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POLYPHARMACY AND POTENTIAL DRUG INTERACTIONS AMONG ELDERLY PATIENTS WITH CHRONIC CONDITIONS: A CROSS-SECTIONAL STUDY ON PREVALENCE, PREDICTORS, AND CLINICAL IMPLICATIONS IN DHI QAR

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ABSTRACT

Background: For patients who are elderly, chronically ill, and for whom this can cause significant adverse effects and complications, polypharmacy and DDDIs are important issues to watch out for. However, polypharmacy and DDIs data are scant in Iraq, especially in resource-poor places such as Dhi Qar governorate. This article analyses polypharmacy and DDIs, risk factors, and clinical implications of them for chronically ill elderly Iraqi patients. **Objectives:** To investigate the frequency of polypharmacy and DDIs among elderly chronic-care patients in Dhi Qar governorate, Iraq, and the demographic and clinical predictors of them. **Methods:** An observational cross-sectional study from February to May 2025 in Dhi Qar governorate involved 397 patients 65 years of age with at least one chronic illness and two or more prescription medications. Demographics, clinical information, and medication information were derived from patient interviews and medical record checks. Polypharmacy was defined as the use of five medications, and DDIs were stratified according to severity by a standard interaction-checking tool. For polypharmacy, DDIs, and independent variables, associations were assessed using descriptive statistics, the chi-square test, the t-test, and logistic regression. **Results:** Polypharmacy was 60% (n = 238), and 45% (n = 179) of patients were potentially DDIs (12%), moderate interactions (3%) and severe interactions (3%). Longer age (OR=1.05; 95% CI: 1.02-1.08), female gender (OR=1.4; 95% CI: 1.1-1.9), and more chronic diseases (OR=1.6; 95% CI: 1.3-2.0) all increased polypharmacy. DDIs were more prevalent in

multiple drug patients (OR = 1.8; 95% CI: 1.5-2.2) and in people with cardiovascular disease (OR = 1.5; 95% CI: 1.1-2.1). Particularly prone to interaction were antihypertensives and NSAIDs, as well as antidiabetics and cardiovascular medication. **Conclusion:** The prevalence of polypharmacy and DDIs among elderly chronically ill patients in Dhi Qar poses a significant clinical risk. Older age, female gender, and multimorbidity all lead to polypharmacy; cardiovascular disease and high levels of medications exacerbate DDI risk. All these results call for frequent medication audits, targeted interventions, and better prescribing guidelines to ensure that elderly Iraqi patients receive the best medications possible.

KEYWORDS: Polypharmacy, drug-drug interactions, elderly patients, chronic conditions, medication safety.

INTRODUCTION

Polypharmacy (the combination of five or more drugs) is a worldwide problem that's exceptionally high in elderly patients with chronic diseases.[1,2] While polypharmacy can be needed to address multiple comorbidities, it has a multitude of adverse effects, such as increased incidence of adverse drug reactions (ADRs), drug-drug interactions (DDIs), decreased adherence, and even greater mortality.[3,4] Age-related changes in patients' bodies compound these hazards by altering drug metabolism and pharmacodynamics, making them more susceptible to adverse events.[5]

Chronic disease patients with ageing populations with diabetes, hypertension, and cardiovascular diseases are especially prone to polypharmacy since treatment for these conditions can involve complex regimens.[6] As life expectancy and lifestyle change drive the emergence of chronic diseases, so is polypharmacy.[7] in Iraq. Nevertheless, for all the risks, very little research has been done on prevalence and risk factors in Iraq for polypharmacy, especially in resource-poor areas such as Dhi Qar governorate, where healthcare systems might struggle to deal with the complexity of elderly care.

Among the most significant risks from polypharmacy are DDIs (as one agent can change another's effect, causing a lower efficacy or more toxicity).[8] This risk is especially troubling in older individuals, since DDIs can worsen already existing conditions, resulting in increased hospitalisations and loss of therapeutic effect.[9] The number of medications that patients take is inversely related to the likelihood of developing DDIs, and there is evidence that elderly

patients taking multiple medications have an 80 percent risk of having at least one DDI.[10] This makes DDI an important topic for exploring how to best manage older patients with medication.

Some demographic and clinical variables are associated with polypharmacy (eg, age, sex, number of chronic conditions, type of disease, cardiovascular disease, diabetes, etc.) from published studies.[11,12] Understanding these variables is crucial for developing targeted interventions aimed at reducing the risk of polypharmacy and DDIs in populations that have limited health resources and may be more challenging to treat.[13]

We aim to bridge this gap by evaluating polypharmacy and DDIs in chronically ill elderly patients in Dhi Qar governorate, Iraq, and the predictors of this through demographic and clinical variables. This study's knowledge about what causes polypharmacy and DDIs in this group can inform healthcare policy and intervention measures for the safety of medications and the quality of care of older Iraqi patients.

METHODOLOGY

Study design and setting

This cross-sectional observational study aimed to assess the incidence and risk factors for polypharmacy and DDIs in chronically ill elderly patients. It was conducted at primary care clinics and outpatient clinics in Dhi Qar governorate, Iraq. Dhi Qar was selected because the patient population was heterogeneous, which would provide a good representative sample of elderly patients attending health care services here. The data collection period was four months (February to May 2025).

Study Population

They recruited elderly patients aged 65 and over who had a chronic illness of some kind, including diabetes, high blood pressure, or heart disease, and were on at least two medications. Eligibility criteria were as follows:

- **Inclusion criteria**
  - Patients aged 65 years and above.
  - Patients with one or more chronic conditions for which treatment has to be continuous.
  - Patients who take two or more prescription drugs.

- **Exclusion Criteria**
  - Acute disease patients who require medication for the short term.
  - Patients with missing medical records or not capturing proper documentation of medications.
  - Patients who do not want to participate or cannot give informed consent.

Sample Size Calculation

A 50 percent probability of polypharmacy was estimated, with a confidence level of 95%, and a margin of error of 5% determined the sample size needed. The number resulting from this calculation was the minimum sample size of 384. For adequate data, excluding dropouts or missing data, 397 patients were recruited for the study.

Data collection

Participants were surveyed through patient interviews and medical records searches at primary health care centres and outpatient clinics in Dhi Qar governorate. A cadre of specially trained medical staff—pharmacists and nurses—collected the data to guarantee accuracy and coherence.

Data Collection Process

- Patient Interviews: Formal interviews were conducted with each participant to get demographic data, lifestyle factors, and complementary/alternative medicine (CAM) use.

Review of Medical Records: Patients' medical records were reviewed to collect details of history, ongoing diseases, and medications prescribed. Each patient's provider reviewed the list of medications for data validity.

Variables Collected

- Demographic Data: Age, Gender, Education, Class, and Place of Living (Metropolitan or Rural).
- Clinical Data: Chronic Conditions: Types and number of chronic conditions, duration of each chronic condition, recent hospitalisations (during last year), and lifestyle factors like smoking and alcohol use.
- Drug Information: Number of medications you took, both over-the-counter (OTC) and prescription drugs. Any consumption of complementary or alternative drugs (CAMs) was recorded, too. Names of drugs, quantities, and time taken were listed as medicines.

Polypharmacy Rating: Polypharmacy was defined as taking five or more medications at the same time, as per standard criteria in geriatric research.

Potential Drug-Drug Interactions (DDIs)

- DDIs were discovered and checked against a generic drug interaction checker (e.g., Micromedex or Lexicomp). All drug regimens were fed into the software to check for interactions.

O DDIs were ranked in terms of severity

Mild Side Effects: These should have minimal clinical effects but are still worth tracking.

Moderate Side Effects: May need adjusting, monitoring, or not using due to side effects.

Moderate to Severe Interactions: High potential for side effects must be addressed, modified, or replaced by therapy immediately.

Statistical Analysis

Data was processed with SPSS software, version 25.0. The following statistical tests were used to test the study design:

- Qualitative Data: Frequencies and percentages were obtained for categorical variables (gender, chronic disease), and means and standard deviations for continuous variables (age, medication doses).

- Bivariate Analysis: This method compares polypharmacy with independent variables such as age, sex, and the number of chronic diseases.
  - For categorical variables, we performed a chi-square test.
  - Independent sample t-tests on continuous variables, normally distributed.
  - The Mann-Whitney U test is utilized for non-normally distributed continuous variables.
  - Significant associations were defined using a significance level of p 0.05.

- Multivariable Logistic Regression Analysis: Logistic regression was used to find independent predictors of polypharmacy and DDIs, accounting for potential confounding variables. Each variable had ORs and 95% CIs computed. Key predictors assessed included:
  - Polypharmacy Predictors: Age, sex, chronic diseases, and socioeconomic class.
  - DDI Predictors: number of medications, chronic condition (e.g., cardiovascular disease), polypharmacy.

- Level of Severity of Drug Interactions: The severity distribution of potential DDIs was computed. This was a Chi-squared test to determine if the amount of medications and severity of detected DDIs were associated with each other; results were grouped in the mild, moderate, and severe interaction groups.

- Cluster Analysis by Chronic Condition: Cluster analyses We were used to explore polypharmacy and DDI in subgroups stratified by chronic condition (cardiovascular disease, diabetes). The polypharmacy and DDI rates in these subgroups were then compared with polypharmacy and DDI rates by the chi-square test.

Ethical Considerations

The Institutional Review Board (IRB) of the of the National University ethical approval was provided. Every participant was given informed consent in writing before he/she agreed to the study. We also kept participant information private by anonymising all data, and all patients were kept in a password-protected database only available to study personnel.

RESULTS

1. Descriptive statistical interpretation

This descriptive statistic is what we use to understand sample characteristics and the likely impact of medication-related issues.

- Age/Gender Balance: The sample's average age of 72.5 years with a standard deviation of 6.8 was typical of a senior citizen population. The female majority (55%) matches demographic patterns where women live longer and comprise a more significant share of the elderly. This sex distribution could potentially bias the study results, as women tend to use healthcare services more frequently and have more chronic conditions that require medication. These populations illustrate why gender-equal medicine care must be given to the elderly.

- Prevalence of General Comorbid Conditions: These common chronic conditions, like hypertension (65%), diabetes (55%), and cardiovascular disease (40%), are indicators of the comorbidity of this population. These diseases are also pharmacotherapies and, therefore, may be more likely to require frequent polypharmacy. This result underscores the criticality of chronic disease management and calls for a holistic model of care that considers disease and drug management simultaneously.

- Average Number of Medications and Polypharmacy: The average of 5.7 drugs per patient indicates that many patients take multiple complex medications. That is reflected in the polypharmacy rate of 60%, which is an important number of elderly patients in this population at risk of adverse drug reactions, reduced adherence, and drug-drug interactions from excessive use. Such an observation implies that polypharmacy is a reality that needs periodic evaluation to confirm the availability of all medications and their proper administration.

Table 1.1: Descriptive Statistics of Sample Population.

Variable	Statistic	Result
Age (years)	Mean (SD)	72.5 (6.8)
Gender	Frequency (Percentage)	Male: 179 (45%); Female: 218 (55%)
Common Chronic Conditions	Frequency (Percentage)	- Hypertension: 258 (65%) - Diabetes: 218 (55%) - Cardiovascular Disease: 159 (40%)
Number of Medications	Mean (SD)	5.7 (2.3)
Polypharmacy (≥5 Medications)	Prevalence	60% (n = 238)
Potential Drug Interactions	Prevalence	45% (n = 179)

2. Prevalence Analysis for Polypharmacy and Drug Interactions Interpretation

The analysis of prevalence highlights the extent of polypharmacy and potential drug interactions, emphasizing their impact on elderly patients.

- Polypharmacy (60%): The prevalence of polypharmacy in this group (60%) points to a worrying trend in older patients with chronic diseases. Polypharmacy tends to be linked with adverse consequences—poorer quality of life, hospitalisations, and even death. Such frequency means healthcare systems should be on a constant medication audit watch. Those reviews could suggest ways to sideline essential drugs without serious risk of harm.

- Drug Interaction Rate (45%): Nearly one in every five people experiences drug interactions, which is a significant risk factor for the treatment of chronically ill elderly patients. Such high rates suggest that the complexity of these patients' medication treatments could create adverse events or less effective therapy. This finding underscores how important it is for doctors to have an awareness of drug interactions. Regular drug interaction screening and safe prescribing can potentially minimise these risks.

Table 2.1: Prevalence of Polypharmacy and Potential Drug Interactions.

Outcome	Statistic	Result
Polypharmacy	Prevalence (95% CI)	60% (55%-65%)
Drug Interactions	Prevalence (95% CI)	45% (40%-50%)

3. Bivariate Analysis to Identify Associations with Polypharmacy Interpretation

The bivariate analysis identifies specific factors associated with polypharmacy, offering insights into which patient groups may be at higher risk.

- Age and Polypharmacy: Polypharmacists were, on average, older (mean age 73.4 years) than polypharmacy-nonpreferred patients (71.1 years), p = 0.02. This result suggests that age itself might influence polypharmacy, perhaps because health problems accumulate as we get older. Thus, older patients should be the first for medication reviews, as they might be more exposed to adverse drug effects because of a progressive change in drug metabolism and pharmacodynamics as they age.

- Gender and Polypharmacy: Female polypharmacy (65%) outnumbers male polypharmacy (54%) for a variety of reasons, including more visits to the doctor, a higher frequency of reporting symptoms, or gendered medical conditions that are medication-related (eg, osteoporosis). The results suggest that women with elderly psychiatric conditions could use targeted care to cut back on unnecessary medications and minimize polypharmacy-related harms.

- Number of Chronic Conditions and Polypharmacy: The strong correlation between polypharmacy and the number of chronic conditions (median, 3 conditions in polypharmacy patients versus 2, in non-polypharmacy patients) supports multimorbidity as a moderator of medication burden. Patients with multiple chronic conditions tend to be on a combination of medications, so side effects and interactions are likely to be higher. These results point to unified care between clinicians and primary care providers in order to streamline treatment and eliminate unwanted polypharmacy among patients with multiple comorbidities.

Table 3.1: Bivariate Analysis for Factors Associated with Polypharmacy.

Variable	Test Type	Results
Age	Independent t-test	Mean with polypharmacy: 73.4 years Mean without polypharmacy: 71.1 years p-value: 0.02 (significant)
Gender	Chi-square test	Polypharmacy in Females: 65% Polypharmacy in Males: 54% p-value: 0.03 (significant)
Number of Chronic Conditions	Mann-Whitney U Test	Median with polypharmacy: 3 Median without polypharmacy: 2 p-value: < 0.01 (significant)

4. Logistic Regression Analysis Interpretation

The logistic regression analysis helps to pinpoint the independent predictors of polypharmacy and drug interactions.

- Age is a Predictor of Polypharmacy (OR = 1.05): Polypharmacy is increased by 5% for every year of age. This confirms the idea that age is a prime risk factor for polypharmacy, perhaps because of accumulated health problems. This correlation suggests that elderly patients need to be considered first for polypharmacy-reduction interventions.

- Female Gender and Polypharmacy (OR = 1.4): Females are 40 percent more likely than males to be polypharmacy, thus gender is a relevant determinant in the management of medications. It may be worth considering sex differences when creating plans for medication management.

- Types of Chronic Conditions and Polypharmacy (OR = 1.6): Polypharmacy is 60% more likely for each chronic condition added to the list. This result illustrates how close multimorbidity is to polypharmacy, indicating that patients' multiple chronic diseases may need to be medication-reconciliation-sensitive to prevent redundant treatments.

- All of the Drugs and Drug Interactions (OR = 1.8): Every additional drug makes drug interactions more likely. The correlation is clinically important because it favours deprescribing where indicated to reduce the likelihood of harmful interactions.

Table 4.1: Logistic Regression for Predictors of Polypharmacy and Drug Interactions.

A. Predictors of Polypharmacy

Predictor	Odds Ratio (95% CI)	p-value
Age	1.05 (1.02 - 1.08)	<0.01 (significant)
Female Gender	1.4 (1.1 - 1.9)	0.03 (significant)
Number of Chronic Conditions	1.6 (1.3 - 2.0)	<0.01 (significant)

B. Predictors of Drug Interactions

Predictor	Odds Ratio (95% CI)	p-value
Total Number of Medications	1.8 (1.5 - 2.2)	<0.01 (significant)
Cardiovascular Disease	1.5 (1.1 - 2.1)	0.02 (significant)

5. Analysis of Drug Interaction Severity and Clinical Implications: Interpretation

The analysis of drug interaction severity reveals significant clinical risks associated with medication regimens in this population.

- Type of Drug Interactions: 30% are moderate, 13% are moderate, and 3% are severe. Mild relationships can be clinically low in importance but still warrant care to avoid an overreaction, and moderate or extreme relationships are more concrete regarding the risk of harm. If you have severe interactions—even if it is only in 3% of patients—that is concerning because they can be extremely bad: falling, hospitalisation, worsening of chronic diseases. It is important to be careful about drug interactions, especially with complex regimens.

- High-Risk Drug Combinations: The common interaction combinations (antihypertensives vs. NSAIDs (20%) and antidiabetic vs. cardiovascular medications (15%) are clinically important. For instance, NSAIDs may weaken antihypertensive medications, leading to uncontrolled blood pressure, while certain antidiabetic drugs may interact with cardiovascular medications, making glucose and blood pressure control more difficult. These findings mean doctors should consider alternative treatments or closely observe these combinations in elderly patients in case of a negative effect.

Table 5.1: Severity of Drug Interactions and High-Risk Drug Pairs

Severity Level	Frequency (%)	Notable Drug Pairs
Mild Interactions	119 (30%)	Antihypertensives + NSAIDs (20%)
Moderate Interactions	48 (12%)	Antidiabetics + Cardiovascular drugs (15%)
Severe Interactions	12 (3%)	Specific cases in patients with >5 medications

6. Stratified Analysis Based on Chronic Conditions Interpretation

The stratified analysis by chronic conditions further elucidates the risk profile for polypharmacy and drug interactions among specific patient groups.

- Polypharmacy in Patients with Cardiovascular Disease (75%): Patients with cardiovascular disease are highly polypharmacistic (75%). That is likely because the usual multi-drug regimen treats cardiovascular disease with antihypertensives, statins, and antiplatelet drugs. The polypharmacy level in this group indicates the high medication management and prescribing work to mitigate the risks of complicated regimens.
- Drug Interactions in Diabetic Patients (50%): A 50% drug interaction rate in diabetic patients emphasises the complexity of diabetes management when you add in another condition, such as hypertension or cardiovascular disease. Medications, including antidiabetic medications and cardiovascular medications, often share metabolic pathways that can interact. The discovery makes it very relevant to look for drug interactions in diabetic patients.
- Patients and treatment plans are adjusted as needed to ensure efficacy and safety.
- These stratified results underscore the importance of individualized medication management strategies for patients with specific chronic conditions, particularly those with cardiovascular disease and diabetes, who are at heightened risk of both polypharmacy and drug interactions.

Table 6.1: Stratified Analysis of Polypharmacy and Drug Interactions by Chronic Conditions.

Condition	Polypharmacy Prevalence (%)	Drug Interaction Prevalence (%)	Chi-square p-value
Cardiovascular Disease	75% (119 patients)	-	< 0.01 (significant)
Diabetes	-	50% (109 patients)	< 0.01 (significant)

Overall clinical implications

These results collectively emphasise the complexities of elderly chronically ill patients, especially polypharmacy and drug interactions. Such high rates in this research make polypharmacy and drug interactions not single-case phenomena but systemic risks that must be managed.

1. Frequent Medication Review: Regular and formal medication reviews are essential for polypharmacy and drug interactions in high percentages. Such analyses, ideally conducted in collaboration with pharmacists and physicians, can identify redundant or harmful medicines, thereby reducing polypharmacy and drug interactions.
2. Gender and Age-Dependent Interventions: Old age and female gender correlate with polypharmacy rates, suggesting the value of individualised intervention. For elderly females, especially, extra monitoring and medication control can be personalised to minimise overdosing.
3. Technology Application and Clinical Pharmacists: With so many drug interactions to account for, drug interaction checkers and clinical pharmacists as part of the patient care team make perfect sense. Pharmacists could also help diagnose potentially dangerous drug-drug interactions and counsel on alternative treatments, especially for those at high risk (e.g., those with cardiovascular disease or diabetes).
4. Special recommendations for patients with cardiovascular disease and diabetes: Cardiac or diabetic patients should be treated differently because they are more susceptible to polypharmacy and interactions. Integrative care, such as regular monitoring and coordinated treatment, can lower the risk of high-risk complex medications in these populations.

DISCUSSION

Prevalence and Implications of Polypharmacy

They found high rates of polypharmacy—60 percent of patients had five or more medications. This is in line with research among other older adults around the world, where polypharmacy rates among chronically ill adults are estimated to be 50%–70 % (1-3). In the elderly, polypharmacy is accompanied by several side effects, such as increased hospitalisation, impaired function, and death.[4,5] Given these risks, polypharmacy in this Iraqi population is one reason why strategies to optimise drug regimens are needed so desperately. The systematic review of medication can also decrease polypharmacy and outcomes, particularly in the high-risk patient population.[6,7] as other studies have already demonstrated. So routine medication reviews could be used in clinical practice, leading to better lives and lower healthcare costs in this group.

Factors associated with polypharmacy

In the bivariate model, age, female sex, and more chronic diseases were predictors of polypharmacy. These results align with the literature on why polypharmacy is driven primarily by old age and multimorbidity.[8,9] Older adults tend to develop more chronic illnesses, which means they take more drugs.[10] Female gender is also correlated with polypharmacy, and many have documented the fact that women tend to have polypharmacy due to the prevalence of certain chronic diseases (such as osteoporosis and arthritis) and greater use of healthcare.[11,13] Therefore, we need to tailor interventions against polypharmacy more specifically to these subgroups, particularly older women who may have different drug needs and are more susceptible to polypharmacy complications.

Prevalence of potential drug interactions

This study reported that 45% of patients were at high risk for drug interactions, which also aligns with other research indicating 30% to 50% rates of drug interactions among the elderly with multidrug use.[14-16] Antipsychotic interactions pose a significant concern for the elderly due to physiological changes associated with ageing, which can alter drug metabolism, increasing the likelihood of adverse interactions and potentially intensifying their severity.[17] Polypharmacy and the resulting interactions were associated with adverse clinical events such as ADRs, hospitalisations, and mortality.[18] Interactions between medications were common in this study and demonstrate the importance of complete drug management and monitoring, especially in older patients on complex medication regimens. These risks can be reduced with drug interaction checking tools and by including clinical pharmacists in the healthcare team.[19]

Severity of drug interactions

For drug interactions, 30% were mild, 12% moderate, and 3% severe, which was a classification by severity. These results are important because moderate and severe interactions have been reported to be responsible for serious adverse effects (hospitalisation, permanent functional decline in the elderly).[20,21] More specifically, even less common but very severe interactions can result in life-threatening interactions, so preventing and screening drug interactions should be done ahead of time. The high-risk interaction combinations we found here, for example, antihypertensives & NSAIDs, antidiabetic & cardiovascular drugs, are all well-established and can raise the risk of adverse events in older patients.[22] In the past, NSAIDs have been shown to overdo it in antihypertensive

medications, causing elevated blood pressure, and some antidiabetic medications can interact with cardiovascular medications, making glucose and blood pressure management more difficult.[23,24] These are risky combinations that prescribing physicians need to consider safe alternatives or keep a close eye on patients.

Self-Constraint Predictors of Polypharmacy and Drug Interactions

Age, female gender, and chronic conditions were independent predictors of polypharmacy based on logistic regression, while the total number of medications and cardiovascular disease were independent predictors of drug interactions. Each additional chronic illness increased polypharmacy, which was also true of other trials.[25,26] Multimorbid patients frequently experience polypharmacy and drug interactions due to the need for similar therapies, which often involve highly complex medications with a high potential for interaction.[27] Such results confirm that multimorbid patients need integrated care plans to automate and coordinate care, as previous studies have demonstrated.[28] Second, the fact that cardiovascular disease is a separate predictor of drug interactions is another indication of the difficulties of managing cardiovascular patients with multiple medications that interact with each other or with drugs for other chronic diseases.[29,30]

Grouped by chronic conditions for stratified analysis

Both cardiovascular patients and people with diabetes were particularly prone to polypharmacy (75%) and drug interactions (50%) at high levels. Heart disease is frequently managed by multiple medications, including antihypertensives, statins, and anticoagulants, with a high polypharmacy rate.[31,32] Antidiabetic and cardiovascular medications in diabetic patients often cause complications because both drugs affect each other's efficacy or adverse effects.[33,34] Such a hierarchical comparison demonstrates the need for targeted drug therapy for patients with cardiovascular disease and diabetes. Research has found that multidisciplinary approaches—including pharmacists, cardiologists, and endocrinologists—effectively prescribe medication dosages and mitigate negative interactions in such vulnerable populations.[35,36]

Clinical implications and recommendations

The results of this study are important for clinical practice in Iraq and other similar healthcare environments. There is so much polypharmacy and drug interactions that we need routine medication review processes to make sure that every medication is needed and safe for the patient. Multidisciplinary medication review interventions involving pharmacists can uncover

and avoid potential interactions, decreasing the burden of polypharmacy.[37,38] Moreover, when risk factors are defined, for example, age, gender, and cardiovascular comorbidity, we can craft individual strategies targeting the most at-risk patient populations. Future studies might examine whether deprescribing regimens can be used in older patients to lower polypharmacy and improve quality of life.[39,40]

CONCLUSION

This study is an informative piece of research on polypharmacy and the risk of drug interactions among elderly chronic patients in Iraq, as well as predictors of polypharmacy. At risk of polypharmacy and interactions are drug safety efforts, especially in older people with multiple chronic diseases. If regularly medication, using drug interaction checkers, and including multidisciplinary teams are implemented, doctors can help patients deal with the variability of taking medications in older adults and therefore improve patient outcomes and healthcare costs.

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