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

Christine Kee Liu

Mobility refers to a person’s ability to move safely and reliably and is integral to well-being. Maintaining mobility is a goal for those who are chronically ill and older. However, kidney disease progression is associated with worsening mobility. Using data from the InCHIANTI cohort, Roshanravan et al demonstrated that chronic kidney disease severity predicted future losses in walking speed and leg strength, while Tamura et al 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, doubling the risk of mortality in two years in those receiving dialysis. Second, patients cite poor mobility as contributing to poor quality of life, equivalent to chronic pain in its impact. These and other factors led to a consensus group identifying mobility as a core outcome for nephrology trials.

Per the World Health Organization, mobility is conceptually shaped by health, environmental, and personal factors. 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 support, impact mobility. In this issue of Kidney Medicine, Rothpletz-Puglia et al 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 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, intermittently 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 al 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 al 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. 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 al 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. However, this underlying aspect of mobility has not been widely explored in the current nephrology literature. The findings from Rothpletz-Puglia et al’s study 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 interviewing and health coaching, 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 al 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 for mobility. Complementary approaches that also employ individualized goals, such as motivational interviewing and health coaching, could also be incorporated into interventions for mobility.

Support: CLK is supported by grant K23AG057813 from National Institute of Aging. The funder had no role in the collection, interpretation, and reporting of the study data.

Financial Disclosure: The author declares that she has no relevant financial interests.

Disclaimer: The views expressed are those of the author and not necessarily those of the Department of Veterans Affairs.

Peer Review: Received April 16, 2022 in response to an invitation from the journal. Accepted April 20, 2022 after editorial review by the Editor-in-Chief.

Publication Information: Published by Elsevier Inc. on behalf of the National Kidney Foundation, Inc. This is a US Government Work. There are no restrictions on its use. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/). Published online May 13, 2022 with doi 10.1016/j.kjme.2022.100481

REFERENCES

1. Satariano WA, Guralnik JM, Jackson RJ, Marottoli RA, Phelan EA, Prohaska TR. Mobility and aging: new directions for public health action. Am J Public Health. 2012;102(8):1508-1515. doi:10.2105/AJPH.2011.300631

2. Webber SC, Porter MM, Menec VH. Mobility in older adults: a comprehensive framework. Gerontologist. 2010;50(4):443-450. doi:10.1093/geront/gnp013

3. Fried TR, Tinetti ME, Iannone L, O’Leary JR, Towle V, Van Ness PH. Health outcome prioritization as a tool for decision making among older persons with multiple chronic conditions. Arch Intern Med. 2011;171(20):1854-1856. doi:10.1001/archinternmed.2011.424

4. Roshanravan B, Patel KV, Robinson-Cohen C, et al. Creatinine clearance, walking speed, and muscle atrophy: a cohort study. Am J Kidney Dis. 2015;65(5):737-747. doi:10.1053/j.ajkd.2014.10.016

5. Kurella Tamura M, Covinsky KE, Chertow GM, Yaffe K, Landefeld CS, McCulloch CE. Functional status of elderly adults before and after initiation of dialysis. N Engl J Med. 2009;361(16):1539-1547. doi:10.1056/nejmoa0904655

6. Couchoud CG, Beuscart JB, Aldigier JC, Brunet PJ, Moranne OP, registry REIN. Development of a risk stratification algorithm to improve patient-centered care and decision making for incident elderly patients with end-stage renal disease. Kidney Int. 2015;88(5):1178-1186. doi:10.1038/ki.2015.245

7. Kutner NG, Zhang R, Huang Y, Painter P. Gait speed and mortality, hospitalization, and functional status change among hemodialysis patients: a US Renal Data System special study. Am J Kidney Dis. 2015;66(2):297-304. doi:10.1053/j.ajkd.2015.01.024

8. Lowney AC, Myles HT, Bristowe K, et al. Understanding what influences the health-related quality of life of hemodialysis patients: a collaborative study in England and Ireland. J Pain Symptom Manage. 2015;50(6):778-785. doi:10.1016/j.jpainsymman.2015.07.010

9. Urquhart-Secord R, Craig JC, Hemmelgarn B, et al. Patient and caregiver priorities for outcomes in hemodialysis: an international nominal group technique study. Am J Kidney Dis. 2016;68(3):444-454. doi:10.1053/j.ajkd.2016.02.037

10. SONG - Standardised Outcomes in Nephrology. SONG-HD. Accessed March 31, 2022. https://songinitiative.org/projects/song-hd/

11. Jette AM. Toward a common language for function, disability, and health. Phys Ther. 2006;86(5):726-734.

12. Müller R, Geyh S. Lessons learned from different approaches towards classifying personal factors. Disabil Rehabil.
13. Rothpletz-Puglia P, Brown TL, Peters E, et al. Functional status and engagement in physical activity among maintenance dialysis patients: a mixed methods study. Kidney Med. Published online April 25, 2022. https://doi.org/10.1016/j.xkme.2022.100469

14. Institute for Health Improvement. Age-Friendly Health Systems: Guide to Using the 4Ms in the Care of Older Adults. 2019. Accessed March 29, 2022. https://www.johnahartford.org

15. Fried TR, Street RL, Cohen AB. Chronic disease decision making and “what matters most.” J Am Geriatr Soc. 2020;68(3):474-477. doi:10.1111/jgs.16371

16. Miller WR. Motivational interviewing with problem drinkers. Behav Psychother. 1983;11(2):147-172. doi:10.1017/S0141347300006583

17. Palmer S, Tubbs I, Whybrow A. Health coaching to facilitate the promotion of healthy behaviour and achievement of health-related goals. Int J Heal Promot Educ. 2003;41(3):91-93. doi:10.1080/14635240.2003.10806231