

# The COVID-19 pandemic and mental health outcomes in CKD patients

Luuk B. Hilbrands 

Department of Nephrology, Radboud University Medical Center, Nijmegen, The Netherlands

Correspondence to: Luuk B. Hilbrands; E-mail: [luuk.hilbrands@radboudumc.nl](mailto:luuk.hilbrands@radboudumc.nl)

## EFFECTS OF COVID-19 ON MENTAL HEALTH

While the coronavirus disease 2019 (COVID-19) pandemic has subsided and the current disease burden of COVID-19 is relatively low, lessons learned from the early phases of the pandemic indicate that COVID-19 may have serious consequences for an individual's physical well-being in several ways—first, by manifesting as an acute respiratory disease and second by resulting in persisting complaints of fatigue and other physical symptoms called 'long covid'. Long covid is also associated with a decline in psychosocial well-being. Next to the potential effects of the disease in a single individual, the COVID-19 pandemic also affected the mental health of the population due to increased psychological distress and social restrictions. A systematic review showed an increase in the prevalence of mental health problems, such as depression and anxiety, after the onset of the pandemic [1]. This was probably caused by a combination of several factors including disruption by an unknown global event, fear of a decline in personal well-being and social isolation.

## COVID-19 AND CHRONIC KIDNEY DISEASE

During the pandemic, it became clear that patients with chronic kidney disease (CKD), especially those receiving kidney replacement therapy, form a specific population. First, CKD patients are well known to have a higher risk of mental health problems, especially depression. Second, the risk of a severe course of COVID-19 is much higher in patients on dialysis or living with a transplanted kidney. Third, haemodialysis patients have to visit a dialysis ward three to four times a week, which on one hand exposes them to the risk of contracting the disease but on the other hand, may protect them from social isolation. Fourth, the immunogenicity of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) vaccines appeared to be strongly reduced in kidney transplant patients due to the use of immunosuppressive medication. Consequently, these patients remained extremely vulnerable to the disease which led to fear and prolonged social isolation. Because of these particular conditions, it is relevant to evaluate mental health outcomes in CKD patients with a special focus on dialysis patients and kidney transplant recipients.

## CONSEQUENCES OF COVID-19 ON MENTAL HEALTH OUTCOME IN INDIVIDUAL PATIENTS WITH CKD

In the general population substantial rates (20%–25%) of cognitive disturbances, sleep problems, anxiety and depression have been observed after COVID-19. The European Renal Association COVID-19 Database (ERACODA) collected data on mental health outcomes at 3 months after COVID-19 diagnosis in 854 haemodialysis patients, using a standardized questionnaire completed by the treating physician [2]. According to their physician, only 6% of the dialysis patients did not reach their pre-COVID-19 mental health status, with memory loss, depression and anxiety as the most commonly reported limiting factors. A higher frailty score was associated with a lower likelihood of reaching the pre-COVID-19 status, and there was a trend for a lower recovery rate in patients who were admitted to the intensive care unit (ICU). In 67 patients on peritoneal dialysis, the treating physician indicated that 13% of them did not reach their pre-COVID-19 mental health status at 3 months after COVID-19 diagnosis, with anxiety and sleep disturbances as the main limiting factors [3].

ERACODA provided a similar picture for kidney transplant recipients, in whom the pre-COVID-19 mental health status was reached in 425 of 450 patents (94.4%) at 3 months after COVID-19 diagnosis according to the treating physician [4]. Here the most frequently noted limiting factors were depression, anxiety, grief and posttraumatic stress disorder. In kidney transplant recipients, ICU admission was independently associated with a lower likelihood of reaching prior mental health status. A clear limitation of the ERACODA data was that it only included physician-reported outcomes and not patient-reported outcomes using validated instruments to measure mental health. Unfortunately, studies that have measured mental health outcomes after COVID-19 using such tools are not available.

Taken together, It appears that most dialysis patients and kidney transplant recipients who survive COVID-19 reach their pre-existent mental health status, which is a reassuring message for the majority of our patients with CKD. An exception has to be made for patients who were seriously ill and had to be admitted to the ICU. Special attention should be given to the long-term mental health well-being of these patients.

## CONSEQUENCES OF THE COVID-19 PANDEMIC ON THE MENTAL HEALTH OF POPULATIONS WITH CKD

A systematic review of qualitative studies performed in patients with CKD, mostly dialysis patients and kidney transplant recipients, showed that concerns of patients focused on exacerbation of vulnerability and distress and on uncertainty regarding access to healthcare [5]. At the same time there was an increasing trust in care and strengthening of connections with family and caregivers. Three separate studies using qualitative mental health measures showed that mental health of Dutch CKD and dialysis patients without COVID-19 was not affected during the pandemic [6–8]. This may be explained by the fact that dialysis patients already had a relatively high prevalence of depression and anxiety before the pandemic as well as by limited changes in the daily lives of these patients undergoing chronic dialysis treatment and the presence of more developed coping mechanisms.

The high risk of mortality due to COVID-19 in kidney transplant recipients resulted in widespread self-isolation and social distancing in this population, either according to a shielding policy recommended by healthcare authorities or government, or individually chosen based on self-perceived risk. A study in solid organ transplant recipients showed high adherence levels to shielding policy, which facilitated coping behaviour and reduced feelings of uncertainty [9]. While shielding has negative effects on mental health status in the general population, there are no data available to assess the impact of shielding on mental health in kidney transplant recipients. Interestingly, a study in nearly 3000 kidney transplant recipients showed that higher adherence to preventive measures, including social distancing, decreased the likelihood of SARS-CoV-2 infection both before and after vaccination by 33% and 52%, respectively [10]. Moreover, adherence to preventive measures decreased after vaccination. Since patients were informed about antibody levels after vaccination, it could be demonstrated that there was an independent dose–response relationship between awareness of a higher antibody response to vaccination and reduced adherence to preventive measures. Attention should therefore be paid to the way patients are informed about the results of vaccination, finding a balance between reassurance about a measurable immune response and avoidance of inappropriate loss of adherence to preventive measures.

In summary, the consequences of the COVID-19 pandemic on the mental health of patients with CKD, especially dialysis patients and kidney transplant recipients, might be less severe than expected considering the vulnerability of these categories of patients. It appears that the added effects of the pandemic on mental well-being were small in relation to pre-existent limitations in this population. Moreover, the perceived attention of healthcare institutions and caregivers for their vulnerable position provided trust and a sense of certainty about managing the situation.

## CONCLUDING REMARKS

COVID-19 and other pandemics can have serious consequences for mental health, especially in patients with chronic conditions. It is important to acknowledge that populations with chronic dis-

eases can differ in various aspects which underscores the relevance of evaluating the long term effects of COVID-19 on an individual and population level in patients with specific conditions. Dialysis patients and, to a lesser extent, kidney transplant recipients are characterized by relatively low mental health-related quality of life scores, which may influence the impact of additional stressors.

## CONFLICT OF INTEREST STATEMENT

None declared.

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