**PhD Opportunity**

**Title**

Routine Monitoring of Depression and Anxiety in Patients with Chronic Kidney Disease (CKD).

**Background**

Approximately 15 million people in England, representing 1 in 4 adults, have one or more long-term conditions (LTCs).1 2 A LTC is an illness that cannot be cured, but may be controlled with medicines or other treatments.3 People living with LTCs face considerable challenges around the management of their long-term physical and mental health.2

Chronic kidney disease (CKD) is a LTC with a global health concern4, high prevalence5 and substantial healthcare and societal costs.6-8 Patients with CKD commonly experience considerable symptom burden9 and associated poorer long-term health-related quality of life (HRQL)10 and mortality.11 12

Increasingly, routine measurement of symptoms in CKD populations is undertaken using patient-reported outcome measures (PROMs): psychometrically validated questionnaires which collect informative data provided directly from the patient.13 PROM data can be collected between clinic appointments, often alongside information regarding HRQL, in order to augment clinical data, build a longitudinal picture of disease burden and enhance care.14 This approach has demonstrated considerable benefits in patients with cancer, including reduced A&E visits, fewer hospitalisations, increased HRQL and lower rates of mortality.15-17 Feasibility of routine symptom monitoring has been established in patients with advanced CKD18 and exploration of effectiveness in patients receiving dialysis is currently ongoing.19

However, there remains much variation in the PROMs utilised to measure symptoms in CKD. In a recent systematic review and meta-analysis, 54 differentPROMs were used to collect data on symptoms across the included studies, with no single tool measuring >45% of symptoms reported in the population.9 Thus, comprehensive measurement of the symptoms that matter most to patients with CKD currently requires concurrent completion of multiple PROMs, which may lead to questionnaire burden: a widely recognised threat to adherence.20

Whilst there is ongoing work to standardise the PROMs used to measure HRQL and somatic symptoms in CKD, there remains uncertainty regarding the optimal PROM(s) for routine measurement of depression and anxiety. This is important, as the prevalence of both depression and anxiety is particularly high in patients with CKD21 22 and depression is associated with a substantially increased risk of mortality.23

We are looking for a PhD student who would like to develop an in-depth programme of research to enhance our understanding around the optimal PROM(s) for routine measurement of depression and anxiety in patients with CKD. This multi-disciplinary, collaborative study will be conducted across both University and NHS environments, offering an opportunity for the successful applicant to develop an applied research study which could directly impact patient outcomes in this important area of CKD care.

**Research Group**

This PhD project is aligned with the ‘Living with Long-Term Conditions’ (LWLTC) research group at the University of Worcester. The LWLTC group aims to facilitate the development and implementation of high-quality research and knowledge exchange, targeted at helping people with long-term conditions and their families to live well.

**Supervisory Team**

Director of Studies: [Professor Dez Kyte](https://www.birmingham.ac.uk/staff/profiles/applied-health/kyte-derek.aspx), Professor of Physiotherapy, School of Allied Health & Community, University of Worcester, UK. Associate member of the Centre for Patient-Reported Outcomes Research, University of Birmingham, UK.

[Professor Rebecca Stack](https://www.worc.ac.uk/about/profiles/professor-rebecca-jayne-stack),MBChB Assessment Lead, School Teaching and Learning coordinator, School EDI Lead and Professor of Student Success and Medical Assessment at Three Counties Medical School, University of Worcester.

[Dr Konstantinos Papadopoulos](https://www.worcester.ac.uk/about/profiles/dr-kostas-papadopoulos), PhD. Head of Department for Occupational Therapy, Physiotherapy and Nutritional Therapy courses, LWLTC co-lead.

External Advisors: [Professor Paul Cockwell](https://orcid.org/0000-0003-1975-266X), Department of Renal Medicine, Queen Elizabeth Hospital Birmingham, University Hospitals Birmingham, UK

**References**

1. Fund K. Long-term conditions and multi-morbidity 2022 [Available from: <https://www.kingsfund.org.uk/projects/time-think-differently/trends-disease-and-disability-long-term-conditions-multi-morbidity> accessed 11/11/22 2022.

2. Charities TRGo. No time to lose - Changing the trajectory for people living with long-term health conditions 2022 [Available from: <https://richmondgroupofcharities.org.uk/no-time-lose-changing-trajectory-people-living-long-term-health-conditions> accessed 2023.

3. Association TP. Long term conditions 2022 [Available from: <https://www.patients-association.org.uk/long-term-conditions> accessed 11/11/22 2022.

4. Go AS, Chertow GM, Fan D, et al. Chronic kidney disease and the risks of death, cardiovascular events, and hospitalization. *The New England journal of medicine* 2004;351(13):1296-305. doi: 10.1056/NEJMoa041031 [published Online First: 2004/09/24]

5. Hill NR, Fatoba ST, Oke JL, et al. Global Prevalence of Chronic Kidney Disease – A Systematic Review and Meta-Analysis. *PLOS ONE* 2016;11(7):e0158765. doi: 10.1371/journal.pone.0158765

6. Chaker L, Falla A, van der Lee SJ, et al. The global impact of non-communicable diseases on macro-economic productivity: a systematic review. *Eur J Epidemiol* 2015;30(5):357-95. doi: 10.1007/s10654-015-0026-5 [published Online First: 2015/04/04]

7. Sundström J, Bodegard J, Bollmann A, et al. Prevalence, outcomes, and cost of chronic kidney disease in a contemporary population of 2·4 million patients from 11 countries: The CaReMe CKD study. *Lancet Reg Health Eur* 2022;20:100438. doi: 10.1016/j.lanepe.2022.100438 [published Online First: 2022/09/13]

8. Pollock C, James G, Garcia Sanchez JJ, et al. Healthcare resource utilisation and related costs of patients with CKD from the UK: a report from the DISCOVER CKD retrospective cohort. *Clin Kidney J* 2022;15(11):2124-34. doi: 10.1093/ckj/sfac168 [published Online First: 2022/11/04]

9. Fletcher BR, Damery S, Aiyegbusi OL, et al. Symptom burden and health-related quality of life in chronic kidney disease: A global systematic review and meta-analysis. *PLOS Medicine* 2022;19(4):e1003954. doi: 10.1371/journal.pmed.1003954

10. Perlman RL, Finkelstein FO, Liu L, et al. Quality of life in chronic kidney disease (CKD): a cross-sectional analysis in the Renal Research Institute-CKD study. *American journal of kidney diseases : the official journal of the National Kidney Foundation* 2005;45(4):658-66. doi: 10.1053/j.ajkd.2004.12.021 [published Online First: 2005/04/05]

11. Ricardo AC, Goh V, Chen J, et al. Association of Sleep Duration, Symptoms, and Disorders with Mortality in Adults with Chronic Kidney Disease. *Kidney Int Rep* 2017;2(5):866-73. doi: 10.1016/j.ekir.2017.05.002 [published Online First: 2017/10/24]

12. Amro A, Waldum B, von der Lippe N, et al. Symptom clusters predict mortality among dialysis patients in Norway: a prospective observational cohort study. *J Pain Symptom Manage* 2015;49(1):27-35. doi: 10.1016/j.jpainsymman.2014.04.005 [published Online First: 2014/05/27]

13. FDA. Guidance for industry: patient-reported outcome measures: use in medical product development to support labeling claims: draft guidance. *Health & Quality of Life Outcomes* 2006;4:79.

14. Calvert M, Kyte D, Price G, et al. Maximising the impact of patient reported outcome assessment for patients and society. *BMJ* 2019;364:k5267. doi: 10.1136/bmj.k5267 [published Online First: 2019/01/27]

15. Basch E, Deal A, Kris M, et al. Symptom Monitoring With Patient-Reported Outcomes During Routine Cancer Treatment: A Randomized Controlled Trial. *Journal of Clinical Oncology* 2015;10.1200/JCO.2015.63.0830

16. Velikova G, Absolom K, Warrington L, et al. Phase III randomized controlled trial of eRAPID (electronic patient self-Reporting of Adverse-events: Patient Information and advice)—An eHealth intervention during chemotherapy: American Society of Clinical Oncology, 2020.

17. Basch E, Schrag D, Henson S, et al. Effect of Electronic Symptom Monitoring on Patient-Reported Outcomes Among Patients With Metastatic Cancer: A Randomized Clinical Trial. *Jama* 2022;327(24):2413-22. doi: 10.1001/jama.2022.9265 [published Online First: 2022/06/07]

18. Kyte D, Anderson N, Bishop J, et al. Results of a pilot feasibility randomised controlled trial exploring the use of an electronic patient-reported outcome measure in the management of UK patients with advanced chronic kidney disease. *BMJ open* 2022;12(3):e050610.

19. Greenham L, Bennett PN, Dansie K, et al. The Symptom Monitoring with Feedback Trial (SWIFT): protocol for a registry-based cluster randomised controlled trial in haemodialysis. *Trials* 2022;23(1):419. doi: 10.1186/s13063-022-06355-0 [published Online First: 2022/05/20]

20. Basch EM, Abernethy A, Mullins CD, et al. Development of a guidance for including patient-reported outcomes (PROS) in post-approval clinical trials of oncology drugs for comparative effectiveness research (CER). *Value in Health* 2011;14 (3):A10.

21. Huang CW, Wee PH, Low LL, et al. Prevalence and risk factors for elevated anxiety symptoms and anxiety disorders in chronic kidney disease: A systematic review and meta-analysis. *Gen Hosp Psychiatry* 2021;69:27-40. doi: 10.1016/j.genhosppsych.2020.12.003 [published Online First: 2021/02/01]

22. Palmer S, Vecchio M, Craig JC, et al. Prevalence of depression in chronic kidney disease: systematic review and meta-analysis of observational studies. *Kidney Int* 2013;84(1):179-91. doi: 10.1038/ki.2013.77 [published Online First: 2013/03/15]

23. Palmer SC, Vecchio M, Craig JC, et al. Association between depression and death in people with CKD: a meta-analysis of cohort studies. *American journal of kidney diseases : the official journal of the National Kidney Foundation* 2013;62(3):493-505. doi: 10.1053/j.ajkd.2013.02.369 [published Online First: 2013/04/30]