Journal of Clinical Medicine and Surgical Advance
ISSN *(Online)*: **3105-1871**
Volume 2, Issue 2, Mar-Apr, 2026, Page 17-24

Research Article Received: 05-03-2026| Accepted: 20-04-2026| Published: 25-04-2026

Misunderstanding of Dosing Regimen Instructions Among Patients with Chronic Diseases Receiving Polypharmacy in Iraqi Hospital

Saba Hameed Majeed*[*1], Forkan Jabar[2], Kefaya Majed[2], Kawthar Zeyad[2], Fatima Waleed[2], Hussain Abd Alamer[2], Ibrahim Khalil[2], Mohamed Yaser[2]

Abstract

Objective: Polypharmacy is growing more prevalent, though, as people live longer and suffer from a greater number of chronic conditions. This is also why much of a vast number of patients rely on poorly defined prescription programs ones given to them by more than one health professional. But this type too can have quite dangerous effects for drug adherence, patient safety and therapeutic efficacy polypharmacy is common and necessary given that many patients need medicine at times for a whole range of causes.

Methods: This study leverages cross-sectional research to examine the level of misunderstanding regarding dosing instructions around polypharmacy amongst patients with chronic conditions in a chronic inpatient setting in one of Iraq's acute care hospitals. Such a cross-sectional observational study was based on the patients' communication at the time of the initial inpatient stay, so that it fit best into the individual interaction for patients' care of polypharmacy. There were 122 patients in the study, all of them were 18 years old or older. More than half of the participants (74 or 54.2%) were women. The study found that 39% of the participants did not understand the dose, 26% did not understand the length of treatment, 7% had a drug-drug interaction, and 6% had a food-drug interaction.

Conclusions: This study showed that the majority of patients had little knowledge regarding their drug dosing regimen to work with. In order to address these important drug concerns, healthcare personnel may have been effective in delivering written directives to patients and counseling.

Keywords

Poly Pharmacy, Chronic Disease, Iraqi Hospitals, Dosing Regimen Instructions.

[1]*Clinical Pharmacy Department, College of Pharmacy, AL-Nahrain University, Baghdad, Iraq.*
[2]*Fifth Stage Student, College of Pharmacy, AL-Nahrain University, Baghdad, Iraq*

INTRODUCTION

The World Health Organization (WHO) defines polypharmacy as "the administration of many drugs at the same time or the administration of an excessive number of drugs" [1]. Medications are typically important to handle acute and chronic health disorders, but polypharmacy can be a major issue with prescribed medications. There is no agreement on the drug threshold or how to measure it; however, polypharmacy is often characterized as taking 5 or more medications at the same time [1, 2]. In some cases, it is necessary for doctors to prescribe more than one drug (appropriate polypharmacy). However, taking more than one medicine at a time can be dangerous or lead to the continued use of medicines that are no longer needed (inappropriate polypharmacy). Polypharmacy can cause a lot of health problems, especially in older adults with multiple health problems, such as a higher risk of death, falls, drug interactions, not following the doctor's orders, and hospitalization [3]. Some studies show that improper polypharmacy can impact up to one-third of people [4]. To get a good idea of how common polypharmacy is, though, you need to look at data from several research studies. Furthermore, the factors linked to polypharmacy, including patient and healthcare characteristics, remain inadequately delineated [5]. Polypharmacy is frequently seen as a result of extended longevity and the emergence of several chronic illnesses,

***Corresponding Author:** Saba Hameed Majeed

hence generally considered essential for managing symptoms and mitigating problems associated with multimorbidity [6,7]. But taking more than one medicine can also be bad for you. Research indicates that polypharmacy elevates the risk of negative outcomes, such as death, falls, adverse medication responses, and heightened hospitalization and readmission rates [8,9,10,11]. Because of this, polypharmacy can hurt people's health and well-being and put a strain on healthcare systems [12,13]. Medication adherence is the degree to which a patient's medication-taking behavior aligns with the recommendations established by the healthcare provider, ideally in collaboration with the patient. Medication adherence is essential for the efficacy of pharmacotherapy; nonetheless, non-adherence persists as a significant concern, with approximately 50% of older individuals not complying with at least one of their chronic prescriptions [14]. Not following the rules can lead to a worse state, more comorbid conditions, more hospital visits and admissions, and even death. Also, not following the rules leads to higher healthcare expenditures. In the US, not following the rules, together with giving the wrong drugs, not giving the right drugs, and making the wrong diagnosis, can add up to $290 billion a year in needless healthcare costs [15,16]. There are a number of reasons and signs that someone may not follow through [17]. Polypharmacy and complicated treatment plans can make it hard for people to stick to their medications. This is because there are more medications that can be missed every day, more doses of a medication that need to be taken every day, inconvenient ways to take medications (like non-orally administered medications), and the need for specific instructions for taking medications (like bisphosphonates). Evidence from the literature indicates that patients experiencing polypharmacy prefer to take fewer drugs and exhibit favorable attitudes toward deprescribing [19-20]. Thus, it is anticipated that the adherence of polypharmacy patients will enhance by diminishing the quantity of prescriptions and the financial strain linked to polypharmacy [21]. When patients are on many drugs, drug-drug and drug-food interactions can make treatment outcomes and patient safety much worse. Both types of interactions differ significantly, shaped by several parameters concerning the absorption, metabolism, and excretion of medications in the body, in addition to patient-specific attributes [22]. The World Health Organization (WHO) defines an adverse drug reaction (ADR) as an unanticipated and harmful response observed in patients following the administration of medications for prophylaxis, diagnosis, or treatment of a disease at standard dosages [23]. ADRs, as a key peril inside the healthcare system, substantially impact mortality, morbidity, prolonged hospitalizations, and escalating healthcare expenditures [24]. The expanding number of patients with several health problems and the growing complexity of drugs have led to widespread polypharmacy, which could lead to more potential drug-drug interactions (pDDIs), especially in older people [25]. The appropriate use of medicines has been advocated as the cornerstone of pharmaceutical therapy, with a primary focus on ensuring rational prescribing practices and dispensing quality; nevertheless, patients' understanding of the medications supplied has been neglected. Patients should know the name and purpose of the drug, the amount, how often to take it, and how long to take it [26,27,28]. For the best possible pharmacological treatment outcome, it is very important that patients follow the instructions [29]. But patients often don't understand how to take their medication, which can lead to mistakes, not taking their medication as prescribed, and then accidentally misusing a prescription drug, which can lead to worse health outcomes [30,31]. The study aimed to evaluate the misconceptions regarding dosing instructions among patients with chronic diseases undergoing polypharmacy in an Iraqi hospital, despite pharmacists' significant role in educating patients about drug-related information such as therapy duration, common side effects, therapeutic indications, and contraindications [32].

MATERIALS AND METHODS

This study collates data released in November 2024 from different cross-sectional studies at the AL-Khadmyia Teaching Hospital in Baghdad (Iraq). More than 140 patients suffering from

chronic illness. They were treated according to guidelines, complications and expert instructions. Population information including age, gender, educational level, field knowledge and specialization for each patient was collected during this project. All participants who took part in the study answered a question in less than 10 minutes. The data gathering task was fairly divided among all group members, and each question had a consent form that participants had to read and sign before answering any questions. The data format initially prepared in English then translated to Arabic language and then return back to English to maintain consistency.

Sample Size

The sample size was calculated using the Raosoft® online software calculator. The result was derived from the requirement establish a 90% confidence interval, and maintain a 5% margin of error. The survey portal was closed upon reaching the required number of responses. It was considered that a sample size of 122 participants would be suitable.

Inclusion criteria

The current study included chronic patients undergoing polypharmacy, aged 18 years and older.

Exclusion criteria

Patients who did not consent to participate in the study, those who were critically ill and unable to talk, individuals with significant psychiatric or cognitive impairments, and patients receiving medication from healthcare professionals were excluded from the study.

Statistical analysis

The study included extensive statistical analysis that considered every patient involved in the investigation. After gathering the required information, the data were analyzed using SPSS version 26.0, with a significance level of p = 0.05. The chi-square test was employed to examine any associations between outcome variables and independent variables.

RESULTS

This study recruited 122 patients, The percentage of patients according to age, at the age range (18-27 years) for males (7.3%) and females (13.9%), at the age range (28-37 years) for males (3.2%), females (7.3%), and at the age range (38-47 years) for males (1.6%) and females (9.8%), and at the age range (48-57) for males (9.01%) and females (17.2), and at age range (>58) for males (18.02%) and females (12.28%). The p-value suggests that there's no significant decrease in p-value (p >0.05). As showed in table 1.

Table 1: *Patients Demographics Data and Characteristics*

		female	Male	P-value
Age	18-27 28-37 38-47 48-57 ≥58	13.9 % 7.3% 9.8% 17.2%% 12.28%	7.3% 3.2% 1.6% 9.01% 18.02%	0 .064 NS
Education	Cannot write and read primary school Secondary school diploma and above	21.31% 10.65 % 14.45% 13.9%	7.3% 6.55% 10.65% 14.75%	0. 216 NS
Occupation	self-employee Governmental-employee Retired & housewife Other	0.18% 7.3% 45.4 % 6.55%	17.21% 4.91% 10.65% 6.55%	0.001 S
Marital Status	Married Unmarried	45.08% 15.57%	30.32% 9.01%	0.722 NS
Residence	Urban	45.4%	24.59%	0.181 NS

	Rural	14.75%	14.75%	
Duration of treatment	1 - 6 months 7-12 months 1-4 years 5 years or more	20.29% 7.3% 10.65% 22.13%	12.49% 4.91% 4.09% 18.03%	0.672 NS

Out of 122 people who answered, 21.31% of women and 10.65% of men made a mistake when taking the medicine. The majority of people who answered (27.86% of women and 11.47% of men) missed the dose. But the other directions were mostly understood correctly rather than incorrectly. Table 2 and 3 shows this.

Table 2: *Percentage of Misunderstanding Dosing instructions among patients in Al-Kadhimiya Teaching Hospital*

Instructions	Correct understanding n (%)	Incorrect understanding n (%)
The duration of treatment	90(74%)	32(26%)
Missed the dose	74(61%)	48(39%)
Amount of dose administration	98(80%)	24(20%)
Food-drug interaction	115(94%)	7(6%)
Drug-drug interaction	114(93%)	8(7%)

Table 3: *Percentage of Misunderstanding Dosing instructions among patients in Al-Kadhimiya Teaching Hospital*

Mistake in using drug	Female	Male	P-value
Yes **No**	21.31% 38.5%	10.65% 29.4%	0.431 NS
Mistake in dose			
Yes **No**	10.35% 50%	5.73% 33.6%	0.823 NS
Mistake in frequency			
Yes **No**	20.49% 41.8%	5.73% 31.96%	0.068 NS
Mistake due to misunderstanding duration of treatment			
Yes **No**	9.83% 50.81%	5.73% 33.6%	0.824 NS
Missed dose **Yes** **No**	27.86% 33.6%	11.47% 27.04%	
Drug -drug interaction			
Yes **No**	5.33% 54.91%	0.81% 38.52%	0.522 NS
Food-drug interaction			
Yes **No**	4.09% 56.55%	1.63% 37.7%	0.746 NS

DISCUSSION

Taking medicine as prescribed is an important part of managing chronic conditions well. Patients who take a lot of different drugs (poly pharmacy) for different health concerns often have trouble understanding the directions for how to take them, which can lead to not following them properly and health problems. Many things that make this condition more serious. Mental health literacy is necessary for these persons, as a lack of knowledge in medical terminology or medications might make them misinterpret their prescription. Polypharmacy regimens can be multi-faceted since they include multiple medications taken at once and so some people will get caught in the middle. [33] Older patients and those with cognitive impairments fall victim to such phenomena while younger people are not. Here we see the correlation between occupation and misconception of dosing instructions. While age is not affected ($p=0.064$), the p-value ranges from ~ 0.074 to ~ 0.05, which shows that all are very similar. This can also be seen in Nekemte and Wollega, Ethiopia, where low literacy was found to cause patients not to understand instructions in comparison to people with high literacy [34]. A more profound understanding, more community knowledge, and enhanced health literacy concerning drug information may lead to more favorable outcomes in industrialized countries like the United States. The most common mistake people made with dosage instructions was leaving out the dose (39%), which is lower than what research in Harar found [70].

The percentage of people who didn't understand the dose was 20%. This is higher than the 17% found in studies done in Wollega [35], lower than the 52.3% found in Southwest Ethiopia and Turkey [36], and higher than the 2.1% found in a study at Dilla University Referral Hospital, Ethiopia [37]. Patients with inadequate literacy were less adept at precisely reporting the exact number of drugs provided daily compared to those with adequate literacy.

A similar study conducted in the United States shown that persons with insufficient literacy exhibited reduced understanding of instructions [38]. This could be due to not understanding the instructions or reading them wrong. This study found that 26% of these patients misunderstood how long their therapy would last. This is lower than the 67.59% found in a study done in Nekemte, Southwest Ethiopia [39]. The duration of drug administration is a critical aspect of pharmacotherapy; yet, numerous respondents exhibited a deficient understanding of the treatment duration, especially among patients undergoing long-term medication. This may be due to a lack of understanding of how long pharmacotherapy will last and/or a failing to remember what the dispensers said. The study's strength was in the fact that most participants willingly participated for the interview. Our study suffers from limitation in not being able to analyze a relationship with health literacy, medication type, and disease and treatment susceptibility, as well as to assess patient comprehension merely of a prescription label.

CONCLUSION

In conclusion, this study reinforces the importance of increased patient education and health services that have been done to mitigate the risk of drug misinterpretation among polypharmacy patients. Healthcare providers will be able to mitigate medication errors that might have taken place during treatment (if at all), get better patients' compliance rates in the end (and more patient-first and effective patient communication) in case their primary medical conditions have become worse

Recommendations

Healthcare providers and pharmacists are just as important for adherence. Physicians and patients need to communicate with each other clearly because patients need clear dose schedules, and instructions have to be rushed with details that may be not so well described. Language as well as lack of teaching in Iraq's hospitals in this regard are the barriers, and also poor educational activities of this kind have been reported by patients. And the organization of the medicine and labels is also hard to find out. If medications aren't given the written, correct or clear labels and they are not carefully defined and designed they can

result in pharmacy errors; many of these patients take medicines and believe them to be very similar ones that patients may miss or misapply to the right dose and the drug causes chronic diseases in people to come home with it. Hospitals and healthcare workers would be inclined to do a variety of treatments of patients needing to intervene to remedy these problems: - clear communication in English to explain how to take medicine. Patient education programs: One-on-one, short-term patient care and therapy for people at risk of long-term illnesses. - Pharmacist intervention: encouraging pharmacists to repeat drug instructions out loud. Improving patient education and communicating with healthcare services would help prevent medication errors and make it less complicated for these chronic patients with multiple medications to be treated

Ethical Approval

This study is a cross-sectional survey that did not involve human or animal participants and therefore did not require ethical approval. All subjects expressed informed consent prior to taking part in the study.

Acknowledgment

The authors thank all patients and staff of AL-Khadmyia Teaching Hospital for their services. They are thankful to the lab researchers who participated in this study and the staff involved in helping our process.

Author Contribution

The authors contribution as follows: study conception and design: first authors; data collection: second author; draft manuscript preparation: first and third author. All authors reviewed the results and approved the final version of the manuscript.

REFERENCES

1. Monégat, M., Sermet, C., Perronnin, M., & Rococo, E. (2014). Polypharmacy: Definitions, measurement and stakes involved - review of the literature and measurement tests. *Questions d'économie de la Santé, 204*, 1–8.
2. Davies, L. E., Spiers, G., Kingston, A., Todd, A., Adamson, J., & Hanratty, B. (2020). Adverse outcomes of polypharmacy in older people: Systematic review of reviews. *Journal of the American Medical Directors Association, 21*(2), 181–187. https://doi.org/10.1016/j.jamda.2019.10.022
3. Masnoon, N., Shakib, S., Kalisch-Ellett, L., & Caughey, G. E. (2017). What is polypharmacy? A systematic review of definitions. *BMC Geriatrics, 17*(1), 1–10. https://doi.org/10.1186/s12877-017-0621-2
4. Moriarty, F., Hardy, C., Bennett, K., Smith, S. M., & Fahey, T. (2015). Trends and interaction of polypharmacy and potentially inappropriate prescribing in primary care over 15 years in Ireland: A repeated cross-sectional study. *BMJ Open, 5*(9), 1–7. https://doi.org/10.1136/bmjopen-2015-008656
5. Maher, R. L., Hanlon, J., & Hajjar, E. R. (2014). Clinical consequences of polypharmacy in elderly. *Expert Opinion on Drug Safety, 13*(1), 57–65. https://doi.org/10.1517/14740338.2013.827660
6. Arabyat, R. M., Alazzam, O. M., Al-Azzam, S. I., et al. (2021). Association between Charlson Comorbidity Index and polypharmacy: A retrospective database study from Jordan. *International Journal of Pharmacy Practice, 29*, 580–586. https://doi.org/10.1093/ijpp/riab067
7. Schiøtz, M. L., Høst, D., Christensen, M. B., Domínguez, H., Hamid, Y., Almind, M., et al. (2017). Quality of care for people with multimorbidity - A case series. *BMC Health Services Research, 17*(1), Article 745.
8. Hajjar, E. R., Cafiero, A. C., & Hanlon, J. T. (2007). Polypharmacy in elderly patients. *The American Journal of Geriatric Pharmacotherapy, 5*(4), 345–351.
9. Gurwitz, J. H., Field, T. S., Harrold, L. R., Rothschild, J., Debellis, K., Seger, A. C., et al. (2003). Incidence and preventability of adverse drug events among older persons in the ambulatory setting. *JAMA, 289*(9), 1107–1116.
10. Pirmohamed, M., James, S., Meakin, S., Green, C., Scott, A. K., Walley, T. J., et al. (2004). Adverse drug reactions as cause of admission

to hospital: Prospective analysis of 18 820 patients. *BMJ, 329*(7456), 15–19.

11. Li, Y., Zhang, X., Yang, L., Yang, Y., Qiao, G., Lu, C., et al. (2022). Association between polypharmacy and mortality in the older adults: A systematic review and meta-analysis. *Archives of Gerontology and Geriatrics, 100*, Article 104630.
12. Ibrahim, K., Cox, N. J., Stevenson, J. M., Lim, S., Fraser, S. D. S., & Roberts, H. C. (2021). A systematic review of the evidence for deprescribing interventions among older people living with frailty. *BMC Geriatrics, 21*(1), Article 258.
13. Earl, T. R., Katapodis, N. D., Schneiderman, S. R., & Shoemaker-Hunt, S. J. (2020). Using deprescribing practices and the Screening Tool of Older Persons' Potentially Inappropriate Prescriptions criteria to reduce harm and preventable adverse drug events in older adults. *Journal of Patient Safety, 16*(3S Suppl 1), S23–S35.
14. Arabyat, R. M., Nusair, M. B., Al-Azzam, S. I., et al. (2019). Analysis of prevalence, risk factors, and potential costs of unnecessary drug therapy in patients with chronic diseases at the outpatient setting. *Expert Review of Pharmacoeconomics & Outcomes Research, 20*(2), 125–132. https://doi.org/10.1080/14737167.2019.1612243
15. Nieuwlaat, R., Wilczynski, N., Navarro, T., et al. (2014). Interventions for enhancing medication adherence. *Cochrane Database of Systematic Reviews, 2014*(11), Article CD000011. https://doi.org/10.1002/14651858.CD000011.pub4
16. Chisholm-Burns, M. A., & Spivey, C. A. (2012). The "cost" of medication nonadherence: Consequences we cannot afford to accept. *Journal of the American Pharmacists Association, 52*(6), 823–826. https://doi.org/10.1331/JAPhA.2012.11088
17. New England Healthcare Institute. (2009). *Thinking outside the pillbox: A system-wide approach to improving patient medication adherence for chronic disease*. https://www.nehi-us.org/writable/publication_files/file/pa_issue_brief_final.pdf
18. Hugtenburg, J. G., Timmers, L., Elders, P. J. M., et al. (2013). Definitions, variants, and causes of nonadherence with medication: A challenge for tailored interventions. *Patient Preference and Adherence, 7*, 675–682. https://doi.org/10.2147/PPA.S29549
19. Ulley, J., Harrop, D., Ali, A., et al. (2019). Deprescribing interventions and their impact on medication adherence in community-dwelling older adults with polypharmacy: A systematic review. *BMC Geriatrics, 19*, 1–13. https://doi.org/10.1186/s12877-019-1031-4
20. Farrell, B., & Mangin, D. (2019). Deprescribing is an essential part of good prescribing. *American Family Physician, 99*(1), 7–9.
21. Kua, C. H., Mak, V. S. L., & Huey Lee, S. W. (2019). Health outcomes of deprescribing interventions among older residents in nursing homes: A systematic review and meta-analysis. *Journal of the American Medical Directors Association, 20*(3), 362–372.e11. https://doi.org/10.1016/j.jamda.2018.10.026
22. Lavan, A. H., & Gallagher, P. (2016). Predicting risk of adverse drug reactions in older adults. *Therapeutic Advances in Drug Safety, 7*(1), 11–22.
23. Edwards, I. R., & Aronson, J. K. (2000). Adverse drug reactions: Definitions, diagnosis, and management. *The Lancet, 356*(9237), 1255–1259. https://doi.org/10.1016/S0140-6736(00)02799-9
24. Khan, L. M. (2013). Comparative epidemiology of hospital-acquired adverse drug reactions in adults and children and their impact on cost and hospital stay A systematic review. *European Journal of Clinical Pharmacology, 69*(12), 1985–1996. https://doi.org/10.1007/s00228-013-1563-z
25. Angamo, M. T., Chalmers, L., Curtain, C. M., & Bereznicki, L. R. (2016). Adverse-drug-reaction-related hospitalisations in developed and developing countries: A review of prevalence and contributing factors. *Drug Safety, 39*(9), 847–857. https://doi.org/10.1007/s40264-016-0444-7
26. Obreli-Neto, P. R., Nobre, M. L., de Araújo, R. O., Dal-Fabbro, A. L., Garcia, M. T., de Toledo, M. I.,

Romano-Lieber, N. S., & Cuman, R. K. (2012). Incidence and predictors of adverse drug reactions caused by drug-drug interactions in elderly outpatients: A prospective cohort study. *Journal of Pharmacy & Pharmaceutical Sciences, 15*(2), 332–343. https://doi.org/10.18433/j3159k

27. Scondotto, S., Pollina Addario, S., Pastorello, M., et al. (2018). The impact of polypharmacy and drug interactions among the elderly population in Western Sicily, Italy. *Annali di Igiene, Medicina Preventiva e di Comunità, 29*(3), 195–202. https://doi.org/10.7416/ai.2017.2146
28. Sharifi, H., Hasanloei, M. A. R., & Mahmoudi, J. (2014). Polypharmacy-induced drug-drug interactions; threats to patient safety. *Drug Research, 64*(12), 633–637. https://doi.org/10.1055/s-0033-1363965
29. Tannenbaum, C., & Sheehan, N. L. (2014). Understanding and preventing drug–drug and drug–gene interactions. *Expert Review of Clinical Pharmacology, 7*(4), 533–544.https://doi.org/10.1586/17512433.2014.910111
30. Boonstra, E., et al. (2003). Labelling and patient knowledge of dispensed drugs as quality indicators in primary care in Botswana. *Quality and Safety in Health Care, 12*(3), 168–175.
31. Diriba, G., Alemkere, G., & Gedamu, M. (2018). Assessment of patients misunderstanding regarding dosage regimen instructions at Nekemte Referral Hospital, Ethiopia. *Journal of Family Medicine, 5*(5), Article 1153.
32. Ababo, T., & Tesfahun, C. (2014). Assessment of patients misunderstanding of dosage regimen instructions among adolescent and adult outpatients in Ethiopia: The case of a primary hospital. *International Journal of Pharmaceutical Sciences and Research, 5*(8), 445–453.
33. Terry, C. D., Alex, D. F., Pat, F. B., et al. (2008). Improving patient understanding of prescription drug label instructions. *Journal of General Internal Medicine, 24*(1), 57–62.
34. Welma, W. A., Luiz, C. P., Romana, S. G., Renato, M. S., & Marcio, G. O. (2020). Factors associated with older patients' misunderstandings of medication dosage regimen instructions after consultation in primary care in Brazil. *Journal of Evaluation in Clinical Practice*, 1–9.
35. Nigatu, H., Dumessa, E., & Mekonnen, S. (2018). Exit-knowledge of ambulatory patients about medications dispensed in government hospital in Eastern Ethiopia: The need for focused patient counseling. *Frontiers in Public Health, 6*, Article 254.
36. Hulya, B., Gulay, T., Ümran, D., & Sevgisun, K. (2013). How much do ED patients know about medication prescribed for them on discharge? A pilot study in Turkey. *Journal of Emergency Nursing, 39*(2), 27–32. https://doi.org/10.1016/j.jen.2008.12.017
37. Aychew, M., Dereje, K., Ramanji, R. T., & Fanta, G. (2015). Misunderstandings of dosage instructions in Dilla referral hospital in Ethiopia. *Medical Data, 7*(1), 27–31.

Conflict of Interest: No Conflict of Interest
Source of Funding: Author(s) Funded the Research
How to Cite: Majeed, S. H., Jabar, F., Majed, K., Zeyad, K., Waleed, F., Abd Alamer, H., Khalil, I., & Yaser, M. (2026). Misunderstanding of Dosing Regimen Instructions Among Patients with Chronic Diseases Receiving Polypharmacy in Iraqi Hospital. *Journal of Clinical Medicine and Surgical Advance, 2*(2), 17-24.