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The Medicament And The Polymedicated Elderly In Portugal

Vera Lúcia Galinha; *Ana Paula Fonseca

Instituto Politécnico de Coimbra, ESTESC-Coimbra Health School
Pharmacy Department, Coimbra, Portugal
**paula_fonseca@estescoimbra.pt*

Abstract:

Introduction: *More and more people around the world live longer. Today 125 million people are 80 years old or older, and for the first time in history, most people can expect to live to be sixty years old. By 2050, the world's population aged 60 years old and over should total 2 billion, up from 900 million in 2015.*

With advancing age, the existence of multiple pathologies and consequently polymedication is common. Pharmacotherapy is the main therapeutic resource in curing and controlling pathologies. Given this, polymedication is an area to be highlighted and should be viewed as one of the main problems arising from the prescription and non-prescription of medicine to the elderly population.

Aim: *This study aims are to determine levels of adherence to therapy; evaluate the main factors influencing adherence and describe polymedication in the institutionalized elderly in ADIC, checking the existence of polypathologies.*

Material and Methods: *All data necessary for the study was obtained through a questionnaire validated for the Portuguese language to evaluate the adherence to therapy.*

Results / Discussion: *The population of this study is mostly made up of women (68.57%) with an average age of around 82 years old. It is an aging population in which 71.43% of individuals are polymedicated with an average of 7 medicines consumed daily. Despite this, adherence values to therapy were found to be in the order of 85%. Also the compliance with the doctor's recommendations on how to take the medication does not seem to be a problem as 94.1% of individuals reported not having any difficulty in this task.*

Conclusion: *It is imperative to create multidisciplinary teams of health professionals working together with patients and their families, able to respond to the needs of therapeutic reconciliation, to ensure the adherence and therapeutic adequacy to therapeutic schemes, which may become complex and extensive.*

Keywords: *Adherence; Aging; Elderly; Medications; Polypharmacy*

INTRODUCTION

The increase in longevity and of the elderly population, together with the reduction in birth rates and of the young population, has caused profound demographic changes in Portugal, similar to what has happened in the rest of Europe. In 2015, average life expectancy reached 77.4 years for men and 83.2 years for women, and people aged 65 and over represented 20.5% of the entire population residing in the country in the country. Also, according to 2015 data, the rate of aging in our country went from 27.5% in 1961 to 143.9% in 2015.[1]

According to the World Health Organization (WHO),[2] active aging is defined as the process of optimizing opportunities for health, participation and safety to improve quality of life as people age, as well as the process of developing and

maintaining functional capacity, which contributes to the well-being of the elderly. However, if on the one hand, aging is the triumph of socio-economic development and public health, then on the other hand it triggers a challenge of adaptation in society.[2,3]

Aging is a major challenge for society today. To combine this cross-cutting issue with the various sectors of society, a project was designed to promote healthy aging through the implementation of an intervention program based on comprehensive geriatric assessment (in Portuguese, Abordagem Geriátrica Ampla – AGA), incorporating regional and academic endogenous resources. The proposed AGA model is based on an individual holistic model, supported by a multidisciplinary assessment protocol, from which the implemented intervention strategies, adjusted to the needs of each person, aim to prevent the frailty and functional, cognitive and social decline of the elderly. Intervention actions are focused on personalized exercise programs, nutritional education, cognitive stimulation, third-party follow-up, therapeutic counseling and overall promotion of well-being.[4] [5] [6] The issue of pharmacological medication in the elderly assumes particular importance, in the context of comorbidity in which aging commonly stems, causing major intrinsic challenges, such as the management of polymedication and the associated therapeutic complexity and adherence to therapy.[4,5,6]

Living longer means being more exposed to risks, such as the vulnerability of health and physical and mental dependence, among others. Chronic noncommunicable diseases (cardiovascular diseases, respiratory diseases, cancer, diabetes *mellitus*, among others), mental and neurological disorders are some of the conditions that contribute to these comorbidities. The treatment and management of these various chronic diseases affecting the elderly population that polypharmacy has a special focus in this context, as multi-drug administration over long periods is frequent. Although it has no consensual definition, polypharmacy can be defined as the concomitant use of four or more medicines, if prescribed and/or self-medicated.[7,8,9]

In addition to medicines administered for the various chronic conditions, as indicated by a doctor, the elderly population self-medicate with a large number of non-prescribed medicines and dietary supplements, without any advice from a healthcare professional and without knowledge of the consequences that may result from their association with prescribed medicines.[10]

Adherence to therapy is known to be a complex and primordial aspect to obtain the desired clinical and therapeutic results.[11] Patients who do not adhere to the therapy may present complications or the worsening of the pathologies, due to misuse of medication, triggering frequent hospitalization and economically heavier procedures for the health system. For an elderly patient, adherence to the prescribed therapy is crucial in order to obtain a positive result for their health.[12] However, it must be taken into account that along with advancing age, there is also a decrease in cognitive and functional abilities, which may result in greater difficulty in adhering to the prescribed therapy.[12] [13]

Medication adherence is described as the process by which patients administer their medication as prescribed. The adherence process can be described in four steps: initiation, implementation, interruption and persistence.[14]

According to WHO, 50% of people with chronic diseases in developed countries are somehow non-compliant with drug therapies, and this percentage is higher in developing countries. Given this, we can say that non-adherence to therapy is now considered one of the biggest public health problems.[15]

The same organization (WHO) describes adherence as a multidimensional phenomenon, determined by the interaction of 5 groups of factors/dimensions: socioeconomic factors, factors related to the health system and equipment, factors related to the patient's condition, factors related to treatment and patient-related factors.[16] For each dimension, there are various possible reasons for nonadherence, ranging from complex therapeutic plans, difficulty in understanding medical prescriptions, patient dissatisfaction with health services, treatment of asymptomatic diseases, socioeconomic aspects and the beliefs of patients.[15]

Several strategies that can, and should, be adopted that are shown to be effective in increasing adherence to therapy

and consequently promote the achievement of quality clinical outcomes.[17] Individualized interventions, reminders of medication use, information on pharmacotherapy, self-monitoring, and qualified counselling, among others, are some of the measures that have been shown to be effective in increasing adherence to therapy and, consequently, in achieving positive clinical results.[18]

In the geriatric population, the evaluation of therapeutic complexity and the identification of its determinants is an increasingly necessary practice. The simplification of therapeutic regimens in this population improves treatment adherence, with benefits in medication adherence and consequently in therapeutic results, as well as in the quality of life of the elderly. Based on these facts the complexity of the therapeutic regimen has increasingly become a major concern for patients with chronic diseases and in particular in the geriatric population, as it can play a major role in non-adherence to the therapeutic regimen scheme.[19,20, 21]

Adherence management is described as the process of monitoring and supporting drug adherence by health systems, professionals, patients and their social networks. The purpose of this is to obtain the best use of prescription medicines to maximize the potential for benefit and minimize the risk of harm.[14]

Carers can play an extremely important role in overcoming barriers related to adherence to therapy, such as aid in drug administration, monitoring and psychological support.[19]

In this sense, it is important to evaluate the adherence level of institutionalized elderly patients, as well as the factors that influence it, evaluate the main factors that influence adherence, namely polymedication, and verify the existence of multiple pathologies, in order to outline future strategies to improve adherence.

MATERIALS AND METHODS

A cross-sectional descriptive study was carried out that allowed the identification of the characteristics of our sample, and simultaneously, the interpretation of the results obtained.

The participants of the study were all elderly institutionalized, either in the daycare or in the home, at the ADIC (Associação de Defesa do Idoso e da Criança de Vilarinho, Lousã) who agreed to participate in the study. To ensure complete confidentiality regarding both the identity of the participants and the data obtained during the study, all study participants signed an informed consent form where it is explicitly mentioned that all information collected is intended solely for academic and research purposes.

To collect all the data necessary for the study, two different questionnaires were used; one to evaluate the adherence to therapy and another to evaluate the complexity of the pharmacotherapeutic regimen.

The questionnaire used to evaluate the Treatment Adherence Measure (MAT) scale in the elderly is composed of three parts: I. Sociodemographic Characterization (age, gender, marital status, educational level, institutionalization time and the person responsible for preparing medication);

II. Therapeutic Characterization (amount of daily medications and therapeutic regimen) and III. Assessment of Adherence to Therapy. (consisting of seven questions to be answered on a scale of “always” to “never”. The answers obtained are scored from 1 to 6, according to the following meaning: 1 - does not adhere fully; 2 - does not adhere; 3 - minimally adheres; 4 - partially adheres; 5 – mostly adheres; 6 – fully adheres). This is a scale developed and validated for Portuguese standards by Delgado and Lima, in 2001, based on the questionnaire by Morisky *et al*.[24] [25]

This study, specifically the application of the questionnaires used, took place at ADIC - Associação de Defesa do Idoso e da Criança, located in Vilarinho, Lousã municipality.

The data obtained through the application of the questionnaires were treated and analyzed using descriptive statistics and a statistical program Statistical Package for Social Sciences (SPSS), version 24, and Excel, where they were later compared with the existing literature in order to concluded.

RESULTS AND DISCUSSION

Sample Characterization

Table I shows the relevant parameters that were used for the sociodemographic characterization of the sample.

The sample used in this study consisted of 35 individuals of both sexes, aged between 56 and 96 years old (an average of 82.26 years old) as shown in Table I. The sample is mostly composed of females (68.57% women and 31.43% men), which is in line with the literature that states that women live longer than men.[24,25] Although this is a population without a high level of education, it is important to highlight that 77.14% of them have the 1st cycle (Table I). Most individuals participating in the study are widowed (48.57%) followed by 25.71% of married participants, 14.29% are divorced and 11.43% are single.

In regards to the preparation of medication it was found that most of our participants are responsible for its management individually (Table I). In 41.18% of the cases this management is divided between employees of the institution, family members or between these and the user. The presence of a carer in the management of therapy is revealed to be very beneficial both to help minimize possible errors resulting from taking the medication and to help organize and manage therapy.

Variables	**% (N)**
Average age	82,26
Gender **(N=35)**	
Female	68,57% (24)
Male	31,43% (11)
Marital status	
Single	11,43% (4)
Married	25,71% (8)
Widowed	48,57% (17)
Divorced	14,29% (5)
Schooling	
Cannot read or write	20% (7)
1st cycle	77,14% (27)
2nd cycle	2,86% (1)
Medication Preparation **(N=34)**	
Self	58,82% (20)
Institution staff	17,65% (6)
Family Members	11,77% (4)
Self + Institution staff	2,94% (1)
Self + Family	5,88% (2)
Family + Employees	2,94% (1)

Individuals participating in the study have been, on average, in a home or day care at ADIC for more than 3 years (3.56). The length of stay varies between 3 months and 20 years.

In regard to having access to medical appointments, 29.41% of the sample has access to a monthly medical consultation. The same value was found for participants with access to a medical appointment every 4 months. On the other hand, 26.48% of participants have access to a consultation every 2 months while 11.76% have access to a consultation only every 3 months. Only 2.94% of participants reported having access to two consultations per month. In fact, if having close to 30% of participants with monthly medical access is a good thing to note, there are another 30% who only have access to a medical consultation every 4 months. In an aging population, with an average age of around 82 years

old, mostly polymedicated (71.43%), it is imperative to shorten the intervals between consultations in order to have a closer and more careful therapeutic follow-up, improving the therapeutic results obtained.

Polymedication

Of the 35 participants in the study, only one male, the youngest, does not take any medication, which is in line with the literature that states that the older the individuals are, the more likely they are to have multiple pathologies and its consequent polymedication (24,25).

Therefore, of the individuals taking medication, 71.43% (25 individuals) are polymedicated patients with an average daily consumption of 7 medications. The number of medicines per day varies between two and nineteen. Therapies consisting of various drugs, as is the case, result, according to the literature consulted, into complex therapeutic regimens where adherence does not always have the desired values.

The highest percentage of polymedicated patients are female (80%) of the 24 women, 20 are polymedicated patients.

Of the polymedicated participants, 60% admitted that they themselves prepare their medication without the help of third parties, 28% admitted that the preparation of the medication is the responsibility of third parties (12% admitted that the aid comes exclusively from the employees or from family, 4% indicate that this aid is a shared task between family members and ADIC employees). The fact that 64% of polymedicated patients prepare their own medication, without help or guidance from third parties, may lead to medication errors as well as an increase in unintended non-adherence.

Medication Adherence

Adherence to medication was shown to be high, the sample shows that 85% fully adhere to the therapeutic regimen. Considering that adherence to therapy can be classified as intentional and unintentional, this study shows that unintentional adherence is the most prevalent among participants in the sample. In regards to forgetting to take medication, about 8.8% assume that they often forget to take the prescribed medicines. The same number of participants also, quite often, reported being careless about taking the medication at the correct time. Although 76.5% of participants reported that they never discontinued therapy because they never ran out of medication, 23.5% reported that this situation occurs for a reason. Intentional non-adherence was found to be low among the participants in the sample, since only about 3% of them reported taking one or more medicines on their own initiative because they felt worse. Similarly, 8.9% of the participants referred to the fact they had stopped taking their medication on their own initiative after feeling better.

Compliance with the doctor's recommendations on how to take the medication does not seem to be a problem as 94.1% of participants reported not having any difficulty in this task. In fact, 61.1% of the sample reveal that they have no difficulty in taking the correct administration of medication. Forgetfulness seems to be the main difficulty of participants (19.4%) followed by the large number of medicines taken (8.3%). Economic difficulties and the lack of medical prescriptions are also difficulties experienced by participants, both referred to in the same percentage (5.5%). Uncontrolled pathologies, difficulties in swallowing or lack of information on administration of medication do not seem to be a problem.

Possible Study Limitations

One of the major limitations of this study was the fact that the sample did not have a large number of participants, as well as the difficulty in accessing some information from the participants involved in the project. It is also important to emphasize that adherence to therapy was assessed through the use of indiret methods, which may have, in some way, conditioned the results obtained.

CONCLUSION

The results show a population with a high degree of adherence to therapy. They state that they do not have any questions about the therapeutic regimen instituted, although, for the most part, this is a regimen with some therapeutic complexity considering the high number of polymedicated patients. It should also be mentioned that most participants are responsible for the management and organization of their therapy and do not reveal any difficulty regarding compliance with medical indications. The fact that the results were obtained through a direct interview may have some influence on them.

Nevertheless, it is imperative to train health professionals, family members, the elderly and carers in the management of the therapeutic regimen in order to ensure its greatest profitability and guarantee that the established therapies are understood and complied with by all those involved in the process. The creation of multidisciplinary teams capable of responding to the needs of therapeutic reconciliation, at a time when access to medical appointments is not as frequent as desired, are essential today to create measures that guarantee adherence and therapeutic adequacy. Only in this way is it possible to identify factors of complexity and be able to stop them by simplifying therapeutic regimens, periodically reviewing medication, decreasing the number of prescribers, and using combined forms of active ingredients.

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BIBLIOGRAPHIC REFERENCES

1. PORDATA. Base de Dados Portugal Contemporâneo. (2015).
2. World Health Organization. Ageing and health. (2018). p. http://www.who.int/news-room/fact-sheets/detail/ag.
3. Angeloni,Silvia; Borgonovi,Elio. (2016) An ageing world and the challenges for a model of sustainable social change. Journal of Management Development; 35:464–85.
4. Solomon,D.H.; Foreword, In D.; Osterweil, D.; Brummel-Smith & J. C. Beck (Eds) . (2000). Comprehensive Geriatric Assessment (pp 9-12) . USA: Mc Graw Hill.
5. Ong, Terence. (2016). Ageing positively. Journal of primary health care. 8. 10
6. Kogan AC, Wilber K, Mosqueda L. (2016). Person-Centered Care for Older Adults with Chronic Conditions and Functional Impairment: A Systematic Literature Review.1–7.
7. Grupo de trabalho Interministerial. (2017). Estratégia Nacional para o Envelhecimento ativo e saudável 2017-2025.
8. Marengoni A et al. (2016). Coexisting chronic conditions in the older population: Variation by health indicators. Eur J Intern Med.31:29–34.
9. Patterson SM, Cadogan CA, Kerse N, Cardwell CR, Bradley MC, Ryan C HC. (2014). Interventions to improve the appropriate use of polypharmacy for older people (Review). (10).
10. Amoako, E.P.; Richardson-Campbell, L.; Kennedy-Malone L. (2004). Self-Medication with over-the-counter drugs among elderly adults. Journal of Gerontological Nursing; 29:10–5.
11. Obreli-Neto, Paulo Roque et al. (2012). Methods for estimating adherence to the pharmacotherapy. Rev Bras Farm.;93(4):403–10.

12. Rocha, C.H. et al. (2008). Medication adherence of elderly in Porto Alegre. Ciência & Saúde Coletiva, 13 (Sup): 703–10.

13. Galvão C. (2006). O idoso polimedicado - Estratégias para melhorar a prescrição. Revista Portuguesa Medicina Geral e Familiar. 22(6):747–52. Available from: http://www.rpmgf.pt/ojs/index.php/rpmgf/article/view/10307

14. Vrijens B, et al. (2012). A new taxonomy for describing and defining adherence to medications. British Journal of Clinical Pharmacology. 73(5):691–705.

15. World Health Organization. 2003. Adherence to long-term therapies: Evidence for action.

16. Kardas P., Lewek P. , Matyjaszczyk M. (2013). Determinants of patient adherence : a review of systematic reviews. 4 (July):1–16;

17. Obreli-Neto, P. R. et al. (2010). Fatores interferentes na taxa de adesão à farmacoterapia em idosos atendidos na rede pública de saúde do Município de Salto Grande – SP, Brasil. Revista de Ciências Farmacêuticas Básicas e Aplicadas .31(3):229-233.ISSN 1808-4532

18. Obreli-Neto, P. R. et al. (2011). Effect of a 36-month pharmaceutical care program on pharmacotherapy adherence in elderly diabetic and hypertensive patients. International Journal of Clinical Pharmacy. 33(4):642–9. Available from: https://doi.org/10.1007/s11096-011-9518-x;

19. Jin, J.; Sklar, G.E.; Sen Oh, V. M.; Li, S. C.; (2008). Factors affecting therapeutic compliance: A review from the patient 's perspective. Therapeutics and Clinical Risk Management. 4(1):269–86;

20. Marcum, Z. A.; Gellad, W. F. (2012). Medication Adherence to Multi-Drug Regimens. Clinical Geriatric Clinic.28(2):287–300. doi:10.1016/j.cger.2012.01.008.

21. Elliott, R.A.; O'Callaghan, C. J. ;(2011). Impact of Hospitalisation on the Complexity of Older Patients' Medication Regimens and Potential for Regimen Simplification. Journal of Pharmacy Practice and Research. 41(1):21–5. doi. org/10.1002/j.2055-2335.2011.tb00060.x

22. Delgado, A.B.; Lima, M.L.;(2001). Contributo para a validação concorrente de uma medida de adesão aos tratamentos. Psicologia, saúde e doenças. 2(2):81–100. 15

23. Monterroso, L.; Pierdevara, L.; Joaquim, N. (2012). Avaliação da adesão regime terapêutico dos utentes seguidos na consulta externa de psiquiatria do centro hospitalar barlavento algarvio. Revista Portuguesa de Enfermagem de Saúde Mental. 7.39–45.

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