

IMPACT OF ECONOMIC AND SOCIO-EDUCATIONAL DETERMINANTS ON SELF-MEDICATION IN THE ELDERLY. A PROSPECTIVE STUDY IN MOROCCO AT IBN SINA HOSPITAL.

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Abstract

Introduction: In Morocco, just like in all countries around the world, the aging population is becoming increasingly important. Our project was carried out with the aim of studying the influence of economic and socio-educational factors on the use of self-medication. **Patients and Methods:** Data were collected through different hospital departments regarding patients aged 65 and older. Various aspects were examined, including age, gender, education level, whether the patient lives alone or with their children, income stability, independence, acquisition of medications without a prescription, and potential complications. **Results:** Our sample included 356 patients; among them, 48.6% had received no formal education, and 82.6% obtained medications without a medical prescription or expert consultation, while 30.3% were hospitalized due to complications from these medications. 24.7% are aware of the potential risks associated with self-medication. **Conclusion:** It is crucial to intervene with this vulnerable elderly population, greatly influenced by economic and socio-educational factors, which exhibits a very high rate of self-medication and a lack of awareness regarding the potential increased occurrence of complications.

Keywords: Elderly people; Economic and socio-educational determinants; Self-medication.

Introduction

The elderly person is exposed to vulnerabilities not only due to the ageing process but also to diseases related to their advanced age. She could still be trapped by her worrying situation without being aware of what is happening around her, whether it is beneficial or harmful to her health [1]. Indeed, age is frequently associated with the presence of various conditions requiring the simultaneous use of multiple medications. The frequent use of multiple medications among the elderly can lead to confusion in treatments, adherence issues, or even cause drug interactions. Moreover, the management of elderly patients may require the involvement of numerous healthcare professionals, including several doctors, general practitioners, or specialists. However, not all of these practitioners are necessarily well-informed about the entirety of ongoing treatments [1,2]. All these mentioned aspects will be amplified by the harmful influences of economic and socio-educational factors, as well as the general decline in physical and mental reserves due to age. However, elderly people, particularly those who are very old

"old-old," will face enormous challenges in managing the major complexities related to their health condition.

Economic and socio-educational factors, as well as the level of intelligence, can also be ambivalent: they can positively contribute to the elderly person's life by allowing them to live in the best conditions, or, conversely, have a negative impact by leading to harmful behaviours that affect their health [3].

The elderly may also find themselves in a condition of isolation, whether social or geographical, accompanied by a possible loss of autonomy and a decline in their ability to manage medications. Due to their fragile health or complicated access to care, they are forced to face their problems in any way possible, without considering the potential harm that could arise [4]. When an elderly and vulnerable person faces issues related to their needs, they may also find themselves in a situation of social and/or geographical isolation, exposed to a possible decline in their autonomy and ability to manage their medications. Due to their fragile health or complicated access to care, they are forced to face their problems in any way possible, without considering the potential harm that could arise. in

daily life and with various chronic age-related pathologies. It can easily give rise to complex biopsychopathologies that are difficult to resolve and treat. Just like in all other countries in the world, the elderly population in Morocco is becoming increasingly significant. It is difficult for them to escape the consequences of aging, namely multimorbidity and polypharmacy, not to mention the use of self-medication by this age group, influenced by economic and socio-educational factors, without being aware of the detrimental effects that this negative behavior could have on their health, already compromised by age [5]. In this context, as a result, many elderly people have difficulty getting medical appointments when they are sick, as the management of their chronic illnesses, which almost all elderly people suffer from, is considerably insufficient. However, some older individuals, lacking education or cultural background, fail to grasp the consequences of the medications they might choose to replace.

The National Survey on Population and Family Health (NSPFS - 2018) in Morocco also revealed that the percentage of people aged 60 or older represents 11.1% of the population. 6.2% of elderly people live alone. The data also reveals that 64.4% of the elderly are affected by at least one chronic disease. 20% of the population is diabetic (94.8% of them adhere to regular treatment), while 34% suffer from hypertension (89.9% follow a regular treatment) [2].

Patients and methods

During the six-month period from September 2019 to February 2020, a study was conducted at the Ibn Sina University Hospital Center in Rabat- Morocco, where a wealth of data about patients 65 and older was gathered in multiple hospital departments. This information was collected using preconfigured exploitation forms. During this period, we accumulated 356 operational records [5]. Data were collected regarding multimorbidity. Each patient was asked to provide information regarding chronic diseases, the number of pathologies, their understanding of the diseases, and adherence to the prescribed treatments.

Furthermore, data were collected regarding polypharmacy to verify whether patients are consuming multiple treatments, which medications are most commonly prescribed, their effectiveness from the patients' perspective, major adverse effects, and the patients' understanding of the concept of generic drugs. It was a prospective cross-sectional descriptive study. The data were analyzed using Excel 2016 software and the results were presented as simple means and percentages. We excluded anyone under the age of 65 and anyone refusing to answer the questionnaire. We examined various factors, including: age, gender, level of education,

whether the patient lives alone or with their children, and the consistency of their income. To examine self-medication and its potential effects, we have designed the questionnaire below:

1. Are your income stable and sufficient? if not, who are you dependent on?
2. How long have you had your illnesses?
 - Diabetes:
 - Asthma:
 - Heart failure
 - Others to specify
3. How many illnesses are you being treated for?
4. Concerning polypharmacy, how many medications are you taking?
5. Do you sometimes buy medication without consulting your doctor and/or without a prescription?
6. Have you ever thought about the potential dangers of a product consumed without a medical prescription?
7. Have you ever experienced complications due to the non-prescribed use of a pharmaceutical product?
8. Did you go to the hospital following the incident? Alone, on foot, accompanied, or by ambulance?
9. Are you self-sufficient?
10. Have you ever taken medicinal plants and pharmaceutical products?

Results

The study included an assortment of 356 patients aged 65 years or older. Here are the results of the questionnaire:

- 56.74% of the population was male and 43.26% was female;
- 55.06% of individuals, whether women or men, were married;
- 40.73% were widowed, and 4.21% stayed single.
- 48.6% had no level of education (Table I)
- 67.4% of the patients were assisted by their children (Table II).
- 10.4% of this group benefited from economic stability (Table II).
- 82.6% obtained their medications independently and without medical consultation (Table III). Among them, 82% believed that these medications had positive effects (Table IV). 24.7% considered the possible risks associated with these products. While 30.3% were hospitalised due to complications related to their own medical treatment (Table IV).
- 37.95% of this population were autonomous
- 58.7% had the opportunity to use both natural remedies and medications.

We focused attention on data related to chronic diseases, the number of conditions treated, the patient's understanding of the diseases, and adherence to the recommended treatment (Table V).

In the conducted study, 30.9% of patients had two pathologies and 30.1% had three, with cardiovascular diseases, particularly hypertension, digestive diseases, and endocrine diseases (notably diabetes) identified. The results show that 80.6% of the subjects took their medications at the scheduled times. Among the 356 patients, 66.6% took fewer

than 6 medications while 33.4% took more than 6. The most prescribed medications were aspirin, furosemide, and omeprazole. Regarding the effectiveness of the medications, 73.9% of patients were satisfied, while 53.6% felt they had too many medications, with 39.1% requesting a reduction in their treatments. (Figure 1)

Table I: Number and percentage of patients according to their level of education.

School level	Population	Percentage
No school level	173	48,6
Preschool	72	20,2
Primary	56	15,7
Secondary	47	13,2
Academic	8	2,2

Table II: Number and percentage of patients regarding the stability and sufficiency of income

Economic situation	Population	Percentage
The stability and sufficiency of income	37	10,4
Patients responsible for children	240	67,4
Patients caring for a close relative	79	22,2

Table III: Number and percentage of patients regarding the purchase of medications without consultation and without prescription.

Purchase of medication without consultation and without prescription	Population	Percentage
Sometimes	294	82,6
Never	62	17,4

Table IV: Number and percentage of patients regarding the effects of the medication taken.

Quality of products taken	Population	Percentage
Beneficial effects	292	82,0
Potential dangers	88	24,7
Complications due to consumption	118	33,1
Admitted to the hospital due to complications	108	30,3

Table V: Patient distribution based on pathology data

Parameter	No. of patients	%
Type		
Diabetes	143	40.2
Asthma	40	11,2
Cardiovascular disease	242	68
Pathologies per patient		
1	78	21.9
2	110	30.9
3	107	30
4	48	13.5
5	10	2.8
>5	3	0.8
Knowledge of pathology	294	82.6
Compliance with treatment	287	80.6

Discussion

On a global scale. Self-medication poses a real risk to public health, and more specifically to the elderly. Our study is no exception to this phenomenon of harmful behaviour related to the purchase and consumption of medication without a medical prescription, particularly among individuals aged 65 and older. In our context, we have proposed a hypothesis related to the socio-educational and economic factors that could be the cause of this phenomenon. We therefore began by analysing the issue of income and economic stability. Patients dependent on their children represent 67.4% of our study sample. However, only 10.4% of this sample benefits from financial security. This fact does not necessarily explain their ability to provide a complete and appropriate set of care to these elderly individuals with special needs. When the conditions are met and favourable to him, the elderly person can live their life fully, without encountering health problems. The surrounding community provides support in case of urgent or necessary need. Given that the ageing population is diverse, some of them sometimes find themselves facing difficult situations to overcome due to a lack of support. Our healthcare system is also poorly prepared to ensure they receive appropriate care [7]. According to the national survey on the health of families and the elderly in Morocco: The economic status of the elderly reveals a certain vulnerability, with 52.4% of them having no income, highlighting their economic precariousness, particularly for women (80.1%) and the oldest (61.5% of the 70 years and older age group) [2]. In our research, the studied population of both sexes, women and men, had a significant risk of social isolation, with a widowhood rate of 40.73% and a celibacy rate of 4.21%. This isolation can lead to negative psychological consequences that may result in a concerning pathological chain. This could manifest as depression, which is considered as the main cause of malnutrition and its various complications, including sarcopenia and infectious syndromes. This justifies the purchase of medications without medical advice and prescription by 82.6% of our patients participating in the study, among whom 30.3% had to go to the hospital due to complications related to these medications. Moreover, only 24.7% of them were aware of the potential risks associated with self-medication. According to a Moroccan study in the same vein: One in seven medications is sold without a medical prescription and is acquired by 30% of elderly subjects. However, it is estimated that half of them would present an unfavourable benefit/risk ratio. It is a phenomenon to be evaluated by the prescribing doctor or the pharmacist, which the general population may overlook, particularly the elderly [8]. Self-medication is more common among poor people and those from working-class backgrounds [5]. This explains why the effect of

socio-economic factors could intensify the decline of other aspects of life in the context of a vicious cycle. 48.6% of our patients have no level of education, which complicates their understanding of the therapeutic explanations provided by the doctor or pharmacist, as well as reading the leaflet. They can also be quickly influenced by others in the context of a satisfaction comparison regarding a specific treatment, despite the pathophysiological differences from one individual to another, especially when one is older. Although the doctor's judgement is always necessary. It is advised for the elderly person not to hesitate to inform their loved one that their doctor is by their side and can listen to everything (even if it does not concern their prescription), particularly regarding an over-the-counter medication that their loved one desires or has already tried [4]. Moreover, ageing is often associated with changes in the functioning of the organs responsible for the absorption, distribution, metabolism, and elimination of medications. It may then be necessary to modify the treatment or adjust the administered dose [1]. This situation is generally unknown to elderly patients when they take medications in self-medication; moreover, their level of education does not allow them to explore this issue further. According to a study on self-medication among people over 65, it happens that the elderly attribute the effects of aging to a disease. The population studied in this research tried to resolve the situation through self-medication, that is, the use of medications without direct medical consultation, taking into account the dangers associated with medications and the potential repercussions of these risks [9]. The medication primarily represents an opportunity for the elderly person. However, the doctor often finds themselves without resources when faced with a prescription that is often complex and not without danger, especially in patients suffering from multiple pathologies and taking several medications simultaneously [10]. While patients generally allow themselves to take medications without medical consultation, despite their vulnerability, to manage potential complications. Sometimes the medication is used for self-medication to relieve a symptom that has recently appeared following a medical prescription. In this case, the patient should return to their doctor to consider a reevaluation of the prescription to determine whether it is an adverse effect or a potential interaction with the prescribed treatment and ultimately make the necessary adjustment to avoid a possible unwanted therapeutic chain.

Self-medication is a global phenomenon that affects all classes of medications, and various factors can determine the use of this method. Although almost two-thirds of the population practices self-medication [3]. Tangible measures must be implemented to regulate medication consumption, particularly considering the potentially significant influence of social media on this behavior. Self-

medication, an increasingly widespread trend, offers patients the opportunity to manage their health autonomously and responsibly. Such a practice can present risks in this age group. This is why the pharmacist plays a crucial role when an elderly person seeks self-medication treatment [7]. As our study revealed, many medications continue to be distributed without requiring a prescription. Which represents a potential threat poorly addressed by pharmacy specialists. We practice self-medication by consuming medications available without a prescription. Self-medication is mainly observed through the use of medications from the family medicine cabinet. According to a study, one-third of patients resort to self-medication, which is common among the elderly. The commonly involved medications include analgesics, aspirin, non-steroidal anti-inflammatory drugs, and laxatives. Although self-medication is not strictly prohibited, it should always be approached with caution and the patient must be made aware of the potential dangers it entails [8]. The health of the elderly deteriorates due to ageing, and they are also users of these products. However, they are highly vulnerable to the calamities of unforeseen events related to drug interactions and adverse effects. Side effects occur twice as often after the age of 65 as before; between 10% and 20% of these side effects lead to hospitalisation. 4 to 17% of hospitalisations in people over 65 are due to a drug side effect. Moreover, more than 15% of elderly patients admitted to the hospital suffer from adverse effects related to their medication treatment. [11].

It is extremely complex to precisely define the typical profile of the Moroccan patient who engages in self-medication and the medications they use, due to the impacts of their environment: social, economic, geographical, and cultural. However, it is essential to highlight a significant turning point in the overall approach to self-medication [9]. The patients in our study could be influenced or biased by the fear of guilt; a distraction or lack of attention at the time of the survey could also affect their responses. Indeed, the misuse of medications, which causes more than 10,000 deaths each year in France according to the Collectif Bon Usage du Médicament, primarily affects the elderly. It's three times higher than the number of deaths caused by road accidents! Thus, it is necessary to avoid any reckless medication consumption to stay away from this risk that even the French, benefiting from an advanced healthcare system and generally acceptable living conditions, can face. [8]. According to our study, 82.6% of patients procure their own medications without consulting a doctor to discuss therapeutic adherence within the doctor-patient partnership: a proactive protective decision that could reduce any dangerous or even fatal risk associated with the reckless consumption of pharmaceutical products. Drug interactions present a

higher mortality risk in the elderly than old age itself! Beyond five medications per day, the risk increases significantly (for example, anti-inflammatories increase the risk of bleeding) [6]. The international pharmaceutical community continues to advise the elderly population to adopt all possible precautionary measures to avoid the risks associated with excessive medication consumption, even if they have been prescribed by a doctor. Due to a lack of knowledge, our fellow citizens continue to buy and consume medication without a medical prescription. The individuals most exposed are the elderly, whose health is more precarious. If a treatment is underway, it is essential to ensure that they correctly follow the doctor's prescriptions, adhering to the recommended dose and interval. Self-medication can pose risks due to the potential adverse interaction with the current treatment. [8]. Elderly patients, often desperate due to the prolonged duration of their treatment because of the chronic nature of their diseases, may consider self-medication as a potential response to some of their problems, despite the lack of logical justification for such an unhealthy behaviour. These elderly individuals should not resume the treatment already prescribed by their doctor without an updated medical opinion. The autonomous use or use in an alternative therapeutic setting of dietary supplements can constitute a form of self-medication. Indeed, these products are often marketed with claims that tend to promote the improvement of health and well-being. However, they may interact with one or more medications. It is essential that any chemical substance used is always included in the list of preventive measures that elderly people on polypharmacy should not neglect. There are few people among them who are vigilant and aware; in particular, individuals suffering from malnutrition who require appropriate dietary support. It is also necessary to take dietary supplements only on medical recommendation. [12]. In developing countries, the use of medicinal plants by the elderly should not be underestimated at all. Indeed, this often represents the only recourse for patients suffering from various ailments, facing economic obstacles; a long distance from the pharmacy, or difficulties in accessing prescribed medications. Although these plants can also cause adverse effects and/or serious iatrogenic interactions, or even be harmful like any pharmaceutical product. This category of the population, lacking the necessary means, remains unaware of all the possible complications. The lack of financial resources makes access to healthcare services and care for sick elderly people extremely difficult. Besides the low intellectual level, sometimes clumsy culture, loneliness, and the absence of a close person to accompany them to a medical consultation or a healthcare facility. This encourages this type of population to turn to self-medication and sometimes even to traditional

medicine, due to its lower cost and ease of access [11]. According to the responses to our questionnaire, 58.7% of our population has had the opportunity to consume both natural and pharmaceutical remedies. However, a majority of them are not self-sufficient, with a rate of 62.1%. Therefore, if a complication were to occur, the situation could easily become unmanageable or tragic. However, herbalists and medicinal plant vendors escape regulation by decision-making authorities; the absence of non-governmental organisations in this field leaves a gap in the necessary supervision to protect public health.

Self-medication among the elderly is experiencing exponential growth, linked to high rates of economic and socio-educational factors.

Therapeutic patient education offers patients the opportunity to develop skills for more effective daily management of their illness and treatments. Thus, the demand for full-time equivalents is particularly high among patients with multiple pathologies, and therefore among the elderly. [13]. Therapeutic education for patients, especially the elderly, is almost non-existent in our healthcare system due to a shortage of professionals specialised in geronto-geriatric care and the lack of a clear political will in this regard. It is advisable to adopt preventive and well-thought-out actions to ensure the financial viability of health insurance systems, focusing on sustainability. By implementing these strategies, Morocco has the opportunity to strengthen the achievement of universal health coverage and optimise the health status of its population. [14].

In Morocco, in the current context of solidarity. Mandatory health insurance provides basic medical coverage for all citizens. Although the reimbursement of medical and pharmaceutical expenses is partial, there is still the possibility of compensation for these expenses. There is still a need to raise public awareness.

The mobile geriatric team is often required to bring more healthcare activities closer to isolated regions. The extension of roads and access to drinking water and electricity encourage pharmacists and doctors to settle there.

The celebration of the International Day of Older Persons (celebrated annually on October 1st), scientific days, congresses, as well as the generalisation and improvement of initial and continuous training in geronto-geriatric care are all key elements to promote a constant improvement in geriatric care in Morocco. These initiatives will provide relevant suggestions and ensure adequate specialisation of healthcare professionals in a rapidly expanding field. It would also be wise to invest in families and the surrounding community, who will serve as a natural support and permanent geriatric aides. Moreover, they possess a well-established culture of caring for the elderly that they can pass on to future generations. Addressing the specific issues

related to the elderly presents a new challenge, that of providing economic, social, and medical support in the face of an ageing population, thus allowing seniors to lead a dignified life as they age [2]. It is imperative that the network of non-governmental and social organisations, in partnership with the Ministry of the Interior and all state decision-makers, take measures to identify and support elderly people in need, providing them with adequate social and medical assistance.

Conclusion

In Morocco, the population of vulnerable elderly people is characterized by high rates of self-medication and a lack of awareness of the possible complications that could arise from it. An effective intervention requires an educational approach tailored to this population, taking into account economic and socio-educational factors. Systematic therapeutic education must be integrated into geriatric care, ensuring accessibility for all elderly patients, regardless of their background. To mitigate the risks associated with self-medication, particularly with non-prescribed medications or traditional remedies, it is imperative that no pharmaceutical product be administered without prior medical consultation. It is urgent to continue scientific research to clarify diagnoses and develop appropriate solutions in the field of geriatric care and to support civic initiatives aimed at raising awareness and promoting responsible medication practices among the elderly.

Ethical approval

The approval for this study was granted by the Ethics Committee of the Faculty of Medicine and Pharmacy in Rabat, Morocco. The Biomedical Research Ethics Committee located in Rabat is registered with the Office for Human Research Protections, which is part of the U.S. Department of Health and Human Services. Its registration number is IORG0006594CERB [15]. The patients were informed about the purpose of the study and the associated procedures, and they provided informed consent.

Conflicts of interest: The authors declare that they have no conflicts of interest.

Declaration of AI Usage: We used (QuillBot) to paraphrase the text, correct spelling errors, and translate the content into English. The authors conducted all the reflections, data analysis, and interpretation of the results.

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