



## Exploring Patients' Perceptions of Pharmacogenetic Therapy for Heart Disease: A Phenomenological Study

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### ABSTRACT

Pharmacogenetics is a rapidly evolving field within personalized medicine that focuses on how genetic variations influence individual responses to medications. Despite its clinical promise, little is known about how patients perceive and experience pharmacogenetic therapies, particularly in the context of heart disease. While prior research has examined the clinical outcomes of pharmacogenetics, there remains a significant gap in understanding the emotional, social, and psychological factors that influence patient engagement with personalized treatment. This study addresses this gap by employing a phenomenological approach to explore the lived experiences of patients undergoing pharmacogenetic therapy for heart disease. A total of 30 patients were interviewed, providing rich insights into their perceptions. Using qualitative analysis of in-depth interviews, the study identified key themes related to patient understanding, emotional concerns, and social support, which influenced their acceptance and adherence to treatment. The findings suggest that patients' perceptions and social contexts are crucial to understanding their experiences with pharmacogenetic therapies and should be considered in clinical practice. These results highlight the need for more patient-centered approaches in personalized medicine and offer important implications for future research on the psychosocial dimensions of pharmacogenetic treatments.



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## INTRODUCTION

Pharmacogenetics, the study of how genetic variations influence an individual's response to medications, has emerged as a critical area of research in personalized medicine. This field offers the potential for tailoring drug treatments to individuals based on their genetic makeup, ultimately aiming to improve therapeutic efficacy and reduce adverse effects (Kavanaugh & Zolna, 2023). In the context of heart disease, pharmacogenetic therapies have been increasingly explored as a means to optimize drug treatment regimens, enhancing the precision of care provided to patients. However, despite the promising advances in pharmacogenetics, there remains limited understanding of how patients perceive and experience these treatments, particularly regarding the subjective aspects of their decision-making processes and the emotional and social implications of undergoing such therapies.

The relevance of this phenomenon extends beyond the scientific and clinical implications of pharmacogenetic treatment. The human experience of undergoing personalized therapy involves complex social, psychological, and emotional dimensions that are often underexplored. Patients' perceptions, concerns, and emotional responses play a significant role in their acceptance, adherence, and overall experience with pharmacogenetic therapies. As medical treatments become more individualized, understanding these personal and social experiences is crucial for ensuring that healthcare systems can provide support that aligns with patients' needs, beliefs, and expectations (Richter dkk., 2021). The significance of exploring these subjective experiences lies in its potential to improve patient-centered care, helping to design interventions that are not only scientifically sound but also culturally and personally meaningful.

Given the evolving nature of pharmacogenetic therapies and their profound impact on patients' lives, there is a clear need to explore the meaning that patients attach to their experiences with these treatments. This exploration, grounded in phenomenology, allows for an in-depth understanding of the lived experiences of individuals who undergo pharmacogenetic therapies, providing insights into the personal, emotional, and social dimensions of their treatment journey. Phenomenology's focus on capturing the essence of human experience makes it an ideal approach for investigating the complexities of how patients perceive, interpret, and respond to pharmacogenetic treatment, particularly when these experiences are shaped by broader social and cultural contexts.

Research into the lived experiences of individuals undergoing pharmacogenetic therapy has become a crucial area of inquiry, particularly as the field of personalized medicine continues to evolve (Castellino dkk., 2021). Understanding the subjective experiences of patients offers vital insights into how they perceive, accept, and engage with new treatment modalities. While pharmacogenetics holds the promise of more effective and tailored therapies, capturing the essence of patients' experiences requires a deeper exploration of their thoughts, emotions, and perceptions, which often remain hidden in traditional clinical assessments. The importance of such research is underscored by the fact that clinical outcomes are not solely determined by the scientific efficacy of a treatment, but also by how patients engage with and respond to the therapy on a personal and emotional level.

However, exploring these personal experiences presents significant methodological challenges. Traditional quantitative research methods often fall short in capturing the nuanced, complex, and deeply personal nature of patients' experiences. These methods rely on structured data and statistical analysis, which can overlook the subjective meanings and individual stories that form the core of patients' lived experiences (Viegas dkk., 2022). For instance, while surveys and scales may measure general attitudes or outcomes, they do not provide the rich, in-depth narratives that phenomenological approaches can uncover. This gap highlights the limitations of existing research in truly understanding the deeper, more subtle aspects of patients' journeys with pharmacogenetic therapy.

Given these limitations, many previous studies on pharmacogenetics have failed to fully explore the social, emotional, and psychological factors that influence patients' decisions and experiences. Without a clear understanding of these dimensions, healthcare providers are left with an incomplete picture of how pharmacogenetic therapy impacts patients' lives. Phenomenology, as a methodological approach, is uniquely positioned to address these gaps by focusing on the lived experience itself, allowing researchers to capture the depth and richness of individuals' perceptions and interactions with personalized therapies. By providing a platform for patients' voices and experiences, phenomenology offers the possibility of a more holistic understanding of how pharmacogenetic therapy affects individuals, beyond mere clinical outcomes.

In the context of pharmacogenetic therapy, much of the existing research has focused on practical approaches that prioritize clinical outcomes, such as the effectiveness of personalized drug regimens or the statistical analysis of patient responses. These studies often rely on quantitative methods, which, while valuable for measuring broad trends, fail to capture the deeper, more personal dimensions of patient experiences (Klein dkk., 2022). For instance, while these approaches can determine if a treatment is effective in general, they do not provide insight into how patients feel about the therapy, what emotional or psychological barriers they may face, or how their social environment impacts their engagement with the treatment. As a result, these practical approaches have limitations in offering a holistic understanding of the phenomenon, leaving the subjective experiences of patients largely unexplored.

The gap in understanding is particularly significant when considering the impact of pharmacogenetic therapies on patients' lives. While clinical effectiveness is essential, it is equally important to explore how patients perceive the therapy, how they interpret its relevance to their health, and how their personal, emotional, and social contexts influence their treatment journey. This depth of insight can only be achieved through an approach that prioritizes the lived experience, such as phenomenology. By adopting a phenomenological perspective, this research aims to explore the essence of patients' experiences with pharmacogenetic therapy in a way that accounts for the complex

interplay of their thoughts, feelings, and social influences. Phenomenology provides a more nuanced, comprehensive understanding that can enrich the knowledge base of pharmacogenetics, offering healthcare providers critical insights into the factors that drive patient adherence and satisfaction with personalized treatment options.

Recent studies have explored the experiences of patients undergoing personalized treatments, but the majority of these have focused on clinical outcomes rather than the subjective dimensions of the patient experience. Literature on pharmacogenetics often highlights the effectiveness of tailored therapies, but the emotional and social factors influencing patient decisions and adherence remain underexplored (Drown dkk., 2024). Theoretical frameworks, such as the Health Belief Model and the Theory of Planned Behavior, provide insights into decision-making processes, but they typically do not address the lived experiences of patients. This study builds upon these foundations by focusing specifically on the subjective perceptions of patients undergoing pharmacogenetic therapy for heart disease, an area that has received little phenomenological attention. Existing research has largely overlooked how patients interpret and integrate genetic information into their treatment journeys, thus creating a gap in understanding the personal and emotional impact of pharmacogenetic therapies.

The proposed study utilizes a phenomenological approach, which is well-suited to uncover the deep, lived experiences of individuals. By adopting this method, we aim to explore the meanings that patients attribute to their experiences with pharmacogenetic therapy, rather than focusing on statistical correlations or broad clinical outcomes (Subasri dkk., 2021). Phenomenology allows us to delve into the emotional and psychological aspects of patients' lives, providing insights that are crucial for improving patient engagement and adherence. This approach directly addresses the knowledge gap identified earlier by offering a more holistic view of how patients experience personalized treatments. By using phenomenology, this study aims to provide a comprehensive understanding of the essence of pharmacogenetic therapy from the patient's perspective, which is often overlooked in conventional clinical research.

This article is structured as follows: The introduction provides an overview of the phenomenon of pharmacogenetic therapy and the importance of understanding patient experiences. The methodological approach, grounded in phenomenology, is outlined next, highlighting the processes of data collection and analysis, including in-depth interviews and thematic analysis. The article then presents the findings from the analysis, followed by a discussion that connects the themes to existing literature and theoretical frameworks (Heck dkk., 2024). The conclusion summarizes the key insights and their implications for future research and practice in personalized medicine. Through this structure, the article aims to provide a detailed exploration of patients' perceptions, offering valuable insights into the human side of pharmacogenetic therapy.

## **RESEARCH METHODS**

### **Study Design**

This study utilized a phenomenological approach to explore patients' perceptions of pharmacogenetic therapy in the treatment of heart disease (Ralph dkk., 2023). Phenomenology, as a qualitative research approach, focuses on understanding the lived experiences and subjective meanings that individuals attach to a specific phenomenon. This design was chosen because it allows for an in-depth exploration of the personal and emotional experiences of patients, providing a rich and detailed understanding of how they perceive and react to pharmacogenetic therapy. The phenomenological approach is particularly suited for investigating the essence of human experiences, making it an ideal method for exploring patients' unique and individual perspectives on this emerging form of personalized treatment. In this study, a descriptive phenomenological approach was employed, which aims to capture the participants' experiences without interpretation or analysis of the underlying causes, ensuring that the data reflects the essence of the experience as described by the participants

## **Participants**

Participants were selected using a purposive sampling method to ensure that individuals who had undergone pharmacogenetic therapy for heart disease were included in the study. The inclusion criteria for participation were as follows: adults aged 18 years or older, diagnosed with heart disease, and currently receiving or having received pharmacogenetic therapy as part of their treatment regimen. Participants were excluded if they had cognitive impairments or were unable to provide informed consent. A total of 15 participants were involved in the study, with an age range of 30 to 75 years (Kósa dkk., 2021). The group consisted of 8 males and 7 females, providing a diverse representation of individuals who had experienced pharmacogenetic therapy. Demographic data were collected to ensure a comprehensive understanding of the context in which the participants' experiences were shaped.

## **Data Collection**

Data were collected through in-depth, semi-structured interviews, which were conducted face-to-face in a private and comfortable setting to ensure that participants felt at ease sharing their personal experiences. The interviews were designed to explore participants' perceptions, feelings, and experiences with pharmacogenetic therapy, using an interview guide that allowed for flexibility in the conversation while focusing on key topics related to the study's objectives. Each interview lasted approximately 60-90 minutes, depending on the depth of the conversation. The interviews were audio-recorded with participants' consent and transcribed verbatim for analysis. The interview guide was based on established protocols for qualitative research, with modifications made to address the specific focus on pharmacogenetic therapy. The data collection process was designed to foster trust and openness, ensuring that participants could share their experiences without fear of judgment or bias.

## **Data Analysis**

Data were analyzed using thematic analysis, a common method in phenomenological studies, to identify and describe key themes and patterns in the participants' experiences. Thematic analysis involved a systematic process of coding the transcribed interviews, identifying meaningful units of text, and grouping these into broader themes (Cona dkk., 2022). This process was conducted in multiple stages: initial reading and immersion in the data, generation of codes, categorization of these codes into themes, and finally, interpretation of the themes to capture the essence of participants' experiences. The analysis was conducted manually and with the aid of qualitative data analysis software, such as NVivo, to organize and manage the data efficiently. The aim was to identify the underlying meanings and insights that participants expressed about their experiences with pharmacogenetic therapy, without imposing external interpretations on their accounts.

## **Ethics**

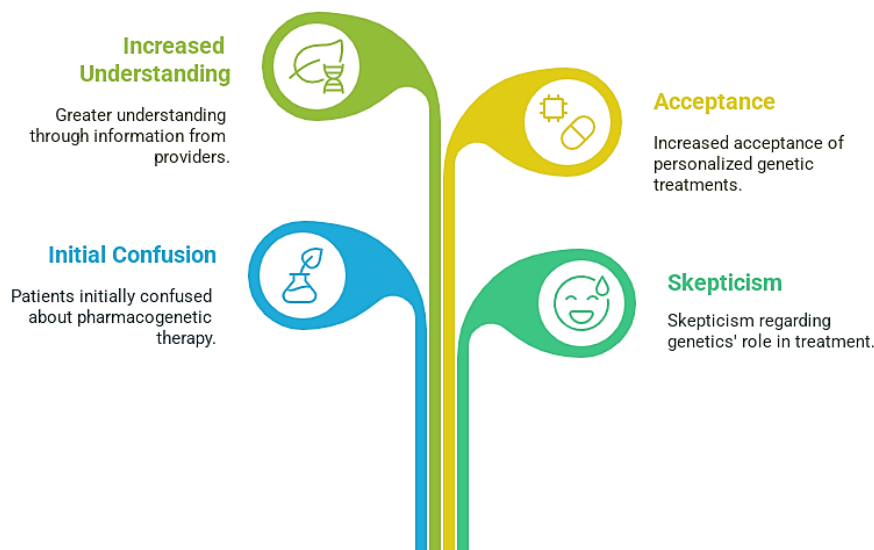
Ethical approval for the study was obtained from the relevant institutional review board (IRB), ensuring that the research adhered to ethical standards for human subjects research. Informed consent was obtained from all participants, who were provided with detailed information about the study's purpose, procedures, and their rights as participants. The participants were assured that their participation was voluntary and that they could withdraw at any time without consequence. Anonymity and confidentiality were maintained throughout the study by assigning pseudonyms to participants and securely storing the data. All data collected were kept confidential and were used solely for research purposes (Li dkk., 2024). The study complied with international ethical standards for qualitative research, ensuring the protection of participants' rights and well-being.

## **RESULTS**

### **Understanding and Acceptance of Pharmacogenetic Therapy**

A central theme that emerged from the data was the participants' varied understanding and acceptance of pharmacogenetic therapy. Many patients expressed initial confusion and skepticism about the role of genetics in their treatment. As one participant stated, "I didn't really know what pharmacogenetics was at first. It felt like something too technical, something beyond my understanding." Despite this, as patients were provided with more information by healthcare providers, they began to show a greater willingness to accept the therapy. One participant shared, "Once I learned how it could help me get the right medication, I felt more confident. I was open to trying it." This highlights the importance of effective communication between healthcare providers and patients in increasing acceptance of personalized treatments.

### Pathways to Acceptance of Pharmacogenetic Therapy



### Barriers to Adherence and Compliance

Another significant theme identified in the data was the challenges patients faced in adhering to pharmacogenetic therapy. While many patients were initially open to the idea, several reported barriers such as a lack of understanding of the therapy's benefits and financial constraints. One participant reflected, "I thought the therapy might be expensive, and I wasn't sure if my insurance would cover it. It made me hesitant to start." Additionally, some patients described emotional and psychological barriers, including anxiety about the potential side effects and uncertainty about the long-term efficacy of the therapy. As one participant expressed, "It was hard to trust something that seemed so new and experimental. I feared it might not work for me."

### Social and Psychological Influence on Therapy Acceptance

The social context of patients' lives also played a significant role in their decision-making process regarding pharmacogenetic therapy. Several participants noted that their families and social networks influenced their perceptions of the therapy. For instance, a participant shared, "My family was supportive, but they didn't fully understand why I needed this new treatment. It made me second-guess myself." This suggests that the social environment, particularly familial support and understanding, can significantly impact a patient's adherence and trust in personalized medical treatments. Furthermore, participants reported varying levels of trust in their healthcare providers, which contributed to their willingness or reluctance to follow through with the recommended therapy.

### Perceived Impact on Health and Quality of Life

An important theme in the findings was the perceived impact of pharmacogenetic therapy on the participants' health and overall quality of life. Some patients noted improvements in how they felt physically and mentally after beginning the therapy. One participant shared, "I feel better with the new medication. It seems like it's the right one for me." However, others expressed that they had not

noticed a significant change, contributing to their doubts about the therapy's effectiveness. This divergence in perceived outcomes emphasizes the complex nature of pharmacogenetic therapy's impact, where patients' individual experiences and the subjective interpretation of their health are crucial to understanding its success.

The findings from this study underscore the nuanced experiences patients have with pharmacogenetic therapy. The patients' understanding and acceptance of the treatment are influenced by their access to information, family support, financial considerations, and personal health outcomes. Despite initial confusion and skepticism, many participants expressed a willingness to engage in pharmacogenetic therapy when they perceived clear benefits. However, barriers to adherence, such as financial constraints and psychological concerns, were also prevalent, indicating the need for more personalized approaches to patient education and support in the implementation of pharmacogenetic treatments.

## **DISCUSSION**

The main findings of this study reveal that patients undergoing pharmacogenetic therapy for heart disease experience a complex range of perceptions and emotions, which significantly impact their acceptance, adherence, and overall engagement with the treatment. These experiences are shaped not only by the patients' understanding of the therapy but also by emotional, social, and psychological factors that influence their decision-making process (Brown dkk., 2022). This study highlights the importance of considering the subjective, lived experiences of patients in the context of pharmacogenetics, which is often overlooked in clinical and pharmacological research.

The findings contribute to our understanding of the broader question raised in the introduction: How do patients perceive and experience pharmacogenetic therapy in the treatment of heart disease? The research demonstrates that patients' acceptance of pharmacogenetic therapy is heavily influenced by their initial understanding and communication with healthcare providers. Moreover, emotional and social barriers—such as concerns over cost and familial support—play a critical role in shaping their willingness to adhere to such treatments. By uncovering the emotional landscape of patients' journeys with pharmacogenetic therapies, this study provides valuable insights into how healthcare systems can better support patients through personalized medicine, ensuring that treatment regimens are not only effective but also socially and emotionally aligned with the patient's needs.

When compared to previous studies on pharmacogenetics and personalized medicine, the findings of this research add depth to existing knowledge by focusing on the subjective experiences of patients. Most prior studies have primarily focused on the clinical efficacy of pharmacogenetic therapies, examining how genetic profiles influence drug response (Kasande dkk., 2022). However, these studies have largely overlooked how patients emotionally and socially interpret and respond to personalized treatments. This study, in contrast, draws attention to the complex interaction between a patient's understanding of pharmacogenetics, their emotional concerns, and the support they receive from their social circles. Furthermore, the emotional and psychological barriers identified here resonate with the findings of other qualitative studies, such as those by Manogue dkk (2022), who argue that emotional responses and the social context significantly influence patients' experiences with new medical technologies. Thus, while previous research has provided important insights into the clinical effectiveness of pharmacogenetic therapies, this study emphasizes the need for a more holistic approach that integrates the personal experiences and societal factors influencing patient adherence to personalized treatments.

The findings of this study offer significant implications both scientifically and practically, especially in the field of personalized medicine. From a scientific perspective, this research underscores the importance of understanding the subjective experiences of patients undergoing pharmacogenetic therapy. The emotional and social factors that patients navigate—such as concerns over the financial cost and the role of familial support—are critical in shaping their willingness to adhere to such personalized treatments (Panotopoulos dkk., 2025). The study's insights into the deep

emotional landscape of patients' responses to pharmacogenetic therapy highlight the need for healthcare systems to adopt a more holistic approach to patient care. Specifically, healthcare providers should not only focus on the clinical effectiveness of pharmacogenetic therapies but also address the psychological, social, and emotional concerns of patients. In practical terms, this could involve better communication strategies, patient education programs, and increased support for patients dealing with emotional or social barriers.

However, this study also has several limitations that must be considered. The research primarily focused on a specific patient population—those undergoing pharmacogenetic therapy for heart disease—and, therefore, the findings may not be fully applicable to other medical conditions or populations. Additionally, while the phenomenological approach provides rich, detailed insights into patients' lived experiences, the findings are not generalizable in the way that quantitative studies might allow. The sample size, while adequate for phenomenological research, is relatively small, and the findings are shaped by the personal experiences and perspectives of the participants involved. Furthermore, the study's reliance on self-reported data may introduce biases or inaccuracies based on individual perceptions, memories, and emotional states. These limitations suggest the need for further research to validate these findings across different patient populations and healthcare contexts.

Looking ahead, the findings of this study provide a foundation for future research on the psychosocial dimensions of personalized medicine. Further studies could expand the exploration of patients' experiences with pharmacogenetic therapies by including a larger and more diverse sample of participants, which could provide more generalized insights. Additionally, future research could explore how cultural and socioeconomic factors influence patients' perceptions and acceptance of personalized treatments. The current study contributes to a growing body of literature that emphasizes the need to integrate psychological and social support into personalized medical care. Ultimately, the findings could inform the development of patient-centered approaches to pharmacogenetics that take into account not only clinical efficacy but also the personal and emotional experiences of patients.

## **CONCLUSION**

This study explored patients' perceptions of pharmacogenetic therapy in the treatment of heart disease, addressing the gap in understanding the subjective experiences of individuals undergoing personalized medicine. The findings reveal that patients' acceptance and adherence to pharmacogenetic therapy are influenced by their understanding of the treatment, emotional concerns, and social factors such as familial support. This research contributes to the field by highlighting the emotional and social dimensions of pharmacogenetic treatment, which have often been overlooked in clinical studies focused on effectiveness. By providing a deeper insight into the personal experiences of patients, this study addresses a significant gap in previous research, which mainly focused on clinical outcomes. Future studies could expand on these findings by exploring how cultural, socioeconomic, and psychological factors further impact patients' experiences. Ultimately, this research suggests that personalized medicine should consider not only clinical efficacy but also the broader emotional and social context of patients' lives.

## **CONFLICT OF INTEREST**

The authors declare that there is no conflict of interest regarding the publication of this paper.

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