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Medication-Use Behavior of Elderly Patients in Baghdad City: A Cross-Sectional Study

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Abstract

Background: As our society ages, the incidence of chronic diseases increases, and so does drug use and polypharmacy. ***Aim***: To evaluate the medication use behaviors of selected elderly patients who lived in Baghdad city. ***Methods***: This cross-sectional study included 225 subjects aged >60 years who lived in Baghdad city and consumed chronically prescribed medications. Data were collected using a survey form, and the survey was conducted through face-to-face interviews. The data are presented as numbers, percentages, and averages. ***Results***: The majority were treated through polypharmacy, using various drugs. The most commonly used drugs included those used to treat cardiovascular diseases, DM, and dyslipidemia. 74.6% did not know about the side effects of the drugs they used, and 55.6% did not read the product information leaflet (PIL) of the drugs. Also, 70.7% said that the health care personnel did not educate them about their drugs. Of the elderly who were informed about their drugs, 128 obtained the information from the physician and 91 from the pharmacist. ***Conclusion***: The majority of the elderly subjects used more than one drug, and the main drug class used was the cardiovascular agents. they are unaware of the side effects of the prescribed agents.

Keywords: Medication use behavior, elderly, polypharmacy, adverse events

سلوك استخدام الأدوية لدى المرضى المسنين في مدينة بغداد: دراسة مقطعية

الخلاصة

الخلفية: مع تقدم مجتمعنا في العمر، يزداد معدل الإصابة بالأمراض المزمنة، وكذلك تعاطي المخدرات استخدام أدوية متعددة. **الهدف**: تقييم سلوكيات استخدام الأدوية لمرضى مسنين مختارين يعيشون في منطقة مدينة بغداد. **الطرائق**: شملت هذه الدراسة المقطعية 225 شخصا تبلغ أعمارهم >60 عاما ضمن مدينة بغداد ويستخدموا أدوية موصوفة بشكل مزمن. وجمعت البيانات باستخدام استمارة مسح، وأجريت الدراسة الاستقصائية من خلال مقابلات مباشرة. يتم تقديم البيانات كأرقام ونسب مئوية ومعدلات. **النتائج**: تم علاج الغالبية من خلال تعدد الأدوية، وذلك باستخدام أدوية مختلفة. وشملت الأدوية الأكثر استخداما تلك المستخدمة لعلاج أمراض القلب والأوعية الدموية، السكري، وعسر الهضم. 74.6٪ لم يعرفوا عن الآثار الجانبية للأدوية التي استخدموها، و55.6٪ لم يقرأوا منشور معلومات المنتج للأدوية. كما صرح 70.7٪ منهم إن موظفي الرعاية الصحية لم يعلموهم عن أدويتهم. ومن بين كبار السن الذين أبلغوا بعقاقيرهم، حصل 128 منهم على المعلومات من الطبيب و91 من الصيدلي.**الخلاصة**: استخدم غالبية الأشخاص المسنين أكثر من دواء واحد، وكانت فئة الأدوية الرئيسية المستخدمة هي عوامل القلب والأوعية الدموية. وأنهم يجهلون الآثار الجانبية للأدوية التي يستخدموها.

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INTRODUCTION

Appropriate medication prescribing practice in the elderly, particularly the very elderly, is a major clinical and financial challenge. In Western countries, the number of elderly persons (those aged 85 and up) is growing and will continue to grow in the coming years. As a result, health care and the effective use of drugs in this group is one of the difficulties confronting these countries' healthcare systems [1]. There is commonly significant multimorbidity in this age group [2,3] and inadequate scientific evidence about treating many chronic diseases in this age range [4]. It may be attributed to the lack of high-quality evidence on the benefits and safety of therapies of major chronic diseases [5,6], and those elderly patients are not included in clinical studies [7,8]. Most clinical practice guidelines for major chronic diseases lack specific recommendations for the very elderly. As a result, a customized approach incorporating a full geriatric assessment is recommended in clinical practice [4,9,10]. In elderly subjects, the age-related changes of the pharmacokinetic or pharmacodynamic parameters lead to medication-related problems. Inattention to various processes, such as absorption, distribution, and excretion in the elderly compared to middle-aged adults, is thought to be a major contributor to the occurrence of undesirable side effects in the elderly [11]. Polypharmacy in the elderly is influenced by a variety of characteristics, including age, gender, level of education, frequency of medical visits, and the types and number of diseases [12]. Polypharmacy has been shown to enhance the incidence of potentially inappropriate medication (PIM) in older people [13]. The most commonly reported barriers to appropriate prescribing are related to family practitioners' lack of training in PIM. Additionally, other organizational characteristics such as a lack of time, limited answer options on insurance formularies, and communication difficulties with other doctors and patients may play a role. This study aimed to assess the medication-use behaviors of elderly patients in Baghdad City, Iraq.

METHODS

Study design and subjects

In this cross-sectional study, we utilized a specially constructed questionnaire to assess medication use behaviors of elderly individuals in Baghdad city. Between August 2018 and February 2019, a study was conducted in the Baghdad governorate area. Data was collected through a personal interview and the completion of a questionnaire that needs 15–20 minutes to complete. The study's participants were 65-year-old geriatric patients (with diagnoses of various chronically treated conditions) who had been on pharmacologic treatment for at least five years. Based on a large number of patients with chronic diseases in Baghdad city (no clear data on the precise number), the calculation of sample size was 225, with a sampling error of 7.8% at a 95.5 percent confidence level. The researchers contacted the patients and discussed the study's goal in hospitals and community pharmacies. This type of study is exempt from approval by a research ethics committee under local law and carried out following EphMRA (European Pharmaceutical Market Research Association) guidelines. However, the research protocol was approved by the Faculty of Pharmacy, Al-Rafidain University College's local research ethics committee. Before participating, all patients gave their verbal informed consent. Several variables were controlled to ensure that the sample was representative and free of bias. The following were the approximate quotas: Variables and measurements include the percentage of chronic diseases based on known data, the current number of treatments, and the type of treatment received (ABCR medicines, oral, high-efficacy).

Variables and measurements

Self-reported medication-use behaviors related to persistently prescribed medicines for several chronic conditions were the study's key variable. In the Arabic language, the questionnaire was validated with reliability of above 85%. The medical history, types of medications (prescription and OTC), knowledge of proper usage, proper dose and formulation, awareness of adverse effects, and compliance with the treatment protocol were all evaluated in addition to the demographic features of the patients. Clinical pharmacy experts and community pharmacists elaborated on and evaluated the variables assessed in this study, which was assembled in a questionnaire. The questionnaire consisted of 35 items organized into seven categories: 1) Sociodemographic information; 2) Diagnosed illness condition; 3) Medication history; 4) Drug and supplement types and doses/day; 5) Patient education source; 6) Efficacy and safety issues, and 7) Patient adherence to the treatment protocol

Data analysis

Both quantitative and qualitative variables were presented using descriptive statistics. Data were summarized using descriptive statistics such as the mean and SD (Quantitative variables) and expressed as absolute values and percentages (qualitative variables). In terms of missing values, if a participant did not answer a specific question during the interview, it was regarded as not known/not available in the analysis.

RESULTS

Table 1 showed that most of the screened elderly patients in Baghdad city were males (56.4%) and the mean age of all the participants was 66.2±6.7 years and with a BMI value of 28.6±5.2 kg/m^2. Table 1 also showed that the mean duration of their diagnosed chronic diseases was 10.4±7.1 years. The mean duration of using chronically prescribed medications was 9.8±6.8 years. Most of the participants are married (76.9%), while the divorced represent the lowest ratio (3.5%). Regarding the educational status of the participants, the majority of them are college graduates (42.3%), while only 13.3 % of them are illiterates. Meanwhile, 55.1% of the screened elderly patients are retired, while those who are still working represent 32% of the participants (Table 1).

Table 1: Demographic characteristics of the participants (n=225 patients)

Variables	Details
Gender *n*(%)	
Female	98 (43.6)
Male	127 (56.4)
Age (Year) mean±SD	66.2±6.7
Bodyweight (kg)	80.24±14.6
BMI (kg/m^2)	28.6±5.1
Disease duration (Year)	10.4±7.1
Duration of medication use	9.8±6.8
Marital status *n*(%)	
Single	20(8.9)
Married	173(76.9)
Widow	24(10.7)
Divorced	8(3.5)
Education status *n*(%)	
Illiterate	30(13.3)
Primary	49(21.8)
Secondary	39(17.3)
College	95(42.3)
High education	12(5.3)
Working status *n*(%)	
Retired	124(55.1)
On duty	72(32.0)
Other	29(12.9)

Table 2 showed the classes and types of chronically prescribed medications consumed by the screened elderly patients. The dietary supplements and vitamins represent the most frequently used types of medications (428 items), and 153 items belonged to BZDs and GABA analogs followed by the drugs that are used for the treatment of GIT disorders (149 items). Different kinds of NSAIDs and anti-platelets are also commonly used by the screened elderly patients (94 and 91 items, respectively). In this regard, the insulin sensitizers (metformin and TZDs) and the drugs that interfere with RAS (ACEIs and ARBs) showed a comparable pattern of use (89 and 80 items, respectively). In table 3, 91.1% of the respondents mentioned that they are educated about the proper use of their medications and 88.9% of them have already been given the information about the proper dosing. Moreover, 191 patients were educated about the required duration of treatment and 95.1% of them got the instructions about the proper route of administration. Regarding the patients' knowledge about the expected ADRs of their medications, table 3 showed that only 41.8% of the participants have already experienced ADRs during their treatment, and 25.8%of the participants have the proper knowledge about the nature of these ADRs; meanwhile, only 29.3% of the participants were already educated about the expected ADRs of their prescribed medications.

Table 2: Types and number of medications consumed by the targeted elderly patients in Baghdad city (n=225)

Medication types	Number of items
ACEIs and ARBs	80
Calcium channel blockers	52
β-blockers	29
Nitrates	74
Diuretics	20
Insulin	33
Insulin sensitizers	89
Oral hypoglycemic agents	61
Statins	21
Anti-platelets	91
Warfarin	9
BZDs and GABA analogues	153
NSAIDs	94
Steroids	46
GIT Medications	149
Anti-histamines	63
Vitamins and Supplements	428
Miscellaneous	64

ACEIs: Angiotensin-converting enzyme inhibitors; ARBs: Angiotensin receptor blockers; BZDs: Benzodiazepines; BABA: Gamma-aminobutyric acid; NSAIDs: Non-steroidal anti-inflammatory drugs.

Moreover, Table 3 indicated that only 7.6% of the participants were previously informed about the possibility of drug-drug and drug-food interactions of their medications.

Table 3: Knowledge of the targeted elderly patients about their medications in Baghdad city

Knowledge type	Yes *n*(%)	No *n*(%)
1. Is the patient educated about the proper use of medications?	205(91.1)	20(8.9)
2. Education about the proper dose.	200(88.9)	25(11.1)
3. Is the patient educated about treatment duration?	191(84.9)	34(15.1)
4. Is the patient educated about proper administration?	214(95.1)	11(4.9)
5. Do you experience ADRs during the use of medication?	94(41.8)	131(58.2)
6. Did the patient have knowledge about ADRs?	58(25.8)	167(74.2)
7. Is the patient educated about the ADRs of his medication?	66(29.3)	159(70.7)
8. Is the patient informed about the possibility of drug-drug and drug-food interactions?	17(7.6)	208(92.4)
9. Did the patient read the drug leaflets (PIL)?	100(44.5)	125(55.6)
10. Did the patient understand the information of the PIL?	40(17.8)	185(82.2)

ADRs: Adverse drug reactions; PIL: Product insert leaflet.

Additionally, 44.5% of the elderly patients read the PIL of their prescribed drugs, while 17.8% of the participants understood what has been written in these leaflets. Figure 1 showed that cardiovascular diseases and diabetes and impaired lipid profile are the most commonly diagnosed disorders in the targeted elderly patients, followed by musculoskeletal disorders, neoplasms, and GIT disorders; while CNS disorders represented the minority of diseases found in those patients.

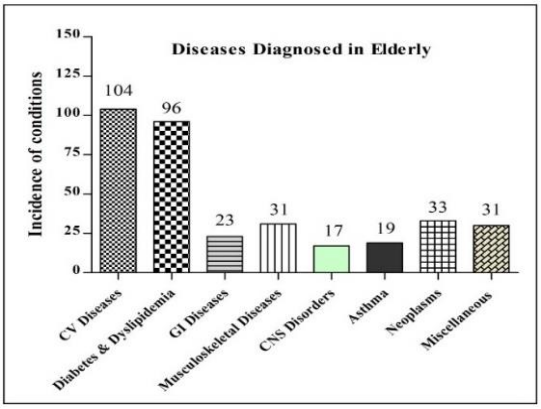

Figure 1: Diseases and disorders diagnosed in the targeted elderly patients in Baghdad city.

In Figure 2, the physicians represent the main source of patients' knowledge and education regarding their prescribed medications followed by the pharmacists, while the nurses seem to have a negligible role in this regard.

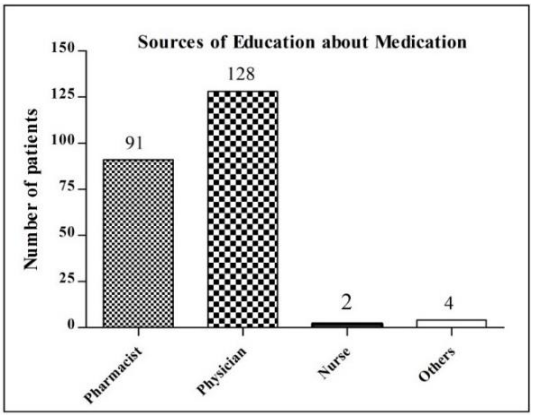

Figure 2: The sources of elderly patient education about the use of medications in Baghdad city.

Figure 3 in 203 elderly patients paid for their chronically used medications, while those supported by the governmental resources represent the minority (only 18 patients). In Figure 4, among the 185 elderly patients who are not reading the PIL, 53 mentioned that they did not understand what has been written in these PILs, while 47 patients considered the leaflets' contents not important; meanwhile, 10 of them have visual disturbances and 15 patients were illiterates.

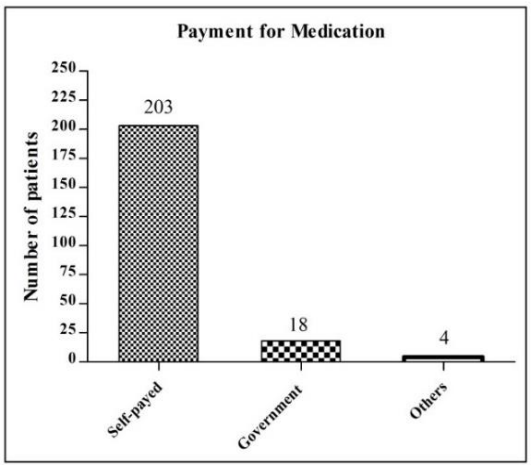

Figure 3: Sources of payment for the chronically used medications by the targeted elderly patients in Baghdad city.

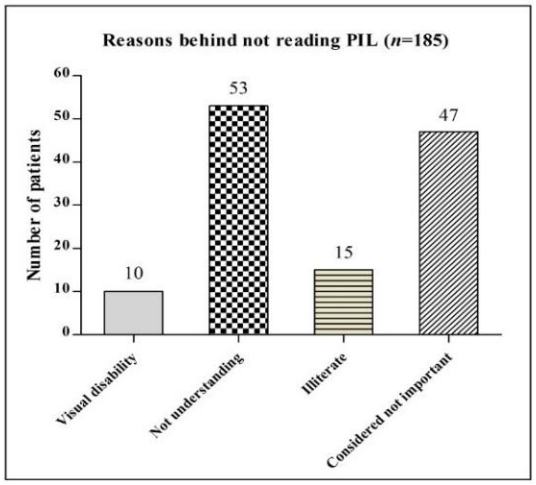

Figure 4: The reasons behind not understanding the contents of product information leaflets (PIL) by the targeted elderly patients in Baghdad city.

Figure 5 showed that 138 patients of the participants are complied with their treatment protocols, while 83 of them have partially complied. Regarding the monitoring of medication use, 164 elderly patients monitor the use of their medications by their selves, while 45 of them were monitored by their family members or relatives. Only 16 of the participants were monitored by the healthcare providers (Figure 6).

DISCUSSION

Our study aimed to assess the drug usage patterns of a group of elderly patients in Baghdad who were taking chronically prescribed drugs. Polypharmacy was defined as taking more than three drugs in our study. Patients over the age of 60 were included in our study [14]. The patient's average age was 66.2±6.7 years. The average length of time spent taking chronically prescribed drugs was 9.8±6.8 years. In the present study, the number of items administered by the targeted elderly patients was many times more than the number of younger patients, indicating that most of them co-administer more than three medications at the same time.

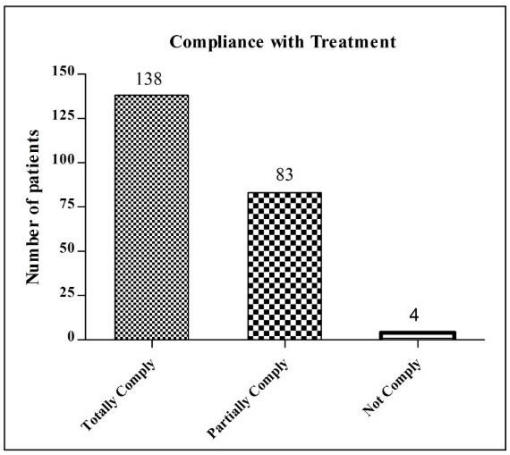

Figure 5: Compliance levels of the targeted elderly patients with their chronically used medications in Baghdad city.

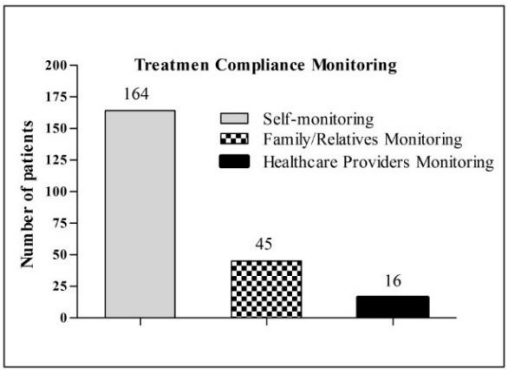

Figure 6: Monitoring of compliance with the chronically used medications by the targeted elderly patients in Baghdad city

In a study conducted by Slabaugh *et al*, polypharmacy was prevalent in 39.4% of subjects with a frequency being higher in men and older people [15]. The decreased prevalence in Slabaugh's Italian study could be attributable to the larger sample size. There was no gender difference in the proportion of old patients. However, there were significant differences in their educational status, which could be due to limited access to groups of diverse education standards. The connection of numerous clinical disorders in the targeted old age individuals is one of the causes of polypharmacy. Most of the selected patients had cardiovascular illnesses (46.7%), diabetes, and dyslipidemia (42.7%), similar to what Al Ameri *et al*. found in their study. The higher prevalence of polypharmacy in people aged 70-79 years could be the cause of increased comorbidity [16]. According to previous data, cardiovascular medications came in first among the various drug groups used by elderly patients, followed by analgesics and endocrine system medications [17,18]. These findings were in tune with the results of the current investigation. Because cardiovascular diseases are so common among the elderly, it's safe to assume that cardiovascular drugs will come in first. However, other comorbidities including age-related musculoskeletal problems explain why analgesic and anti-inflammatory medicines are ranked third. Antihypertensive, antiarrhythmic, hypnotic, and sedative medications were the most commonly used by Brazilian elderly patients [19]. The product information sheet (PIL) was not read by 55.6% of the elderly patients in this study. Solmaz and Akin [18] discovered that 80.8% of elderly people did not read the PILs correctly, while Arslan and Eser [20] discovered that 81.7% did not read them prospectively. Although these results support the current investigation, the quantitative disparities could be due to sampling size differences. According to the present study, 20.9% of respondents did not believe it was necessary to read the PIL, 23.6% could not grasp the contents, and the remaining respondents were illiterate. Similar outcomes were observed by Solmaz and Akin [18] and Arslan *et al* [21]. The results also emphasized that PIL's contents, except terminological definitions, should be written in plain English or any other native language. The current study also revealed that most elderly did not believe it was vital to read the PILs. However, the ADRs of the medications they used. Another study [22] observed that a high proportion (94.2%) of elderly patients were unaware of the ADRs of their chronically administered pharmaceuticals. In this regard, Eski and Pinar [23] discovered that a high proportion (94.2%) of elderly patients were unaware of the ADRs of their chronically prescribed drugs. This result is consistent with the findings of our research. Finally, the elderly patients were unaware of the adverse effects of the medications they were taking.

Study limitations

Disability and chronic disease are more common among the elderly than in other age groups. As a result, this study may not accurately reflect the chronic drug use in different age groups. The number of included subjects maybe a study restriction because the elderly subjects in this study did not receive healthcare in nursing homes. Moreover, we have no way of knowing whether the elderly individuals recall or not the medication they are taking, and we have no way of assessing their degree of awareness regarding the medication's adverse effects.

Conclusion

The results of this study revealed that the majority of the elderly patients evaluated utilized multiple drugs (polypharmacy), with cardiovascular medications being the most commonly used. Accordingly, the elderly should be supervised by nurses to cooperate taking medications and comprehend why they are given. This is a significant issue since polypharmacy is commonly followed to treat elderly patients. They have to be informed about the importance of drug use to treat their diseases by their physician, pharmacist, and nurse. The contents of the PIL should also be printed in large fonts so that the elderly can read them. Drug manufacturers should employ language that is understandable to the elderly.

Acknowledgment

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Conflicting Interests

The authors declared no conflicts of interest.

Data sharing statement

The datasets analyzed during the current study will be available from the corresponding author on a reasonable request.

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