

Supplementary Information

Drugs And Aging

Ageing with HIV: medicine optimisation challenges and support needs for older people living with HIV – a systematic review

Short title: Ageing with HIV: medicine optimisation challenges and support needs

Author information

Priya Sarma¹ (ORCID: 0000-0003-1726-3184), Rebecca Cassidy² (ORCID:0000-0003-1006-9004), Sarah Corlett¹ (ORCID:0000-0002-8563-1527), Barbra Katusiime¹ (ORCID: 0000-0002-2565-7071)

¹Medway School of Pharmacy, The Universities of Kent and Greenwich, Chatham, Kent, UK

²Centre for Health Service Studies, University of Kent, Canterbury, Kent, UK

Corresponding author:

Priya Sarma

ps576@kent.ac.uk

ORCID: 0000-0003-1726-3184

Appendix 1. Preliminary full text age screening form.

Full text reviewed?	Age over 50? How many?	Age under 50? How many?	Comparison between older vs younger?	Reasons for rejection?	Notes
Y	Y/31	Y/48	N	No age comparison/tool examining	

Appendix 2. Population Intervention Comparison Outcome (PICO)

Participants/population	<p>Inclusion criteria:</p> <ul style="list-style-type: none"> • Studies reporting issues and concerns of older PLWH (age 50 years or older) about their medicines. • Studies discussing any aspect of medicine optimisation (e.g. medicine burden, adherence, drug-related problems, medicine reviews, prescribing or deprescribing, medication reconciliation in older HIV-positive adults. • Studies reporting medicine-related interventions for HIV-positive older adults. • Studies published in English. <p>Exclusion criteria:</p> <ul style="list-style-type: none"> • Studies including children, adolescents, and younger adults (under the age of 50) • Studies of HIV-negative adults • Studies that do not discuss any aspect of medicines optimisation
Interventions/exposures	<p>We are interested in studies relating to any aspect of medicines optimisation, medication reviews, medication reconciliation, deprescribing, or strategies being undertaken to support the older HIV-positive patient population with safe and effective use of ART and/or non-HIV medicines.</p>
Comparators/control	<p>Not applicable.</p>
Context	<p>Studies involving older people (those aged 50 years or greater) living with HIV, who are currently taking antiretroviral medications and/or non-HIV medicines, reporting older people's issues/concerns and targeted interventions in any setting (e.g. HIV clinics, hospitals, GP surgeries, community pharmacies, or in the community).</p>
Outcomes	<ul style="list-style-type: none"> • Medicine-related problems, e.g. polypharmacy, drug-drug interactions, adverse drug reactions, drug-related hospitalization and other medicine safety issues • Medicine information needs • Deprescribing outcomes • Medication adherence and impact on clinical outcomes (e.g. viral load) • Prescription appropriateness • Medicine burden and quality of life • Psychosocial concerns • Social support needs <p>Additional outcome(s)</p> <ul style="list-style-type: none"> • Mental health and general wellbeing • Patient satisfaction • Shared decision-making

Appendix 3. Search strategy.

Search Strategy used for MEDLINE, Abstracts in Social Gerontology, Academic Search Complete, CINAHL, DARE and OpenGrey:

- Ageing OR aging OR age* OR old OR older OR old* OR elderly OR geriatric OR adult* OR 50 years OR 50 years or older OR over 50 years old OR patient OR consumer OR senior OR retiree
- HIV OR HIV-1 OR "human immunodeficiency virus" OR AIDS OR "acquired immunodeficiency syndrome" OR ARV OR ART OR HAART OR "anti-retroviral" OR "antiretroviral" OR antiretroviral therapy OR anti-retroviral therapy OR HIV adj2 positive OR people living with HIV OR PLWH OR person adj3 HIV OR viral load OR CD4 OR undetectable
- Concern* OR understand* OR knowledge OR needs OR priorit* OR belief OR stress OR issues OR problem* OR outcomes OR burden OR medic* burden OR drug burden OR treatment burden OR medic* complexity OR regime* complexity OR medication regimen complexity OR polypharmacy OR drug-drug interactions OR adverse drug reactions OR drug related hospitalisations OR medicine safety issues OR medicine information needs OR prescriptions appropriateness OR quality of life OR patient satisfaction OR patient preference OR preference OR perception OR expectation OR attitude OR view OR experience OR shared decision making OR clinical outcome* OR ((issues OR concerns OR problems) AND psychosocial) OR social support needs OR mental health OR wellbeing OR stigma OR discrimina* OR retire* OR pension OR cost OR insur* OR insurance
- Drug therapy OR medication* OR medicine* OR agent OR product OR drug* OR therapy OR treatment OR pharmacotherapy OR nonprescription OR non-prescription OR prescription OR prescription* adj2 drug* OR medication error* OR inappropriate prescribing OR potentially inappropriate prescribing OR problematic prescribing OR suboptimal prescribing OR deprescrib* OR stop OR reduc* OR cessation OR dos* reduc* OR STOPP OR BEERS OR over the counter OR otc OR compliance OR non-compliance OR adher* OR non-adher* OR medication adherence OR "quality of life" OR "HRQL" OR life adj3 quality OR health adj3 quality adj3 life OR decision making OR pharmaceutical care OR treatment OR therapy OR decision support techniques OR decision support system OR decision* OR choice* OR support* OR behavior OR behaviour OR aid* OR drug therapy problem OR information OR communication OR advice OR counsel* OR social adj3 support OR social adj3 needs OR medicines optimisation OR medicines optimization OR optimise OR optimize OR optimization OR optimisation OR optim* OR medicine* management OR medication* management OR medication* therapy management OR drug* therapy management OR drug* management OR medication* review OR medicine* review OR MTM OR medicine adj3 review OR ((psychosocial OR behavioural OR pharmaceutical OR digital OR medicine-related) AND intervention*) OR intervention* OR review OR treatment adj3 (compliance OR adherence) OR psychology* OR emotional
- Pharmacists OR pharmacist* OR pharmacy OR pharmacies OR pharmacist* intervention OR pharmacist-led OR chemist OR druggist OR pharmac* technician OR doctor OR nurse OR health worker OR health adj3 professional OR social worker OR healthcare provider OR health provider OR consultant OR specialist OR nutritionist OR psychologist OR psychiatrist OR health personnel OR primary care OR secondary care OR tertiary care OR community OR carer* OR care worker

Search strategy used for The Cochrane Central Register of Controlled Trials (CENTRAL):

- Drug therapy OR medication* OR medicine* OR agent OR product OR drug* OR therapy OR treatment OR pharmacotherapy OR nonprescription OR non-prescription OR prescription OR medication error* OR inappropriate prescribing OR potentially inappropriate prescribing OR problematic prescribing OR suboptimal prescribing OR deprescrib* OR stop OR reduc* OR cessation OR dos* reduc* OR over the counter OR otc OR compliance OR non-compliance OR adher* OR non-adher* OR medication adherence OR "quality of life" OR "HRQL" OR life adj3 quality OR decision making OR pharmaceutical care OR treatment OR therapy OR decision support techniques OR decision support system OR decision* OR choice* OR support* OR behavior OR behaviour OR aid* OR drug therapy problem OR information OR communication OR advice OR counsel* OR social adj3 support OR social adj3 needs OR medicines optimisation OR medicines optimization OR optimise OR optimize OR optimization OR optimisation OR optim* OR medicine* management OR medication* management OR medication* therapy management OR drug* therapy management OR drug* management OR medication* review OR medicine* review OR MTM OR intervention* OR review OR psychology* OR emotional

Appendix 4. Part 1: Abstract screening form.

Abstract screening form

Abstract screening for Medicines optimisation needs and interventions for older people living with HIV/AIDS - protocol for a systematic review

* Required

Reviewer's name: *

Choose ▾

Author's name: *

Your answer _____

Publication Year: *

Choose ▾

Does this study report issues or concerns of older PLWH (age 50 years or older) about their medicines? *

Yes

No

Maybe

Does this study discuss any aspect of medicine optimisation? (e.g. medicine burden, adherence, drug-related problems, medicine reviews, prescribing or deprescribing, medication reconciliation in older HIV-positive adults) *

Yes

No

Maybe

Is the study outcome relevant to the review? *

Yes

No

Maybe

Based on your reflection, should this study be included in the analysis? *

Yes

No

Maybe

If No, What is your reason for excluding this study?

Your answer _____

Submit

Appendix 4. Part 2: Full-text screening form.

Full article screening	
<p>Full article screening for Medicines optimisation needs and interventions for older people living with HIV/AIDS - protocol for a systematic review</p> <p>* Required</p>	<p>Does this study discuss any aspect of medicine optimisation? (e.g. medicine burden, adherence, drug-related problems, medicine reviews, prescribing or deprescribing, medication reconciliation in older HIV-positive adults) *</p> <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p> <p><input type="radio"/> Maybe</p>
<p>Reviewer's name: *</p> <p>Choose ▾</p>	<p>Does this study report medicine-related interventions for HIV-positive adults? *</p> <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p> <p><input type="radio"/> Maybe</p>
<p>Author's name: *</p> <p>Your answer _____</p>	<p>Does this study report any non-medicine-related interventions for HIV-positive adults? (e.g. psychosocial, behavioural, digital interventions) *</p> <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p> <p><input type="radio"/> Maybe</p>
<p>Publication Year: *</p> <p>Choose ▾</p>	<p>Is this study Quantitative or Qualitative? *</p> <p><input type="radio"/> Quantitative</p> <p><input type="radio"/> Qualitative</p> <p><input type="radio"/> Other: _____</p>
<p>Does this study report issues or concerns of older PLWH (age 50 years or older) about their medicines? *</p> <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p> <p><input type="radio"/> Maybe</p>	<p>Have these interventions been used in older adults? (age 50 years or over) *</p> <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p> <p><input type="radio"/> Maybe</p>
	<p>Is the study outcome relevant to the review? *</p> <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p> <p><input type="radio"/> Maybe</p>
	<p>Based on your reflection, should this study be included in the analysis? *</p> <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p> <p><input type="radio"/> Maybe</p>
	<p>If No, What is your reason for excluding this study?</p> <p>Your answer _____</p>
	<p>Submit</p>

Appendix 5. Part 1: Data extraction table.

Title	Author(s)	Year published	Study design	Study population/setting	Country	Methods – data collection	Intervention	Outcomes	How were the outcomes measured? What tools were used?	Key findings	Limitations	Qualitative, Quantitative, Mixed methods?
Health-related quality of life and its predictors among adults living with HIV/AIDS and receiving antiretroviral therapy in Pakistan.	Ali Ahmed, et al.	2021	Cross-sectional descriptive study	602 PLWH/32.9% >50 years old/Hospital	Pakistan	Participants were given a validated generic HRQOL questionnaire	-	Participants adherent to ARV had good HRQOL, although they also had significantly higher depression.	EuroQol quality of life scale EQ-5D-3L and Visual Analogue Scale	59.5% (n=358/602) participants did not report any impairment in self-care. 63.1% (n=380/602) of participants were extremely depressed/anxious. Overall, the mean EQ-5D utility and Visual Analogue Scale scores were 0.388 (SD=0.41) and 66.20 (SD=17.22), respectively. Multiple regression analysis has shown that age over 50, the female gender, primary or secondary education, less than a year since HIV diagnosis, having a detectable viral load, and a longer time to ART were all factors significantly associated with HRQOL.	The results cannot be generalised to non-adherent PLWH as participants who failed to show up regularly according to their dispensing records were excluded from the study. Moreover, the cross-sectional study design does not allow for causality analysis and there is a possibility of social desirability bias as participants are likely to underreport socially undesirable behaviours.	Quantitative

Appendix 5. Part 2: Thematic synthesis categories.

Polypharmacy	Stigma	QOL/HR-QOL	ADR (Adverse drug reactions)	Medicine burden	Treatment burden	Medicine reviews	Adherence	Comorbidities
		Asymptomatic HIV participants reported significantly higher mean EQ-5D scores (0.58 ± 0.37) than symptomatic HIV participants (0.26 ± 0.34) and AIDS converted participants (-0.38 ± 0.22). Asymptomatic participants also had the highest VAS mean scores (74.75 ± 15.27) compared to those who were symptomatic HIV (59.15 ± 15.02) and AIDS-converted (45.10 ± 5.12). Factors such as gender, younger age, employment, higher CD4 counts, being undetectable, and being asymptomatic were significantly associated with higher HRQOL. Older age and lower education levels were predictors of poor HRQOL.						Over 63% of participants reported having severe anxiety or depression.