

# Socioeconomic Determinants of Quality of Life in Patients with Kidney Diseases

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Health-related quality of life (HRQOL) is a vital concept with multiple definitions and multiple dimensions. Each individual perceives HRQOL through the prism of their own unique functioning in major areas, such as physical, psychological, and social wellbeing. CKD affects HRQOL in many different ways, which subsequently leads to adverse health outcomes, and increased morbidity and mortality (1). Not only this, poor HRQOL limits an individual's day-to-day participation in life activities, and their overall wellbeing. Consequently, there has been a growing recognition in the nephrology community of the importance of integration and evaluation of patient-reported outcomes and HRQOL in the overall management of CKD.

A number of studies have examined HRQOL in patients with kidney disease, but the vast majority have focused on patients on maintenance dialysis. Fewer studies have attempted to evaluate HRQOL among patients with earlier stages of CKD. One of the largest ones, the Chronic Renal Insufficiency Cohort (CRIC) enrolled >3800 patients with CKD from North America (1). It showed that a number of sociodemographic (younger age, women, low education) and clinical (diabetes, vascular disease, congestive heart failure, obesity, and lower eGFR) factors were associated with poor HRQOL. Other potential determinants of HRQOL in CKD may be behavioral and lifestyle factors, frailty, and symptom burden (2). Given that the majority of these studies have been based in developed nations, these results may not reflect the determinants of HRQOL in patients with CKD in lower-resource settings.

In this issue of *CJASN*, Modi *et al.* (3) report their results from the Indian CKD (ICKD) study on baseline HRQOL, and its socioeconomic and clinical correlates among patients with mild to moderate CKD in India. This countrywide prospective cohort study is recruiting participants from 11 tertiary kidney hospitals and aims to capture heterogeneities in terms of ethnicities, regions, and development status. The primary objectives of the ICKD study are to elucidate the natural history of CKD and to understand the risk factors for progression, complications, hospitalizations, and mortality. Other broad areas being evaluated are sex differences, biomarkers, quality of life, and cost of care.

In this first and largest of its kind cohort study from India, patients 18–70 years of age with eGFR

30–60 ml/min per 1.73 m<sup>2</sup> or >60 ml/min per 1.73 m<sup>2</sup> with dipstick positive albuminuria were enrolled. Among the 2919 patients included in this report, mean age was 50±12 years, 69% were men, 65% lived in rural areas, 56% had less than high school education, and 34% had diabetes. The median eGFR was 42 ml/min per 1.73 m<sup>2</sup> and one third of the patients had albuminuria. The quality of life was assessed using validated Kidney Disease Quality of Life (KDQOL) 36 questionnaire. Results showed significantly impaired HRQOL, especially low physical component and mental component summary scores, which are comparable with previously reported scores in other CKD cohorts. After adjusting for multiple covariates, the predominant determinants of HRQOL were socioeconomic factors. Female sex, lower education, and lower income were associated with lower scores across all subscales. What was surprising was that clinical factors, such as eGFR, albuminuria, diabetes, or hypertension, had inconsistent or no association with KDQOL subscale scores. The scores also displayed regional variations, with rural residence displaying the strongest association with poor HRQOL, although this became insignificant in the adjusted analysis.

This study has several notable strengths including a large sample size, geographically diverse and representative patient cohort, standardized administration of a validated HRQOL questionnaire, and collection of a number of sociodemographic and clinical variables. Inevitably, the observational cross-sectional design of the study makes it vulnerable to the effects of unmeasured confounding factors and biases. Despite the authors' attempts to ensure uniformity and comprehensive evaluation, these effects cannot be completely eliminated, leading to mostly associative and hypothesis generating findings. Additionally, the Kidney Disease Quality of Life 36 questionnaire was administered in local languages by the interviewers which may affect its validity and reliability. However, given the large number of languages and dialects spoken in different parts of India, there may not be a feasible alternative in such a population-based cohort study. Despite these limitations, the findings of this study are extremely important and informative.

The finding that socioeconomic variables are the key determinants of HRQOL in patients with CKD in India confirms findings from prior small studies from

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developing nations. Association of low income with worse HRQOL as seen in this study mirrors the findings from a recent study from Ethiopia, where low income was associated with worse HRQOL in both physical and mental component summaries among 256 patients with CKD (4). Another study evaluated the HRQOL in 170 patients with predialysis CKD from Brazil. These investigators found that sex and age influenced HRQOL, but family income was the most important factor, affecting six out of eight domains of HRQOL in Short Form 36 (5). Given that a large part of the population in these developing nations is impoverished, they cannot always afford to be seen by a kidney specialist, not to mention receive expensive and unaffordable treatment regimens. Moreover, they often have undiagnosed and unmanaged comorbidities and/or complications of CKD because of a lack of routine health care and high out-of-pocket health care expenditures, and suffer from the adverse consequences of poor quality of care. This is likely true for all chronic debilitating disease states, and not just for CKD. As an example, the Asian Patient Perspectives Regarding Oncology Awareness, Care and Health (APPROACH) cross-sectional survey in Hyderabad, India, assessed HRQOL of patients with advanced cancer. This study found that patients with lower financial wellbeing who belong to minority religions reported low physical, functional, emotional, social/family, and spiritual wellbeing, and borderline depressive symptoms (6).

The distinct lack of significant association of clinical factors with HRQOL in this cohort is in contrast to findings from other large CKD cohort studies, such as CRIC. Some of these differences may be because of differences in baseline characteristics of the cohorts. For example, in ICKD, the patients were younger, had lower body mass index, and had lower prevalence of diabetes and cardiovascular disease, as compared with patients in CRIC. Alternately, these findings may also suggest the overpowering and dominant effect of socioeconomic factors on the patients' life and HRQOL in developing nations regardless of clinical factors or underlying disease state, as these disadvantaged patients do not have access or the means to receive proper health care.

On a similar note, the association of low education with poor HRQOL is not surprising and is a finding that has also been seen in developed nations. In CRIC, one fifth of the patients had less than high school education, and this was significantly associated with poor HRQOL. Lack of education can affect patient's health literacy, ability to seek and follow medical advice, adopt healthy behaviors and lifestyle, and even their disease-coping skills.

A recurring finding across multiple studies, including ICKD, is that women with CKD suffer from lower HRQOL compared with men. A detailed review on sex and gender disparities in the outcomes of CKD including HRQOL supports these findings. In this review, women on maintenance dialysis report a higher burden of symptoms and greater symptom severity. Even after successful kidney transplantation, the improvement in HRQOL is less pronounced in women (7). Women and men react to the disease in many different ways. Women suffer more from depression and anxiety, and use more emotional and social support seeking strategies to cope with their disease. In patients with

CKD, perceived stress and the use of maladaptive and adaptive coping skills also differ among men and women and may explain some of the observed differences in this study (8). Moreover, men and women might receive different levels of social and culturally determined support. Women may get stigmatized and isolated by their families and the society when they get severely sick, or may not be able to fulfill their traditional role of a caregiver, which may affect their own perceived HRQOL. More often, women who live in rural areas are often illiterate and lack employment, and report limited autonomy and less decision-making power, which can potentially affect their HRQOL, especially when dealing with a chronic illness (9).

In summary, this study provides valuable insights into the significant correlates of HRQOL among patients with CKD from developing countries. The predominance of socioeconomic over clinical determinants of HRQOL emphasizes the need for integration of evaluation of such factors in clinical care. In a geographically vast and socioeconomically disparate country as India, involvement of multiple stakeholders, such as the government, national and international medical associations, industries, civil societies, community support groups and networks, and family members, is essential for the provision of affordable health care (10). Future research should focus on evaluating effective interventions to improve HRQOL in resource-poor settings, especially supporting vulnerable patients with CKD such as those with financial distress, low education, and women.

#### Disclosures

Dr. Jhamb and Dr. Roumelioti have nothing to disclose.

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See related Patient Voice, “Patient Perspective on CKD in India,” and article, “Nonmedical Factors and Health-Related Quality of Life in CKD in India,” on pages 161 and 191–199, respectively.