

Pharmacist assessment of Polypharmacy and Potentially Inappropriate Medicines in Portuguese older adults: a preliminary study

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INTRODUCTION

The increase in life expectancy and population ageing are currently significant societal concerns. In 2021, people aged 65 or more represented 23.4% of the population living in Portugal¹. OECD Statistics regarding health-related quality of life show that only 46% of the Portuguese population consider themselves in good health, a much lower percentage than the OECD average (69%). In 2019, Portugal had one of the lowest scores in perceived health status compared to other OECD countries and 38% of the population had two or more chronic conditions. Community pharmacists, as highly qualified and accessible health professionals, play a pivotal role in promoting active and healthy ageing. Pharmacist intervention to ensure the correct use of medicines and adherence to therapy helps prevent drug interactions and adverse drug reactions, thus improving health and preventing further medication-related problems in older adults².

OBJECTIVES

To assess the occurrence of polypharmacy and Potentially Inappropriate Medicines (PIM) in community-dwelling older adults and in older adults living in long-term care facilities (LTCF) and to characterize the older adult population.

METHODS

Cross-sectional study conducted on a sample of individuals aged 65 years or older who live in a community, randomly selected from among those who attended a Community Pharmacy (CP) and in two LTCFs, in the central region of Portugal. Polymedication was assessed (> 5 medicines) and PIM was evaluated using Beers criteria (2019).

RESULTS

Table 1. Descriptive characteristics of the study population in CP according to polypharmacy (n=55)

	Without polypharmacy (n = 9) n (%)	With Polypharmacy (n = 46) n (%)	p-Value
Sociodemographic			
Age	76.73 ± 5.47		
Average ± SD			
Age group			
65-74 years old	4 (44.4)	16 (34.8)	
75-84 years old	4 (44.4)	24 (52.2)	0.859
≥ 85 years old	1 (11.1)	6 (13.0)	
Gender			
Female	4 (44.4)	15 (32.6)	
Male	5 (55.6)	31 (67.4)	0.495
Education			
0-2 years of study	1 (11.1)	3 (6.5)	
3-6 years of study	8 (88.9)	38 (82.6)	0.540
≥ 7 years of study	0 (0.0)	5 (55.6)	
Geriatric Conditions			
Falls in the last year			
Total, average ± SD	0.91 ± 2.8		
Yes			
No	1 (11.1)	16 (34.8)	
Yes	8 (88.9)	31 (67.4)	0.160
Number of Chronic Health Problems			
Total	223		
Average ± SD	4.05 ± 1.66		
0-2 chronic diseases			
0-2 chronic diseases	6 (66.7)	1 (2.2)	
≥ 3 chronic diseases	3 (33.3)	45 (97.8)	0.0000001*
Medication			
Total	391		
Average ± SD	7.11 ± 3.09		
PIM			
Total	84		
No	7 (77.8)	14 (30.4)	
Yes	2 (22.2)	32 (69.6)	0.035*

*Statistically significant differences (p ≤ 0.05).

- ✓ A total of 55 participants were interviewed
- ✓ A total of 391 drugs was encountered in the sample, an average of 7.11 ± 3.09 medicines per patient
- ✓ Polypharmacy was identified in 83.6% of the participants
- ✓ 223 health problems were identified in the study sample (mean 4.05 ± 1.66)
- ✓ 76 occurrences of PIMs were identified in 34 patients (61.8%)

Table 2. Descriptive characteristics of the study population in LTCF and presence of PIM among fallers and non-fallers (n=69)

	Non-Fallers (n=54) n (%)	Fallers (n=15) n (%)	p-Value
Sociodemographic			
Age	83.00 (±9.12)	83.67 (±8.20)	0.256
Average ± SD			
Gender			
Feminine	36 (66.7)	9 (60)	
Masculine	18 (33.3)	6 (40)	0.632
Educational level			
Illiterate	34 (63.0)	8 (53.3)	
Primary Education	9 (16.7)	6 (40)	
Basic Education (2 ^o cycle)	5 (9.3)	-	0.373
Basic Education (3 ^o cycle)	1 (1.9)	-	
Secondary Education	3 (5.6)	1 (6.7)	
Higher Education	2 (3.7)	-	
Medication			
Don't use PIM	7 (12.96%)	1 (6.67%)	0.500
Use PIM	47 (87.04%)	14 (93.33%)	
Don't use PIM to be avoided			
Use PIM to be avoided	24 (44.44%)	6 (40%)	0.759
Use PIM to be avoided, unless indicated for a confirmed diagnosis	30 (55.56%)	9 (60%)	
Don't use PIM to be avoided, unless indicated for a confirmed diagnosis			
Use PIM to be avoided, unless indicated for a confirmed diagnosis	4 (7.41%)	1 (6.67%)	
Don't use PIM with the need to assess therapy duration	28 (51.85%)	9 (60%)	0,576
Use PIM with the need to assess therapy duration	26 (48.15%)	6 (40%)	
Don't use PIM to be used with caution			
Use PIM to be used with caution	19 (35.19%)	7 (46.67%)	0,417
Use PIM to be used with caution	35 (64.81%)	8 (53.33%)	

*Statistically significant differences (p ≤ 0.05).

- ✓ A total of 69 participants were interviewed
- ✓ All the participants in the study were **polymedicated**
- ✓ **71.02%** admitted being afraid of falling
- ✓ In the group of fallers, **100%** were afraid of falling, while in the group of non-fallers this rate was 62.96%
- ✓ There was a higher prevalence of diseases of the circulatory system and mental, behavioural or neurodevelopment disorders

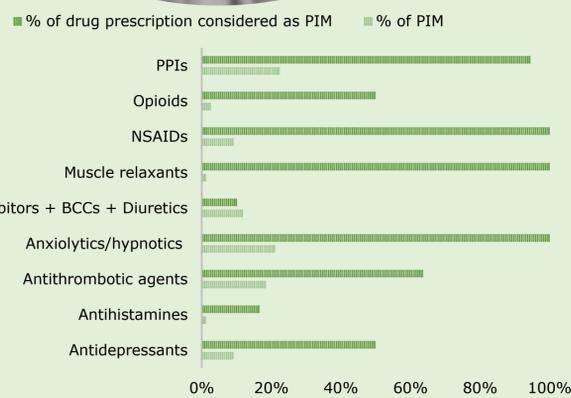


Fig. 1. Class relevance regarding PIM frequency, considering all the gathered PIMs (light green) and percentage of prescribed APIs considered as PIM, in contrast with the number of times that class was prescribed in general (dark green) in CP.

DISCUSSION

Results suggest that multimorbid community-dwelling or institutionalized older adults are at risk of polypharmacy and PIMs. Polypharmacy was detected in 83.6% (46) of the interviewed in the CP whilst 100% (69) of those who live in LTCF were polymedicated. The highest prevalence of polypharmacy among LTCF residents may indicate that they are not receiving proper care regarding their medicines and pharmacist intervention may be required.

There were identified PIMs in 61,8% (34) community-dwelling patients and in 88,4% (61) institutionalized patients. These results corroborate that polypharmacy and PIMs affect older adults and allow to establish a relation between polypharmacy and the use of PIMs. Among CP patients, Proton-pump inhibitors (PPIs), anxiolytics/hypnotics and platelet antiaggregants (AAS) were the most frequent PIMs.

The results also showed that the total number chronic conditions and the number of medicines taken appear to be significant risk factors for receiving an inappropriate medication. This study showed significant association between polypharmacy and the number of chronic health problems (p < 0.001) and between polypharmacy and PIMs (p = 0,035).

Polypharmacy is often linked with the occurrence of falls in older adults. Although studies have established a positive association between polymedication and the occurrence of falls³, we found no statistically significant difference. The small size of the sample may have undermined the research findings.

CONCLUSIONS

This study is a preliminary contribution to characterize a group of Portuguese older adults living in different settings. Age and age-related problems increase the odds of polypharmacy, PIMs and medication-related problems. The research results showed a significant association between the number of chronic conditions, polypharmacy, and the existence of PIMs. Regarding the therapeutic profile, the results show a high prevalence of polypharmacy and potentially inappropriate medication in both groups. This case study corroborate that polypharmacy and PIMs affect community-dwelling and institutionalized older adults.

Given the high prevalence of polypharmacy and PIMs, this study emphasizes the need of pharmacist intervention in older adult care in order to achieve a holistic patient-centred approach to medication management.

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