



# Caregivers' Involvement in Medication Management of Elderly in Hospital Tuanku Fauziah, Kangar Perlis

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## Article Info

Received date: 05 Sep 2023  
Accepted date: 28 Nov 2024  
Published date: 31 Dec 2024

*Keywords: caregiver, elderly care, aging population*

## ABSTRACT

**Introduction:** The ageing population, defined as individuals aged 60 years or older, often manages multiple chronic conditions requiring complex medication regimens. Due to physical, cognitive, and functional limitations, many older adults rely on caregivers for medication management and healthcare assistance. Caregivers' involvement is crucial in ensuring treatment adherence and positive health outcomes. However, managing complex regimens can be challenging for caregivers, especially those balancing other responsibilities. Despite the importance of caregivers in medication management, limited research exists on their roles and challenges in supporting older adults. **Objective:** To explore caregivers' involvement in medication management of elderly patients with multiple chronic conditions and to identify the challenges faced by caregivers in managing older adult medications. **Method:** A qualitative study using semi-structured interview was conducted. 10 subjects were interviewed. Each interview session lasted between 30 to 45 minutes. Interviews were audio-recorded, transcribed verbatim and then coded according to themes. **Results:** Ten caregivers (mean age 43 years, 80% female) were interviewed, along with 11 elderly patients (mean age 83 years, 90% female). Caregivers' roles included general assistance, emotional support, and active involvement in health management, such as attending medical appointments and managing medications. Most caregivers reported challenges in administering medications due to patient emotions, medication taste, and the complexity of regimens. Strategies to overcome these challenges included preparing medications in advance and providing reminders. Financial difficulties were not a major barrier for most, though some caregivers cited occasional financial constraints. **Conclusion:** This study highlights the critical role of caregivers in managing older adults' medication, categorizing their involvement into active and peripheral roles. Caregivers provided essential support in medication management, healthcare visits, and emotional well-being, often adapting their schedules to accommodate caregiving responsibilities. Key challenges included managing the complexities of multiple medications, emotional distress in older adults, and balancing caregiving with work. Despite these challenges, caregivers played a pivotal role in ensuring medication adherence and optimizing therapy outcomes. The findings emphasize the need for better support systems and policies to assist caregivers in their multifaceted roles.

## INTRODUCTION

### Background

The elderly or ageing population is defined as individuals aged 60 years or older [1]. Most elderly take more than five medications [2] to manage multiple chronic diseases such as hypertension, diabetes mellitus, and orthopaedic problems. Chronic diseases limit older adult self-care abilities and other

functions leading to decrease in health-related quality of life over time [3]. Moreover, restriction in physical health, functional abilities, mental health, and cognitive functioning are the primary reasons why older adults need help from others [4].

Almost 8 million older adults with significant disabilities live in the community with help from family and unpaid caregivers. Caregivers provide not only assistance with daily activities but

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DOI: <http://dx.doi.org/10.52494/maljpharmv10203>

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also support with a range of health care activities, including physician visits, transitions between care settings, medical decisions, and medical tasks, such as injections, medication management, and wound care [4].

A study by Ferreira, J.M. et al., (2015) found higher Medication Regimen Complexity Index (MRCI) scores among older patients and those with multiple chronic conditions [5]. In reality, the majority of elderly are prescribed complex regime of medication, but have limited capabilities in managing them [6]. A.G.K. Beckman et al. (2004) reported that in a study assessing abilities related to medication adherence in the elderly population, 9.4% could not read instructions on a medicine container, and 14.6% had difficulty opening a plastic flip-top medicine bottle. 31.8% of the sample who did not pass all tests lived alone with no home-help [6]. Therefore, close contact or family members have been shown to play a significant role in this context. Caregivers' involvement in medication and health-related management lead to a positive treatment outcome and improved medication adherence [7]. However, healthcare providers should not assume that all caregivers are actively involved in medication administration but caregivers did take part in medication management and other activities of older adults. Given that many caregivers have other responsibilities, managing these complex regimens can be difficult and stressful [8].

Overall, there are limited studies on caregivers' involvement in medication management among older adults; however, some studies have explored the correlation between caregiver and older adult. A previous study by O'Connor et al., (2021) demonstrated that many elderly have difficulty performing the tasks, leading them to seek assistance from caregivers [7]. This qualitative study focused on the caregivers' involvement from several aspects in the medication management of elderly with multiple medications. More specifically it is aimed to (1) identify the roles carried out by caregivers when managing the patients, and (2) understand the challenges faced by caregivers in managing medications for older adults.

## METHODS

This study adhered to and reported findings according to the Consolidated Criteria for Reporting Qualitative Research (COREQ) guidelines [9].

### Design

A descriptive qualitative study was conducted using semi-structured interviews. The interview guide was adapted with permission from a previous study by O'Connor et al. (2021) to fit the research context [7]. To ensure linguistic and cultural accuracy, the semi-structured interview guide was translated into Malay by an English educator who holds a Bachelor's

degree in Education with Honours in Teaching English as a Second Language (TESL) and has credentials in English proficiency.

Before the main study, a pilot study was conducted using the translated semi-structured questions with a senior pharmacist at Hospital Tuanku Fauziah. This was done to ensure the clarity and comprehensibility of the questions. Participants were recruited until saturation was reached, meaning no new information or themes emerged during the interviews, and participants began providing repeated answers regarding their involvement in managing elderly medications.

### Sampling and recruitment

The study adopted a purposive sampling technique to select caregiver encounters at dispensing counters, medication therapy adherence clinics and during ward rounds. The purposes of conducting the research was explained prior to participation. Purposive sampling ensured that participants who were likely to provide rich information on the topic were included in the study [10]. Participants recruited met the inclusion criteria 1) Malaysian citizen, 2) over 18 years of age, 3) provided care for  $\geq 6$  months, 4) assisted with at least one activity of daily living, instrumental activity of daily living, or health management task. The sample size was determined based on data saturation, the point at which no new themes emerged from the data [11].

### Data collection

The interviews were done face-to-face in a counselling room inside the outpatient pharmacy department of Hospital Tuanku Fauziah, Kangar, Perlis during operating hours of pharmacy and on weekend, as well as via phone as requested by participants. The semi-structured interview format allowed for flexibility in gathering the required data. Each interview was conducted in Malay and lasted between 30 to 45 minutes. Interviews were done both face-to-face and via phone, based on the participants' preferences.

Written consent was obtained from each participant before the interview. In the case of phone interviews, participants were informed about the study, and verbal consent was obtained during the first encounter. Three investigators, including two provisionally registered pharmacists and one fully registered pharmacist, attended the interviews with the participants. Appointments were set based on the participants' schedules, and reminders (via phone calls or text messages) were sent a day before the interviews.

All interviews were audio-recorded with the participants' consent. Field notes were taken to capture non-verbal cues and contextual information, ensuring a comprehensive

understanding of the responses. In-depth interviews were employed as the primary data collection tool, as they allowed for honest and detailed responses from participants, fostering transparent interpretations [12].

**Data analysis**

The interview audio was transcribed verbatim using Microsoft Word and translated into English. Data were analyzed using thematic analysis, a method for identifying, analyzing, and reporting patterns within data [13], which provides flexibility in identifying both explicit and implicit themes. To ensure a systematic and rigorous approach to data management, coding was conducted using NVivo software [14]. Investigators thoroughly read the text to familiarize themselves with the data, generated codes to capture key points, and independently identified and classified recurring patterns into themes. The themes were then reviewed, named, and discussed among the investigators to reach a consensus.

This research was approved by the Medical Research and Ethics Committee, Ministry of Health, NMRR ID-22-00102-N9X.

**RESULTS**

**Demographic profiles**

The demographic characteristics of caregivers interviewed consisted of age, gender, race, education level, relationship with patient, and monthly income. Ten caregivers were interviewed. Their ages ranged from 26 to 61, with a mean age of 43 years; 80% were female, and 100% of the sample were Malay. See Table I for a full description.

The demographic characteristics of the patients under care of the caregivers consisted of age, gender, race, patient’s condition/disease and live/ not live with caregiver. Eleven patients were documented. Their age ranged from 69 to 82, with a mean age of 83 years; 90% were female, 100% of the sample were Malay. See Table II for a full description.

**Roles carried out by caregivers when managing the patients**

Caregiver’s comments about their roles in managing the patients fell into three major themes. Each of these are presented below.

**Table I. Demographics data of the caregivers. (N= 10 Caregivers).**

CHARACTERISTIC	NUMBER (%)
<b>GENDER</b>	
Male	2(20)
Female	8(80)
<b>RACE</b>	
Malay	10(100)
<b>AGE</b>	
Min	26
Mean	43
Max	61
<b>EDUCATION LEVEL</b>	
Secondary School	1(10)
SPM	3(30)
STPM	1(10)
Diploma	4(40)
Degree	1(10)
<b>INCOME (RM)</b>	
Min	1200
Mean	3525
Max	6000
<b>RELATIONSHIP WITH PATIENT</b>	
Daughter	7(70)
Son	2(20)
Daughter in law	1(10)

**Table II. Demographics data of the patient. (N= 11 Patients).**

CHARACTERISTIC	NUMBER (%)
<b>GENDER</b>	
Male	2(18)
Female	9(81)
<b>RACE</b>	
Malay	11(100)
<b>AGE</b>	
Min	69
Mean	83
Max	82
<b>PATIENT’S CONDITION/ DISEASE</b>	
Heart Disease	4
Dyslipidaemia	2
Hypertension	8
Stroke	2
Diabetes Mellitus	7
Chronic Kidney Disease	3
Joint Pain	1
Broken on the right thigh	1
<b>LIVE WITH CAREGIVERS</b>	
Yes	5
Yes (when not well)	1
No	5

*Theme 1: General and health-related assistance*

Our findings demonstrated that most caregivers were actively involved in providing general and health-related assistance.

*Subtheme 1.1: General assistance*

Most caregivers provided transportation for hospital visits and helped with house chores.

- “I did house chores, washed clothes, and tidied up the house. For food, in the past, my mother was healthy; she cooked because I worked. Sometimes, I bought the food and went to the market in the morning.” C6
- “She dragged a chair beside the stove, and I helped her get everything she needed for her cooking. For the laundry, we helped with washing, drying and folding.” C8
- “We transported by renting an ambulance or by car since my father was a stroke patient and bedbound.” C3

Few caregivers were involved in providing emotional support to the patients.

- “I spent a lot of time with her, communicated with her, and brought her for walks to relieve her stress. I opened the radio for her because she liked to listen to it.” C4
- “I gave emotional support because she lived with me.” C5

From the study, we found that involvement of caregivers in patient medication for the elderly started when they helped to take prescribed medications from the pharmacy, met with the prescribers during appointments, asked the prescribers or pharmacists for any ambiguities, and helped to administer or prepare the medications for the elderly. The caregivers admitted that they faced challenges while administering medications to the elderly sometimes due to the taste of the medications, and the quantity of medications to be taken at one time.

*Subtheme 1.2: Health management*

Most caregivers helped by taking prescribed medications from pharmacies.

- “Yes, I took the prescriptions myself and informed her how to take medications. I took care of everything by myself.” C2
- “If the doctor gave the prescription, I would go take the medication.” C5
- “If she went to see a doctor, she would take medicine herself. For follow-up medication, I would take it.” C7

The majority of caregivers met the prescribers during consultations or appointments.

- “I entered the doctor’s room along with my mother as long as I am allowed to because I was worried she might not understand what the doctor said, as my mother was an old woman.” C1

- “I met the doctor face-to-face. But due to COVID-19 pandemic, caregivers could not enter and meet doctors; only the patient could enter. If there was anything, the doctor would call me.” C5
- “I entered with the patient to meet the doctor.” C10

*Theme 2: Interaction with healthcare providers*

Based on our interviews, we found that most caregivers preferred direct interaction with healthcare providers during the hospital visits.

- “I never called the pharmacy or hospital to ask regarding medication/patient condition because I will ask everything thoroughly during the visit.” C1
- “I interacted face-to-face with a healthcare provider. Especially during fasting month, I went to the pharmacy counter and asked about diabetic medication on how to adjust the dose for insulin.” C8
- “I never called pharmacies or hospitals to ask about medication or patient conditions. During the visits to the doctor or pharmacy, everything was explained clearly; besides, the medications had their own labels. If there was any doubt, I asked face-to-face the healthcare provider at that time.” C9

*Theme 3: Medication assistance*

Most caregivers were involved in medication management activities but were not directly involved during medication taking and experienced challenges in providing the medications.

*Subtheme 3.1: Medication management*

Most caregivers were involved with medication management activities such as preparing and providing medications but did not directly administer them.

- “She took the medication by herself. I told her when and how many to take.” C2
- “I prepared one container for medication only. In the container, I separated the morning and night medications. I prepared the medication and then my mother took it. I put it beside her table; when she woke up, she took the medication.” C4

Meanwhile, some caregivers were directly involved in administering medications to the patient.

- “I gave one by one to her what she should take. She took the medication in front of me.” C5
- “I prepared the medicine for her now. In the past, she could take her medicine by herself.” C6

Some caregivers stated that patients knew how to take the medication themselves but required assistance with insulin injections.

- “She knew all about her medicine; she just did not want to inject insulin herself.” C7
- “The patient was able to manage her own medication; however, for the insulin part, we helped her every time with the injection as she was not good at it.” C9

One caregiver mentioned that the patient was able to manage her own medication.

- “She understood her medicine more than I did.” C10

### **Challenges faced by caregivers in managing older adult medications**

Caregivers’ comments about their challenges in managing older adult medications fell into three major themes. Each of these was presented below.

#### *Theme 1: Challenges in providing medications*

The majority of the caregivers faced different challenges in providing medications to the patient. The most commonly cited challenges were the patient’s emotional state when given the medications.

- “Sometimes, she was emotionally unstable, so I needed to entertain her first then slowly persuaded her.” C4
- “She was afraid of medication; sometimes she got angry and did not want to take it.” C5
- “She did not want to take medication, but I forced her to take it.” C6

Some caregivers stated that the patient refused medications due to their taste.

- “My mother complained that she was tired of taking medication and said her tongue tasted bitter after she took it.” C9
- “The taste of the medication was not good, sometimes she got tired of it.” C10

One caregiver had issues with the smell of the medication, leading them to find alternatives.

- “Patients disliked Neurobion as it had a smell; however, she never missed medication. We bought a medication named Neutrovils as a substitute for Neurobion.” C8

Meanwhile, a caregiver stated that the quantity of medication posed a challenge but was overcome by giving the patient some time.

- “There was a lot of medicine to take, so it was difficult when we wanted to give painkillers for knee pain. As it became too much, she would not take the medicine. I persuaded her and gave her some time.” C7

#### *Theme 2: Successful strategies/Activities*

Most caregivers had their own successful experiences with the patient when providing the medication assistance by ensuring the patient did not miss their medications.

- “I never missed taking warfarin medication every day at 6pm.” C1
- “I reminded her to take her medication and brought her to see the doctor.” C2
- “Physiotherapy, giving medication, feeding and taking care of my father’s hygiene.” C3
- “From a medication perspective, we missed monthly top up one or 2 days, but we made sure the medication was still there to take every day.” C8

#### *Theme 3: Difficult strategies/ Activities*

##### *Subtheme 3.1: Challenges in providing medication and methods to overcome*

The findings observed that the majority of caregivers faced difficulties in providing health and medication management but managed to overcome these challenges. Most caregivers had issues with their working schedules, leading them to prepare the medication before leaving for work.

- “I went to her house before work to give her medication and after work to check if she took it.” C1
- “I prepared early before I went to work. Then, I called her to take medication. Kind of giving a reminder for her to take medication.” C4
- “I am busy with my work. I worked at night, so for medication that needed to be taken at night, I gave it in the evening before I went to work.” C6

##### *Subtheme 3.2: Financial issue*

The majority of caregivers stated that financial status did not interfere with their ability to provide health assistance.

- “So far, there was no financial issue while taking care of my mother, as taking medication from the hospital did not cost a lot of money.” C1
- “No, because taking medicine did not cost any money.” C7

Meanwhile, some caregivers mentioned that their financial status may affect the care provided.

- “Financially, it was normal; sometimes it was enough, and sometimes it was not.” C4
- “Yes, finances were quite limited.” C5

## **DISCUSSION**

This qualitative study explored the caregivers' involvement, their roles and the challenges faced when managing older adult medications. We divided the caregiver roles into two categories: actively involved and peripherally involved. Actively involved was defined as caregivers who provided medications and general health-related assistance. Meanwhile, peripherally

involved was defined as caregivers' involvement in either medication assistance or general health-related assistance. From the medication management perspective in this study, caregivers were considered involved if they participated in any activities such as medications administration, preparing, and providing the medications.

### ***Roles carried out by caregivers when managing the patients***

#### **A. Caregivers involvement in healthcare visits and medication management**

The finding that caregivers provided transportation for hospital visits and assisted in managing medications aligned with research by Wolff et al. (2016), which highlighted that family caregivers frequently accompanied older adults to medical appointments and participated in medication management activities such as filling prescriptions and discussing medication plans with healthcare providers [15]. Caregivers often took responsibility due to the cognitive or physical decline of older adults, which limited their ability to manage their medications effectively. This finding was also consistent with a previous study that stated the physical aspects of managing medications could compromise visits to collect prescriptions and medications from pharmacies [16]. Most caregivers performed this task instead of older adults themselves. Caregivers were worried that older adults might not understand what the healthcare provider said, leading them to accompany older adults during consultations. A study among incapacitated adults mentioned that they might be overwhelmed by receiving difficult information during the visits with prescribers [17].

#### **B. Emotional support by caregivers**

Caregivers also mentioned that they were involved by providing emotional support to the patients. This agrees with a previous study where family caregivers for the elderly provided care and support in health, social, emotional, and financial domains, particularly for those who were delicate or suffered from chronic illness [18]. Another study also mentioned that emotional support could be regarded by an older adult as experiencing good health [19]. Furthermore, Brodaty and Donkin (2009), found that caregivers played a vital role in the emotional well-being of the elderly by providing reassurance, reducing anxiety, and helping them cope with their medical conditions [20]. Emotional support was identified as crucial for maintaining the elderly's sense of security and health. In another study, Mendes, R. et al., (2019) challenged the assumption that caregiving always had a positive emotional impact on older adults. Their study found that while some caregivers provided essential emotional support, others inadvertently increased stress by becoming overly controlling or by projecting their own anxieties onto the patient [21]. This

highlights the complexity of the caregiver-older adult relationship.

#### **C. Direct versus indirect interaction with healthcare providers**

For the theme of interaction with healthcare providers, we categorised the interaction into direct and indirect interaction. Direct interaction was defined as a caregiver interacting with a healthcare provider in person, while indirect interaction referred to communication with a healthcare provider done through other mediums, such as telephone calls. Our study reported that most caregivers preferred direct interaction with healthcare providers during the hospital visits. The majority mentioned that they never called healthcare providers to ask about medication or health conditions, as they would ask or listen to information explained during the visit themselves. This could be a good situation, as the doctor and pharmacist could explain directly to the caregivers regarding the patient's condition and medication. Inperson interaction could guarantee that correct information was delivered and increased confidence level for both healthcare providers delivering and caregivers receiving the information. While our study found that most caregivers preferred direct interaction with healthcare providers, Jaglal et al. (2014) reported that many caregivers, particularly those in rural or remote areas, relied on indirect interactions such as phone calls or telehealth consultations due to barriers like distance and time constraints [22]. This finding suggests that preferences for direct in-person interaction might vary based on caregivers' circumstances.

#### **D. Medication assistance by caregivers**

Regarding medication assistance, we observed that most caregivers were involved with medication assistance, even though they might not directly administer the medication to older adults themselves. Given that most caregivers had to juggle with other responsibilities, such as work, while handling older adults with chronic conditions who took more than five medications, they provided medication assistance to varying extents. A previous study stated that caregiving impacted caregivers' work and family finances, requiring them to balance their job and the care provided to family members [18]. Some caregivers prepared the medication beside the older adults' beds to make it easy for them to get it. Although they did not directly administer the medication, they ensured that the medication was arranged according to the time of administration by putting it in a pill box and reminding them to take it. There were also caregivers who directly administered the medication to older adults when they required specific assistance, such as insulin injections. One older adult that was capable of managing her medication herself, and the caregiver stated that the patient knew her medication better than the caregiver did. The finding that caregivers help ensure medication adherence is supported by Riffin, Wolff, and

Pillemer (2021) [23], who concluded that active involvement by caregivers in medication management leads to improved adherence to prescribed treatments among older adults, reducing the likelihood of adverse outcomes related to medication non-compliance. Elliott et al. (2017) contradicted the notion that most caregivers are actively involved in medication management [24]. Their study revealed that a significant proportion of caregivers, particularly those who are not immediate family members, felt unprepared or uncomfortable managing medications, leading them to adopt a more passive role or rely on professional healthcare providers for guidance. Meanwhile Golberstein et al. (2017) found that many older adults, especially those who are cognitively intact, prefer to maintain autonomy over their medication regimens and only seek assistance when absolutely necessary [25]. This contrasts with the assumption that caregivers must always intervene in medication management.

#### E. Challenge while providing medications

Caregivers faced difficulties with the patients' emotion while providing the medications. Most older adults experienced unstable emotions complicated by their chronic conditions. A study documented that from emotional perspectives, taking medication was perceived as a negative cue of their illness and a burden. Subjects mentioned that they felt negative when taking medication, such as frustration and embarrassment [26]. Meanwhile, another challenge was the taste of the medication that led older adults to refuse to take it. Some drugs have an unpleasant taste and may leave a bitter taste second to minutes after absorption. A study reported that the bitter taste of a drug may be affected by active substances, and some drugs may alter taste and smell sensation [27]. Another challenge was the smell of medications, which led caregivers to find alternative medications. It was important to note that caregivers should refer to healthcare providers if patients could not tolerate the medication and seek alternatives after discussing them with healthcare providers. Older adults with multiple chronic conditions were often prescribed with large quantities of medication. Another study mentioned that with more pills, it was more difficult to adhere to medication regimens and some expressed their fear that the number of medications would increase with increase with age [28]. Roth et al. (2017) found that caregivers commonly experienced difficulties managing complex medication regimens for elderly patients, particularly those with multiple chronic conditions [29]. They emphasized that the sheer number of medications can overwhelm both patients and caregivers, a challenge also highlighted in our discussion. In our study, caregivers opted to give older adults time to take their medications. Caregivers could arrange the timing of administration to reduce the amount of medication taken at the same time while ensuring older adults took the medication as prescribed. This was also important, as certain

medications should not be taken together to reduce drug interactions.

#### F. Successful events while providing medications

The majority of caregivers stated their successful events as being able to ensure that the patients did not miss the medications. Involving caregivers in medication management had a positive impact in improving medication adherence among older adults and optimising medication therapy. Successful caregiver assistance has been associated with positive results for older adults, including better adherence to treatment plans and enhanced physical functioning [23]. Another finding reported that assistance and support from companions and family have been linked to promoting patient adherence [30].

#### G. Caregivers' Burden and Impact on Employment

This study reveals that most caregivers mentioned their working schedules required them to adjust medication management activities accordingly. A study reported that a common problem faced by caregivers was blending working administration timetables into caregiving routines, where most caregivers handled by planning medication schedules [31]. The finding that caregivers faced challenges balancing caregiving responsibilities with work is supported by Lai (2012) and Schulz and Sherwood (2008) [18, 32]. These studies found that caregiving often disrupted work routines and impacted caregivers' financial and social lives. Many caregivers experienced stress, financial strain, and fatigue due to the dual responsibility of caregiving and maintaining employment, which negatively affected their quality of life. However, they still ensured that older adults took their medications as prescribed. Other related caregiving expenses such as transportation, nonprescription medications, medical supplies, prescription medications, equipment, and homemaking supplies could also affect financial sufficiency [33]. However, there was not much burden regarding medication costs, as hospitals provided medications for free. In Malaysia, medical care is heavily subsidised by the public healthcare system. All Malaysian citizens, nonetheless of their salaries, have access to medical care at government hospitals and clinics, where they need to pay a minimum of Ringgit Malaysia (RM) 1 to RM5 (USD 0.25 to 1.24) per visit [34]. However, these financial challenges and impacts, if unaddressed, will further hinder caregivers' capacity and endurance to support the elders in their communities. Policies and programs are needed to address the financial needs and security of these family caregivers [18].

Our result demonstrates that the majority of caregivers can be classified as actively involved, as they provided both medications and general health-related assistance to older adults. However, a caregiver fell into the peripherally involved category, as there was one older adult who was able to perform

medication management activities without assistance from the caregiver.

### Limitations

The strength of this study was the in-depth interviews, which allowed participants to openly express their honest opinions and experiences without bias. However, there were several limitations when conducting this study, including a small sample size of caregivers who could speak both English and Malay, as well as the complexity of medication regimens for individuals aged 65 years and above who regularly attended routine check-ups in Hospital Tuanku Fauziah, Perlis. Therefore, the results cannot be generalised. We only interviewed caregivers, whose responses were based on their experiences or opinions without considering any perspectives from older adults. Furthermore, there are limited previous studies related to caregivers' involvement in medication management among older adults. Future studies should be carried out to determine the correlation between caregivers' involvement in medication management and older adults' perspectives, providing a better understanding among healthcare professionals of caregivers' roles in improving older adult treatment and optimising the medication therapy.

### CONCLUSION

In conclusion, this study highlights the significant involvement of caregivers in managing older adults' medications, identifying both active and peripheral roles. Most caregivers were actively involved, providing both medication-related and general healthcare assistance, often compensating for the physical and cognitive decline in older adults. Caregivers played crucial roles during healthcare visits, in medication preparation, and in providing emotional support, helping to ensure adherence to treatment plans and improving patient outcomes. However, challenges such as managing complex medication regimens, dealing with patient emotions, and balancing caregiving with employment responsibilities were common. These challenges sometimes strained caregivers' ability to maintain both their personal and professional lives. While caregivers were generally successful in supporting medication adherence, they also faced difficulties with financial and emotional burdens, underscoring the need for policies and programs to support them. Overall, this study demonstrates the critical role caregivers play in ensuring the well-being of older adults, despite the challenges they face in their dual responsibilities.

### ACKNOWLEDGEMENT

This research work was supported by Department of Pharmacy, Hospital Tuanku Fauziah, Kangar, Perlis.

### CONFLICT OF INTEREST

No conflict of interest declared.

### REFERENCE

- [1] Karim, H.A., The elderly in Malaysia: demographic trends. *Med J Malaysia*, 1997. 52(3): 206-12. <https://www.e-mjm.org/1997/v52n3/Elderly.pdf>
- [2] Weng, M.-C., et al., The impact of number of drugs prescribed on the risk of potentially inappropriate medication among outpatient older adults with chronic diseases. *QJM: An Int. J. Med.*, 2013. 106(11): 1009-1015. <https://doi.org/10.1093/qjmed/hct141>
- [3] Alqahtani, J. and I. Alqahtani, Self-care in the older adult population with chronic disease: concept analysis. *Heliyon*, 2022. 8(7): e09991. <https://doi.org/10.1016/j.heliyon.2022.e09991>
- [4] Wolff, J., et al., A National Profile of Family and Unpaid Caregivers Who Assist Older Adults With Health Care Activities. *JAMA Intern. Med.*, 2016. 176. <https://doi.org/10.1001/jamainternmed.2015.7664>
- [5] Ferreira, J.M., D. Galato, and A.C. Melo, Medication regimen complexity in adults and the elderly in a primary healthcare setting: determination of high and low complexities. *Pharm Pract (Granada)*, 2015. 13(4): 659. <https://doi.org/10.18549/pharmpract.2015.04.659>
- [6] Beckman, A.G.K., M.G. Parker, and M. Thorslund, Can elderly people take their medicine? *Patient Educ Couns*, 2005. 59(2): 186-191. <https://doi.org/10.1016/j.pec.2004.11.005>
- [7] O'Connor, R., et al., Caregiver involvement in managing medications among older adults with multiple chronic conditions. *J Am Geriatr Soc*, 2021. 69(10): 2916-2922. <https://doi.org/10.1111/jgs.17337>
- [8] Kuharic, M., et al., Care recipient self-perceived burden: Perspectives of individuals with chronic health conditions or personal experiences with caregiving on caregiver burden in the US. *SSM - Qual Health Res*, 2024. 5: 100398. <https://doi.org/10.1016/j.ssmqr.2024.100398>
- [9] Tong, A., P. Sainsbury, and J. Craig, Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care*, 2007. 19(6): 349-357. <https://doi.org/10.1093/intqhc/mzm042>
- [10] Patton, M.Q., *Qualitative Research & Evaluation Methods*. 2001: SAGE Publications. <https://aulasvirtuales.files.wordpress.com/2014/02/qualitative-research-evaluation-methods-by-michael-patton.pdf>
- [11] Guest, G., A. Bunce, and L. Johnson, How Many Interviews Are Enough?: An Experiment with Data Saturation and Variability. *Field Methods*, 2006. 18(1): 59-82. <http://dx.doi.org/10.1177/1525822X05279903>
- [12] Svend Brinkmann, S.K., *Interviews: Learning the Craft of Qualitative Research Interviewing*. Third ed. 2014. <http://dx.doi.org/10.1002/nha3.20251>
- [13] Braun, V. and V. Clarke, Using thematic analysis in psychology. *Qual. Res. Psychol*, 2006. 3:77-101. <http://dx.doi.org/10.1191/1478088706qp063oa>
- [14] International, Q., NVivo (Version 12) [Software]. 2020.
- [15] Wolff, J.L., J. Feder, and R. Schulz, Supporting family caregivers of older Americans. *N. Engl. J. Med.*, 2016. 375(26): 2513-2515. <https://doi.org/10.1056/nejmp1612351>
- [16] Wilson, E., G. Caswell, and K. Pollock, The 'work' of managing medications when someone is seriously ill and dying at home: A longitudinal qualitative case study of patient and family perspectives'. *Palliat Med*, 2021. 35(10): 1941-1950. <https://doi.org/10.1177/02692163211030113>
- [17] Robben, S., et al., Preferences for receiving information among frail older adults and their informal caregivers: a qualitative study. *Fam Pract*, 2012. 29(6): 742-747. <https://doi.org/10.1093/fampra/cms033>



- [18] Lai, D.W., Effect of financial costs on caregiving burden of family caregivers of older adults. *Sage Open*, 2012. 2(4): 2158244012470467. <https://doi.org/10.1177/2158244012470467>
- [19] Pejner, M.N., K. Ziegert, and A. Kihlgren, Trying to cope with everyday life—Emotional support in municipal elderly care setting. *Int J Qual Stud Health Well-being*, 2012. 7(1): 19613. <https://doi.org/10.3402/qhw.v7i0.19613>
- [20] Brodaty, H. and M. Donkin, Family caregivers of people with dementia. *Dialogues Clin. Neurosci*, 2009. 11(2): 217-228. <https://doi.org/10.31887/dcns.2009.11.2/hbrodaty>
- [21] Mendes, R., S. Martins, and L. Fernandes, Adherence to Medication, Physical Activity and Diet in Older Adults With Diabetes: Its Association With Cognition, Anxiety and Depression. *J Clin Med Res*, 2019. 11(8): 583-592. <https://doi.org/10.14740/jocmr3894>
- [22] Jaglal, S.B., et al., Increasing access to chronic disease self-management programs in rural and remote communities using telehealth. *Telemed E-Health*, 2013. 19(6): 467-473. <https://doi.org/10.1089/tmj.2012.0197>
- [23] Riffin, C., J.L. Wolff, and K.A. Pillemer, Assessing and addressing family caregivers' needs and risks in primary care. *J Am Geriatr Soc*, 2021. 69(2): 432-440. <https://doi.org/10.1111/jgs.16945>
- [24] Cross, A.J., et al., Interventions for improving medication-taking ability and adherence in older adults prescribed multiple medications. *Cochrane Database Syst Rev*, 2020. 5(5): Cd012419. <https://doi.org/10.1002/14651858.cd012419.pub2>
- [25] Golberstein E, Grabowski DC, Langa KM, Chernew ME. Effect of Medicare home health care payment on informal care. *Inquiry*. 2009 Spring;46(1):58-71. [https://doi.org/10.5034/inquiryjrnl\\_46.01.58](https://doi.org/10.5034/inquiryjrnl_46.01.58)
- [26] Easthall, C., N. Taylor, and D. Bhattacharya, Barriers to medication adherence in patients prescribed medicines for the prevention of cardiovascular disease: a conceptual framework. *Int J Pharm Pract*, 2019. 27(3): 223-231. <https://doi.org/10.1111/ijpp.12491>
- [27] Schiffman, S.S., Influence of medications on taste and smell. *WJOHNS*, 2018. 4(01): 84-91. <https://doi.org/10.1016/j.wjorl.2018.02.005>
- [28] O'Quin, K.E., T. Semalulu, and H. Orom, Elder and caregiver solutions to improve medication adherence. *Health Educ Res*, 2015. 30(2): 323-35. <https://doi.org/10.1093/her/cyv009>
- [29] Roth, D.L., et al., Family caregiving and emotional strain: Associations with quality of life in a large national sample of middle-aged and older adults. *Qual Life Res*, 2009. 18: 679-688. <https://doi.org/10.1007/s11136-009-9482-2>
- [30] DiMatteo, M.R., Social support and patient adherence to medical treatment: a meta-analysis. *Health Psychol*, 2004. 23(2): 207. <https://doi.org/10.1037/0278-6133.23.2.207>
- [31] Travis, S.S., L.S. Bethea, and P. Winn, Medication administration hassles reported by family caregivers of dependent elderly persons. *The J. Gerontol Series A: Biological Sciences and Medical Sciences*, 2000. 55(7): p. M412-M417. <https://doi.org/10.1093/gerona/55.7.m412>
- [32] Schulz, R. and P.R. Sherwood, Physical and mental health effects of family caregiving. *Am J Nurs*, 2008. 108(9 Suppl): 23-7. <https://doi.org/10.1097/01.NAJ.0000336406.45248.4c>
- [33] Hollander, M.J., G. Liu, and N.L. Chappell, Who cares and how much. *Healthc. q*, 2009. 12(2):42-49. <https://doi.org/10.12927/hcq.2009.20660>
- [34] Aziz, H., et al., Qualitative exploration of the modifiable factors for medication adherence among subsidised and self-paying patients in Malaysia. *BMC Health Serv. Res*, 2018. 18:1-8. <https://doi.org/10.1186/s12913-018-3417-y>