Intersectional Risks of Adverse Drug Events in Older Adults: A Framework-Guided Scoping Review

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Background: Adverse drug events (ADEs) are a leading cause of preventable harm in older adults. While biological contributors such as frailty, multimorbidity, and polypharmacy are well recognised, the role of overlapping sociodemographic and structural determinants remains poorly understood. Intersectionality theory highlights how such factors jointly influence ADE risk, yet its application in medication safety research is limited.

Objectives: To examine how intersectionality has been conceptualised, operationalised, and reported in studies of ADEs among community-dwelling older adults, using a framework-guided domain mapping approach to identify conceptual and methodological gaps.

Methods: This scoping review was prospectively registered with the Open Science Framework and followed JBI and PRISMA-ScR guidance. Six databases (2001–2024) were searched for peer-reviewed studies including adults aged ≥65 years, reporting ADE outcomes, and analysing ≥2 sociodemographic or health-related variables. Variables were mapped to five domains: biological, behavioural, sociocultural, environmental, and healthcare system using the NIA Health Disparities Framework, NIMHD Research Framework, and the Dahlgren & Whitehead model. Intersectionality-informed analysis was classified using Bauer's typology. Patient and public involvement informed outcome grouping and interpretation.

Results: From 7,900 records, 46 studies were included. While all engaged with the biological domain, fewer addressed behavioural (17.0%), sociocultural (19.1%), environmental (31.9%), or healthcare system (25.5%) domains. Only 10 studies used interaction terms or stratified analyses; none applied intersectionality-aligned modelling approaches. Sociodemographic variables were often defined in simplified terms (e.g., binary ethnicity) and used only as covariates. Most studies relied on electronic health records (EHRs), which limited the ability to examine structural determinants of ADEs due to lack of granularity and proxy standardisation.

Conclusion: Research on ADEs in older adults remains dominated by biomedical models, with minimal integration of social and structural determinants. Intersectionality-informed approaches are rarely applied, limiting understanding of which older adults are most vulnerable, and why. Advancing equitable medication safety requires equity-informed frameworks, consistent measurement of social determinants, and adoption of intersectional methods to design inclusive strategies that reduce ADE-related harm in ageing populations.

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Background

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Aims

Examine how intersectionality has been conceptualised, operationalised, and reported in studies of ADEs among community-dwelling older adults, using a framework-guided domain mapping approach.

Method

Prospectively registered with OSF, followed JBI and PRISMA-ScR guidance. Peer-reviewed studies including adults aged ≥65 years, reporting ADE outcomes, and analysing ≥2 sociodemographic or health-related variables. Variables mapped to five domains using the NIA Health Disparities Framework, NIMHD Research Framework, and the Dahlgren & Whitehead model. Classified using Bauer's typology.

Results

From 7,900 records, 46 studies were included. All engaged with the biological domain, few addressed behavioural (17.0%), sociocultural (19.1%), environmental (31.9%), or healthcare system (25.5%) domains. Only 10 studies used interaction terms or stratified analyses; none applied intersectionality-aligned modelling approaches. Sociodemographic variables often defined in simplified terms (e.g., binary ethnicity) and used only as covariates.

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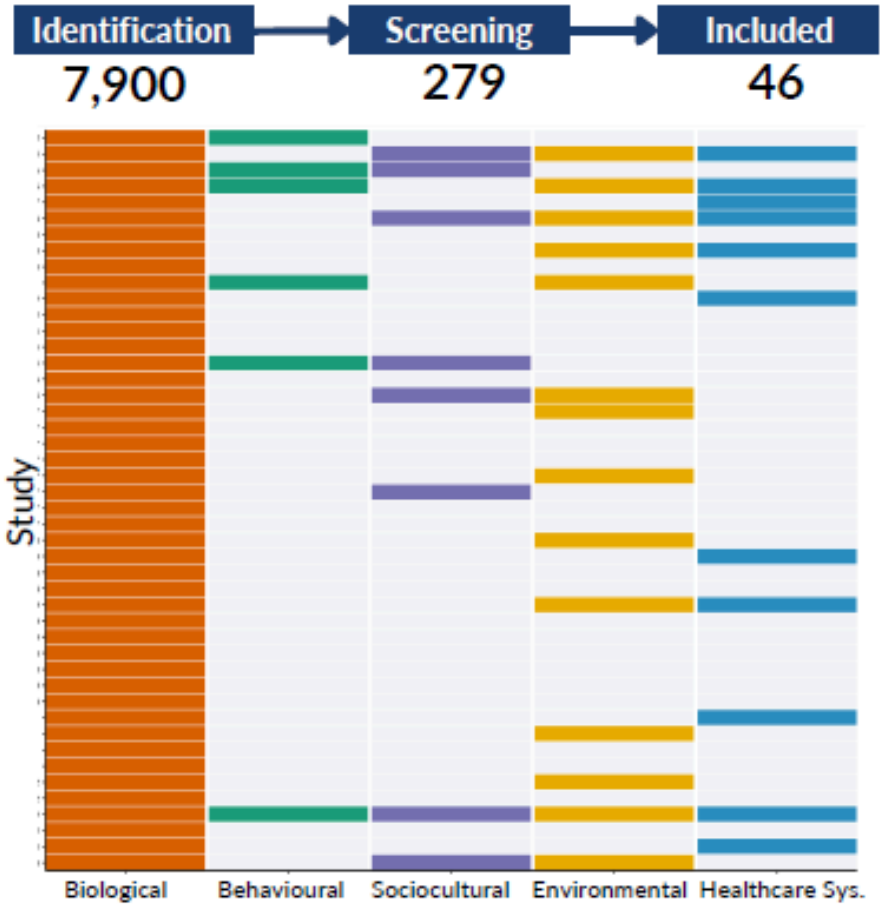

Figure 1: Domain mapping of included studies. This heatmap displays the inclusion of five core domains: biological, behavioural, sociocultural, environmental, and healthcare system within each study's analytical model. Each coloured tile indicates that a domain was explicitly modelled.

Conclusion

Research on ADEs in older adults remains dominated by biomedical models, with minimal integration of social and structural determinants. Intersectionality-informed approaches are rarely applied, limiting understanding of which older adults are most vulnerable, and why. Advancing equitable medication safety requires equity-informed frameworks, consistent measurement of social determinants, and adoption of intersectional methods to design inclusive strategies that reduce ADE-related harm in ageing populations.

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