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POLYPHARMACY AND DEPRESCRIBING IN FAMILY MEDICINE: STRATEGIES FOR OPTIMIZING MEDICATION USE IN AGING POPULATIONS WITH MULTIMORBIDITY

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Abstract

Polypharmacy, which is the use of multiple medications at the same time, is an important issue, especially for ageing individuals who have various diseases. Therefore, as applicable for chronic diseases, high medication use comes with consequences such as adverse drug reactions, drug-drug interactions, cognitive decline, and hospitalizations. Family physicians have a great opportunity to enhance the proper use of medication through deprescribing, a purposeful approach to discontinuation of unnecessary medications. This paper aims to discuss polypharmacy as an issue, deprescribing supported by evidence, and the involvement of family physicians regarding safe prescribing. It also looks at another next level of intervention, such as deprescribing initiatives at a national level, insurance reimbursement for medication review, and technology-enhanced optimization. However, specific challenges, like healthcare provider resistance, patient resistance, and poorly defined protocols, pose obstacles to deprescribing. Polypharmacy has to be approached from a patient and clinician-team perspective at the individual patient level, with decision-support clinical tools and policy facilitating this process.

INTRODUCTION

Polypharmacy has emerged as a complex issue over time, defined as the use of several drugs at the same time, which has significant impacts on the elderly and those with multiple diseases. The use of multiple medications is becoming more frequent because of the increase in people's life expectancies and the rising rates of chronic diseases. Nevertheless, over-prescription of medications is dangerous due to the possibility of ADRs, DDIs, and medication non-compliance, as well as increased hospitalization risk. Polypharmacy is an emerging problem in family medicine and primary care due to the practice of medicine where GPs and healthcare providers deal with the need to keep prescribing medications while avoiding associated harm that is related to high prescription rates (van Poelgeest et al., 2023).

The World Health Organization has defined multimorbidity as the presence of two or more chronic diseases in a single patient, leading to medication complexity. Patients in the older populations have other concurrent conditions like hypertension, diabetes, cardiovascular diseases, osteoarthritis, and cognitive disorders, which means that they take medications from several prescribers. This creates a bit of confusion regarding the safety or efficacy of the medication, which may not be the best. Polypharmacy is partially the result of improper prescribing, a lack of medication review, and negligence of the overall load of medicines taken by the patient. Evidence has established that polypharmacy contributes to the decline of functional status, frequent falls, cognitive disorders,

and increased hospitalization rates, making it critical for FPs to work on enhancing the rational usage of medications (Crisafulli et al., 2022).

Deprescribing has proven to be an important approach in the management of harms related to polypharmacy. Deprescribing mainly involves the phraseological and regular reduction or termination of drug application that the patient may not require in the present case. It is a client-based approach that calls for assessment of medication risks and benefits, engaging clients and their caregivers in treatment choices, and monitoring in order to manage withdrawal symptoms or exacerbation of the disease. Research shows that deprescribing has implications for medication safety, ADR incidence, and patients' quality of life in older adults (Reeve et al., 2022). However, despite these benefits, deprescribing has remained relatively rare in primary care due to several reasons, such as physicians' attitude towards not removing medications, especially when they are not fully aware of the side effects of withdrawal. Besides, there are no well-defined deprescribing protocols for some diseases.

1.1 Objectives

- ✓ To examine polypharmacy's impact on aging populations, including clinical, economic, and social challenges.
- ✓ To investigate deprescribing methods, identifying inappropriate medications, implementing structured processes, and monitoring patient outcomes.
- ✓ To emphasize family physicians' role in medication reviews, deprescribing, and interdisciplinary collaboration for safe prescribing.
- ✓ To analyze healthcare policies, deprescribing programs, and insurance coverage for medication reviews in primary care systems.

1- Understanding Polypharmacy in Aging Populations

Polypharmacy is fast becoming more worrying in geriatric populations, especially in individuals with multimorbidity. This has been necessitated by the growing population of elderly people in the world, hence the increased use of medications for other health complications, which in turn cause complicated medication regimens. Since chronic diseases are a significant challenge in modern healthcare, medications are often used to treat them. However, uncontrolled prescription can lead to adverse effects. It is crucial to determine the underlying factors of polypharmacy and its ramifications to design approaches that address the use of medications among older adults.

2.1 Definition and Criteria for Polypharmacy

Polypharmacy means the regular use of two or more medications, but different guidelines have different connotations for the term. The primary definition used by the World Health Organization WHO where outlines that polypharmacy means the use of four or more medications, while other scholars also use the definition that considers the use of five or more medications as polypharmacy (Perron, 2024). However, the increase in the number of medications prescribed for people does not provide an adequate picture of the problem alone. Physicians differentiate between the patient's necessary and appropriate use of multiple medicines for addressing two or more disorders and the cases of the patient with multiple medications that either do not have a therapeutic rationale or for whom the benefits of the meds are overshadowed by adverse effects.

The reason why it is difficult to provide an exact definition of polypharmacy is that some patients need to take several medications to stay healthy. A similar note has been made, which signifies that, in such situations, deprescribing may not always be required, but instead, medication use should be reviewed regularly. Conversely, inappropriate polypharmacy involves the use of multiple medications that prove hostile to the body, interfere with other medications, or are no longer suitable for the patient's treatment plan and objective (Levack et al., 2022). It is important for a clinician to differentiate between these types because it aids in the sequencing process and the approach to deprescribing medication.

2.2 Causes and Contributing Factors

Several reasons can be attributed to polypharmacy in the elderly population, most of which can be canned

back to the complexity of care and management of chronic diseases. Among the factors that have been put forward, longevity and prevalence of multimorbidity have been cited as key drivers. Due to the improved medication procedures, people are living longer, and to an extent, they develop more than one disease at a time. For this reason, diseases like hypertension, diabetes, cardiovascular diseases, and osteoarthritis are often accompanied by the use of several medications for symptom control and for avoiding complications. Therefore, elderly patients are likely to receive multiple prescriptions throughout their lifetime. The next significant factor of concern is disease-oriented prescribing habits. Chronic care guidelines and goals established in each medical speciality are strictly oriented on the specific disease, whereas the effect from numerous prescriptions is not considered. This leads to patients receiving suboptimal or contradictory medication prescriptions, which different specialists do not coordinate before prescribing.

Patient expectations and medicalization also contribute to the situation. For instance, under the notion that many of the diseases that affect older people require medication, many patients are highly resistant to deprescribing interventions. Physicians and nurses may prefer to prescribe a medication to manage a patient's expectation instead of considering other options such as non-drug. Polypharmacy is also increased by factors including fragmented healthcare systems and care delivered by multiple prescribers. Older adults are often under the care of several specialists who may not always ensure coordination regarding the use of medication in the patient. Such lack of coordination directly contributes to duplicated prescriptions, prescribing cascades (when a new prescription is given to manage the side effect of another prescription), and the use of unnecessary medications (Ali et al., 2022).

2.3 Consequences of Polypharmacy

Polypharmacy comes with numerous disadvantages that have severe consequences for the health of the affected person. Adverse drug reactions (ADRs) are also determined to be on the rise, and this is one of the most dangerous risks that can occur in a healthcare setting. Patients above the age of sixty are vulnerable to ADRs because of changes which come with age with regard to the metabolism and excretion of the drugs. The more medications are taken concurrently, the greater the propensity of side effects manifested in various ways, from mild to life-threatening effects that may warrant hospitalization (Laberge et al., 2021). Another direction is the problem of DDIs and prescribable cascades. This is because most drugs can cause one or the other form of drug interaction, which may lead to the manifestation of side effects or even the failure of the drugs in question. For instance, an antihypertensive agent may produce the side effect of dizziness, and instead of dose reduction or stopping the drug, another drug is prescribed to counteract the side effect. This cycle makes patients go through extra dosages with exposure to various types of drugs, making them even exposed to high risks to their health.

Polypharmacy has also been associated with cognitive impairment, pre-surgical frailty, and falls. The drugs that often cause such adverse effects are sedatives, anticholinergics, and psychotropic medications, which may lead to confusion, memory loss, and risk of falls. Senior patients fighting with falls are an essential issue for geriatric medicine, as these struggles cause fractures, mobility limitations, and loss of self-sufficiency. Declining the use of these drugs has been found to minimize these effects and enhance the functional status of the elderly (Perron, 2024). In addition to the physical impact on patient health, institutional polypharmacy cuts costs and remains a significant concern in healthcare settings. This cause is represented mainly by higher expenses incurred by frequent hospitalizations, emergency visits and admissions to long-term care facilities. Research also reveals that measures to enhance the process of medication use, involving deprescribing efforts, can save health costs while enhancing the prospects of patients (Laberge et al., 2021).

2- Multimorbidity and Its Influence on Medication Management

Multimorbidity refers to the existence of two or more chronic diseases in one patient, which has recently become a common phenomenon in the elderly and is challenging to manage. Consequently, there is a tendency towards the development of new chronic diseases in the older population, including

hypertension, diabetes, osteoarthritis, cardiovascular disease, chronic kidney disease, and others. These often occur simultaneously and require multiple therapies, regimens that beget polypharmacy and which expose a patient to poor health outcomes. According to the epidemiological works, Multimorbidity is present in more than 60% of the adult population aged 65 and above and increases in frequency in the population of 80 years old and above (da Silva Pereira, 2022). It seems that a lot of confusion comes from the fact that most of the clinical guidelines for managing patients' chronic diseases are disease-specific and thus may contain contradictory information when the patient suffers from several diseases simultaneously. Therefore, patients with Multimorbidity receive multiple prescriptions and, occasionally, they are given medications that are either not needed or dangerous when taken together.

Chronic conditions are also known to increase functional decline and disability, particularly if a client has two or several disorders. The exposure that people have to medications, though helpful most of the time, does not always lead to better health conditions. However, they may be responsible for side effects, poor compliance, and a general poor quality of life. Rochon et al. (2021) note that people with multimorbidity have highlighted the need for a new pattern of management focused on the integration of the patient as opposed to the treatment of diseases with disease management protocols that prioritize functional capacity rather than disease-oriented presumptions of standard practices.

Another primary concern in managing the condition is complications that arise due to the varied treatment protocols when dealing with multiple conditions. Most clinical protocols identify individual disease management without referencing the ever-increasing use of combined medications. For instance, the management of diabetes involves tight glycemic control, which could be problematic in old people with frailty in that the risk-benefit ratio for hypoglycemia is unfavourable. Likewise, in cardiovascular diseases, clients are put on multiple treatments that can lead to issues of drug interactions and adverse effects (Radcliffe et al., 2023).

Another issue is changes in patients' rates for more frequent check-ups and prescriptions. Older patients with multiple chronic diseases tend to experience multiple visits with various doctors, who may prescribe drugs from different fields. Such management can contribute to issuing cascades where new medications are prescribed to manage the undesirable effects of the other drugs instead of evaluating the cumulative dose of medications (Oboh, 2024). This is especially a problem in cases where different healthcare providers are involved because there is no easy way of communicating to ensure all medications are still required.

Furthermore, managing medications in multimorbidity is a challenge because the disease's progression is not the same. Depending on the specific disease that patients have, an aviation or conservative approach might be needed. This implies that due to the variation in patients, standard practices cannot be implemented, thus requiring patient-specific procedures and treatments, all of which require evaluation of the risk-benefit ratio in the medications used (Alhozim et al., 2024). Polypharmacy is an inherent issue in cases of multimorbidity and adversely impacts medication compliance. Therefore, with the continual increase in the number of prescribed medicines, the management of the patient's medication becomes cumbersome, and this leads to what could be termed polypharmacy-induced non-adherence. It is also common for older adults to forget the various medications that they are on, especially when the dosing schedule is complicated or when they experience side effects that deter them (Radcliffe et al., 2023). There are negative consequences of non-adherence, which include poor disease control, increased hospitalization rates, and other complications that further reduce the quality of life.

Lack of medication non-adherence is not willful. Instead, patients stop taking their dosages, overlook prescriptions, or doubt the usefulness of any specific medications due to financial inhibitions, inaccessible prescriptions, or mistaken beliefs. Oboh (2024) urged that patients who are not well informed of the reasons for the prescriptions are more likely to stop taking the tablets if they are no longer feeling the effects. The interventions for addressing adherence involve interactions between the client and the

health care provider with a view of understanding the extent of compliance of the patient with specific medication plans that are personalized to suit the client.

Adherence issues are but one means by which polypharmacy can detrimentally affect functional impairment and quality of life. The medications are often the ones for chronic conditions that have side effects of dizziness, cognitive impairment, fatigue, and muscle weakness, which can increase the likelihood of falls and hospital births. According to Alhozim et al. (2024), drug classes, including sedatives, anticholinergics, and opioids, are especially detrimental in the elderly because they lead to frailty and dependence. However, effective management of multimorbidity involves scheduled drug reviews to take into consideration whether the benefits of each drug outweigh the potential harm. As Rochon et al. (2021) point out, the effects of polypharmacy vary by sex and gender, where women aged 70 and older take more medications because they have higher rates of osteoporosis, depression, and chronic pain conditions.

3- Deprescribing: A Key Strategy for Medication Optimization

Deprescribing is an essential strategy for medication optimization, especially in older adults with multimorbidity and polypharmacy. This is defined as the systematic process of tapering, discontinuing or reduction of medications that may no longer be beneficial or cause harm. Deprescribing is not about reducing the number of medications, and it is about improving a patient's health by applying each drug in a context that is beneficial to the patient's healthcare (Nwadiugwu, 2021). Deprescribing includes balancing the medication's risks and benefits. Many medications prescribed to manage chronic conditions are continued without having to be, especially with a patient's ongoing condition often evolving over time. An example would be that some medications do not work as well in older adults, and some medications may have more adverse effects than therapeutic benefits when metabolized in more significant quantities in the elderly. Tsang et al. (2024) elaborate on the fact that due to inappropriate Polypharmacy, ADRs increase the risk of drug interactions, adverse drug reactions and medication-related hospitalizations, so deprescribing is a necessary aspect of comprehensive geriatric care.

Deprescribing is more effective when done in a patient-centred manner, whereby patients are involved in the decision-making regarding their medications. Deprescribing is successful when it is done through shared decision-making with patients' values, preferences, and treatment goals kept in mind. According to Yang et al. (2024), A major fear older adults have as they're stopping medications is they've been taking them for so long. Discontinuing a drug may also make them think that this will cause their symptoms to worsen or that they will suffer a relapse of the condition that they have. Clear communication and patient education can help address these concerns and improve adherence to deprescribing plans.

Deprescribing also relates to ethical considerations. Consequently, physicians must decide to discontinue a medication with the aim of balancing the principles of beneficence (doing good) and non-maleficence (avoiding harm). Lun et al. (2021) mark that deprescribing is not 'withholding treatment' but rather a process of active care optimization. Ethical deprescribing consists of weighing the benefits of the continuance of medication with the possibility of risks, including cognitive decline, hospitalization, new falls, or worsening quality of life resulting from adverse effects of medication. However, when deprescribing can lead to withdrawal symptoms, gradual tapering and close observation are necessary in order to protect patient safety. Nevertheless, deprescribing is hampered by a number of barriers from both healthcare providers and patients. Resistance from healthcare providers is one of the main challenges. The likelihood of many clinicians deprescribing is limited due to fear of liability, insufficient time for comprehensive medication reviews, and insufficient information regarding safe medications for deprescribing. Moreover, fragmented healthcare systems often have many prescribers involved in a patient's care, which makes it hard to coordinate deprescribing efforts (Nwadiugwu 2021).

Patients, too, are often reluctant to deprescribe due to fear of withdrawal effects or disease relapse. Some assume that once on a drug for a particular condition, the patient remains on that drug indefinitely. Additionally, some patients are inured

to the idea of decreasing their pill burden because they believe it is linked to better health and, as a result, embrace medication use. Yang et al. (2024) explain that in their emergency department settings, efforts to deprescribe medications often fail due to the lack of long-term follow-up and reassurance of patients that discontinuing a medication will not affect their health negatively. A crucial barrier is that few clear deprescribing guidelines exist for specific conditions. Although there are standard criteria for prescribing medications, deprescribing protocols are still in the development stage. Tsang et al. (2024) point out that due to guidelines that focus on disease-specific treatments as opposed to whole-patient care, deprescribing is a challenge faced by primary care physicians. The result is that it makes it uncertain as to which medications need to be stopped and how best to do it.

However, some enablers and facilitators can help overcome these barriers and facilitate deprescribing efforts in clinical practice. The deprescribing process benefits greatly if education and training are provided to healthcare providers who are learning when and how to deprescribe. To address these challenges, clinicians require training on identifying potentially inappropriate medications, assessing the risks and benefits of deprescribing and communicating deprescribing plans effectively with patients (Lun et al., 2021). Physicians can also rely on clinical decision-supporting tools and deprescribing algorithms to nudge them in the direction of informed deprescribing decisions. Digital tools embedded into electronic health records (EHRs) may identify potentially inappropriate medications, offer alternative treatments, and suggest timelines for tapering medications safely. Tsang et al. (2024) noted that structured deprescribing frameworks (i.e. Beers Criteria, STOPP/START criteria) can facilitate safe and intentional medication review and optimisation.

Promoting deprescribing at a broader healthcare system level dictates policy initiatives and integrated care models. For deprescribing to be successful, routine medication reviews must be supported by healthcare policies, especially for older adults with multimorbidity. Yang et al. (2024) advocate that deprescribing should be done within routine clinical workflows such as annual medication reviews in primary care or hospital discharge planning. Reimbursement for medication reviews that can incentivize deprescribing policies can encourage discussions on deprescribing by physicians. Similarly, integrated care models with multidisciplinary teams can improve deprescribing efforts. Pharmacists, geriatricians and primary care physicians can work together to evaluate medication regimens and develop individualized deprescribing plans. As Nwadiugwu (2021) noted, deprescribing is a collaborative process involving multiple healthcare professionals who draw from their collective experience to achieve safe and efficacious deprescribing.

4- Strategies for Deprescribing in Family Medicine

Family medicine is key to deprescribing medication use, especially in older adults with multimorbidity. Polypharmacy is of high prevalence, and family physicians need to identify patients who might benefit from deprescribing and who can develop structured approaches to unnecessary medications. Patients must feel that this process is patient-centred, evidence-based and closely monitored to avoid safety and efficacy pitfalls. The first step in medication optimization is to identify the candidates for deprescribing. Not all polypharmacy cases are inappropriate, and some patients must be on multiple medications to maintain their optimal health. However, determining whether the benefits of each drug are still clinical remains essential. The Beers Criteria and the STOPP/START Criteria are clinically helpful screening tools for potentially inappropriate medications in older adults (Ibrahim et al., 2021). They can help the physician decide what drugs carry a high risk for drug interactions, adverse effects or poor efficacy for the older population. For example, Beers Criteria lists some medications, like certain anticholinergics and benzodiazepines, as drugs to be avoided in elderly patients for their relationship to falls, cognitive decline, and mortality. Deprescribing decisions are further elaborated on by the STOPP/START criteria, which categorize drugs to reconsider or discontinue based on individual patient characteristics and their use.

Once a patient is identified as a candidate for deprescribing, protocols are established for safe and

effective deprescribing of drugs. This starts with a medication review, which means family physicians have to analyse the risks and benefits of every prescribed medication. Lee and colleagues (2022) describe this as considering a patient's medical record, past medications, and drug-drug interplay.. Prescribing drugs that are not required could be eliminated for individuals contemplating complementary medicines by gaining knowledge of patient goals and functional needs. One of the strategies is identifying initiatory, ineffectual or harmful medicines that must be stopped or replaced. For instance, proton pump inhibitors (PPIs) are prescribed more than necessary and can be discontinued based on the evaluation of long-term acid suppression.

Discontinuation of the medication depends on the therapeutic class of the discontinuing agent and the patient. Some drugs like corticosteroids, benzodiazepines and antidepressants must be tapered to avoid withdrawal effects and relapse of symptoms. However, there are other drugs whereby some drugs like vitamins or some supplements can be stopped instantly without any dangerous effects (Tarrant et al., 2023). It is essential to follow a structured tapering plan that outlines how the dose is to be reduced, as well as the intervals for monitoring the patient. Family physicians have to give precise prescriptions on dose options and inform the patient about possible withdrawal symptoms.

Following up after deprescribing is equally essential in evaluating the effectiveness of the intervention as well as any of the patient's symptoms that may arise. Physicians have to monitor withdrawal effects and symptom flare, as a patient may have side effects that are transient or may need medicine that will ease the symptoms which were previously suppressed. For instance, when stopping antihypertensives, one has to consider the fluctuations in blood pressure levels to avoid hypertension rebound (Kurczewska-Michalak et al., 2021). However, if the symptoms relapse or aggravate, the deprescribing plan may be reviewed, medications may be changed, or some drugs may be reintroduced at a smaller dose.

The involvement of pharmacists, caregivers, and patients is an effective way to improve deprescribing initiatives because it is a combined method. To increase the likelihood that medication changes reflect the current state of knowledge and to get assistance in identifying high-risk prescriptions, family physicians should liaise with pharmacists. Pharmacists should also be able to supply deprescribing algorithms, identify drug withdrawal side effects, and decide on different drugs if necessary (Shantsila et al., 2024). Patient involvement is the key when it comes to deprescribing interventions. Patients detect concerns when advised to stop certain medications they have been using for timeainstopping. This study underlines the importance of effective communication to engage patients and challenge their false beliefs or perceptions regarding deprescribing. The family physicians must clarify the purpose of the discontinuation of the medication, the potential gains patients are to make from the change, and that the physicians will be monitoring their conditions during the process (Shantsila et al., 2024).

The use of deprescribing interventions with patients during their routine primary care visits makes medication optimization a refreshing process, as opposed to a singular process. For a patient with multimorbidity, medication review enables the family physicians to identify any change in the ongoing medication regimen and make necessary modifications. In their synopsis, Tarrant et al. (2023) correctly define deprescribing as not a discrete intervention but one that should form part of the comprehensive approach to chronic disease care. In conclusion, deprescribing in the setting of family medicine should only be done systematically in a safe model to avoid adverse effects. Multifaceted clinical decision-making, use of current criteria to identify agents to deprescribe, gradual discontinuation of medications, systematic evaluation of patient responses, and interprofessional cooperation are practices of deprescribing.

5- Role of Family Physicians in Optimizing Medication Use

Primary care physicians are specifically involved when it comes to enhancing medication management, especially among elderly patients with multiple diseases and multiple drugs. Due to a myriad of obstacles that make chronic disease management complex, they can use deprescribing

approaches, promote interdisciplinary collaboration, and ensure the safety and effectiveness of medication. Banerjee et al. have noted that the patient's active participation in the medication process may help decrease adverse consequences of medication therapy and strengthen people's results. An important step toward medication optimization in primary care includes medication management, which includes medication reconciliation, meaning the review of a patient's medication at every visit. This enables all prescriptions that are issued to still remain relevant and warranted and not come with any adverse effects. Del Cura-González et al., 2022 state that medication reconciliation aims to identify more than one prescriber, potentially inappropriate medications and drug-related complications that are a significant issue among the patient population.

Another important approach is incorporating deprescribing into patients' chronic disease management. A national survey shows that more elderly patients are on drugs that were intended to be used for a short duration but end up being taken regularly for years without review. According to Hickman et al. (2023), the continuation of medication in diverse diseases, including type 2 diabetes, may become deleterious to the patient's health because it leads to functional difficulties and hypoglycemia. Family physicians also have the responsibility to consider the goals of medication used in patient care, focusing on symptom relief, symptom minimization and the maintenance of valuable functions and quality of life. That is why managing the expectations of the patient about deprescribing is critical, as some of them believe that as long as they use the prescribed medicines, they are improving their health status. Mortsiefer et al. (2023) hypothesized and concluded that fertility patients' and carers' participation in structured conferences with the healthcare manager could be used to address patient concerns and to educate patients on why certain medications should be deprescribed or reduced and the health goals that might be realistically achieved.

Consultation with other professionals is crucial in the aspect of medicine use. Collaboration with pharmacists and specialists increases deprescribing outcomes because of their knowledge of medication safety and measures of other forms of therapeutic intervention. This study focused on studying pharmacists because they often recognize and advise on appropriate alternatives and help in medication de-escalation plans. According to Onder et al. (2022), integrating pharmacists, geriatricians, and PCP in a team-based care model has posited effects on reducing adverse effects of polypharmacy and enhancing medication reconciliation. Another example is the use of electronic health records for medication to assist with deprescribing because such records offer a broad perspective of a patient's medication use across carers. According to Daunt et al. (2023), EHRs assist with the documentation of medication changes, identification of hazardous drug-drug relationships, and decision-making about deprescribing to occur in real time. Family physicians are optimizers of medications, and engaging in deprescribing as a proactive clinical intervention results in safer and more effective therapeutic management.

6- Policy and System-Level Approaches to Address Polypharmacy

Polypharmacy is a relatively recent problem that affects the global populace and is particularly evidenced, especially among ageing individuals with multiple chronic diseases. However, deprescribing strategies at the system level focus on the policies and measures on how medication use can be optimised at an individual patient level. The adverse effects of polypharmacy have been acknowledged at the national and international levels, and as a result, there are guidelines, deprescribing programs, and technology aids for the rational use of medicines. These remarks are all the more important given that globally, bodies such as the World Health Organisation have recently called for better-organised frameworks for handling polypharmacy, particularly in older patients. There are WHO guidelines on medication safety and deprescribing and Best Practice BPM mechanisms on integrated care approaches to avoid unnecessary use of medications. According to Haroun et al. (2023), under the Vision "Medication Without Harm", WHO identified polypharmacy as another area of focus through which healthcare systems must ensure policies that promote medication review, deprescribing, and patient-centred medication use.

Several nations have implemented national deprescribing initiatives to incorporate medication reviews throughout the care delivery process. Deprescribing guidelines have also been integrated into primary care in Canada for physicians, pharmacists, and clinical decision-making tools to aid physicians in evaluating medications (Pirouzi et al.). Also, countries like Australia and some European countries have included deprescribing in their healthcare policies as a part of ongoing national health reforms, as a part of the healthcare of the elderly, and as a multidisciplinary approach with regular medication evaluation. Despite these, measures such as the goals, objectives and policies forwarded by various governments towards the healthcare sector have an important responsibility in promoting sensible prescribing standards. Probably, the best strategies aim at guaranteeing insurance reimbursement for medication reviews and deprescribing services. Healthcare systems work on paying for medical expenses for medicine but do not consider providing motivation to stop using them once they are not essential. According to Haroun et al. (2023), there are possibilities for using actual policies to pay back the healthcare providers for conducting specialised medication reviews and constantly promoting deprescribing.

Evaluation of deprescribing in Jordan has been an issue due to the absence of guidelines about polypharmacy. According to Barakat et al. (2024), healthcare policies should enhance deprescribing in clinical practices despite concerns regarding polypharmacy being more apparent. One is to align deprescribing interventions with EHRs and guarantee that physicians routinely evaluate and modify patients' medication therapies. Polypharmacy is addressed through several approaches based on the recent developments in artificial intelligence (AI) and other digital tools in health care. These features create pill alerts for clinicians and include dictionaries to indicate medications that should not be prescribed, as well as high-risk drug interactions and deprescribing suggestions from evidence-based sources. Haroun et al. (2023) also note that AI technology can verify the patient's data in real time and advise safer prescriptions for patients who require reduced doses of the medications they are currently taking.

Integrating AI as an intervention for deprescribing also proves effective since there is a reduced chance of medication error and subjected patients experience good impacts. According to Pirouzi et al., decision support systems for clinical practice (CDSS) may be used to facilitate deprescribing and use safe and evidence-informed approaches. These instruments benefit primary care practice when treating a diverse patient population with multiple prescription interventions.

7- Conclusion and Future Directions

Polypharmacy is one of the main issues in old people, especially in patients with multiple chronic diseases. Effectiveness is compromised by the fact that with a continually ageing population, people have chronic conditions which require many medications and the more drugs, the more they harm the body than benefit it. Managing polypharmacy is complex and should be systematic, with the significant involvement of family physicians in offering deprescribing and medication reconciliation. The concept of deprescribing is critical since it minimizes the harms of medication, avoids prescribing cascades, and enhances the older adults' well-being. The approach to deprescribing should be systematic with interdisciplinary collaboration and support from the policies while maintaining careful medication usage that is still safe and effective for the patients.

Primary care physicians and practices remain the key intervention point in managing the issue of polypharmacy, specifically through deprescribing. The relative of general practitioners themselves needs to be involved and actively screen patients, as well as help them navigate through the deprescribing process about potential candidates for deprescribing. This makes it possible to perform regular medication reconciliation, evaluate the risks and benefits of each medication, and engage the patients in decision-making. Patient education is even more crucial in this situation since there are many older individuals who may develop some sort of fear or apprehension about suddenly halting medication regimens they have been using for extended periods. This article has outlined ways in which patients can feel more comfortable after getting a consensus on deprescribing physicians' decisions. Finally, the practice of engaging pharmacists and other specialists

guarantees that deprescribing procedures are evidence-based and up-to-date.

Therefore, future research and recommendations will need to concentrate on the specification of an adequate deprescribing strategy for patients suffering from multimorbidity. Even available deprescribing tools are general, although many current recommendations are focused on specific diseases and do not give comprehensive information about clinicians handling patients with multimorbidity. Studies about deprescribing should be done, especially by condition, to establish organized deprescribing regimens in complex situations, such as when patients have other illnesses that complicate medication prescriptions and chronic use. More research is also required to investigate the consequences of deprescribing on the patient's status, morbidity and mortality in the long run.

Another area that can be worked upon is a need to improve the knowledge and skills of healthcare professionals regarding deprescribing. Most doctors are trained on how to prescribe medicines, but few undergo rigorous training on how to go about discontinuing the same medicines. It would be beneficial to include deprescribing education in the medical curricula and continuing education programs for physicians so that they are equipped to implement deprescribing procedures effectively. Furthermore, maven and other CDS and deprescribing algorithms based on the AI model can help the physician delineate potential improper/unsafe prescriptions and suggested tapering profiles.

Another important aspect is the continuation of improving Patient Medication Management, which is an equally monumental task. Deprescribing is not a predictor of an intervention that has to occur once only but a continuous process that has to be done frequently, depending on the patient's condition and preference. Other recommendations include regularly targeted medication review, deprescribing consultation, and patient counselling to complement deprescribing practices. In conclusion, the success in avoiding polypharmacy and enhancing medication safety in elderly persons shall be based on the overall approach involving research, education, policies, and technologies. Consequently, promoting deprescribing as an active step and integrating it with the existing paradigms of managing geriatric individuals is crucial for practising clinicians.

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