

## INPLASY

## Sex and Gender Characteristics of Adults on Hemodialysis Experiencing Depression and Depressive Symptoms: A Scoping Review

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Mharapara, P; Ahmed, SB; Olson, J; Schick-Makaroff, K.

**Corresponding author:**

Primrose Mharapara

mharapar@ualberta.ca

**Author Affiliation:**

University of Alberta.

**ADMINISTRATIVE INFORMATION****Support** - Mind the Gap research project -part of CIHR-funded Can-SOLVE CKD: Looking, listening, learning, leading: Canadians Seeking Solutions and Innovations to Overcome Chronic Kidney Disease.**Review Stage at time of this submission** - Completed but not published.**Conflicts of interest** - None declared.**INPLASY registration number:** INPLASY202550035**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 13 May 2025 and was last updated on 13 May 2025.**INTRODUCTION**

**Review question / Objective** To describe sex and gender characteristics in adults and living with depression or depressive symptoms treated with hemodialysis.

**Rationale** People treated with maintenance hemodialysis are at a higher risk of experiencing depression with approximately one in five reporting depressive symptoms. Depression is linked to risk of hospitalization, poor dialysis adherence, missed medications, and inadequate nutrition. Sociodemographic variables, including sex (biological factors) and gender (sociocultural factors), influence depression in individuals undergoing hemodialysis. Sex and gender distinctions are crucial to understanding how depression can co-exist with kidney failure and have not been fully addressed. Integration of sex and gender considerations in depression among individuals undergoing hemodialysis could improve

healthcare access, reduce potential biases among healthcare professionals, promote equity in clinical decision-making, and result in more personalized and effective patient care.

**Condition being studied** Describing sex and gender characteristics in adults and living with depression or depressive symptoms treated with hemodialysis.

**METHODS**

**Search strategy** The literature search strategies were developed with assistance from a health sciences librarian. The search strategy was developed and conducted in April 2024 using the following electronic databases: Cochrane Library, Embase, Medline, CINAHL, and PsycINFO. A sample list of the search terms used included: renal; nephrology; kidney or dialysis; h? emodialysis; adult; elder; grown up; people; patient; client; individual; population; society;

group; depress; sex; gender; male; female; man; woman; masculin\*; and feminin\*. Each database was searched separately.

**Participant or population** Adults, eighteen years and older, treated with hemodialysis, and experiencing depression or depressive symptoms.

**Intervention** N/A.

**Comparator** N/A.

**Study designs to be included** We followed the scoping review framework developed by Arksey and O'Malley and revised by Levac, Colquhoun, and O'Brien. This scoping review framework includes the following stages: identifying the research question/purpose, identifying relevant studies, selecting studies, charting the data, and reporting results.

**Eligibility criteria** We included studies that reported results stratified by sex and/or gender characteristics of individuals receiving hemodialysis and living with depression or depressive symptoms. We did not limit our inclusion criteria to individuals with a diagnosis of depression but also included those reporting self-identified depressive symptoms. The dialysis modalities included hemodialysis offered in in-centre and satellite units. The study population were adults, eighteen years and older, treated with hemodialysis, and experiencing depression or depressive symptoms. The review included all relevant peer-reviewed primary research and reviews/syntheses to avoid publication bias. Geographical limits were not included to capture studies throughout the world. Studies were limited to those published in English from 2000 to 2024.

**Information sources** Cochrane Library, Embase, Medline, CINAHL, and PsycINFO.

**Main outcome(s)** We identified 25 peer-reviewed articles that addressed the characteristics of sex and/or gender. Of the 25 articles, seven reported gender differences, four reported gender similarities, 13 reported sex differences, and one reported sex similarities in individuals with depression or depressive symptoms treated with hemodialysis. We found more differences than similarities in sex and gender related to depression among individuals with kidney failure undergoing hemodialysis, with notably higher rates of depressive symptoms observed in female individuals (sex) and women (gender).

**Additional outcome(s)** We found substantial heterogeneity among the included papers, with nearly half of the studies conducted in Asia. In 72% of the studies, sex and gender were used interchangeably without a clear distinction. Studies lacked any representation of gender-diverse individuals.

**Data management** N/A.

**Quality assessment / Risk of bias analysis** N/A.

**Strategy of data synthesis** In the analysis stage, following the scoping review framework, we developed both a descriptive numerical summary and a thematic analysis. We presented an overview of the extent, nature and distribution of the data mapped in a descriptive numerical table which summarizes basic characteristics of all the studies. We subsequently organized the studies thematically based on sex and gender-related characteristics observed in individuals with depression or depressive symptoms undergoing hemodialysis. The descriptive numerical summary included the overall number of studies, years of publication, geographical location where the studies were conducted, study aim/objective, target population, hemodialysis setting, and type of research study utilized. This section of the analysis illuminates the predominant research areas, specifically focusing on the study aim/objective, target population, hemodialysis setting, and geographical location.

We adopted an inductive approach to identify themes that integrates both sex and gender characteristics in individuals with depression or depressive symptoms. The resulting data were thematically analyzed, identifying similarities and differences to fulfill the objectives of our review. By consistently applying this framework to report the findings, we facilitated meaningful comparisons based on sex and gender characteristics in individuals with depression or depressive symptoms. Two authors collaboratively reviewed the data and resolved discrepancies through discussion and consensus.

**Subgroup analysis** N/A.

**Sensitivity analysis** N/A.

**Language restriction** Studies were limited to those published in English.

**Country(ies) involved** Canada (University of Alberta).

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**Keywords** Depression; hemodialysis; sex; gender; adults.

**Dissemination plans** Journal publication; Oral and poster conference presentations.

**Contributions of each author**

Author 1 - Primrose Mharapara - Author 1 drafted and wrote the manuscript.

Email: mharapar@ualberta.ca

Author 2 - Sofia Ahmed - The author revised the manuscript providing content expertise on the subject topic. The author provided feedback and approved the final manuscript.

Email: sofia.ahmed@albertahealthservices.ca

Author 3 - Joanne Olson - The author read, revised and approved the manuscript providing feedback.

Email: joanne.olson@ualberta.ca

Author 4 - Kara Schick-Makaroff - Author screened the titles and abstracts, as well as performed the full-text screening. The author provided feedback and approved the final manuscript.

Email: kara.schickmakaroff@ualberta.ca