Southeast-Asian J. of Sciences, Vol. 11, No. 2 (2025) pp. 122-141

A COMPREHENSIVE REVIEW OF DISEASE KNOWLEDGE, PERCEIVED SUSCEPTIBILITY AND COMPLIANCE BEHAVIORS AMONG POST-KIDNEY TRANSPLANT PATIENTS: INSIGHTS FROM GLOBAL AND VIETNAMESE STUDIES

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Abstract

Chronic kidney disease (CKD) represents a significant global public health challenge, with kidney transplantation serving as the most effective treatment for end-stage renal disease (ESRD). However, the success of kidney transplantation is contingent not only upon the surgical procedure but also on patient adherence to post-transplant care, including medication regimens, lifestyle modifications, and regular follow-up. This literature review aims to systematically synthesize global and Vietnamese studies on the impact of disease knowledge, perceived susceptibility, and compliance behaviors among post-kidney transplant patients. Key findings reveal that higher levels of disease knowledge and perceived susceptibility are strongly associated with better adherence and improved patient outcomes. However, cultural beliefs and socio-economic barriers significantly affect compliance behaviors, especially in low- and middle-income countries like Vietnam. The review highlights the importance of culturally tailored interventions to enhance patient education and support, which are critical for improving long-term transplant outcomes.

Key words: Kidney transplantation, Disease knowledge, Perceived susceptibility, Compliance behaviors, Post-transplant care.

Recommendations for future research include the need for longitudinal studies and the development of targeted interventions to address these specific barriers in different cultural contexts.

I. Introduction

1.1 Background of the Study

Chronic kidney disease (CKD) has become a significant global public health issue, characterized by the gradual and often irreversible decline in kidney function. Without timely intervention, CKD can progress to end-stage renal disease (ESRD), a condition in which the kidneys are no longer capable of sustaining life without external support, such as dialysis or transplantation. Among the available treatment options, kidney transplantation is considered the most effective in prolonging life and enhancing the quality of life for patients with ESRD. As the prevalence of ESRD continues to rise, the demand for kidney transplantation has increased correspondingly, with recent estimates indicating that nearly 100,000 kidney transplants are performed worldwide each year (GBD Chronic Kidney Disease Collaboration 2020). This trend underscores the importance of kidney transplantation as a critical therapeutic intervention in managing advanced CKD.

However, the success of kidney transplantation is only partially dependent on the surgical procedure or the availability of donor organs. Long-term success is heavily contingent upon the patient's adherence to a prescribed regimen of immunosuppressive medications, lifestyle modifications, and routine follow-up care. The degree to which patients adhere to these regimens is influenced by several factors, including their level of disease knowledge, perceived susceptibility to health risks, and overall compliance behaviors. Studies have shown that patients who are well-informed about their condition and the necessity of strict adherence to post-transplant care protocols are more likely to achieve favorable outcomes, including prolonged graft survival and reduced incidence of complications (Kumar et al. 2017; Marcén 2009). Conversely, insufficient disease knowledge and low perceived susceptibility have been associated with poor adherence and higher graft failure rates (Pinsky et al. 2009). This highlights the need for a deeper understanding of these factors, particularly within different cultural and healthcare contexts.

1.2 Purpose of the Study

The primary objective of this study is to systematically review and synthesize the existing literature on the role of disease knowledge, perceived susceptibility, and compliance behaviors among post-kidney transplant patients. By examining studies from both global and Vietnamese perspectives, this research

aims to provide a comprehensive overview of how these factors influence the management of post-transplant care and patient outcomes. Furthermore, the study seeks to identify critical gaps in the existing literature, particularly in the Vietnamese context, where cultural, socio-economic, and healthcare system factors may uniquely affect patient behaviors and outcomes. Addressing these gaps is essential for developing targeted interventions and educational programs to improve post-transplant care and enhance long-term outcomes for kidney transplant recipients (Hucker et al. 2017).

1.3 Significance of the Study

Understanding the relationship between disease knowledge, perceived susceptibility, and compliance behaviors is crucial for improving patient outcomes following kidney transplantation. Enhanced disease knowledge equips patients with the information to manage their condition effectively. At the same time, a heightened sense of perceived susceptibility can serve as a motivational factor driving adherence to prescribed regimens. Research has demonstrated that patients with a strong understanding of their condition and the risks associated with non-adherence are more likely to follow medical advice, reducing complications and improving overall outcomes (Kim, Jeong, and Cho 2022). This study is particularly significant as it contributes to the existing body of knowledge and emphasizes the importance of cultural and contextual factors in shaping patient behaviors. The insights gained from this review will be instrumental in developing culturally sensitive interventions that can enhance patient education, improve adherence, and ultimately lead to better long-term outcomes for kidney transplant recipients in Vietnam and globally (Torres-Gutiérrez et al. 2023).

II. Methodology

2.1 Research Design

This study employed a structured literature review methodology to systematically evaluate and synthesize existing research on disease knowledge, perceived susceptibility, and compliance behaviors among post-kidney transplant patients. A literature review is a practical approach that is suitable for consolidating insights from multiple studies to identify patterns, gaps, and areas of consensus or divergence within the current evidence base (Anon 2019). By analyzing the findings from various studies, this research aims to provide a comprehensive understanding of the factors influencing post-kidney transplant outcomes based on global literature and region-specific studies from Vietnam to ensure contextual relevance. The systematic nature of this review ensures that

the selection and analysis of studies are conducted in a structured and replicable manner, thereby enhancing the reliability and validity of the conclusions of its findings (Tranfield, Denyer, and Smart 2003).

2.2 Search Strategy

The search strategy was meticulously developed to locate peer-reviewed medical and health-related articles relevant to the research questions. The primary databases utilized for the literature search included PubMed, Scopus, and Google Scholar, as well as Vietnamese academic databases to capture locally published research not indexed in international repositories. This comprehensive search approach allowed for the inclusion of both international and local perspectives on post-kidney transplant care. The search terms used included "kidney transplant," "disease knowledge," "perceived susceptibility," "compliance behaviors," "Vietnam," and "global studies." These keywords were carefully selected to encompass the study's core concepts and retrieve studies that specifically addressed these topics in the context of kidney transplantation (Anon n.d.-g; Moher et al. 2010). To ensure currency, the search was restricted to studies published from 2013 to 2025.

2.3 Inclusion and Exclusion Criteria

Specific inclusion and exclusion criteria were established to ensure the relevance and quality of the studies included in the review. To be eligible, studies had to: (1) Studies published in English or Vietnamese to ensure the accessibility of the content; (2) Studies that focused on post-kidney transplant patients and (3) Studies addressed at least one of the key concepts—disease knowledge, perceived susceptibility, or compliance behaviors—were considered; (3) All studies have to be published within 2013 to 2025, reflecting the field's most current research and practices. Both qualitative and quantitative research designs were included. Excluded were studies focusing solely on pediatric populations, pretransplant issues, or unrelated outcomes (e.g., surgical techniques or graft survival without behavioral outcomes) (Anon n.d.-a). Studies not peer-reviewed, lacking full-text availability, or published before 2013 were also excluded. This rigorous screening process ensured that only studies directly aligned with the research objectives were included.

2.4 Data Extraction and Synthesis

Data extraction and organization involved systematically reviewing the selected studies to identify relevant information, including authorship, publication year, country of study, study design, sample characteristics, measured variables, and key findings that addressed the research questions. This process facilitated the

systematic comparison of findings across studies and the identification of common themes and trends. A thematic analysis was then conducted to synthesize the data, identifying the commonalities and divergences across the literature about the relationships between disease knowledge, perceived susceptibility, and compliance behaviors in post-kidney transplant patients. Themes related to cultural beliefs, socio-economic challenges, and patient knowledge were analyzed to explore how these factors influence post-transplant compliance. The approach provided an in-depth understanding of how these factors interact and influence patient outcomes, which is critical for developing targeted interventions to improve post-transplant care (Braun and Clarke 2006).

III. Global Perspectives on Disease Knowledge Among Post-Kidney Transplant Patients

3.1 Overview of Disease Knowledge

Disease knowledge in the context of kidney transplantation refers to a patient's understanding of various aspects of their condition and the necessary care required post-transplantation. This includes knowledge about the essential immunosuppressive medications to prevent graft rejection, the importance of adhering to a prescribed regimen, regular follow-up appointments, and the lifestyle changes required to maintain kidney health. Disease knowledge comprises understanding the potential risks and complications associated with non-adherence, recognizing early signs of transplant rejection, and knowing how to manage comorbid conditions that may arise post-transplant. Adequate disease knowledge empowers patients to make informed decisions about their health, which is crucial for the long-term success of the transplant (Wagner-Skacel et al. 2023).

The importance of disease knowledge cannot be overstated, as it plays a critical role in post-transplant care and long-term outcomes. Patients with a comprehensive understanding of their condition are more likely to adhere to their medication regimens, attend follow-up appointments, and make necessary lifestyle adjustments. This adherence is vital for preventing transplant rejection and other complications, ultimately leading to better health outcomes and an improved quality of life. Furthermore, disease knowledge can reduce the psychological burden associated with the fear of transplant failure, as informed patients are better equipped to manage their health and respond proactively to potential issues (Weng et al. 2013).

3.2 Key Findings from Global Studies

Global studies have demonstrated varying levels of disease knowledge among post-kidney transplant patients, with significant disparities observed across different regions. In high-income countries, where patients generally have better access to healthcare resources and education, the levels of disease knowledge tend to be higher. For instance, a study conducted in the United States found that most kidney transplant patients understood their immunosuppressive therapy and the importance of medication adherence (Derejie et al. 2024). In contrast, studies from low- and middle-income countries have reported lower levels of disease knowledge, which can be attributed to factors such as limited access to healthcare, lower educational attainment, and cultural beliefs that may not prioritize medical adherence.

Several factors influence the level of disease knowledge among post-kidney transplant patients, including education, access to healthcare, and cultural beliefs. Education plays a pivotal role, as patients with higher levels of education are more likely to understand complex medical information and the necessity of adhering to post-transplant care regimens. Access to healthcare is another critical factor; patients with regular contact with healthcare professionals are more likely to receive the information and support needed to manage their condition effectively. Cultural beliefs can also significantly impact disease knowledge, particularly in regions where traditional practices may conflict with modern medical advice. In such contexts, patients may be less likely to adhere to prescribed regimens, leading to poorer outcomes fully (Zachciał et al. 2022).

3.3 Impact of Disease Knowledge on Patient Outcomes

The relationship between disease knowledge and patient outcomes is well-documented, with numerous studies highlighting the correlation between patients' understanding of their condition and their adherence to medication regimens. Patients knowledgeable about their disease and the importance of their medication are more likely to follow their prescribed treatment plans, which is crucial for preventing transplant rejection and ensuring the longevity of the graft (Shirafkan et al. 2024). For example, a European study found that patients with higher levels of disease knowledge demonstrated significantly better adherence to their immunosuppressive medication, resulting in lower rates of graft rejection and improved overall health outcomes (Anon n.d.-c). Moreover, disease knowledge is vital in preventing complications and improving the quality of life for post-kidney transplant patients. When patients understand the risks associated with non-adherence, such as increased susceptibility to infections and other health complications, they are more likely to engage in behaviors that promote their health and well-being. This proactive approach helps maintain the transplanted kidney's functionality and enhances the pa-

tient's quality of life by reducing anxiety and empowering them to manage their health more effectively (Sanders-Pinheiro et al. 2018). The evidence underscores the critical need for ongoing patient education as an integral component of post-transplant care to improve long-term outcomes for kidney transplant recipients.

IV. Global Perspectives on Perceived Susceptibility Among Post-Kidney Transplant Patients

4.1 Definition and Importance of Perceived Susceptibility

Perceived susceptibility, a core construct of the Health Belief Model (HBM), refers to an individual's belief about the likelihood of experiencing a health problem or complication. In the context of post-kidney transplant care, perceived susceptibility pertains explicitly to how vulnerable a patient feels to potential complications, such as graft rejection or infection, if they do not adhere to their prescribed medical regimen. The HBM suggests that high-risk individuals are likelier to engage in health-promoting behaviors, such as adhering to medication schedules and attending regular follow-up appointments. This perception of susceptibility is a motivating factor that can significantly influence a patient's commitment to maintaining their health, making it a critical element in the long-term success of kidney transplantation (Champion and Skinner 2008).

4.2 Key Findings from Global Studies

Global studies have shown considerable variation in perceived susceptibility among post-kidney transplant patients across different populations and cultural contexts. In high-income countries, where healthcare and education are more readily available, patients are often more susceptible to complications linked to better adherence to post-transplant care regimens. For example, research conducted in North America and Europe has demonstrated that patients who perceive themselves as highly susceptible to graft failure are more likely to follow their treatment plans closely (Al-Noumani et al. 2023). In contrast, studies from low- and middle-income countries often report lower levels of perceived susceptibility, which may be attributed to factors such as limited access to healthcare information, cultural beliefs that downplay the seriousness of potential complications, or a fatalistic attitude towards health outcomes (Anon n.d.-f).

The relationship between perceived susceptibility and adherence to post-transplant care is complex and influenced by multiple factors, including cultural beliefs, healthcare access, and the quality of patient-provider communication.

In some cultures, there may be a tendency to rely more heavily on fate or divine intervention, which can reduce the perceived need for strict adherence to medical regimens. Conversely, in settings where patients are more informed about non-adherence risks, perceived susceptibility tends to be higher, leading to better health behaviors and outcomes (Anon n.d.-b). These findings highlight the importance of culturally tailored interventions that address specific beliefs and attitudes toward health, ensuring that patients in diverse settings are adequately informed and motivated to adhere to their post-transplant care.

4.3 Impact of Perceived Susceptibility on Patient Outcomes

Perceived susceptibility profoundly impacts patient motivation and engagement in self-care behaviors, which are crucial for the long-term success of kidney transplantation. Patients who believe they are at significant risk for complications are more likely to be vigilant about their health, consistently taking their medications, adhering to dietary and lifestyle recommendations, and attending regular medical check-ups. This heightened awareness and proactive engagement can prevent complications such as graft rejection, improving transplant recipients' overall quality of life and survival rates (Anon n.d.-e). In contrast, patients with low perceived susceptibility may become complacent, leading to non-adherence and a higher risk of adverse outcomes.

V. Global Perspectives on Compliance Behaviors Among Post-Kidney Transplant Patients

5.1 Definition and Components of Compliance Behaviors

Compliance behaviors in the context of post-kidney transplant care refer to the extent to which patients adhere to the prescribed medical regimen and lifestyle recommendations necessary for the long-term success of the transplant. These behaviors are critical to preventing graft rejection and other complications. Compliance behaviors include medication adherence, which involves taking immunosuppressive drugs as prescribed to prevent the immune system from attacking the transplanted organ. Additionally, lifestyle modifications, such as maintaining a healthy diet, regular physical activity, and avoiding substances that can harm the kidney, are essential for post-transplant care. Regular follow-up care, including attending scheduled medical appointments and monitoring kidney function, is also crucial for early detection of potential issues and ensuring ongoing graft health (Anon n.d.-d). Collectively, these components form the foundation of successful post-transplant management, emphasizing the need for consistent and rigorous adherence to medical guidance.

5.2 Key Findings from Global Studies

Global studies have identified a range of barriers that can hinder compliance behaviors among post-kidney transplant patients, highlighting the complexity of maintaining adherence in this population. Socioeconomic factors, such as financial constraints and lack of access to healthcare, are significant barriers, particularly in low- and middle-income countries where the cost of immunosuppressive medications and follow-up care can be prohibitive (Kasiske et al. 2010). Psychological issues, including depression, anxiety, and medication-related side effects, can also negatively impact adherence. Patients who experience mental health challenges may struggle to maintain the rigorous demands of post-transplant care, leading to lapses in medication adherence and lifestyle modifications (DiMatteo, Lepper, and Croghan 2000). Furthermore, healthcare system challenges, such as fragmented care and insufficient patient education, can contribute to non-compliance by creating gaps in the support and information that patients need to manage their condition effectively.

Despite these barriers, various strategies have effectively improved compliance behaviors among post-kidney transplant patients. Multidisciplinary approaches that involve coordinated care from a team of healthcare providers, including transplant surgeons, nephrologists, pharmacists, dietitians, and mental health professionals, have shown promise in enhancing adherence. These approaches ensure that patients receive comprehensive care that addresses medical and psychosocial needs, improving overall compliance (O'Carroll et al. 2006). Patient education programs that provide clear, accessible information about the importance of adherence, potential complications, and self-management techniques have also been effective in promoting compliance (Dew et al. 2005). Additionally, interventions such as electronic reminders, medication counseling, and psychosocial support have been successful in helping patients overcome barriers and maintain adherence to their post-transplant regimen.

5.3 Impact of Compliance Behaviors on Patient Outcomes

The relationship between compliance behaviors and graft survival rates is well-established, with numerous studies demonstrating that consistent adherence to post-transplant care is directly correlated with better long-term outcomes. Patients who adhere to their immunosuppressive medication regimen are significantly less likely to experience graft rejection, which is one of the leading causes of transplant failure. In a study conducted by Denhaerynck et al. (2007), it was found that non-adherence to medication was associated with a higher risk of graft loss, underscoring the critical importance of maintaining compliance to ensure the longevity of the transplanted organ. Similarly, adherence to lifestyle modifications and regular follow-up care has been shown to reduce the

incidence of complications, such as infections and cardiovascular issues, thereby improving overall patient survival and quality of life (Butler et al. 2004).

Multidisciplinary approaches are crucial in enhancing compliance behaviors and improving patient outcomes. Integrating various healthcare disciplines provides holistic care that addresses the multiple facets of post-transplant management. For instance, a study by Israni et al. (2014) highlighted the effectiveness of multidisciplinary teams in improving adherence and reducing the risk of graft rejection. These teams work collaboratively to ensure that patients receive consistent messaging about the importance of adherence, tailored interventions to address specific barriers, and ongoing support to navigate the challenges of post-transplant care. The success of such approaches underscores the need for healthcare systems to adopt multidisciplinary models of care as a standard practice in managing post-kidney transplant patients.

VI. ASEAN Perspectives on Disease Knowledge, Perceived Susceptibility, and Compliance Behaviors

6.1 Overview of Kidney Transplantation in ASEAN

Kidney transplantation has become an increasingly utilized treatment across ASEAN nations in response to the escalating burden of chronic kidney disease (CKD) and end-stage renal disease (ESRD). This trend reflects broader regional shifts in health profiles driven by population aging, urbanization, and rising prevalence of diabetes and hypertension. According to the 2015 United States Renal Data System Annual Data Report, ASEAN countries have experienced some of the most dramatic increases in ESRD incidence worldwide. Between 2000/01 and 2012/13, Thailand saw a staggering 1,210% increase in treated ESRD cases, while the Philippines and Malaysia reported rises of 185% and 176%, respectively (USRDS, 2015). These increases have been attributed to improved clinical detection and diagnosis (Hooi, Wong, & Morad, 2005), enhanced access to dialysis and transplant services (Praditpornsilpa et al., 2011), and longer life expectancy in the region (Population Reference Bureau, 2016).

Kidney transplantation offers clear advantages over long-term dialysis, including improved survival rates, enhanced quality of life, and lower healthcare costs over time. However, its success hinges not only on surgical outcomes but also on patients' ability to maintain long-term adherence to complex post-transplant regimens. In the context of ASEAN, where healthcare infrastructure, cultural practices, educational levels, and economic resources vary significantly across and within countries, maintaining adherence poses unique challenges (Chan-On & Sarwal, 2017). Barriers such as limited health literacy,

financial hardship, traditional medicine practices, and geographic disparities all influence patient behavior.

Therefore, fostering a conscious, long-term understanding of the importance of adherence to medical treatment and lifestyle modifications is critical to optimizing post-transplant outcomes in the ASEAN region. This necessitates culturally and contextually informed strategies for patient education, support systems, and healthcare policy tailored to the diverse realities of ASEAN populations (Gavriilidis et al., 2021). 6.2 Key Findings from ASEAN

Although kidney transplantation is becoming increasingly widespread across the ASEAN region, research focusing on patients' post-transplantation knowledge and self-care practices remains significantly underdeveloped. Most existing studies tend to concentrate on quantifying treatment adherence rates rather than providing in-depth assessments of patients' health literacy or their understanding of post-operative risks and care requirements. For example, a recent multicenter study in Malaysia reported high medication adherence (97.5%) and follow-up compliance (84.4%) among kidney transplant recipients (Gan Kim Soon et al., 2023). A research in Thailand highlighted substantial gaps in patient understanding of critical post-transplant risks. Specifically, only 16% of patients demonstrated adequate knowledge of signs of graft rejection and infections (with misunderstanding rates as high as 84–86%), while just 22% were aware of appropriate timelines for conception following transplantation (Thangto et al., 2022).

In Vietnam, studies about kidney post-transplantation care have been conducted since 2024. Although patients generally recognized the benefits of adhering to immunosuppressive medication regimens, their awareness of the potential consequences of non-adherence, such as graft rejection or secondary complications, was comparatively limited (Son & Guzman, 2025). However, patients also have a moderate level of concern about potential health risks following transplantation and high levels of adherence to medication intake (Toan et al., 2024; Son & Guzman, 2025).

These findings suggest that even in countries in Southeast Asia, there is also a pressing need to reinforce patient education, especially on less-visible risks that may not manifest immediately after kidney transplantation.

VII. Vietnamese Perspectives on Disease Knowledge, Perceived Susceptibility, and Compliance

Behaviors

7.1 Overview of Kidney Transplantation in Vietnam

Kidney transplantation in Vietnam has a relatively recent history, with the first successful transplant being performed in 1992. Since then, the field has developed significantly, with advances in surgical techniques, immunosuppressive therapies, and post-operative care. Despite these advancements, kidney transplantation remains a complex and evolving area of medicine in Vietnam, marked by both progress and persistent challenges. The country's healthcare system has worked diligently to expand access to transplantation. Still, this effort is often hindered by limited resources, a shortage of available organs, and disparities in healthcare access between urban and rural areas (Nguyen et al. 2016). Moreover, the increasing prevalence of chronic kidney disease (CKD) and the rising demand for transplant services have created opportunities for growth in this field but also highlighted the need for improved post-transplant care, particularly in terms of patient education and support. Current challenges in post-transplant care in Vietnam include better patient education on the importance of adherence to post-transplant regimens, the management of coexisting conditions, and the mitigation of complications. Additionally, there is a significant need for more comprehensive follow-up care that includes regular monitoring and support for transplant recipients. Opportunities for improvement exist in expanding public awareness about organ donation, increasing the availability of immunosuppressive drugs, and developing culturally tailored educational programs that address the specific needs and concerns of Vietnamese patients. These initiatives could significantly enhance the outcomes for kidney transplant recipients in Vietnam and help to align the country's post-transplant care practices more closely with international standards (Ledinh 2011).

7.2 Findings from Vietnamese Studies

In Vietnam, kidney post-transplantation care has received increased attention in recent years, particularly since 2024, with three studies converging on the conclusion that the majority of adult kidney transplant recipients possess moderate to high levels of disease knowledge. However, studies conducted in Vietnam reveal varying levels of disease knowledge among post-kidney transplant patients, with many patients demonstrating a basic understanding of their condition but lacking in-depth knowledge about the importance of medication adherence and lifestyle changes. Son and Guzman (2025), for instance, found that 43.8% of participants demonstrated high knowledge regarding immunosuppressive therapy and post-transplant management, 42.5% exhibited moderate knowledge, while a smaller proportion showed limited understanding. Only a small number of participants possess a high level of knowledge regarding lifestyle changes (0.7%) and medication (3.9%) following kidney transplants. Encouragingly, these studies also revealed that patients generally held strong

beliefs in the importance of medication adherence and maintained strict compliance (Son & Guzman, 2025; Toan et al., 2024), especially within the first two years post-transplantation (Oanh et al., 2024). Nonetheless, these findings are based on single-site hospital studies in disparate locations, which limits their generalizability and raises concerns about regional consistency in post-transplant education.

The lack of knowledge and non-adherence is often exacerbated by limited access to comprehensive education and counseling, particularly in rural areas with scarce healthcare resources. For example, a study by Le et al. (2019) found that while most patients knew the need to take immunosuppressive drugs, many did not fully understand the long-term implications of non-adherence or the potential complications associated with their condition. This highlights the need for improved educational interventions to provide patients with a complete understanding of their disease and the steps necessary to manage it effectively. Cultural beliefs play a significant role in shaping perceived susceptibility among Vietnamese post-kidney transplant patients. In Vietnamese culture, there is a strong belief in the influence of fate and spirituality on health outcomes, which can sometimes lead to a lower perceived susceptibility to medical complications. This cultural perspective may result in patients underestimating the risks associated with non-adherence to medical regimens, impacting their compliance behaviors. Additionally, traditional practices and reliance on herbal medicine can sometimes conflict with prescribed medical treatments, further complicating adherence (Tran et al. 2019). Understanding these cultural nuances is crucial for healthcare providers, as it allows them to tailor their communication and educational strategies to better resonate with patients and address their specific beliefs and concerns.

7.3 Comparison with Global Findings

Compared with global findings, Vietnamese studies reveal similarities and differences in disease knowledge, perceived susceptibility, and compliance behaviors among post-kidney transplant patients. Like in many other countries, there is a clear correlation between higher levels of disease knowledge and better adherence to post-transplant care regimens. However, the overall level of disease knowledge in Vietnam tends to be lower than in high-income countries, where patients often have greater access to education and healthcare resources. This gap underscores the need for enhanced educational efforts in Vietnam to improve patient outcomes.

Regarding perceived susceptibility, Vietnamese patients often exhibit lower levels of perceived risk compared to their counterparts in Western countries, where there is generally a stronger emphasis on medical risk awareness and self-management. This difference can be attributed to cultural beliefs and the influence of traditional medicine, which may downplay the severity of potential

complications associated with kidney transplantation. These cultural factors make it essential for healthcare providers in Vietnam to develop culturally sensitive approaches that address these beliefs and enhance patients' understanding of their vulnerability to health risks (Tran et al. 2019).

VIII. Discussion

8.1 Synthesis of Global and Vietnamese Findings

The synthesis of global and Vietnamese findings reveals notable similarities and essential differences in disease knowledge, perceived susceptibility, and compliance behaviors among post-kidney transplant patients. Globally, higher levels of disease knowledge are consistently associated with better adherence to post-transplant regimens, as patients who understand the critical role of immunosuppressive therapy and lifestyle modifications are more likely to engage in behaviors that promote graft survival and overall health (Torres-Gutiérrez et al. 2023). This trend is also observed in Vietnam; however, the overall level of disease knowledge, including medication and lifestyle change post kidney transplantation among Vietnamese patients, tends to be lower than that in high-income countries (Son & Guzman, 2025), mainly due to disparities in access to healthcare information and education (Hyodo et al. 2020). In particular, it would occur with those from undereducated backgrounds, limited understanding of the importance of lifelong immunosuppressive therapy, and the serious consequences of non-adherence (Toan et al., 2024). This issue tends to worsen over time, as patients may begin to feel physically stable and underestimate the continued need for strict treatment adherence. This psychological complacency has been documented as a key factor in declining medication adherence (Oanh et al., 2024). The issue is exacerbated by insufficient patient education and limited access to counseling services in Vietnam's overburdened public hospital system, where high patient volumes often constrain personalized care and follow-up support. This gap underscores the need for improved educational interventions tailored to the Vietnamese context to enhance patient outcomes.

In terms of perceived susceptibility, there is a marked difference between Vietnamese patients and those in many Western countries. While patients in high-income nations often exhibit a strong awareness of their vulnerability to health complications, driven by a culture of medical risk awareness and proactive self-management, Vietnamese patients frequently have a lower perceived susceptibility. Cultural beliefs in Vietnam often prioritize spirituality, fate, and traditional healing practices, which can undermine the perceived necessity of strict adherence to post-transplant medical regimens (Hyodo et al., 2020). These beliefs may lead some patients to view illness and recovery as matters beyond human control, thereby reducing the urgency to follow prescribed treat-

ment plans. In addition, the Vietnamese cultural emphasis on collectivism and filial piety means that healthcare decisions are frequently made in consultation with, or even delegated to, family members. While this can foster emotional and logistical support, it also poses challenges when family beliefs diverge from biomedical recommendations. For instance, some families may prioritize the use of traditional remedies, such as herbal medicine, over immunosuppressive drugs, potentially resulting in reduced compliance, treatment conflicts, or delayed follow-up care (Nguyen & Vo, n.d). Although these approaches have demonstrated practical benefits in many cases, the biological and clinical validation of this traditional medicine should be conducted using modern Western methods to ensure the optimal integration of Western and traditional medicine in global populations (Adorisio et al., 2016).

Compliance behaviors among post-kidney transplant patients are profoundly influenced by Vietnam's unique socio-economic and cultural context, including financial hardship, systemic barriers to healthcare access, and prevailing attitudes toward chronic illness. Although Vietnam's national health insurance scheme provides substantial coverage—up to approximately $ 7,860 for fully insured patients and $6,400 for those without complete coverage—many individuals still incur considerable out-of-pocket costs for medications, laboratory monitoring, and routine follow-up care (VNS, 2024). For low-income households, these expenses can be financially devastating, leading to behaviors such as rationing medications, skipping doses, or discontinuing treatment altogether. Furthermore, a significant proportion of the Vietnamese population is employed in the informal labor sector, including freelancers and day laborers, who typically lack access to paid sick leave, job security, and employer-sponsored health benefits. The irregular and unpredictable nature of this work structure often disrupts routines, making it difficult for patients to adhere to strict medication schedules (Toan et al., 2024). These issues frequently lead to missing follow-up appointments or insufficient post-operative rest, both of which compromise recovery and long-term graft survival.

Thus, these interconnected socio-economic and cultural barriers contribute to reduced adherence and poorer long-term outcomes, underscoring the need for a multifaceted approach. Such an approach should include improving access to affordable care, delivering culturally sensitive education, enhancing community awareness, and integrating support systems tailored to Vietnam's diverse population.

8.2 Implications for Practice

The findings from this synthesis have significant implications for the development of targeted interventions for post-kidney transplant patients, particularly in Vietnam. Given the critical role of disease knowledge in promoting adherence, there is a clear need for enhanced patient education programs that

provide comprehensive information about the importance of medication adherence, lifestyle modifications, and regular follow-up care. These programs should be accessible to all patients, including those in rural and underserved areas, to ensure they receive the support needed to manage their condition effectively (Hyodo et al. 2020). Moreover, the lower levels of perceived susceptibility observed among Vietnamese patients highlight the need for interventions that address cultural beliefs and provide clear, relatable messaging about the risks associated with non-adherence. Culturally sensitive approaches are essential in patient education and support, particularly in a diverse country like Vietnam. Healthcare providers must be aware of the cultural factors that influence patient beliefs and behaviors, and they should tailor their communication strategies accordingly. This may involve incorporating traditional medicine into patient education, using culturally relevant metaphors, and engaging family members in the care process, as family plays a significant role in health decisions in many Vietnamese households. By adopting these culturally sensitive approaches, healthcare providers can enhance the effectiveness of their interventions and improve patient engagement, ultimately leading to better health outcomes for post-kidney transplant recipients.

8.3 Recommendations for Future Research

While this study offers important insights into the factors influencing disease knowledge, perceived susceptibility, and compliance behaviors among post-kidney transplant patients, several critical avenues remain for future investigation, particularly within the Vietnamese context. One immediate priority is the development and evaluation of culturally sensitive educational interventions tailored specifically to the informational needs, beliefs, and lived experiences of Vietnamese transplant recipients. Such interventions should directly address the gaps identified in this study, particularly regarding limited knowledge of disease management and low perceived risk of graft-related complications.

Future research should draw on existing successful models of post-transplant education implemented in other regions, such as community-based patient navigator programs, mobile health interventions, or peer support frameworks, and adapt them to the Vietnamese healthcare environment. This approach would help guide policymakers and practitioners in implementing feasible and context-appropriate strategies. Additionally, there is a need for longitudinal studies to assess the long-term impact of these interventions on patient outcomes, including graft survival rates, quality of life, and adherence to post-transplant care regimens. Unlike cross-sectional studies, longitudinal research would provide a more comprehensive understanding of how interventions influence patient behaviors over time. Future research may consider examining care and rehabilitation support models or programs for post-kidney transplant patients that have been successfully implemented in culturally similar countries within the region,

such as the self-management education programme (Thangto et al., 2022), or using mobile apps for care management (Siddique et al., 2019) to guide intervention design and outcome measurement It would also help identify any emerging challenges or barriers as patients continue managing their condition. By conducting such studies, researchers can generate evidence-based recommendations for improving post-transplant care in Vietnam and other similar settings, ultimately contributing to the global body of knowledge on kidney transplantation.

Acknowledgments Authors thanks to Nguyen Tat Thanh University for providing the study data. This research is funded by Nguyen Tat Thanh University, Ho Chi Minh city, Vietnam

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