

THESIS

**A STUDY TO ASSESS THE IMPROVEMENT OF MANAGEMENT OUTCOMES IN
CHRONIC KIDNEY DISEASE OF UNCERTAIN ETIOLOGY BY INTRODUCING
CLINICAL PHARMACY SERVICES TO SELECTED OUT-PATIENT RENAL
CLINICS IN THE NORTH CENTRAL PROVINCE, SRI LANKA.**

Submitted by

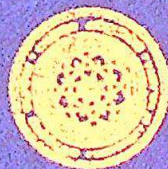
N.D.D. Wickramasinghe

(FGS/05/MPhil/05/2016/01)

A thesis submitted to the Faculty of Graduate Studies, University of Kelaniya

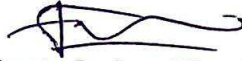
In fulfillment of the requirements for the degree of

Master of Philosophy in Medicine



October 2020

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SUPERVISORS

1. Prof. S. T. De Silva

Professor in Medicine & Specialist Physician in Internal Medicine

Department of Medicine

Faculty of Medicine

University of Kelaniya

Sri Lanka

2. Prof. S. F. Jayamanne

Professor in Medicine & Specialist Physician in Internal Medicine

Department of Medicine

Faculty of Medicine

University of Kelaniya

Sri Lanka

3. Ms. C. B. Lynch. BPharm (UQ)

Collaboration of Australians and Sri Lankans for Pharmacy Practice, Education and Research (CASPPER)

Brisbane,

Australia

Funding resource

National Research Council of Sri Lanka

DECLARATION

I hereby declare that the work embodied in the thesis was carried out by me in the Department of Medicine, Faculty of Medicine, University of Kelaniya. It contains no material previously published or written by another person. It has not been submitted for any degree in this university or any other institution.


Student's name: Ms. N.D. D. Wickramasinghe

Signature: 

We hereby certify that we have supervised this dissertation.


Supervisor 1

Prof. S. T. De Silva

Signature: 

Supervisor 2

Prof. S. F. Jayamanne

Signature: 

Supervisor 3

Ms. C.B. Lynch

Signature:



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LIST OF ABBREVIATIONS

- A/Ls-Advanced Level Examination
- ACCP-American College of Clinical Pharmacy
- AMH-Australian Medicines Handbook
- BMI-Body Mass Index
- BMQ-Brief Medication Questionnaire
- BNF-British National Formulary
- BP-Blood Pressure
- C-Control
- CKD-Chronic Kidney Disease
- CKD-MBD-Chronic Kidney Disease-Mineral and Bone Disorder
- CKDu-Chronic Kidney Disease of Uncertain etiology
- CP-Clinical Pharmacy
- DPC-Dry Powder Capsule
- DRPs-Drug Related Problems
- eGFR-Estimated Glomerular Filtration Rate
- ESRD-End Stage Renal Disease
- FIP-International Pharmaceutical Federation
- HbA1c-Hemoglobin A1c
- HRQOL-Health Related Quality of Life
- I-Intervention
- IBM SPSS-IBM Statistical Package for Social Sciences
- IQR-Inter Quartile Range
- K/DOQI-Kidney Disease Outcomes Quality Initiative
- KDIGO-Kidney Disease: Improving Global Outcomes

KDQOL-SFTM-Kidney Disease Quality of Life-Short Form
MAI-Medication Appropriateness Index
MS Excel-Microsoft Excel
NCP-North Central Province
NGAL-Neutrophil Gelatinase Associated Lipocalin
NKF-National Kidney Foundation
O/Ls-Ordinary Level Examination
OPD-Out Patient Department
PCMH-Patient Centered Medical Home
PCNE-Pharmaceutical Care Network Europe
PCNE V6.2-The Pharmaceutical Care Network Europe Classification V6.2
PFSA-Pharmaceutical Fund and Supply Agency
Pharm.D-Doctor of Pharmacy
QOL-Quality of Life
RRT-Renal Replacement Therapies
SCr-Serum Creatinine
SD-Standard Deviation
SF 36-36 Item Health Survey
SIAPS-System for Improved Access to Pharmaceutical System
SL-Sri Lanka
UK-United Kingdom
USA-United States of America
USAID-United States Agency of International Development
WHO-World Health Organization
WHO-QOL-BRFE-World Health Organization Quality of Life Questionnaire

ABSTRACT

Objectives: To assess impact of “clinic-based pharmacist’ services on drug adherence and health outcomes in stage 4 or 5 pre-dialysis Chronic Kidney Disease of uncertain etiology (CKDu) patients in an out-patient renal clinic in North Central Province, Sri Lanka.

Methodology: A randomized controlled clinical trial was conducted in Teaching Hospital, Anuradhapura. Demography, drug adherence (using BMQ Score), management outcomes, and Quality of Life (using KDQOL-SF™) were assessed. Intervention(I) group received four counseling sessions by a “clinic-based pharmacist” plus usual clinic care over 12 months. Control (C) group received usual care.

Results: Of 256 eligible patients, 127 were allocated to C and 129 to I. Demography and baseline outcome measures were similar. At 12 months, median BMQ scores improved from 5(3-5) to 3(2-4) ($p<0.050$), mean hemoglobin (Hb) levels improved from $11.02\pm 1.44\text{g/dL}$ to $11.41\pm 1.37\text{g/dL}$ ($p<0.050$) and QOL improved in I group. In C group, mean diastolic blood pressure and mean serum creatinine increased and eGFR was reduced, but those outcomes were unaltered in I group.

Conclusion: “Clinic-based pharmacist” services improved drug adherence, Hb levels and QOL in stage 4 or 5 pre-dialysis CKDu patients. This service can improve disease outcomes.

Key words: Clinic-based pharmacist, adherence, hemoglobin, QOL, eGFR,