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# Inappropriate Medication and Perception of Quality of Life in Hospitalized Elderly Patients

*Ana Fajreldines, Marisa Bazzano, Belen Beldarrain, Stefanía Barberis and Marcelo Pellizzari*

## Abstract

Older or elderly adults represent a population exposed to potentially inappropriate prescriptions, since medication is the most widely used intervention. The objective of this work is to analyze the type of medication schemes of the elderly and the relationship with their states of psychological well-being. It is a cross-sectional study. Results: inappropriate prescription is of the order of 16% and the perception of quality of life was 56.8, finding an association between inappropriate prescription and perception of quality of life. Conclusions: The results showed that inappropriate prescription is highly frequent in these patients and that psychological well-being states would be related to this inappropriate prescription.

**Keywords:** elderly, quality of life, inappropriate prescription of medication

## 1. Introduction

Worldwide, the proportion of people >60 years of age is increasing faster than that of any other age group. Gender disparities, structural changes in the family and social environment, the number of older people living alone, changes in the burden of disease, drug therapy and the risk of disability, among other factors, indicate the importance of assessing the global health care and the specific problems of this population [1].

There are situations that can cause a worsening of the organic functional capacity of the elderly, such as: medications, illnesses, significant life changes, sudden increase in physical demands. Medications whose risk of adverse drug events (ADE) in the elderly or elderly exceeds expectations of clinical benefits compared to more effective, safe and available alternatives are called potentially inappropriate medications [2].

According to the WHO, quality of life is: “the perception that an individual has of his place in existence, in the context of the culture and value system in which he lives and in relation to his objectives, his expectations, his norms, their concerns. It is a very broad concept that is influenced in a complex way by the physical health of the subject, their psychological state, their level of independence, their social relationships, as well as their relationship with the essential elements of their environment” [3–5]. Due to the aforementioned in this work, the relationship that

exists between inappropriate medication and welfare states in the population over 65 years of age is explored.

2. Objectives

To analyze the inappropriate prescription and quality of life of hospitalized elderly according to internationally validated instruments.

3. Materials and methods

Retrospective observational study. The patients included were adults over 64 years hospitalized in the study center. The study was carried out in a highly complex academic hospital in Argentina. The criteria of Screening Tool of Older Person's Prescriptions (STOPP) 2015, [6] of inappropriate prescription of drugs, were used. Polypharmacy was considered to be the simultaneous presence of more than 4 drugs according to the WHO definition [7]. The investigators who analyzed the inappropriate prescriptions were two observers trained in the criteria, both of whom reviewed all cases. Concordance between the two reviewers was assessed with Cohen's Kappa test, obtaining a value of: 0.71 (95% CI 0.65–0.76). The burden of disease was assessed with the Charlson index [8], which predicts mortality and burden of disease according to preceding pathologies. The EURO-QOL 5d [9] scale was used to assess the perception of quality of life that contains 5 dimensions or topics: mobility, personal care, daily activities, pain/ discomfort, anxiety /depression. These topics have three options: - mild, –moderate and -high presence of each topic analyzed. The survey was done in person before discharge and to facilitate the analysis of the results, the questions were divided into three topics: “no problems”, “moderate problems”, and “serious or serious problems” (coinciding with the three options of each topical). Variables such as sex, age, family life, active patient with current job or in retirement, smoking habit, polypharmacy, among others, were collected. The data were loaded into Excel databases and processed with the SPSS 21 package, IBM®.

4. Results

300 hospitalized patients were studied in the 2016–2018 year. The distribution by sex was: 169 (56.4%) women and 131 (43.6%) men. The mean age was 73.3 + 18.5 years. Median: 69.12.

In the total sample analyzed, 16% (n = 48) showed inappropriate prescription of drugs criteria.

The types of drugs most involved were the following **Table 1**.

The mean well-being of the patients on the scale of 1–100 was 56.8 (SD 23.4), median: 61.7, range: 29–95.

The quality of life scale showed the following **Table 2**.

Of the 300 patients, 143 (47.7%) lived with their family (spouse, children, nephews, grandchildren, etc.), 81 (27%) lived alone or with a non-family caregiver, 76 (25.3%) lived in geriatric.

In an unadjusted multiple binary regression, the association of different variables with the perception of quality of life was the one shown in the following table (**Tables 3 and 4**).

Therapeutical Groups	N	Percentage (IC95%)
Non esteroidal pain relievers	21	43,8 (43,5-44,1)
Oral anticoagulants	16	33,3 (32,9-33,6)
Psychopharmaceuticals	9	18,7 (18,2-18,9)
Others	2	4,2 (4,1-4,7)

**Table 1.**  
*Frequencies by drug type.*

Global perception of quality of life	N	Percentage (IC95%)
Without problems	123	41 (40,9-42,3)
With moderate problems	98	32,7 (32,3-32,9)
With serious problems	79	26,3 (26,1-26,8)

**Table 2.**  
*The quality of life scale showed the following.*

Variable	With PIM	Without PIM	p Value
Without problems	16 (20,25%)	107 (79,75%)	0,001
With moderate problems	38 (38,8%)	60 (61,2%)	0,005
With serious problems	56 (70,8%)	23 (29,2%)	0,002

**Table 3.**  
*Quality of life scales with and without inappropriate prescription.*

Variable	OR (IC 95%)
Inappropriate prescription	1,52 (1,37-2,16)
Active work	1,76(1,16-1,97)
Life in a nursing home	1,89(1,45-2,15)
Female sex	1,98(1,35-2,13)
Polypharmacy	1,11(0,76-1,89)
Age over 80 years	1,13(0,98-2,14)
Severe–moderate pain	1,21(0,96-1,69)
Severe–moderate depression	1,23(0,97-1,34)

**Table 4.**  
*Binary multiple regression of different variables with perception of quality of life.*

5. Discussion

Overall inappropriate prescribing values are similar by some studies [10, 11]. It is important to note that this study demonstrated a strong association between inappropriate medication with positive STOPP criteria and the perception of

a deterioration in quality of life, because a person who receives inappropriate medication increases 2.3 times the chance of perceiving a deterioration in their quality of life.

A systematic review found that the drugs most exclusively included in the inappropriate prescription were non-steroidal anti-inflammatory drugs and benzodiazepines [12]. The review of Mahony [12], it states that the application of the STOPP criteria improves clinical outcomes in multimorbid older people but does not mention the impact it has on quality of life.

Furthermore, it is possible to affirm that there is a relationship between the inappropriate prescription of medication and polypharmacy, female sex, age over 80 years, presence of comorbidities such as pain, anxiety and/or depression.

We have not found studies of quality of life and inappropriate medication. It is important to link the states of well-being with the inappropriate use of medications to know other impacts on the public health of this population segment.

## **6. Conclusions**

After carrying out this work, it is concluded that aging is characterized by a series of extremely individualized physiological, psychological and social factors, that older adults represent a risk group with a higher degree of vulnerability to drugs. The most commonly used medications are pain relievers, oral anticoagulants and psychotropic drugs. We have shown that there is a close relationship between the medication administered in the elderly and the perception of quality of life. Therefore, it is essential that their prescription be carried out individually, taking into account the social and family context of the patient.

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## **Conflicts of interest**

The authors declare no conflict of interest.

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### **Author details**

Ana Fajreldines\*, Marisa Bazzano, Belen Beldarrain, Stefanía Barberis  
and Marcelo Pellizzari  
Aleman Hospital, Austral University Hospital, Buenos Aires, Argentina

\*Address all correspondence to: [fajreldinesa@gmail.com](mailto:fajreldinesa@gmail.com)

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