunan dkk., 2020). Yet alongside its biomedical promise, MSC therapy introduces complex emotional and existential dynamics for patients navigating novel treatment paths.

Cancer, as both a biological disease and a deeply personal experience, carries profound social and emotional implications (Haque dkk., 2019; Maguire dkk., 2021). The confrontation with one's mortality, the burden of treatment, and the disruption of daily life often lead patients to seek not only clinical relief but also psychological coherence. In this context, stem cell therapy—being a relatively novel and experimental approach—presents unique challenges and expectations that transcend biomedical outcomes. Patients encounter uncertainty, hope, fear, and resilience, shaped by their personal histories, cultural values, and relational contexts. These dimensions often remain underexplored in scientific literature, which tends to prioritize measurable outcomes over subjective interpretations.

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Understanding how individuals experience and interpret novel medical interventions is increasingly recognized as a crucial complement to clinical research. The subjective dimension of healing, which includes the meanings patients ascribe to their treatment, the emotional trajectories they endure, and the sociocultural frameworks they draw upon, holds critical relevance for patient-centered care (Cozzolino dkk., 2021). Such experiential insights are not only valuable for improving therapeutic communication and ethical practices but also for shaping more holistic models of healthcare that honor the complexity of human experience.

There is, therefore, a growing need to explore the lived experiences of patients undergoing advanced therapies such as MSC treatment—not merely as recipients of biomedical procedures, but as meaning-makers situated in rich social and existential contexts (Beeler dkk., 2020; Psihogios dkk., 2019). Phenomenology, with its focus on subjective experience and the essence of lived phenomena, provides a fitting framework to uncover the meanings, tensions, and hopes that accompany patients throughout their therapeutic journeys.

In recent years, research on patients' lived experiences in undergoing complex medical interventions has gained critical significance, particularly within fields that intersect biomedical innovation and existential vulnerability, such as oncology and regenerative therapy (Bange dkk., 2020; Bennardi dkk., 2020). Scholars have increasingly acknowledged that clinical outcomes alone do not fully capture the depth of what patients endure during novel treatments like mesenchymal stem cell (MSC) therapy. The psychological meaning-making, emotional negotiation, and relational restructuring that accompany such interventions form an essential yet often overlooked dimension of the healing process.

Despite growing awareness, methodological challenges persist in studying these deeply personal experiences (Dong dkk., 2020). Quantitative approaches, while valuable in measuring efficacy and physiological outcomes, often fall short in accessing the rich, subjective narratives that patients construct throughout their treatment journeys. Standardized surveys and outcome metrics cannot adequately articulate the complexities of hope, fear, identity disruption, or spiritual coping mechanisms that arise in the face of uncertain therapies. Furthermore, existing qualitative research frequently emphasizes thematic coding without sufficiently engaging with the interpretive layers of personal meaning and social context.

These limitations have led to a fragmented understanding of patient experiences, particularly in emerging medical contexts where treatment pathways are experimental and meanings are fluid (Hal dkk., 2020; Iyer dkk., 2020). Traditional methods, although effective in generating generalizable data, lack the sensitivity to uncover how individuals internalize, articulate, and live through such transformative medical phenomena. Without a nuanced grasp of these subjective experiences, there is a risk of overlooking critical insights that could inform more empathetic, responsive, and ethically grounded healthcare practices.

In this light, phenomenological inquiry—especially its interpretative variant—offers a powerful alternative, allowing for an exploration of meaning as it is lived and constructed. By centering the patient's voice, this approach aligns with the imperative to humanize medicine and address the experiential realities that conventional research paradigms often marginalize.

In the current clinical landscape, patient care within regenerative medicine, including mesenchymal stem cell therapy for cancer, is largely guided by pragmatic frameworks centered on biomedical outcomes and protocol efficiency (Cuccia dkk., 2020; Rosenberg dkk., 2019). Conventional approaches prioritize measurable indicators such as treatment efficacy, cell viability, and survival rates, offering valuable insights into physiological progress. However, these approaches often lack the methodological depth necessary to access the subjective realities patients navigate during their treatment journeys.

Although some studies have included patient-reported outcomes, they frequently rely on structured instruments that constrain the expression of lived meaning (Eche dkk., 2023). Consequently, critical dimensions of patient experience—such as existential uncertainty, emotional fluctuation, and culturally embedded interpretations of healing—remain insufficiently understood.

The richness of patients' inner worlds, their evolving expectations, and their personal definitions of recovery are frequently excluded from clinical research discourse, leading to a partial and depersonalized view of the healing process.

This gap becomes more pronounced in the context of experimental therapies, where patients are not only recipients of novel medical interventions but also active participants in meaning-making amid ambiguity and hope (Downar dkk., 2020; Thomas dkk., 2019). The reliance on conventional, positivist methodologies has thus limited the healthcare field’s ability to fully grasp the transformative nature of such treatments from the patient’s perspective.

A more suitable and enriching alternative lies in adopting a phenomenological approach—specifically interpretative phenomenological analysis—which allows for an in-depth exploration of how patients make sense of their experiences, assign meaning to therapeutic encounters, and integrate these into their broader personal and social narratives (El-Jawahri dkk., 2020). This method provides a framework capable of revealing the essence of lived experience in a way that traditional methodologies cannot, thereby addressing the current knowledge gap and contributing to a more humane and holistic understanding of patient care.

Previous studies have highlighted the importance of exploring patients’ lived experiences in medical contexts, particularly those involving innovative or high-risk treatments (Dassieu dkk., 2019; Tetar dkk., 2019). Research on cancer patients has shown that therapeutic decisions are often shaped by more than clinical knowledge—they are also influenced by hope, fear, and personal values. Some studies have attempted to address these aspects using narrative or thematic approaches, but many lack the depth of interpretation that phenomenology offers. Moreover, literature specifically addressing how cancer patients experience mesenchymal stem cell therapy remains limited. This underlines the need for research that centers the patient's voice within the therapeutic process.

This study adopts an interpretative phenomenological approach to explore how patients undergoing stem cell therapy make sense of their treatment experiences. This method was chosen because it allows for a deeper understanding of how individuals interpret complex emotional and existential phenomena (Dassieu dkk., 2019). By focusing on meaning, context, and the subjective construction of experience, the study seeks to answer the gap identified earlier: how patients assign meaning to their treatment journey, including hope, fear, and emotional transitions. The findings are intended to inform more empathetic, patient-centered care and support systems. This approach also contributes to the broader field of qualitative health research by emphasizing human experience as central to healthcare understanding.

This article is structured as follows: The introduction provides an overview of the study background and outlines the gap in current knowledge. The method section describes the phenomenological framework and details the procedures for participant selection, data collection, and data analysis. The results section presents the thematic findings derived from patient narratives, illustrating core experiences through direct quotations (Farmakis dkk., 2022). The discussion explores the implications of these findings in clinical, emotional, and ethical terms. Finally, the conclusion summarizes key insights and recommends directions for future research in regenerative therapy and patient care.

RESEARCH METHODS

Study Design

This study employed an interpretative phenomenological approach to explore the subjective experiences of cancer patients undergoing mesenchymal stem cell therapy. Phenomenology, as a qualitative research design, focuses on uncovering the lived experiences and meanings that individuals ascribe to specific phenomena (Hingert dkk., 2020). The interpretative variant, rooted in the philosophical perspectives of Heidegger, emphasizes the co-construction of meaning between participant and context, allowing for a deeper understanding of how individuals make sense of complex and emotionally charged experiences. This design was deemed appropriate for capturing the nuanced psychological and emotional dimensions associated with novel and uncertain therapeutic interventions, such as stem cell therapy for cancer.

Participants

Participants included individuals diagnosed with various forms of cancer who had undergone mesenchymal stem cell therapy within the previous six months (Mueller dkk., 2024; Perry, 2023). Selection followed purposive sampling strategies to ensure information-rich cases relevant to the research focus. Inclusion criteria required participants to be over 18 years of age, able to communicate in the local language, and willing to share their experiences voluntarily. Individuals experiencing acute psychological distress or cognitive impairments at the time of recruitment were excluded to ensure data reliability. The final sample consisted of ten participants (six female and four male), with an average age of 49.7 years, representing a range of cancer diagnoses and stages. All participants had completed at least one full cycle of stem cell treatment and were recruited from two regenerative medicine centers in Southeast Asia.

Data Collection

Data were collected through in-depth, semi-structured interviews conducted face-to-face in private clinical consultation rooms to ensure confidentiality and participant comfort. An interview guide was developed to encourage open reflection on emotional, cognitive, and social aspects of the treatment experience (Hudson dkk., 2021). Each interview lasted between 45 and 75 minutes and was audio-recorded with prior consent. Interviews were transcribed verbatim and supplemented by observational notes documenting non-verbal cues and contextual elements. The interview protocol was adapted from validated frameworks in qualitative oncology research, ensuring its relevance to patients receiving innovative therapies.

Data Analysis

Data were analyzed using Interpretative Phenomenological Analysis (IPA), which involved a systematic process of identifying emergent themes from participants' narratives (Jacobs dkk., 2019). The analysis followed several iterative steps: initial immersion in the transcripts, identification of meaning units, development of preliminary codes, clustering of similar codes into thematic categories, and abstraction into overarching themes. NVivo 12 software was utilized to assist in data organization and theme visualization, but interpretative depth remained grounded in manual, reflective reading. This approach facilitated the extraction of essential meanings and patterns that captured the lived experiences of participants within their socio-cultural and medical contexts.

Ethical Considerations

Ethical approval was obtained from the Institutional Review Board (IRB) of the affiliated university medical faculty (Hammersley, 2003; McMahon & McGannon, 2024). Written informed consent was provided by all participants, with assurances of anonymity, voluntary participation, and the right to withdraw at any time without consequence (Kolasinski dkk., 2020a). All data were de-identified and stored securely in accordance with the ethical standards of the Declaration of Helsinki and national research ethics guidelines.

RESULTS

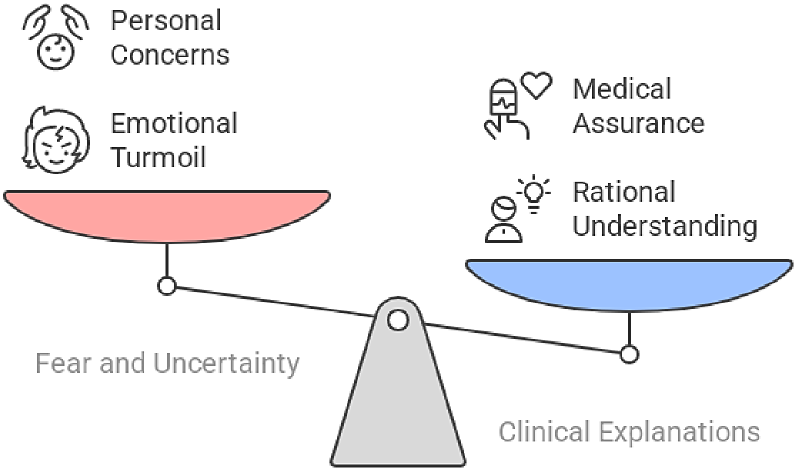
Confronting Uncertainty and Fear of the Unknown

Participants consistently described the initial phase of therapy as filled with emotional turmoil, particularly fear and uncertainty. Despite clinical explanations, most participants struggled to comprehend the implications of stem cell treatment and its potential outcomes.

"The doctor explained it to me... but deep inside, I was terrified. It felt like I was entering something experimental, something unknown. What if it doesn't work? What if it makes things worse?" (Participant 3)

This fear was not only rooted in concerns about physical health but also about the unknown nature of stem cell therapy, which for many, felt distant from conventional medical treatments. The anticipation of adverse effects, coupled with limited peer references, exacerbated emotional distress.

Balancing Fear with Understanding in Stem Cell Therapy



The Emergence of Hope as a Psychological Resource

In contrast to fear, participants simultaneously articulated a profound sense of hope, often described as their primary motivator for undergoing therapy. This hope was deeply personal and connected to their desire for recovery, family support, or spiritual convictions.

"I knew it was not a guarantee… but hope was all I had. I held on to that, for my children. It gave me something to believe in." (Participant 7)

Hope functioned not merely as an emotion, but as a psychological coping mechanism. Participants constructed meanings that empowered them to endure treatment procedures, even amidst doubt. This theme emerged as a crucial counterbalance to fear and highlights the dual emotional landscape navigated by the patients.

Navigating Emotional Ambivalence During Treatment

Patients reported fluctuating emotional states throughout the treatment cycle. They experienced relief on days of physical improvement, but also spiraled into despair during moments of fatigue or when expected results were delayed.

"One day I felt stronger, like my body was finally responding… then the next day, I was bedridden again. It was a rollercoaster, emotionally exhausting." (Participant 5)

This ambivalence shaped their interpretations of the therapy's effectiveness and, over time, influenced their self-concept as 'patients in transition'—caught between illness and recovery. These narratives indicate that stem cell therapy is not experienced linearly but as a process shaped by internal emotional recalibrations.

Cultural and Social Contexts in Meaning-Making

Cultural beliefs, family roles, and religious values deeply influenced how patients interpreted their experiences. Several participants framed their journey through spiritual lenses, perceiving their illness and therapy as divine trials or blessings.

"This illness is a test from God, and the stem cells—maybe they are His way of healing me. I just have to be patient and keep my faith." (Participant 9)

Social support from family was also instrumental. Participants described how being seen as ‘fighters’ or ‘survivors’ by their families gave them additional strength and meaning. This theme underscores the importance of viewing stem cell therapy not only as a biological intervention but as a socially and spiritually contextualized experience.

The findings reveal a multifaceted emotional journey wherein fear, hope, ambivalence, and cultural-spiritual interpretations coexist in the experience of mesenchymal stem cell therapy. The participants’ narratives illuminate how deeply personal and socially embedded meanings are constructed during this medical intervention. These themes reflect not only psychological adaptation but also the broader existential negotiation patients undergo while navigating novel regenerative treatments.

DISCUSSION

The findings of this study revealed that patients undergoing mesenchymal stem cell therapy for cancer navigate a deeply emotional and existential journey characterized by uncertainty, hope, emotional ambivalence, and cultural meaning-making (Kolasinski dkk., 2020b). These themes collectively illustrate how patients construct personal narratives around their treatment, offering insights into the lived meaning of medical innovation amidst vulnerability.

This research directly addresses the central question posed in the introduction—how patients interpret and give meaning to their experiences with experimental therapy (Satterlee dkk., 2019; Shin dkk., 2019). The study contributes uniquely by uncovering the dynamic interplay between fear and hope, and how these emotions are not only psychological responses but also serve as meaning-making mechanisms embedded in the sociocultural lives of patients. Rather than viewing patients as passive recipients of treatment, the findings reposition them as active interpreters of their own healing processes, responding to uncertainty with internal narratives shaped by familial roles, spiritual frameworks, and evolving bodily awareness.

In relation to existing literature, these results resonate with earlier qualitative studies that highlight emotional complexity in patients undergoing high-risk treatments (Mathanda dkk., 2020). However, the current study extends this understanding by emphasizing the interpretive structures that patients draw upon, aligning with the phenomenological principle that experience is always mediated by context and meaning (Yang dkk., 2019). Unlike prior works that focus narrowly on emotional outcomes or treatment satisfaction, this research integrates the existential and cultural dimensions, offering a more holistic understanding of the patient's journey. Moreover, it supports the claim made by Hassan & Noor (2020) that ethical and spiritual perspectives are central to how patients evaluate novel therapies, though this study deepens that insight by grounding it in direct narrative analysis.

The findings of this study hold significant implications for both clinical practice and the broader understanding of patient-centered care in the context of regenerative medicine (Gholizadeh-Ghaleh Aziz dkk., 2019; Hartheimer dkk., 2019). The nuanced emotional and existential experiences revealed in this research suggest that healthcare providers should move beyond standardized protocols to engage more deeply with patients’ personal narratives and cultural backgrounds (Senn-Malashonak dkk., 2019). By acknowledging the dual presence of hope and fear, as well as the spiritual frameworks guiding patient interpretations, clinicians can foster therapeutic relationships grounded in empathy, trust, and shared meaning. These insights are especially critical in culturally diverse populations, where treatment decisions are often influenced not only by medical facts but also by values, traditions, and social expectations. From a policy perspective, integrating experiential knowledge into informed consent processes and patient education programs may enhance both ethical integrity and emotional preparedness in stem cell therapy interventions.

This study, while offering rich and meaningful insights, is not without limitations. The purposive sampling approach, while appropriate for phenomenological depth, limits the generalizability of the findings to broader populations (Park dkk., 2019). All participants were drawn from a limited geographic and clinical context, potentially reflecting localized cultural or institutional influences. Moreover, the reliance on retrospective self-report through interviews may be shaped by memory biases or the participants' current emotional states. These limitations do not diminish the value of the findings but rather underscore the importance of contextualizing interpretations within the specific experiential and sociocultural settings in which they were produced.

Future research may expand upon these findings by exploring similar phenomena across different cultural or clinical contexts, or by incorporating longitudinal designs to capture the evolving nature of patients' experiences over time (Sanders dkk., 2024). Further studies could also investigate how healthcare providers themselves interpret and respond to patients' existential narratives during advanced treatments, offering a more relational perspective on the therapeutic encounter. By continuing to prioritize the patient's voice and subjective reality, future phenomenological inquiries can deepen the humanistic foundations of regenerative medicine and guide more responsive, culturally attuned practices.

CONCLUSION

This study explored the lived experiences of cancer patients undergoing mesenchymal stem cell therapy, with a focus on how they make sense of their treatment through emotional, cultural, and existential lenses. The findings revealed that patients navigated the therapy with a dynamic interplay of fear and hope, shaped by personal beliefs, family roles, and spiritual frameworks. These insights contribute to a deeper understanding of how individuals construct meaning around novel and uncertain medical interventions. The study addresses a significant gap in current literature by centering patient narratives and emphasizing the interpretive dimensions of healing. It also highlights the importance of integrating phenomenological perspectives into patient care to enhance emotional support and ethical engagement. Future research may build upon these findings by including more diverse populations and exploring relational dynamics between patients and healthcare providers.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this article. All authors have participated in the research process independently, and the funding body had no influence on the design, execution, analysis, or interpretation of the study.

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