

Mobility and What Matters: Moving Kidney Care Toward the 4Ms of an Age-Friendly Health System



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Mobility refers to a person's ability to move safely and reliably¹ and is integral to well-being.² Maintaining mobility is a goal for those who are chronically ill and older.³ However, kidney disease progression is associated

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with worsening mobility. Using data from the InCHIANTI cohort, Roshanravan et al⁴ demonstrated that chronic kidney disease severity predicted future losses in walking speed and leg strength, while Tamura et al⁵ showed that dialysis initiation was associated with deteriorations in personal care activities, such as bathing. Together these studies highlight the threats to mobility and independence faced by people with kidney disease.

Mobility and its sister outcome, physical activity, are important for several reasons. First, poor mobility predicts death,⁶ doubling the risk of mortality in two years in those receiving dialysis.⁷ Second, patients cite poor mobility as contributing to poor quality of life, equivalent to chronic pain in its impact.⁸ These and other factors led to a consensus group identifying mobility as a core outcome for nephrology trials.^{9,10}

Per the World Health Organization, mobility is conceptually shaped by health, environmental, and personal factors.¹¹ Regarding health factors, there is a wealth of information regarding how comorbid conditions and biochemical abnormalities may contribute to the poor mobility often observed in persons with kidney disease. In contrast, there are only a handful of studies documenting how personal factors, such as coping style and social support¹² impact mobility. In this issue of *Kidney Medicine*, Rothpletz-Puglia et al¹³ addressed this gap in knowledge using a concurrent mixed methods study design. These authors conducted in-depth interviews regarding mobility and physical activity in 15 persons receiving hemodialysis, complementing these interviews with the timed up-and-go test (TUG) and the Human Activity Profile (HAP) assessments. The TUG asks a person to rise from a chair, walk 3 meters, turn around, and walk back to the chair and sit down. The HAP asks a person about the ability to do tasks using mobility at various levels of effort. Thematic analysis was used to document major themes from the interviews, which were then integrated with the quantitative TUG and HAP data.

From the qualitative interviews, the main finding was a *mindset* theme for mobility. Within this theme, the authors divided individuals into engaged, intermediately engaged, and disengaged categories. Persons who were engaged

voiced acceptance of kidney disease and dialysis, and described setting goals for mobility and physical activity. In contrast, disengaged individuals ruminated about adverse experiences and expressed denial about having kidney disease. When the authors integrated the qualitative data with the quantitative data, they found that those who were more engaged had high HAP scores, meaning they reported greater levels of physical activity. While the sample size was modest, these results suggest that the ability to adjust and adapt psychologically to kidney disease likely influences patients' levels of physical activity. Given their findings, the authors suggest that interventions for mobility for this population should include approaches that teach ways to constructively adapt to change.

In addition to the *mindset* theme, Rothpletz-Puglia et al¹³ describe 3 other key themes: the impact of *hardship*, the importance of *family and friends*, and the support provided by *faith*. For *hardship*, individuals described how adverse experiences, such as homelessness or the death of a child, shaped their perspectives. They recounted how their ability to cope with change, including dealing with kidney disease, was supported by loved ones. Several persons shared how their faith sustained their determination to deal with the hardships they experienced in their lives.

The research being done by Rothpletz-Puglia et al¹³ on the relationship between mobility and kidney disease aligns well with the 4M framework of an age-friendly health system. Developed by the Institute for Healthcare Improvement, this framework focuses on how 4 elements—mobility, mentation, medications, and what matters—should shape the medical care of older adults. Since its inception in 2017, this framework has been adopted by hundreds of health care systems in the United States.¹⁴ In their literature, the Institute for Healthcare Improvement describes mobility as “ensuring that older adults move safely every day in order to maintain function.” This study by Rothpletz-Puglia et al¹³ certainly fits the mobility domain of the 4M framework.

However, we note that there is an additional phrase for the mobility element: “ensuring that older adults move safely every day in order to maintain function to *do what matters*.” What matters, which is one of the 4M's, means that a clinician should know a person's health goals and preferences, supported by an understanding of the key values and experiences that drive these choices.¹⁵ However, this underlying aspect of mobility has not been widely explored in the current nephrology literature. The findings from Rothpletz-Puglia et al's study¹³ regarding

the impact of hardship, family/friends, and faith starts the hard job of addressing this fundamental gap in our knowledge.

A nuanced and comprehensive understanding of the influences that shape mobility for those who live with kidney disease will facilitate effective interventions to improve their mobility. Such information could be used to personalize an intervention to the values and goals of an individual. For example, a person who highly values family may be motivated to improve mobility so they can dance at an upcoming wedding celebration or travel out of state to a family reunion. Using tailored and personalized goals will likely encourage adherence to an intervention for mobility. Complementary approaches that also employ individualized goals, such as motivational interviewing¹⁶ and health coaching,¹⁷ could also be incorporated into interventions for mobility.

Importantly, studies such as this one that fit within the 4M framework will likely facilitate the implementation and dissemination of interventions for mobility. One of the requirements to be certified as an age-friendly health system is the use of interventions to improve mobility. Alignment with the priorities of the broader health care system will accelerate the update of mobility interventions into widespread clinical practice. Taking such an approach can only have net benefit for individuals with kidney disease.

In summary, Rothpletz-Puglia et al¹³ conducted a mixed methods study to gain a nuanced understanding of mobility in 15 persons receiving dialysis. Their findings suggest that mobility is shaped by an individual's mindset, their personal history of hardship, the support of family and friends, and their faith or spirituality. These results will be informative as we develop interventions to improve the mobility of persons with kidney disease. Moreover, this study is an example of how nephrology research can fit within the 4M framework for an age-friendly health system. Leveraging this framework will help institute the changes needed to improve mobility for this population, ultimately improving both health outcomes and quality of life for individuals living with kidney disease.

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