

# Knowledge and Attitudes of Chronic Hemodialysis Patients on Kidney Transplantation in Niger

Moussa Tondi Zeinabou Maiga<sup>1,2</sup>, Bonkano Baoua Djibrilla<sup>1,2</sup>, Moussa Diongole Hassane<sup>3,4</sup>, Kadade Moussa Balkissa<sup>2,5</sup>, Eric Adehossi Omar<sup>1,6</sup>

<sup>1</sup>Amirou Boubacar Diallo National Hospital, Niamey, Niger

<sup>2</sup>Faculty of Health Sciences, ABDOU MOUMOUNI University of Niamey, Niamey, Niger

<sup>3</sup>Zinder National Hospital, Niamey, Niger

<sup>4</sup>Faculty of Health Sciences of Zinder, Niamey, Niger

<sup>5</sup>National Hospital of Niamey, Niamey, Niger

<sup>6</sup>General Referral Hospital of Niamey, Niamey, Niger

Email: bbdjibrilla@gmail.com

**How to cite this paper:** Zeinabou Maiga, M.T., Djibrilla, B.B., Hassane, M.D., Balkissa, K.M. and Omar, E.A. (2025) Knowledge and Attitudes of Chronic Hemodialysis Patients on Kidney Transplantation in Niger. *Open Journal of Nephrology*, 15, 546-553.

<https://doi.org/10.4236/ojneph.2025.154050>

**Received:** November 4, 2025

**Accepted:** December 16, 2025

**Published:** December 19, 2025

Copyright © 2025 by author(s) and Scientific Research Publishing Inc.

This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

## Abstract

**Introduction:** The management of end-stage chronic kidney disease uses different techniques of extrarenal blood purification and kidney transplantation, which is currently the best treatment for end-stage kidney disease. However, this therapeutic option is unknown to many of our patients. **Objectives:** To assess the knowledge and attitudes of chronic hemodialysis patients regarding kidney transplantation in the Nephrology-Hemodialysis Department of the Amirou Boubacar Diallo National Hospital in Niamey. **Patients and methods:** This was a Knowledge and Attitudes survey from March 15 to June 15, 2024, covering chronic hemodialysis patients with more than three months of hemodialysis and who had given their consent. **Results:** The age group from 41 to 55 years old was the most represented with 39.49% and a mean age of 44.84 years. The male sex was predominant with 71.43%. 91.5% of our patients resided in Niamey and had a duration on dialysis of less than 24 months in 43.68% of cases. Our patients claimed to be informed about Kidney Transplantation in 98.33% of cases but did not know the cost and risks of Kidney Transplantation in 79.66% and 55.83% of cases, respectively. 57% of our patients wanted to be transplanted, 60.5% thought that Kidney Transplantation is a good thing and 39.5% thought that it is a bad thing. There was a statistically significant association between low socioeconomic status and rejection of the kidney transplant option. **Conclusion:** It is essential to inform patients with chronic kidney failure about kidney transplantation.

## Keywords

Knowledge And Attitudes, Chronic Hemodialysis, Kidney Transplantation, Niger

---

## 1. Introduction

End-Stage Chronic Kidney Disease (ESCR) is a major public health problem in the world, particularly in developing countries [1]-[3]. Its management involves various techniques of extrarenal purification and kidney transplantation [4]. Kidney transplantation is the treatment of choice for CKD, especially in children and young adults because it offers a better quality of life and better survival, in addition to significantly reducing the cost of care [3] [4]. However, it is clear that developing countries have particularly low rates of kidney transplantation. There are many reasons for this, including a lack of infrastructure and skilled human resources, a lack of a framework governing brain death, and religious, cultural, and social constraints [4]. In Sub-Saharan Africa, very few countries currently perform kidney transplantation [5]. Cameroon joined this select circle in 2021, Senegal in 2023, Mauritania in 2024, and Burkina Faso in 2025 should, in turn, try to increase the number of kidney transplants [6]. For the time being, kidney transplantation is not practiced in Niger; patients wishing to undergo this technique go abroad (Türkiye, India, Tunisia, Morocco, etc.) to undergo this procedure. This is why it is essential to offer patients all possible and appropriate treatment options. However, it appears that communication between nephrologists and patients is limited regarding kidney transplantation [7]. Despite the non-establishment of a kidney transplant program in Niger, given the requests regarding the latter, we considered it useful to conduct this study, which aims to evaluate the knowledge and attitudes of chronic hemodialysis patients regarding kidney transplantation in the Nephrology-Hemodialysis Department of the Amirou Boubacar Diallo National Hospital in Niamey.

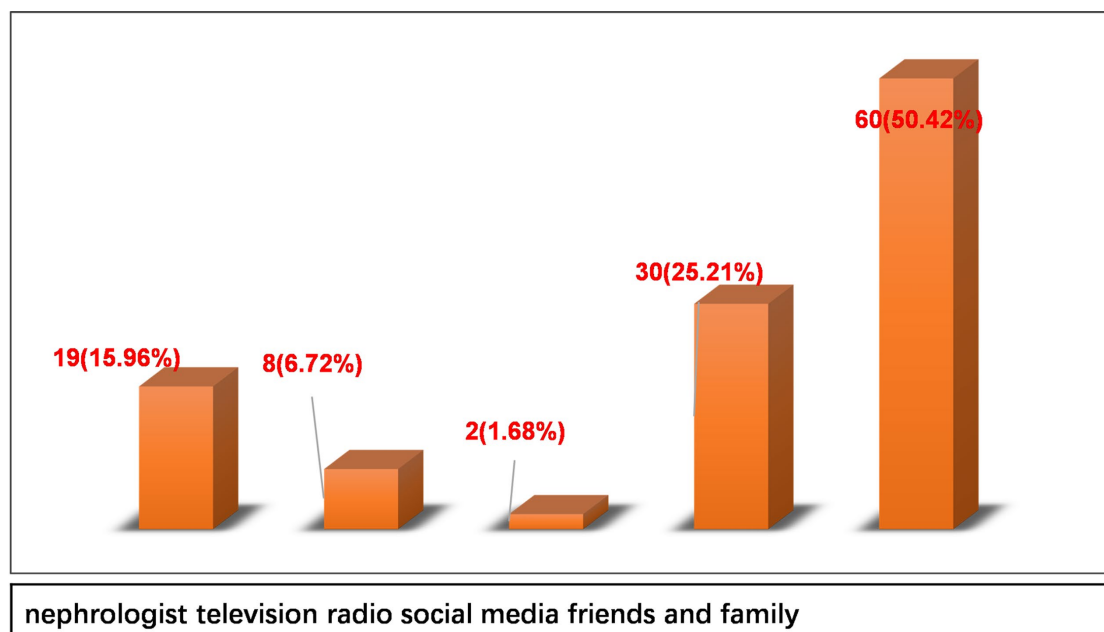
## 2. Methodology

The study took place in the Nephrology-Hemodialysis Department of the Amirou Boubacar Diallo National Hospital in Niamey (HNABD). This is a Knowledge and Attitudes survey from March 15 to June 15, 2024, on chronic hemodialysis patients who have been on hemodialysis for more than three months and who have given their consent. We have defined low socioeconomic status as follows: People with a very low level of education, with only primary education and some with secondary education, belong to this socioeconomic class. Also included in this class are some temporary or self-employed workers with modest incomes. For the data collection we used: patient files, individual data collection sheets, and interviews with patients. Data entry and analysis were carried out with the Epi-Info software in version 7.2.4.0. Prior to the start of the survey, all data collection tools

were tested. We sought research authorization before starting the study. Our study took place after the approval of the ethics council of the Faculty of Health Sciences and the approval of the Amirou Boubacar Diallo National Hospital. The consent of the included patients was requested with the guarantee of anonymity when presenting the results.

### 3. Results

The mean age of patients is 44.84 years, with extremes of 13 and 73 years. The sex ratio H\F is 2.5. Most of the patients were married (79.31%). 45.38% of the patients had a primary level of education. Almost all hemodialysis patients were informed about kidney transplantation (98.33% of cases). Information on kidney transplantation was received from family and friends in 50.42% of cases (**Figure 1**).



**Figure 1.** Distribution of patients according to sources of information.

79.66% of hemodialysis patients did not know the cost of kidney transplantation. 55.83% of patients say they are not aware of the risks of kidney transplantation. On the other hand, 78.15% of hemodialysis patients do not know the procedures to benefit from kidney transplantation. 87.5% of hemodialysis patients have no knowledge of immunosuppressive treatment (cost and duration of treatment). More than half of hemodialysis patients claim to have a kidney donor. 81.51% of hemodialysis patients did not have the financial means to finance a kidney transplant. Hemodialysis patients considered kidney transplantation to be a good thing in 42.86% (**Table 1**).

57% of hemodialysis patients wanted to benefit from a kidney transplant. The main reason for the acceptability of kidney transplantation is “to have a better life” in 39.39% of hemodialysis patients (**Table 2**).

**Table 1.** Distribution of patients according to the assessment of the kidney transplant.

Assessment of Kidney Transplantation	Actual	Percentage (%)
<b>Good thing</b>	<b>51</b>	<b>42.86</b>
Best Solution	9	7.57
Very delicate	3	2.52
<b>Bad thing</b>	<b>38</b>	<b>31.93</b>
It's scary	1	0.84
I prefer dialysis	1	0.84
This is the ideal treatment	5	4.2
Very good thing	7	5.88
Very bad thing	4	3.36
Total	119	100

**Table 2.** Distribution of patients by reason for acceptability of kidney transplantation.

Reason for Acceptance of TR	Actual	Percentage (%)
Improved health status	13	19.7
Socio-professional reintegration	4	6.06
Increase in life expectancy	8	12.12
<b>For a better life</b>	<b>26</b>	<b>39.39</b>
<b>Avoiding dialysis</b>	<b>14</b>	<b>21.21</b>
Personal reason	1	1.52
Total	66	100

The two main reasons for refusing kidney transplantation are the risks associated with the procedure and personal reasons, with 30.19% and 24.52%, respectively (**Table 3**).

There is no correlation between the level of education and the refusal of kidney transplantation. However, there is a statistically significant association between low socioeconomic status and rejection of the kidney transplant option.

**Table 3.** The main reasons for refusal of kidney transplantation.

Reason for TR refusal	Actual	Percentage (%)
<b>Because of the risks.</b>	<b>16</b>	<b>30.19</b>
<b>Personal reasons.</b>	<b>13</b>	<b>24.52</b>
So as not to endanger my donor.	1	1.89
So as not to harm anyone.	4	7.55
I'm already old.	4	7.55
Because of the risk of rejection.	8	15.09
I am a carrier of anti-HLA antibodies.	1	1.89
I accepted my destiny.	5	9.43
I am not interested in it.	1	1.89
Total	53	100

## 4. Discussion

We can see that this is a young population. Our study is in line with many African studies [7]-[10]. On the other hand, work carried out in Western countries has shown that patients on chronic hemodialysis are older, beyond 60 years of age [11] [12]. Disparities in socioeconomic levels around the world have a significant influence on the determinants of health. The male sex is the most concerned in our study, with a ratio of 2.5. This male predominance could be explained by the fact that the male gender is one of the risk factors for RCD [13] [14]. Unemployed patients and dealers accounted for 51.33% and 24.77% of cases, respectively. Civil servants represent 20.36%. Our study is similar to that of Saïd S [15] in Morocco in 2007, which reported 24.3% of civil servants. Indeed, hemodialysis strongly hinders quality of life as well as socio-professional reintegration. 91.5% of our patients live in Niamey. This could be explained by the fact that there are only two haemodialysis centres in the whole of Niger and that Niamey is the reference region for almost all the other regions. 98.33% of patients were informed about kidney transplantation. Our result is similar to those of Sidi A. A. [16] in Mauritania in 2017 and Nurten K. *et al* [17] in Türkiye in 2015, who reported respectively 95% and 76.9% of patients who reported being informed about kidney transplantation. Our result is different from that of Befra N. K. K. [18] in Morocco in 2014 who reported that 62.70% of patients reported having no idea about kidney transplantation. According to Enes D. *et al* [19], patients do not receive enough information about kidney transplantation, and even if a patient receives information from another patient, it is most often false or outdated (old recommendation). Indeed, kidney transplantation is the treatment of choice for end-stage chronic kidney disease because it offers a better quality of life and an increase in the life expectancy of patients. In Sub-Saharan Africa, less than 1% of end-stage renal disease patients benefit from kidney transplantation [10]. Patients had received information about kidney transplantation from their family and friends in 50.42% of cases. Our result differs from that of Saïd S [15] in Morocco in 2007, who reported that 47.5% of patients were informed about kidney transplantation by their treating physician. Our patients had no knowledge about the cost of kidney transplantation in 79.66% of cases. Our result is similar to that of Saïd S. [15] in Morocco in 2007, who reported that 59.6% of chronic hemodialysis patients did not know the cost of kidney transplantation. Kabbali N. *et al* [20] reported that 56.2% of patients in their sample believed that kidney transplantation is more expensive than hemodialysis. Our patients would have a kidney donor in 53.78% of cases, compared to 46.22% who did not have a donor. Saïd S. [15] in Morocco in 2007 reported 66.5% of patients who did not have a donor despite having accepted kidney transplantation. In Muslim-majority countries, religious factors related to whether or not organ donation (living or cadaverous) is allowed by Islam influence patients' access to transplantation [10] [12] [14] [18]. Our patients thought that kidney transplantation is a good thing by offering a better quality of life in 42.86% of cases; on the other hand, 41.93% of patients are unfavourable because they thought that kidney

transplantation is a bad thing. Our results are lower than those of Saïd S. [15] in Morocco in 2007, who reported 64.7% of patients who were in favor of kidney transplantation and 17% of patients who were against. According to Sidi A. A. [16] in Mauritania in 2017, 84% of patients responded that kidney transplantation was the best treatment for chronic kidney disease. Our patients wanted to be transplanted with a kidney in 57% of cases. Our results are lower than those of Chemlal A. [7] in Morocco in 2015 and Sidi A. A. [16] in Mauritania in 2017, who reported 83.7% and 89% of patients in favor of kidney transplantation, respectively. In France, according to 2011 data from the “Biomedicine Agency”, the rate of registration on the list of kidney transplant patients continues to increase with a rate of more than 2.9% compared to 2010 [21]. The nephrologist’s awareness and explanation of kidney transplantation to chronic hemodialysis patients led the latter to opt for transplantation. Forty-three percent (43%) of patients refused kidney transplantation and the two main reasons for refusal were fear of the risks associated with it (30.19%) and personal reasons (24.52%). Our results are superimposed on those of Alansari H. *et al.* [22] in Saudi Arabia, who reported 30.1% of patients who refused kidney transplantation and the main reasons they gave were: advanced age (61%) and fear of surgical complications (26%). Our results are higher than those of Audrey F. S. M. *et al.* [10] in Senegal in 2018, who reported 7% of patients who refused transplantation. According to Chemlal A. [7], 48% of patients had fears about infectious and neoplastic complications of transplantation as well as returning to dialysis. Indeed, the three main causes of mortality in post-kidney transplantation are: infectious, cardiovascular, and neoplastic [7]. According to Tara *et al.* in Australia [8] in 2023, the main barriers limiting access for patients living in villages and remote places were: lack of communication, transport difficulties, fear of an adverse outcome after transplantation, limited understanding of kidney disease and its different treatment options, socio-cultural reasons, lack of motivation, factors related to the organization of care, patient adherence to treatment, and patients’ physical and psychological state. 57% of patients had agreed to be transplanted and the main reasons for acceptability were: to have a better life (39.39%), to avoid dialysis (21.21%) and to have an improvement in health status (19.7%). Our results are lower than those of Audrey FSM [10] in Senegal in 2018, who reported 93% of patients who agreed to be transplanted and whose main reasons for acceptability were: to stop hemodialysis (100%) and to have an improvement in quality of life (97.18%). Apart from dialysis, kidney transplantation is the best renal replacement technique to date. Thanks to the improvement of immunosuppressive treatments and surgical prowess, kidney transplantation has made it possible to stand out, thus bringing multiple advantages [19]: benefits at the individual level: longer life expectancy and better quality of life for patients who have benefited from a kidney transplant compared to the technique of renal replacement by dialysis; benefits on a collective scale: lower economic cost. In Niger, a therapeutic education program has been set up to inform patients and address their concerns about kidney transplantation.

## 5. Conclusion

Kidney transplantation is currently the treatment of choice for end-stage chronic kidney disease because it offers a better quality of life and better survival, in addition to a significant reduction in the cost of care. Our study assessed the knowledge and attitudes of patients undergoing chronic hemodialysis in Niger regarding kidney transplantation. Conducted among 119 patients, we found that most patients are aware of the existence of transplantation, but they have significant gaps in their knowledge about its cost, risks, and procedures. Although 57% of patients expressed a desire to undergo transplantation, a statistically significant association was observed between low socioeconomic status and rejection of this treatment option. Thus, information for IRCT patients concerning the possibility of TxR must be provided as early as possible to help the patient in their therapeutic choice.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

## References

- [1] Levey, A.S., de Jong, P.E., Coresh, J., *et al.* (2011) Définition, classification et pronostic de la maladie rénale chronique: Rapport de la conférence KDIGO controversies. *Rein International*, **80**, 17-28.
- [2] Thuret, R., Timsit, M.O. and Kleinclauss, F. (2016) Insuffisance rénale chronique et transplantation rénale. *Progrès en Urologie*, **26**, 882-908.  
<https://doi.org/10.1016/j.purol.2016.09.051>
- [3] Yannick, N., Sarah, H., Anne, R., Lynda, C., *et al.* (2020) Insuffisance rénale terminale au Maghreb et en Afrique. *Néphrologie et Thérapeutique*, **16**, 171-176.
- [4] Gondran-Tellier, B., Baboudjian, M., Lechevallier, E. and Boissier, R. (2020) La transplantation rénale, pourquoi, pour qui et comment? *Progrès en Urologie*, **30**, 976-981.  
<https://doi.org/10.1016/j.purol.2020.09.017>
- [5] David, C.L. and Delmonico, F.L. (2005) Living-Donor Kidney Transplantation: A Review of the Current Practices for the Live Donor. *Journal of the American Society of Nephrology*, **16**, 2098-2110.
- [6] Aristide, N., Mahamat, M., Karla, M., Marcus, F., *et al.* (2022) Le rêve devenu réalité: Succès de la coopération Genève-Yaoundé ou Suisse-Cameroun en transplantation rénale. *Néphrologie et Thérapeutique*, **18**, 324.  
<https://doi.org/10.1016/j.nephro.2022.07.268>
- [7] Chemlal, A., Alaoui, F., Karimi, I., Benabdellah, N., Haddiya, I. and Bentata, Y. (2015) Connaissances et attitudes des patients hémodialysés chroniques sur la transplantation rénale et le don d'organes. *Néphrologie & Thérapeutique*, **11**, 423.  
<https://doi.org/10.1016/j.nephro.2015.07.460>
- [8] Yawovi, M.T., Badomta, D., Komlan, G.T., Anani, A.T., *et al.* (2021) Insuffisance rénale chronique et hémodialyse à Lomé: L'hémodialysé et son entourage sont-ils bien informés? *Pan African Medical Journal*, **39**, Article 85.  
<https://doi.org/10.11604/pamj.2021.39.85.26685>
- [9] Mahamat Abderraman, G. and Haddoum, F. (2018) Accès à la transplantation rénale au Tchad. *Néphrologie & Thérapeutique*, **14**, 329-330.  
<https://doi.org/10.1016/j.nephro.2018.07.182>

- [10] Audrey, F.S.M., Guillaume, M.K., Maria, F., Boucar, D., *et al.* (2018) Eligibility to Renal Transplantation in Dakar's Chronic Hemodialysis Patients. *Journal of Nephrology and Urology*, **2018**, 1-7.
- [11] Dusseux, E. (2013) Score clinique d'aide à l'identification des patients dialysés de plus de 70 ans éligibles pour une transplantation rénale. Médecine humaine et pathologie. Thèse, Dépôt Universitaire de Mémoires Après Soutenance.
- [12] Tara, K.W., Beverkey, D.G. and Andrey, J.M. (2023) Identifying the Barriers to Kidney Transplantation for Patients in Rural and Remote Areas: A Scoping Review. Springer.
- [13] Le réseau épidémiologie et information en néphrologie (REIN), rapport annuel. <https://www.agence-biomedecine.fr/fr/observatoire-de-la-maladie-renale-chronique/le-rapport-annuel-rein-2023>
- [14] Cruz, I.A. and Hosten, A.O. (1989) An Update of the End-Stage Renal Disease Program at Howard University Hospital. *Transplantation Proceedings*, **21**, 3892-3894.
- [15] Said, S. (2007) Profil épidémiologique et connaissance de la transplantation rénale auprès des hémodialysés chronique de la ville de Marrackech. Thèse, Université Cadi Ayyad Faculté de Médecine et de Pharmacie Marrackech.
- [16] Aly, A.S., Mah, S.M., Dieh, M.T., Beddl, M.L., *et al.* (2017) Fasabilité et perspective de la transplantation rénale en Mauritanie. *Néphrologie et Thérapeutique*, **13**, 415.
- [17] Kalender, N., Tosun, N., Bagcivan, G., Cinar, F.I., Yilmaz, M.I., Eyiletan, T., *et al.* (2015) Evaluation of Knowledge about and Attitudes Towards Kidney Transplantation in Patients Undergoing Hemodialysis Treatment. *Turkish Nephrology Dialysis Transplantation*, **24**, 202-206. <https://doi.org/10.5262/tndt.2015.1002.10>
- [18] Befa, N.K.K. (2014) Transplantation rénale au Maroc: L'hémodialysé et son entourage sont-ils bien informés? *Pan African Journal*, **19**, Article 365.
- [19] Enes, D., Elif, B., Omh, U., *et al.* (2019) How the Chronic Dialysis Patients Feel about Renal Transplantation? *Turkish Journal of Nephrology*, **28**, 278-282.
- [20] Kabbali, N., Mikou, S., El Bardai, G., Tazi, N., Ezziani, M., Batta, F.Z., *et al.* (2024) Attitude of Hemodialysis Patients toward Renal Transplantation: A Moroccan Inter-regional Survey. *Transplantation Proceedings*, **46**, 1328-1331. <https://doi.org/10.1016/j.transproceed.2014.03.008>
- [21] Hbali, G., Mouhoub, R., Fadili, W., Lisri, M., Idrissi Kaitouni, A. and Laouad, I. (2011) Evaluation des connaissances des hémodialysés en matière de transplantation rénale; Communication affichée. *Néphrologie & Thérapeutique*, **7**, 387. <https://doi.org/10.1016/j.nephro.2011.07.271>
- [22] Alansari, H., Almalki, A., Sadagah, L. and Alharthi, M. (2017) Hemodialysis Patients' Willingness to Undergo Kidney Transplantation: An Observational Study. *Transplantation Proceedings*, **49**, 2025-2030. <https://doi.org/10.1016/j.transproceed.2017.09.016>