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Letter to Editor

Polypharmacy in Older Adults

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Dear Editor,

It has been attempted to highlight a critical issue affecting the older adult population, namely, polypharmacy and its characteristics, challenges, and approaches to its reduction. Polypharmacy is defined as the use of several medications, or typically, more than 4 chronic medications. It increases healthcare costs (emergency room visits and hospital admissions),[1,2] medication interactions and adverse drug reactions,[2-4] medication non-adherence,[5, 6] falls,[7] serious injuries,[8, 9] diminished activities of daily living[10] and health-related quality of life.[11] The growing percentage of older adults and individuals with non-communicable diseases is particularly notable in Iran, with a rapid increase in the older population, where approximately 50% of this population is illiterate. This issue is accompanied by adverse economic conditions and the absence of supplementary insurance for many older citizens.[12-14] Furthermore, despite the universal health coverage available, the quality of public health services in health centers remains subpar, significantly affecting the management of polypharmacy among older adults. Therefore, it is crucial to address and manage this situation.

Epidemiology

Polypharmacy is prevalent among older adults,[15] with studies indicating rates ranging from 14.6% to 60.8% across European countries.[10,16,17] In the United States, approximately 40% of adults aged 65 and older take 5-9 medications, while 18% take 10 or more.[15] Nearly 50% of older adults take at least one unnecessary medication.[18] In Iran, one study reported that 36.9% of the older population were experiencing polypharmacy.[19] In another study, it was found that the rate of five-drug polypharmacy in Tabriz stood at 46%. Additionally, based on the Beers criteria, 28% of the prescribed medications were estimated unsuitable for older individuals, and 62% of participants taking at least one inappropriate medication. The most frequently identified inappropriate treatments included non-steroidal anti-inflammatory drugs, benzodiazepines, cardiovascular medications, and anticonvulsants, specifically aspirin, gabapentin, diclofenac sodium, glyburide, and triamterene.[20,21] This high prevalence is concerning due to associated adverse outcomes, such as increased mortality, falls, drug interactions, and hospital readmissions.[15]

Risk Factors or Causes

The prevalence of polypharmacy has been increasing over the years due to factors such as geriatric syndromes (frailty, which includes weakness, weight loss, and decreased physical activity metabolism, kidney function, and liver function),[8,9] and the growth of chronic conditions (e.g., hypertension, diabetes, and arthritis).[22,23] Other factors included vulnerability e.g., cognitive decline and the availability of new medications, poly-provider prescribing, lack of coordination, and frequency of over-the-counter medications (herbal supplements and vitamins). Moreover, polypharmacy cascade (starting a new medication to manage the side effects of another drug), inadequate monitoring, and patient factors (e.g., adherence to medication regimens, understanding of instructions, being female, or living in rural areas) were among other factors affecting the prevalence of polypharmacy.[22,24-28]

Loneliness and Lonely Older Adults

Being alone can exacerbate the challenges of polypharmacy,

whereas loneliness is linked to depression and anxiety, which may lead to the prescription of additional medications, further complicating polypharmacy. In addition, the lack of social support can make it harder for older individuals to manage their medications properly, increasing the risk of non-adherence. Thus, addressing polypharmacy in lonely older adults requires a comprehensive approach involving regular medication reviews, patient education, and support from healthcare providers and community resources.[29]

Recommendations

Several strategies can be implemented to address these challenges (see Table 1). Recommendations on older adults' polypharmacy can be provided for healthcare providers, patients and caregivers, and epidemiologic research. These include a comprehensive medication review, patient and caregiver education, the use of technology (e.g., medication reminder applications and automated pill dispensing devices), and enhanced support systems (e.g., home health aides and consistent follow-

Table 1. Recommendations on Older Adults' Polypharmacy

Healthcare providers	1. Conducting comprehensive medication reviews	- Regularly reviewing all medications - Utilizing tools such as the Beers criteria or STOPP/START criteria to identify potentially inappropriate medications
	2. Implementing deprescribing protocols	- Identifying medications that can be safely discontinued - Gradually reducing medications
	3. Encouraging medication reconciliation	- Performing medication reconciliation during transitions of care
	4. Promoting inter-professional collaboration	- Involving a multidisciplinary team
	5. Educating patients and caregivers	- Providing clear information about medication's purpose, dosage, and potential side effects - Encouraging open communication about any concerns or adverse effects experienced by the patient
	6. Utilizing technology	- Considering using electronic health records - Encouraging the use of medication management apps
Patients, caregivers	1. Maintaining an updated medication list	- Keeping an accurate list of all medications being taken
	2. Being proactive in communication	- Discussing any new symptoms or side effects - Asking questions about the necessity of each medication
	3. Adhering to prescribed regimens	- Following the prescribed medication schedule - Using pill organizers or reminders
	4. Avoiding self-medication	- Refraining from starting new over-the-counter medications or supplements
	5. Engaging in shared decision-making	- Participating actively in discussions with healthcare providers about treatment options
	6. Monitoring health changes	- Keeping track of any changes in health status
Research	1. Performing epidemiological studies	- Conducting large-scale epidemiological studies to determine the prevalence and patterns of polypharmacy among older adults in various regions of Iran
	2. Assessing appropriateness of medication	- Investigating the appropriateness of prescribed medications in older adults using recommended criteria
	3. Evaluating the impact of polypharmacy on health outcomes	- Investigation of the effects of polypharmacy on health outcomes
	4. Focusing on cultural factors influencing medication use	- Exploring cultural beliefs and practices that influence medication adherence and perceptions of polypharmacy among older adults and their caregivers in Iranian society
	5. Studying healthcare provider perspectives	- Investigating the attitudes and knowledge of healthcare providers regarding polypharmacy and its management
	6. Performing intervention studies	- Designing and implementing intervention studies aimed at reducing polypharmacy through educational programs for healthcare providers, patients, and caregivers
	7. Focusing on the role of pharmacists	- Searching the role of pharmacists in managing polypharmacy in older adults
	8. Utilizing technology	- Examining the potential of digital health technologies (natural language process(NLP)) to improve medication management and adherence among older adults facing polypharmacy
	9. Focusing on socioeconomic factors	- Investigating how socioeconomic status impacts polypharmacy among older adults in Iran
	10. Performing longitudinal studies	- Conducting longitudinal studies to track changes in medication use over time among older adults, identifying factors that contribute to the onset or resolution of polypharmacy
	11. Applying patient-centered approaches	- Researching patient-centered approaches to managing polypharmacy, focusing on shared decision-making and individualized care plans
	12. Performing comparative studies	- Conducting comparative studies between urban and rural populations to understand how geographic location influences polypharmacy patterns and access to healthcare resources

up visits). Other recommendations are unnecessary medication deprescription, trust in healthcare providers, and inter-professional collaboration (a team-based approach involving pharmacists, physicians, and other healthcare professionals can enhance medication management).[24,30-32]

Conclusion

The use of medications in older adults requires careful consideration and regular review to balance the benefits and risks. Healthcare providers must be alert in monitoring for adverse effects and exploring alternative treatments when appropriate. In conclusion, while polypharmacy is often necessary for managing multiple chronic conditions in older persons, it is vital to address the associated risks, especially for those living alone. A multidisciplinary approach involving healthcare providers, patients, and caregivers is essential to optimize medication use and improve health outcomes. By prioritizing patient-centered care and implementing effective deprescribing strategies, it is possible to reduce the burden of polypharmacy while enhancing the quality of life for our aging population. It is important to recognize that certain medications may have similar colours and sizes, which can lead to serious consequences, particularly in the context of high illiteracy rates among older adults. Additionally, healthcare professionals must be educated about the specific needs of older patients and adjust medication dosages accordingly to reflect their unique characteristics.

Ethics statement

Not applicable.

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Conflict of interests declaration

None declared.

Data availability statement

The authors confirm that the data underpinning the results of this study can be found within the article.

Author contributions

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Consent for publication

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