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Exploring Patients' Experiences and Perceptions of Stem Cell Therapy for Tissue Healing: An Interpretative Phenomenological Analysis (IPA)

Johannes H.S [1]*, Handri Maika Saputra [2]
[1]Universitas Sumatera Utara, Indonesia
[2]Poltekkes Kemenkes Padang, Indonesia
[1]jhsaing.saing@gmail.com*, [2]handrima25@gmail.com

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ABSTRACT

Stem cell therapy is an emerging field within regenerative medicine, offering potential solutions for tissue healing and regeneration. However, while clinical outcomes have been widely studied, less is known about the subjective experiences of patients undergoing such treatments. This study aims to address this gap by exploring the emotional and psychological aspects of patients' experiences with stem cell therapy. Using an Interpretative Phenomenological Analysis (IPA) approach, we examined the lived experiences of 12 patients (7 males and 5 females, aged between 35 and 65 years, diagnosed with musculoskeletal injuries) who underwent stem cell therapy at a specialized regenerative medicine clinic in Jakarta, Indonesiafor tissue healing. The analysis revealed that patients experienced a complex range of emotions, including hope, anxiety, and gradual acceptance, as they navigated the healing process. These findings highlight the significant psychological and emotional dimensions of stem cell therapy, which are often overlooked in clinical research. The results emphasize the importance of considering these factors in patient care and suggest the need for further exploration of the long-term impacts of regenerative therapies on emotional well-being.

INTRODUCTION

Stem cell therapy, a rapidly advancing field within regenerative medicine, is becoming increasingly recognized for its potential to heal and regenerate damaged tissues (Huang et al., 2021). Its promise in treating degenerative diseases, traumatic injuries, and chronic conditions has attracted significant attention, largely due to the unique ability of stem cells to differentiate into various cell types (Miao et al., 2020).

Despite these clinical advances, little is known about the subjective experiences of patients undergoing stem cell therapy, particularly the psychological and emotional impacts ranging from initial hopes and expectations to eventual acceptance of outcomes (Chung et al., 2024; Hartman et al., 2020). While the clinical success of stem cell therapy has been well documented, the lived experiences of patients and their perceptions of the therapeutic process provide valuable insights that are yet to be fully integrated into clinical practice (Mitra et al., 2019).

Understanding these experiences is critical because patient perceptions can influence engagement with therapy and overall well-being (M. Kim et al., 2020; Zhang et al., 2021). This highlights the need for a deeper exploration into how patients experience stem cell therapy, not only from a physical recovery standpoint but also in terms of psychological and emotional healing. As such, a phenomenological approach is essential for capturing the richness of these experiences, providing a framework for understanding the meaning patients attach to their healing journey (Choi et al., 2020).

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Although research in healthcare has increasingly emphasized the subjective dimensions of treatment (Yun et al., 2019; (Barrera et al., 2021; S. H. Kim et al., 2021), existing studies still rely heavily on quantitative methods that focus on objective outcomes such as recovery rates and pain scores. These approaches fail to capture the nuanced, multifaceted nature of patient experiences..

However, investigating these deep, personal experiences is not without its challenges. Traditional quantitative methods, often used in clinical research, are limited in their ability to capture the nuanced and multifaceted nature of human experience. These methods tend to focus on objective measures such as recovery rates, pain scores, and physical improvements, which do not fully encompass the internal, emotional, and psychological shifts that accompany a medical intervention. As a result, much of the current literature falls short in providing a complete understanding of the therapeutic process, particularly for interventions like stem cell therapy, where the psychological and emotional impacts can be just as significant as the physical healing.

The limitations of quantitative research underscore the importance of qualitative inquiry, particularly phenomenological studies, to explore how patients navigate expectations, fears, and triumphs during stem cell therapy. This study therefore addresses the research gap by employing Interpretative Phenomenological Analysis (IPA) to provide deeper insights into the lived experiences of patients, thereby contributing to a more holistic understanding of regenerative medicine (Nazari et al., 2022).

While much of the existing research on stem cell therapy focuses on clinical outcomes and objective measures of healing, there is a significant gap in understanding the subjective, personal experiences of patients undergoing this treatment. Current studies often adopt practical, quantitative approaches that prioritize physical recovery markers such as healing rates and pain relief, which fail to capture the emotional, psychological, and social dimensions of the therapeutic journey (Møller-Hansen et al., 2024; O'neill et al., 2019; Wgealla et al., 2022). These approaches, though valuable in measuring clinical effectiveness, fall short in providing a comprehensive understanding of how patients perceive, interpret, and emotionally process their healing experiences.

The limitations of these conventional methods underscore the need for a more holistic approach to studying stem cell therapy. A deeper exploration of the human experience is required to understand the full impact of this therapy on patients' lives, beyond what is measured by physical recovery alone (Odeleye et al., 2020). By using phenomenology, researchers can capture the essence of patients' lived experiences, allowing for a richer understanding of how they experience the healing process. This alternative approach enables the identification of underlying meanings, emotions, and personal transformations that might otherwise remain hidden. Through phenomenology, the study can explore how patients' expectations, fears, and personal narratives shape their understanding of stem cell therapy, offering insights that are both profound and practical.

Thus, the gap lies in the inability of existing methods to adequately address the full scope of the patient experience, particularly with regard to the psychological and emotional impacts of stem cell therapy. This study aims to fill this gap by adopting a phenomenological approach, which allows for a deeper, more holistic exploration of the phenomenon.

Research on the experiences of individuals undergoing stem cell therapy is limited, particularly regarding the emotional, psychological, and social dimensions of their healing journey. While several studies have examined clinical outcomes and the physical effects of stem cell treatments, fewer have explored the personal experiences and meanings attached to these treatments. Notable works in this area include studies by Chen et al (2024) and Attia et al (2022), who have addressed the physical recovery process but have not delved into the deeper psychological or emotional aspects of the patients' experiences. Additionally, the application of phenomenological methods in the medical field has been growing, with scholars such as Ruane et al (2021) offering insights into the lived experiences of patients, but there is still much to be explored regarding regenerative therapies like stem cell treatments.

The study proposes to use Interpretative Phenomenological Analysis (IPA) to explore the lived experiences of patients undergoing stem cell therapy for tissue healing. IPA is particularly

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suitable for this research as it allows for the in-depth exploration of personal experiences and the meanings individuals assign to these experiences (de Kanter et al., 2021). By adopting this method, the study aims to fill the gap identified in the previous section, offering insights into the emotional and psychological impacts that have not been sufficiently addressed in existing literature. IPA's ability to interpret and understand the subjective meaning-making process in patients undergoing stem cell therapy makes it an ideal approach for uncovering the essence of their healing journey.

The article is structured as follows: The introduction provides an overview of the research context, including the general background of stem cell therapy and its relevance to patient experiences. The methodology section outlines the phenomenological approach employed in the study, detailing the data collection and analysis processes. Following the analysis, the results are discussed, highlighting key themes that emerged from the participants' experiences. The final section presents the conclusions drawn from the findings and their implications for future research and clinical practice.

RESEARCH METHODS

Study Design

This study employed a phenomenological design to explore the lived experiences of patients undergoing stem cell therapy for tissue healing (Fife, 2020). The phenomenological approach was chosen due to its focus on understanding the essence of participants' subjective experiences and the meanings they attach to these experiences. This design allows for in-depth exploration of how individuals make sense of their encounters with stem cell therapy, providing valuable insights into both the psychological and physical aspects of the therapeutic process. Specifically, an Interpretative Phenomenological Analysis (IPA) was utilized, as it allows for the examination of how participants interpret and make sense of their personal experiences within the context of stem cell therapy. IPA's suitability for this study lies in its ability to explore the complexities of individual experiences while providing a detailed, interpretative framework for understanding how participants relate to and interpret their experiences with therapy.

Participants

Participants were selected using purposive sampling to ensure the inclusion of individuals who had undergone stem cell therapy for tissue healing (Kawamura, 2020). Inclusion criteria were as follows: participants had to be over the age of 18, have received stem cell therapy within the past six months for tissue-related injuries or degenerative conditions, and be able to provide informed consent. Exclusion criteria included individuals with cognitive impairments that could hinder their ability to communicate their experiences. The final sample consisted of 12 participants (6 males, 6 females), with an average age of 45.6 years (range: 30–63 years). All participants had a diverse range of diagnoses, including degenerative joint disease, chronic tendon injuries, and post-operative recovery from musculoskeletal surgeries. These characteristics were essential in ensuring that the study focused on the intended phenomenon, namely the experience of stem cell therapy for healing within a medical context.

Data Collection

Data were collected through in-depth, semi-structured interviews to allow participants the freedom to express their experiences while ensuring that specific topics related to the research questions were addressed. The interviews lasted between 45 and 60 minutes and were conducted in a quiet, private setting to ensure comfort and minimize distractions. The interview guide was developed based on a comprehensive review of existing literature on patient experiences in regenerative medicine and qualitative research in healthcare. Initial draft questions were reviewed by two experts in qualitative methodology and one clinician specializing in stem cell therapy to ensure content validity. The guide was then pilot-tested with two patients who met the inclusion criteria but were not part of the final study sample; their feedback was used to refine the clarity, relevance, and sequencing of the questions. The final version of the guide included open-ended questions designed to elicit detailed responses about participants' experiences with stem cell therapy, including their emotional

responses, physical sensations, and expectations. Interviews were audio-recorded with participants' consent and later transcribed verbatim for analysis. To ensure an environment conducive to open discussion, participants were assured of their confidentiality and were encouraged to speak freely about their experiences.

Data Analysis

Data were analyzed using Interpretative Phenomenological Analysis (IPA), which is a well-established method for exploring personal experiences and the meanings individuals ascribe to them. The analysis process involved several stages. First, the transcribed interviews were read and re-read to become familiar with the content. Then, key phrases and significant statements related to the experience of stem cell therapy were identified and coded. The next step involved grouping these codes into broader themes that captured the essence of the experiences shared by participants. Through a process of interpretation, these themes were examined to uncover deeper meanings and patterns. The analysis was conducted using NVivo software, which facilitated the organization of data but did not drive the analytical process. The final themes that emerged provided a comprehensive understanding of the psychological and emotional experiences associated with stem cell therapy.

Ethics

Ethical approval for the study was obtained from the relevant institutional review board. All participants provided written informed consent before participating in the study, acknowledging their understanding of the study's purpose and their voluntary involvement. To ensure confidentiality, all data were anonymized, and participant identifiers were replaced with codes. Participants were also informed that they could withdraw from the study at any time without consequence. The study adhered to international ethical standards for research involving human participants, ensuring that all procedures were conducted with respect for participants' rights and privacy.

RESULTS

Perceptions of Healing and Recovery Through Stem Cell Therapy

The participants in this study expressed a profound sense of hope and anticipation when describing their experiences with stem cell therapy for tissue healing. Several participants reported a sense of rejuvenation and a belief that stem cells could potentially offer a "new chance" for healing. One participant shared, "I felt like I was being given a new body... something was healing inside me, even though I couldn’t see it at first." This reflects the participants' emotional and psychological responses to the therapy, which were often accompanied by a sense of renewal.

Hope and Renewal

Despite the hopeful outlook, a few participants also shared moments of doubt, particularly in the early stages of treatment. A participant noted, "At first, I wasn’t sure if it was really working. I felt the pain still, but as weeks went by, I started feeling less stiff." This contradiction highlights the complexity of patients’ expectations and their actual experiences during the recovery process.

Varied Recovery Timelines

Participants in this theme discussed the varying timelines of recovery. Some reported rapid improvements, while others experienced slower healing, which led them to reflect on their own physical limitations. A 58-year-old participant said, "I thought I’d be walking again after just a few days, but it took longer than I expected. That part was hard for me to accept." These accounts underline the varying perceptions of the therapy's effectiveness, which were shaped by individual expectations and the progression of recovery.

Emotional and Psychological Impacts of Stem Cell Therapy

The emotional and psychological impact of stem cell therapy was another central theme in the participants' narratives. Many participants experienced heightened emotions ranging from anxiety and frustration to a sense of relief and joy as they navigated their recovery.

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Fear of Disappointment and Relief in Progress

A recurring sentiment was the fear of disappointment if the therapy did not yield the expected results. One participant conveyed this fear, stating, "I worried that I would be left with nothing, like I had wasted my time. But when I saw improvement, even a little, it was a huge relief." This fear of failure was often mitigated when tangible signs of progress emerged, offering patients reassurance.

Mental Toll of Chronic Illness and Emotional Transformation

Additionally, patients frequently discussed the mental toll of living with chronic conditions before beginning stem cell therapy. A participant with a history of degenerative joint disease shared, "Before the therapy, I felt trapped in my own body. Now, after therapy, I feel like I'm getting back some of my life." This emotional transformation highlights the broader psychological benefits of stem cell therapy, extending beyond physical healing to include improvements in mental well-being.

Challenges and Expectations in the Treatment Process

The therapeutic process itself presented both logistical and emotional challenges for patients.

Logistical and Physical Challenges

Several participants mentioned the complexity of the treatment regimen, from frequent clinic visits to managing the side effects during recovery. One participant stated, "The process was harder than I expected—there were days when I felt exhausted, and the pain seemed to get worse before it got better." These difficulties are not uncommon, and they reflect the participants' willingness to persevere despite the challenges.

Mismatch Between Expectations and Reality

Furthermore, expectations about the speed and extent of recovery varied widely, creating some dissatisfaction among patients who did not experience the quick results they anticipated. As another participant reflected, "I thought after a few weeks, I'd be back to normal, but that's not how it works. It's more gradual than I expected." The mismatch between expectations and reality in the early stages of therapy led to a sense of uncertainty for many participants, but they often showed a high degree of acceptance over time as they adapted to the process.

Essential Conclusion

The results of this study provide valuable insight into the subjective experiences of patients undergoing stem cell therapy for tissue healing. While many participants expressed hope and a sense of physical and emotional renewal, they also encountered challenges and emotional fluctuations throughout the treatment process. By presenting structured subthemes, the findings highlight how hope, psychological transformation, and challenges of expectation management interact to shape the overall patient journey. These findings highlight the need for realistic expectations and comprehensive patient education regarding the recovery timeline and possible outcomes of stem cell therapy. The emotional and psychological impacts of therapy, alongside its physical effects, contribute significantly to the overall experience and provide a more nuanced understanding of the patient journey in regenerative medicine.

DISCUSSION

Main Findings Summary

This study explored the subjective experiences of patients undergoing stem cell therapy for tissue healing. The findings reveal that while patients exhibit hope and optimism about the potential of stem cell therapy, they also encounter challenges such as uncertainty and emotional fluctuations throughout their healing process (Rafieerad et al., 2019). Unlike studies that predominantly highlight clinical efficacy with minimal patient-reported concerns (e.g., Sun et al., 2018), our results underscore that optimism is often accompanied by doubt and fluctuating emotions, suggesting a more complex reality of patient experiences.These insights offer a deeper understanding of the emotional and

psychological dimensions of stem cell treatment, which were previously underexplored in the literature.

Contribution to the Research Question

The primary question of this study—how patients experience stem cell therapy for tissue healing—has been addressed through the identification of key themes in the data. The results highlight the complex emotional landscape that patients navigate during treatment, from initial hope and anxiety to eventual acceptance and transformation (Esmaeilzadeh et al., 2019; Wang et al., 2020). By focusing on the lived experiences of patients, this study offers valuable contributions to the understanding of how stem cell therapy is perceived and emotionally processed by individuals. It extends beyond physical healing, highlighting the emotional resilience required during the recovery process (Zhai et al., 2022). This contrasts with reports that emphasize predominantly positive patient attitudes toward regenerative therapies (e.g., Lin et al., 2019), which may overlook the early fears and uncertainties that our participants consistently described. Thus, this study strengthens the argument that patient experiences are neither uniformly positive nor negative but exist along a dynamic continuum.

Relationship with Existing Literature and Theories

The findings of this study resonate with existing research on the emotional and psychological impacts of medical treatments, particularly in the field of regenerative medicine. Studies such as those by Yu et al (2019)and Li et al (2020)have shown that patients undergoing medical treatments often experience a combination of hope, fear, and uncertainty, but this research goes further by revealing how these emotions evolve over time. The themes identified in this study, such as the initial anxiety followed by a sense of relief, align with the broader literature on patient experiences in medical treatments Yang et al (2023). Moreover, the psychological impact of chronic conditions, as discussed by (Ahn et al., 2021), is mirrored in the patients' narratives, as they reflect on their lives before and after treatment.

However, some studies present a different picture. For example, Park et al. (2019) reported that patients showed consistently high satisfaction and minimal psychological distress after stem cell therapy, suggesting a more straightforward positive trajectory. In contrast, our findings indicate that distress and doubt are significant early components of the healing journey. Similarly, while Zhang et al. (2020) concluded that patient expectations are generally well-aligned with outcomes, our data reveal mismatches between anticipated and actual recovery timelines, which sometimes led to frustration. By critically engaging with these conflicting findings, this study highlights that patient experiences are context-dependent, shaped by individual expectations, treatment settings, and cultural attitudes toward regenerative medicine. By examining these dimensions through a phenomenological lens, this study provides a more holistic view of stem cell therapy, in line with the broader theoretical frameworks on medical recovery and patient well-being.

Explanation of Implications of Findings

The findings of this study carry significant implications for both clinical practice and the broader understanding of stem cell therapy. First, they emphasize the need for healthcare providers to consider the psychological and emotional dimensions of treatment, not only the physical recovery. The emotional fluctuations and challenges that patients experience, as identified in this study, suggest that clinicians should provide more holistic support, including counseling or psychological services, to assist patients in navigating their emotional journeys during treatment. Additionally, the findings highlight the importance of managing patients' expectations, as early doubts and fears were common among participants (L. Yang et al., 2022; Zhu et al., 2022). This diverges from some clinical reports (e.g., Kim et al., 2020) that assume expectation management is a secondary issue, whereas our study demonstrates that it is central to patient well-being and satisfaction. From a societal and cultural perspective, the study underscores the need to address the broader cultural perceptions of regenerative therapies, which may vary depending on local beliefs and values surrounding medical interventions. This approach can inform how medical professionals communicate the potential benefits and

limitations of stem cell therapies, ensuring patients have realistic expectations and are better prepared emotionally for the treatment process.

Limitations of the Study

While this study provides valuable insights into the experiences of patients undergoing stem cell therapy, it is important to acknowledge certain limitations. The sample size, while appropriate for qualitative research, is relatively small and may not fully represent the diversity of experiences across different demographic groups, such as age, gender, or ethnicity (shojaei et al., 2022). Additionally, the study's focus on a specific patient group—those undergoing stem cell therapy for tissue healing—limits the generalizability of the findings to other forms of regenerative medicine or medical treatments (Malina et al., 2019; Nguyen Thanh et al., 2021; Zhong et al., 2021). The methodology, while robust in capturing subjective experiences, also relies heavily on self-reported data, which can introduce biases such as memory recall issues or social desirability effects. These limitations should be considered when interpreting the findings, and future research with a larger, more diverse sample is needed to confirm and expand on these results.

Prospective Statements for Future Research

This study lays the foundation for further exploration of the emotional and psychological impacts of stem cell therapy, but it also opens the door for future research in several key areas (Bartunek et al., 2020). One potential avenue for further investigation is the long-term impact of stem cell therapy on patients' quality of life and mental well-being. Future studies could also explore the experiences of different patient populations, such as those with chronic illnesses or more severe injuries, to assess whether the psychological impacts of stem cell therapy vary across different groups. Additionally, research could focus on how cultural and social contexts influence patients' perceptions of regenerative medicine and their willingness to undergo such treatments (Di Stefano et al., 2021; Khajeh et al., 2021; Winter et al., 2020). By broadening the scope of this study, future research can further enhance our understanding of the holistic impacts of stem cell therapies and inform the development of more effective patient care strategies.

CONCLUSION

This study explored the subjective experiences of patients undergoing stem cell therapy for tissue healing, addressing the gap in understanding the emotional and psychological impacts of this treatment. The findings revealed that while patients experienced initial hope and anticipation, they also faced emotional challenges such as anxiety, uncertainty, and the gradual acceptance of their recovery process. These insights provide a deeper understanding of the therapeutic journey, beyond physical healing, and contribute to the limited body of knowledge on the psychological effects of stem cell therapies. By focusing on the lived experiences of patients, this study fills a critical gap in the literature that primarily focuses on clinical outcomes.

In practical terms, the results suggest that clinicians should incorporate structured pre-treatment counseling to help patients set realistic expectations, provide ongoing psychological support during the recovery process, and develop clear communication strategies to address patients' doubts and uncertainties. Integrating multidisciplinary care—combining medical treatment with mental health professionals—could reduce anxiety and improve adherence to therapy. Additionally, tailored patient education materials that explain typical recovery trajectories may help patients better cope with fluctuations in progress, ultimately leading to improved satisfaction and outcomes. Future research could further expand on these findings by examining long-term emotional impacts or exploring the experiences of different patient populations. Developing a more holistic approach to patient care, informed by these insights, could lead to improved therapeutic strategies and better patient support systems in the context of regenerative medicine.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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