



INTERNATIONAL JOURNAL OF  
EDUCATION, PSYCHOLOGY  
AND COUNSELLING  
(IJEPC)

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## MEDICATION ADHERENCE: UNDERSTANDING THE CHALLENGES AMONG THE ELDERLY

Usman Jaffer<sup>1</sup>, Che Mohd Nasril Che Mohd Nassir<sup>2</sup>, Mohamed Ayaaz Ahmed<sup>3</sup>, Rahmah Ahmad H. Osman<sup>1\*</sup>, Abdul Muhaimin Adam<sup>4</sup>, Faqyhah Mohd Khair<sup>4</sup>, Muhammad Mujahid Danial Muzafar<sup>4</sup>, Nur Anis Zahra Rosman<sup>4</sup>, Nur Musfirah Abdu Aziz<sup>4</sup>

<sup>1</sup> AbdulHamid AbuSulayman Kulliyah of Islamic Revealed Knowledge and Human Sciences, International Islamic University Malaysia, 50728 Kuala Lumpur, Malaysia.

International Institute of Islamic Thought and Civilisation (ISTAC) International Islamic University Malaysia, Kuala Lumpur, Malaysia

Email: jafferu@iium.edu.my; rahmahao@iium.edu.my

<sup>2</sup> Department of Anatomy and Physiology, School of Basic Medical Sciences, Faculty of Medicine, Universiti Sultan Zainal Abidin (UniSZA), 20400 Kuala Terengganu, Terengganu, Malaysia.

Email: nasrinnassir@unisza.edu.my

<sup>3</sup> Southern Ambition 473 CC, 7764, Cape Town, South Africa

Email: ayaaz@reamz.co.za

<sup>4</sup> Kulliyah of Pharmacy, International Islamic University Malaysia, 25200, Kuantan, Pahang Darul Makmur.

Email: abdulmuhaiminadam055@gmail.com; 2114248@student.iium.edu.my; muhdmujahidrasmi@gmail.com;

anis.zahra.rosman@gmail.com; nmusfirah65@gmail.com

\* Corresponding Author

### Article Info:

#### Article history:

Received date: 30.10.2023

Revised date: 26.11.2023

Accepted date: 24.12.2023

Published date: 31.12.2023

#### To cite this document:

Jaffer, U., Nassir, C. M. N. C. M., Ahmed, M. A., Osman, R. A. H., Adam, A M., Khair, F. M., Muzafar, M. M. D., Rosman, N. A. Z., & Abdu Aziz, N. M. (2023). Medication Adherence: Understanding The Challenges Among The Elderly. *International Journal of Education,*

### Abstract:

This study explores medication adherence challenges in the elderly population, focusing on the complexities and dynamics of managing polypharmacy in a geriatric care setting. The research was conducted in One Stop Home Care Centre, Sri Damai, Kuantan, Malaysia, involving 10 participants aged between 45 and 72. It employs a mixed-methods approach, utilizing structured questionnaires and in-depth interviews to assess medication adherence behaviours and the influencing factors. The findings indicate a significant discrepancy between self-reported medication adherence and actual practices. While 50% of participants reported managing a single medication, observational data revealed a more intricate medication regimen, with some managing up to four different medications. The study highlights the critical role of social support systems in promoting medication adherence, with all participants adhering to their prescribed schedules due to robust caregiver involvement. However, 30% reported occasional lapses due to the complexity of their medication regimens. Notably, side effects like headaches and sleepiness were identified as key factors affecting medication adherence,

*Psychology and Counseling*, 8 (52),  
865-874.

DOI: 10.35631/IJEPC.852065

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underscoring the need for tailored approaches to manage side effects. The study emphasizes the importance of understanding the unique characteristics and challenges of medication adherence in the elderly, especially in the context of polypharmacy. The research also points out the socio-economic impact of an aging population and the growing demand for age-appropriate healthcare services. It emphasises the need for strategic health policy and planning to cater to the unique needs of the elderly. The findings advocate for comprehensive patient education, shared responsibility between residents and caregivers, and the implementation of systems to monitor medication intake and side effects. The study therefore provides valuable insights into medication adherence among the elderly, highlighting the necessity for personalised interventions and strategies to enhance health outcomes in this demographic. The research also acknowledges limitations, including a one-time visit for data collection and the lack of long-term follow-up, suggesting areas for future research.

#### Keywords:

Medication Adherence in Elderly Polypharmacy Challenges Geriatric Care in Malaysia Healthcare Management for Seniors

## Introduction

The elderly, or geriatric population, comprises individuals aged 60 years and above, as defined by the United Nations (UN). This age group is characterised by a range of progressive changes in physical and biological conditions, marking ageing as a natural life process. With the global life expectancy now surpassing 72 years, the elderly demographic is experiencing rapid growth. In Malaysia, for instance, there was a 6.3% increase in the elderly population from 2000 to 2020. Projections by Loris L. Jervis in 2002 indicated that this segment of the population could double to 3.4 million by 2020. Further alarming data from the Department of Statistic Malaysia (DoSM) forecasts that by 2050, 15% of Malaysia's population will be aged 65 and above, suggesting the nation will become an ageing society much sooner than expected.

This demographic shift raises significant concerns among healthcare professionals about the health challenges confronting the elderly. Malaysia's elderly population, for example, is expected to see a staggering 211% increase from 1990 to 2020, reaching 3.26 million. This rise has led to an increase in the establishment of old age homes, particularly in urban areas such as Kuala Lumpur, Selangor, Johor, and Penang. This trend is largely attributed to the inability of working adults to provide care for their elderly parents. These facilities, managed by various entities including the Department of Social Welfare, NGOs, or the private sector, cater to elderly individuals whose primary caregivers are unable to manage their care due to work and family responsibilities.

Globally, the World Health Organization (WHO) has noted that social, economic, and cultural shifts in emerging nations contribute to families being unable to adequately care for their elderly, leading to an increased demand for institutional care (WHO, 2005, cited in Sulaiman, Baldry, and Ruddock, n.d., p.131). When elderly citizens face difficulties in fulfilling their societal roles, old age homes become a necessary solution (Evangelista et al., 2014).

In the pharmaceutical field, the elderly represent a distinct group requiring specialised care, often due to prevalent health conditions known as geriatric syndromes or "geriatric giants"

(Inouye et al., 2007). These syndromes include chronic disabilities affecting physical, mental, and social aspects of life, significantly influencing quality of life and medical adherence among the elderly.

The health quality of the elderly is impacted by various factors including environmental conditions, accessibility to services, family support, and financial resources. Challenges such as limited access to medications, suboptimal healthcare infrastructure, and inadequate knowledge all contribute to health issues in this age group. Financial stability plays a crucial role, as it is directly correlated with improved health quality, highlighting the importance of financial resources in facilitating access to healthcare (Shrivastava et al., 2013).

Polypharmacy, common in the medical care of elderly and polymorbid patients, introduces risks such as adverse drug reactions, drug interactions, and non-adherence to medication. While the use of multiple medications is often necessary, the associated risks of polypharmacy demand careful management to optimise treatment effectiveness.

Medication adherence is a critical factor in pharmacological therapies, especially challenging among the elderly. The complex process of drug administration involves various elements, including patient, physician, and procedural components. Poor adherence can lead to negative clinical outcomes, higher healthcare costs, and increased mortality rates. With the increase in the number of medications, addressing low adherence becomes crucial to maximise the benefits of medical treatment (Zelko et al., 2016).

Understanding the challenges of medication adherence is essential, particularly for older patients who are undergoing polypharmacy. Factors such as inadequate understanding of prescriptions and an increase in the number of medications prescribed contribute to medical non-adherence. Interventions should therefore focus on simplifying drug regimens, reducing pill burden, and providing clear explanations for medication use (Pasina et al., 2014).

Despite the importance of medication compliance for the well-being of older individuals, there is a lack of comprehensive understanding of the unique characteristics, obstacles, and effective interventions that promote adherence. This study aims to explore the challenges of medical adherence among the elderly, particularly in the context of polypharmacy, to provide insights for tailored interventions and improved health outcomes.

The rising elderly population is not only a Malaysian phenomenon but a global one. According to the World Population Ageing report by the United Nations (2019), the number of persons aged 60 years or over is projected to double by 2050, reaching nearly 2.1 billion globally. This demographic transition poses significant challenges for healthcare systems worldwide. As the elderly population grows, the demand for age-appropriate healthcare services, including long-term care and geriatric care, is also expected to rise. This trend is indicative of the need for a strategic approach to health policy and planning, focusing on the unique needs of this age group.

In terms of healthcare needs, the elderly are more likely to suffer from multiple chronic conditions, such as hypertension, diabetes, and heart disease. These conditions often require ongoing medical attention and can lead to a higher risk of hospitalisation and increased healthcare costs. Additionally, mental health issues, including dementia and depression, are

also prevalent in this age group, further complicating their healthcare needs (World Health Organization, 2017).

The socio-economic impact of an ageing population is also significant. Older individuals often have lower incomes and are more likely to be dependent on pensions or social security, which may not adequately cover their healthcare expenses. This financial strain can lead to poorer health outcomes and a decreased quality of life. Furthermore, as the number of elderly individuals increases, there is a growing need for caregivers, both professional and familial, which can place additional strain on families and communities (United Nations, 2019).

Despite the significance of medication compliance for older individuals' well-being, a comprehensive understanding of the unique characteristics, obstacles, and effective interventions promoting adherence is lacking. This study aims to uncover the challenges of medical adherence among the elderly, particularly in the context of polypharmacy, providing insights for tailored interventions and improved health outcomes.

### **Methodology**

This study seeks to delve into the complexities of medication adherence among elderly individuals, with a primary focus on understanding influencing factors and proposing strategies for improvement. Employing a mixed-methods approach, the study combines structured questionnaires and in-depth interviews to gain an understanding of medication adherence behaviors and the underlying factors affecting the elderly.

### ***Sample Size and Subject Recruitment***

Participants for this investigation were selected from residents of a geriatric care facility, One Stop Home Care Centre, Sri Damai situated in Kuantan, Pahang, Malaysia. A diverse group of elderly individuals actively managing chronic conditions through prescription medications were randomly selected. A site visit to the geriatric care facility facilitated the collection of pertinent data. A total of 10 senior citizens willingly participated in this survey.

### ***Data Collection Procedures***

To assess medication adherence, participants were provided with questionnaires administered by trained facilitators. These questionnaires included inquiries about adherence behaviours and identified barriers. Additionally, demographic information, medical history, and participants' self-perceived medication adherence were collected through the questionnaires. To gain deeper insights, semi-structured face-to-face interviews were conducted with participants and their caregivers. These interviews explored aspects such as medication regimen complexity, forgetfulness, side effects, social support, and interactions with healthcare providers. All interviews were audio-recorded with explicit participant consent.

### ***Data Analysis***

The collected data underwent analysis using Google Forms. Descriptive statistics were employed to depict demographic and adherence-related questionnaire responses. Quantitative data were subjected to appropriate statistical methods, including percentages and mean values, to extract meaningful insights. The interviews were thematically analysed to compliment quantitative data,

## Results

In our study, 10 participants aged between 45 and 72 years ( $M = 58.2$ ) were recruited, with a gender distribution of 80% male and 20% female. All participants reported having illnesses, and a notable proportion (50%) was managing a single medication. Notably, 100% of participants had been diagnosed with one or more illnesses, with 40% grappling with more than one chronic condition. The prevalent health issues reported included hypertension, affecting 40% of participants, mental illness impacting 30%, and diabetes mellitus accounting for 20%.

Contrary to the questionnaire responses, our in-depth interviews and observations unveiled nuanced details. While the questionnaire indicated that the majority (50%) of participants had only one prescribed medication, the interview and observational data revealed a more intricate scenario.

The highest number of different medications reported by respondents in the questionnaire was four, with 10% of participants needing to take four different medications daily. Additionally, 30% were managing three different medications, 10% had two different medications, and the remaining 50% were prescribed a single medication. However, our interview and observation data painted a more diverse picture, shedding light on the varied medication regimens embraced by the participants.

This incongruence between self-reported data and observed practices emphasizes the importance of employing multiple data collection methods for a comprehensive understanding of medication adherence among the elderly. It suggests that relying solely on self-reported information may not capture the complexity of medication management in this population, emphasizing the need for a more holistic approach to data interpretation.

The study revealed a noteworthy correlation between a robust social support system or the presence of caregivers and optimal medication adherence, with 100% of participants adhering diligently to their prescribed schedules. However, 30% acknowledged occasional lapses, attributing them to the intricate nature of medication regimens involving frequent daily doses. A significant proportion (40%) faced the challenge of twice-daily dosing, while 30% adhered to a once-daily regimen, and the remaining 30% opted for medication only when necessary.

The consequences of medication non-adherence were evident, with reported outcomes such as chest pain and dizziness. These adverse effects indicate the critical importance of adherence in mitigating potential health risks among the elderly. Impressively, all participants unanimously affirmed the ease of obtaining their prescribed medications, a testament to the streamlined processes within the care facility, where caregiver management likely contributes to the accessibility of medications.

Side effects emerged as a noteworthy factor influencing adherence behaviours, with 30% of participants reporting experiencing side effects alongside the anticipated therapeutic effects of their medications. Headache and sleepiness were the most commonly reported side effects, significantly impacting participants' medication adherence and continuation. This finding highlights the importance of addressing side effects in promoting sustained medication adherence among the elderly, considering the potential impact on their overall well-being.

While the majority exhibited commendable adherence supported by a robust social system, occasional challenges and side effects warrant nuanced interventions to further enhance medication management strategies for the elderly. The study emphasizes the need for tailored approaches, considering the multifaceted nature of medication adherence in this demographic.

## Discussion

In examining our respondents, spanning from older adults (>40 years old) to senior citizens (>60 years old) with an age range of 45 to 72 years, it is evident that the vulnerability to diseases increases with advancing age. This aligns with findings by Hasan et al. (2020), which established that older citizens are more likely to be regular users of long-term medications due to age-related chronic illnesses. Our study corroborates this, with a third of the residents reporting illnesses such as dyslipidaemia, hypertension, convulsions, psychiatric disorders (anxiety, sleeping trouble), and asthma.

The healthcare needs of the elderly are inherently complex, especially when compounded by long-term illnesses, mental health issues, and physical disabilities. Residential and nursing care facilities play a crucial role in catering to the specialised medical requirements of elderly individuals. Dementia, a condition highlighted in our study, demands exceptional care to mitigate its adverse effects, including memory loss, behavioural changes, and challenges in communication and mobility, as detailed by Aggarwal et al. (2022). Additionally, schizophrenia, affecting two participants, further accentuates the multifaceted nature of mental health challenges in the elderly residing in care facilities.

The coordination of medications for the elderly is a formidable task, crucial for preserving their health. Our interviews revealed a discrepancy between self-reported medication adherence and actual medication tracking boards within the care facility. Although half of the respondents claimed to take only one medication, the board indicated that most required three to four medications. This inconsistency raises concerns about potential noncompliance, highlighting the need for vigilant monitoring and tailored interventions.

The quantity of prescribed medications appears to correlate with adherence behaviours among the elderly. Participants with a higher number of prescribed medications demonstrated a propensity for noncompliance, potentially linked to the complexity of their medication regimen or the cognitive impact of conditions such as dementia. This aligns with previous studies in Malaysia, indicating that the majority of elderly individuals take multiple medications, emphasizing the importance of personalized medication management (Omar et al., 2019; Hasan et al., 2020).

Caregivers play a pivotal role in medication management for the elderly yet face challenges in handling the responsibilities associated with caring for multiple residents. The intricate relationship between caregivers and residents in care homes underscores the need for addressing caregiver stress and ensuring effective communication to prevent missed doses.

Beyond the logistical challenges, the behavioural aspect emerges as a significant factor influencing medication adherence. Elderly individuals' reluctance to take medication, often due to taste or bitterness, poses a notable challenge for caregivers. Acknowledging and addressing these preferences and aversions are crucial in promoting effective medication administration and overall well-being among the elderly.

Our discussion therefore highlights the intricate interplay of factors influencing medication adherence among the elderly in care facilities. A holistic approach, considering both medical and behavioral aspects, is essential to develop tailored interventions that enhance medication management and overall healthcare outcomes for this vulnerable demographic.

### **Recommendations**

While acknowledging the commendable efforts of the caretakers in addressing the holistic needs of the residents, encompassing social, dietary, spiritual, and medication compliance aspects, there are opportunities for improvement that could significantly enhance the residents' overall quality of life.

Firstly, a key recommendation involves fostering a deeper understanding of the diseases among the senior citizens and elucidating the mechanisms of action of the prescribed medications. The importance of patient education in enhancing medication compliance cannot be overstated, as supported by findings from Rosli et al. (2022). A comprehensive understanding of their conditions and medications is integral to empowering residents and can positively impact their quality of life. This underscores the need for tailored educational programs or sessions that equip residents with the knowledge needed to actively participate in their healthcare journey.

Secondly, the responsibility for medication compliance should be a shared commitment between residents and caretakers. Implementing a system for both parties to monitor medication intake, along with tracking its effects and potential side effects, is crucial. Introducing a specialized alarm system could serve as a helpful reminder for residents, ensuring timely medication administration. This becomes especially vital for residents on antibiotics, where incomplete resolution of infections may occur, leading to potential complications and antibiotic resistance. Encouraging residents to maintain individual notebooks for recording medication side effects allows for a structured approach. Such records can be valuable for physicians to review, enabling informed decisions on medication adjustments based on the observed side effects. This proactive measure enhances communication between residents and healthcare providers, contributing to a more personalized and effective healthcare management plan.

The implementation of these recommendations aim to further empower residents in managing their health and foster collaborative efforts between residents and caretakers. Implementing these strategies can potentially elevate medication adherence and overall well-being among the elderly residents in the care facility.

### **Limitations**

While our study aimed to provide valuable insights, it is essential to acknowledge certain limitations that may impact the interpretation of the findings and the overall robustness of the study.

Firstly, the study's methodology involved a one-time visit to the old age centre, limiting the scope of data collection. This single visit may not capture the dynamic nature of the residents' experiences and behaviours over an extended period. A more prolonged and frequent observation period would offer a more comprehensive understanding of the various factors influencing medication adherence among the elderly.

Secondly, our study did not include a comprehensive assessment of residents' compliance with medication, particularly in response to the instilled understanding provided during our visit. Evaluating medication compliance over time would require continuous monitoring and follow-up, which was beyond the scope of this study. Future research endeavors should consider implementing long-term follow-up strategies to assess the sustained impact of educational interventions on medication adherence.

Thirdly, the study lacked specific measures to differentiate whether observed side effects of medication were directly related to the medication itself or influenced by other factors such as age or environmental conditions. Understanding the nuanced causes of side effects is crucial for tailoring interventions and ensuring optimal healthcare outcomes. Future research efforts could incorporate more sophisticated methodologies, such as controlled trials or detailed medical assessments, to discern the precise origins of observed side effects.

Thus, while this study provides valuable insights, the outlined limitations emphasize the need for caution in generalizing the findings. Addressing these limitations through refined research designs and prolonged observation periods will contribute to a more nuanced and comprehensive understanding of medication adherence among the elderly in care facilities.

### **Conclusion**

Senior citizens are characterized by heightened vulnerability to various diseases, especially chronic conditions, constitute a distinct and special population. This demographic often grapples with multiple medications to address the complexities of their health conditions. The physiological and metabolic intricacies of aging make this population susceptible to the progressive nature of diseases.

The administration of numerous medications, while vital for managing illnesses, introduces challenges such as side effects, potentially impacting the overall quality of life for seniors. However, advancements in tablet formulation technologies, specifically modified release technologies, have emerged as a beacon of progress. These innovations, encompassing extended release, delayed release, and sustained release formulations, contribute to a more optimized release profile. The resulting benefits include reduced dosing frequency, enhanced medication adherence, and a diminished risk of toxicity. These technological strides represent a promising avenue for improving the overall healthcare experience for the elderly.

In reflection, the words of Abu Huraira reporting from the Prophet Muhammad peace and blessings be on him, echo the profound truth that accompanies every ailment: "There is no disease that Allah has created, except that He also has created its treatment." This timeless wisdom emphasizes the ongoing pursuit of medical advancements to alleviate the burdens of illness and enhance the well-being of our senior citizens. As technology continues to evolve, the potential to further refine treatments and positively impact the lives of the elderly remains an encouraging prospect for the future.

### **Acknowledgments**

We wish to convey our heartfelt gratitude to the individuals and organizations whose contributions were integral to the successful culmination of our project on medication adherence among the elderly population. Foremost, our sincere appreciation goes to the elderly participants whose willingness to share their experiences, challenges, and insights played a

pivotal role in enriching our understanding of medication adherence in this demographic. Their openness and cooperation were invaluable contributions to the depth and authenticity of our study. Additionally, we extend our thanks to the staff and administrators of One Stop Home Care Centre, Sri Damai. Their facilitation of access to the elderly participants and provision of logistical support significantly contributed to the smooth execution of the data collection process. Their dedication and cooperation were indispensable in navigating the complexities of working within a care facility. This research paper is an initiative of the IIUM Ar-Rahmah Flagship 3.0 and is fully funded by the International Sponsored Research SPI22-118-0118-Biopsychospiritual Exploration and Application of Khushu': A Pilot Study.

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