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# Medication knowledge and communication patterns among older adult patients in Mogadishu, Somalia

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## Abstract

# Objectives

To evaluate older adult patients' communication habits, information sources, and medication knowledge at four major hospitals in Mogadishu, Somalia.

# Methods

A cross-sectional descriptive study was conducted among patients aged 65 years and older in Shaafi Hospital, Somali Sudanese Hospital, Martini Hospital, and Aden Adde Hospital. Data were collected through structured questionnaire focusing on patients' understanding of their medications, the sources they rely on for medication-related information, and their communication experiences with healthcare professionals.The data were entered and analyzed using SPSS software. Descriptive statistics and logistic regression models were used to show the findings and investigate connections between patient characteristics and medication knowledge levels.

# Results

Among 200 elderly participants (mean age: 70.2 ± 6.8 years; 59% male), 55% of them were taking ≥ 3 medications, with antibiotics (63%) and antihypertensives (60.5%) most commonly used. Only 20% demonstrated "good" medication knowledge, while 60.5% were unable to name their medications and 75% were unaware of side effects. Furthermore, healthcare provider communication was suboptimal: 51% received medication education, primarily from doctors (32.5%), while only 1.5% received education from pharmacists .

# Conclusions

In summary, this study pinpointed a critical shortage in medication knowledge among older adults in Mogadishu, worsened by poor healthcare communication and an insignificant role for pharmacists. These findings emphasize a pressing need for structured patient education programs and a reinforced multidisciplinary approach to care. Enhancing medication knowledge is crucial for improving patient safety in this vulnerable population.

## Background

The world's population is aging, and according to the World Health Organization (WHO), there will be 400 million people 80 years of age or older by 2050, and those of 60 and older will double [1]. Older adults (referred to as a person aged 65 years or more) form a greater proportion of the population with chronic diseases and multiple morbidities resulting in polypharmacy [2]. Globally, the number of older adults with numerous illnesses is steadily rising. The relationship between the number of medications and the number of illnesses in correlation with geriatric patients as they age per year is still a major concern [3]. Adequate patient knowledge about medications is essential for appropriate drug taking behavior and patient adherence, hence decreasing the use of medical resources, hospital admissions and treatment failure [4].

Many elderly individuals lack sufficient knowledge regarding various aspects of medication management, including proper administration, potential side effects, and interactions with other prescriptions. This deficiency in

medication knowledge can adversely affect drug adherence and patient safety. Inadequate understanding of prescribed medications may result in suboptimal health outcomes and non-adherence to prescriptions [5]. Providing patients with comprehensive information is a critical component of the prescribing and administration process. Research by Batbaatar et al. (2017) and Becker et al. (2021) indicates that equipping older adults with adequate information on managing their prescriptions can enhance their satisfaction with care experiences, which are vital indicators of the safety and quality of their treatment [6, 7].

It is the responsibility of health care providers to deliver adequate education to patients on their health conditions and prescribed medications [8]. Poor communication between the health care providers and patient is associated with increased rates of hospitalization, improper management of chronic conditions, higher morbidity, and mortality [8, 9, 10]. Promoting safe and effective treatment for older adults requires an understanding of how they use and manage their drugs, particularly in environments with limited healthcare resources.

Despite its importance, evidence from Somalia on older adults' level of medication knowledge, their main sources of drug-related information, and their communication with healthcare practitioners are, nevertheless, is lacking. This study addresses this gap by examining these factors, providing better understanding of how older adults in this setting manage and discuss their medications.

## Methods

Study Design and Setting

A cross-sectional study was conducted over four months in 4 hospitals in Mogadishu, Somalia: Shaafi Hospital, Somali Sudanese Hospital, Martini Hospital, and Aden Adde Hospital.Inclusion criteria were adults aged ≥ 65 years,and able to provide informed consent. Individuals with known cognitive impairment and those unwilling to particiapte were excluded.

Sample Size Determination

Using the single population proportion formula, the sample size was determined

$$n = \frac{Z^2 \cdot p(1-p)}{e^2}$$

With Z = 1.96 (95% confidence level), p = 0.5 (due to lack of prior data), and e = 0.05. The initial sample size was 385. Given the estimated population of 400 geriatric patients in the study period, a finite population correction yielded an adjusted sample size of 196, which was rounded upto to 200 to to ensure adequate sample size and account for potential nonresponse.

Data Collection

Data were collected using a structured, interviewer-administered questionnaire from January to April 2025. The questionnaire used in this study was developed by the authors based on the study objectives and relevant literature. An English version of the questionnaire is provided as Supplementary File 1. The questionnaire was composed of three sections. The first captured the sociodemographic characteristics, medical history, and

patterns of medication use. The second assessed medication knowledge, including identification, indication, correct use and potential side effects. We also evaluated the sources of medication related information. The final evaluated experiences with communication and counseling from health providers. The questionnaire was pretested in a pilot sample and revised accordingly.

# Data Analysis

Statistical Package for the Social Sciences (SPSS) version 21 was used to analyze the data. Patient characteristics and knowledge levels were summed together using descriptive statistics (frequencies, percentages). To investigate relationships between knowledge and variables like gender, education, and interactions with healthcare professionals, binary logistic regression was used. Tables and figures were used to display the results, and $p < 0.05$ was used to determine statistical significance.

## Results

Socio-Demographic Characteristics of Patients

The study comprised 200 individuals aged ≥ 65 years. 74% of them were between the ages of 65 and 75, and the majority (59%) were male. The majority of respondents had informal education (55.5%), lived in cities (66.5%), were married (63%) and 61.5% were unemployed. Nearly all of participants (99%) lived with family (Table 1).

Table 1
Demographic characteristics among respondents

| Parameter | Frequency (N) | Percentage (%) |
|---|---|---|
| Age | 148 | 74 |
| 65–75 | | |
| 76–80 | 40 | 20 |
| <80 | 12 | 6 |
| Gender | | |
| Female | 82 | 41 |
| Male | 118 | 59 |
| Marital status | | |
| Single | 7 | 3.5 |
| Married | 126 | 63 |
| Divorced | 27 | 13.5 |
| Widowed | 40 | 20 |
| Educational level | | |
| Informal | 111 | 55.5 |
| Primary | 39 | 19.5 |
| Secondary | 33 | 16.5 |
| University | 17 | 8.5 |
| Employment status | | |
| Employee | 77 | 38.5 |
| Unemployed | 123 | 61.5 |
| Residence | | |
| Urban | 133 | 66.5 |
| Rural | 67 | 33.5 |
| Economic status | | |
| Sufficient | 109 | 54.23 |
| Insufficient | 92 | 45.77 |
| Living arrangement | | |
| With family | 198 | 99 |
| Alone | 2 | 1 |

## Clinical and Medication Characteristics

Half (51%) of the participants took three medications daily, while 55% had at least three diagnosed conditions. Antibiotics accounted for 63% of prescribed drugs, followed by antihypertensives (60.5%) and hypoglycemic agents (56%) (Fig. 1). Interestingly, 37% reported irregular usage of 1–2 drugs, and 70.5% needed help with medication intake (Table 2).

Table 2
Medication intake characteristics and associated diagnosis.

| Parameter | Frequency (N) | Percentage (%) |
|---|---|---|
| Number of diagnosed conditions | | |
| Two | 90 | 45 |
| Three or more | 110 | 55 |
| Number of medications taken regularly | | |
| Two | 44 | 22.0 |
| Three | 103 | 51.0 |
| Four | 47 | 24.0 |
| Five or more | 5 | 2.5 |
| One | 1 | 0.5 |
| Number of medications taken irregularly | | |
| One | 75 | 37.0 |
| Two | 74 | 37.0 |
| Three | 13 | 6.5 |
| Four | 35 | 17.5 |
| Five or more | 3 | 1.5 |
| Method of medication intake | | |
| With assistance | 141 | 70.5 |
| Without assistance | 59 | 29.5 |

## Medication Knowledge

Overall, 80% had poor medication knowledge (Fig. 2). Knowledge gaps were significant: only 39.5% could name their medications, 45.5% understood their purpose, and 25% were aware of potential side effects. Additionally, 44% knew how to respond to side effects. (Table 3).

Table 3
Medication knowledge

| Parameter | Frequency | Percentage |
|---|---|---|
| Can you list the names of medication you currently take | | |
| Participant knows the name of drugs or generic name | 79 | 39.5 |
| Doesn’t know | 121 | 60.5 |
| Can you tell me why you taking this medication | | |
| Participant can describe the purpose of medication | 91 | 45.5 |
| Doesn’t know | 109 | 54.5 |
| Do you know when to take your medication | | |
| Participant knows the timing | 97 | 48.5 |
| Doesn’t know | 103 | 51.5 |
| Do you know the possible side effects of your medication | | |
| Participant is aware of possible side effects | 50 | 25 |
| Doesn’t know | 150 | 75 |
| Do you know what to do if side effects occur | | |
| Participant would consent a doctor or pharmacist | 88 | 44 |
| Doesn’t know | 112 | 56 |

Education and Communication with Healthcare Providers

Overall, 51% of the patients received medication education, primarily from doctors (32.5%) and nurses (16%) withonly 1.5% pharmacists as a source (Table 4). 76.5% of the patients expressed a desire for more education (Fig. 3.).

Table 4
Education and counselling regarding medications

| Parameters | Frequency | Percentage |
|---|---|---|
| Have you ever received education or counselling about your medication | | |
| Yes | 102 | 51 |
| No | 98 | 49 |
| If yes who provided the education | | |
| Doctors | 65 | 32.5 |
| Nurse | 32 | 16.0 |
| Pharmacist | 3 | 1.5 |
| Others | 2 | 1.0 |
| Those who said no | 98 | 49.0 |

Factors Associated with Medication Knowledge

Binary logistic regression analysis was performed to identify factors associated with patients' knowledge of their medications. Variables included education level, employment status, residence, economic status, frequency of communication with healthcare providers, and perceived adequacy of medication information.Detailed results are presented in Table 5.

Table 5
Binary logistic regression analysis

| Variables | N % | Knowledge of Medication Status | | 0R (95%CI) | P value |
|---|---|---|---|---|---|
| | | Poor | Good | | |
| Education level | | | | | |
| Informal | 111(55.5) | 102(63.8) | 9(22.5) | 0.8 (0.24–0.253) | < 0.001 |
| Primary | 39(19.5) | 21(13.1) | 18(45.0) | 0.76 (0.243–2.386) | 0.641 |
| Secondary | 33(16.5) | 29(18.1) | 4(10.0) | 0.123 (0.030–0.504) | 0.004 |
| University | 17(8.5) | 8(5.0) | 9(22.5) | 1 | |
| Employment | | | | | |
| unemployed | 123(61.5) | 111(69.4) | 12(30.0) | 1 | |
| employee | 77(38.5) | 49(30.6) | 28(70.0) | 5.29 (2.484–11.284) | < 0.0001 |
| Residence | | | | | |
| Urban | 133(66.5) | 99(61.9) | 34(85.0) | 1 | |
| Rural | 67(33.5) | 61(38.1) | 6(15.0) | 3.492 (1.385–8.802) | 0.008 |
| Economic Status | | | | | |
| Sufficient | 111(55.5) | 72(45.0) | 39(97.5) | 1 | |
| insufficient | 89(44.5) | 88(55.0) | 1(2.5) | 0.21 (0.03–0.156) | < 0.001 |
| How often do communicate with your healthcare provider about your medication | | | | | |
| Engaged | 168(84.0) | 129(80.6) | 39(97.5) | 1 | |
| Not engaged | 32(16.0) | 31(19.4) | 1(2.5) | 0.1.7 (0.014–0.807) | 0.030 |
| Do you have enough information to take your medication safely and effectively | | | | | |
| Yes, I feel fully informed | 85(42.5) | 64(40.0) | 21 (52.5) | 1 | |
| Somewhat informed but have questions | 60(30.0) | 45(28.1) | 15 (37.5) | 1.02(0.5–2.19) | 0.968 |
| No, I don't feel inadequately informed | 55(27.5) | 51(31.9) | 4 (10.0) | 0.24(0.08–0.74 | 0.013 |

## Discussion

One of the key findings of this study is the markedly limited medication knowledge among older adults in Mogadishu, Somalia. The majority of the participants (80%) exhibited inadequate knowledge, with only 20% demonstrating good understanding. This is consistent with findings from Salih & Ismail (2022), who reported similar low levels of medication knowledge among elderly patient in Iraq, where only 7 percent demonstrated a high knowledge score [11].

Significant gaps were evident across multiple domains of medication understanding. in patients' knowledge regarding their prescribed medications. Notably, 60.5% of participants were unable to name their medications, consistent with findings by Ali et al. (2023), in which only 15.38% of patients could accurately recall medication names [12]. Furthermore, over 50% of patients in our study could not identify the purpose of their medications or recall dosing schedules. Comparable results were reported by Ali et al., where only 26.1% of patients understood the indications for all prescribed medications[12].

Knowledge of medication safety was also limited in our study. Our results indicated that a large proportion of patients (75%) were unaware of potential side effects, and 56% did not know what actions to take if side effects occurred, consistent with gaps in medication knowlegde reported elsewhere [12]. These findings are concerning as older adults are particularly vulnerable to adverse drug events due to age-related changes in pharmacokinetics and pharmacodynamics [13].

The current study identified education level, employment status, economic status, residence, and patient–provider communication as key factors influencing medication knowledge among older adults. Education showed a particularly strong correlation, with participants having informal or secondary education being significantly less likely to possess good medication knowledge compared to those with a university education. This finding is particularly relevant in the Somali context, where national statistics indicate relatively low literacy rates among older adults [14]. Additionally, this observation aligns with findings by Alkatheri and Albekairy (2013), who demonstrated that higher educational attainment was positively associated with better medication knowledge [15]. Limited health literacy can significantly impede an individual's ability to comprehend medication instructions, including dosage and purpose, and to recognize potential adverse effects, thereby increasing the risk of inappropriate medication use [16, 17].

In the regression model, employment status emerged as the most significant factor, with employed individuals having over five times the likelihood of possessing good medication knowledge. This may be due to enhanced socioeconomic stability, increased exposure to health information, and more frequent interactions with healthcare services. Conversely, inadequate income was linked to significantly lower odds of good knowledge, emphasizing the impact of socioeconomic factors on access to medication counseling and healthcare resources. Living in urban areas was positively linked to medication knowledge, possibly indicating differences in healthcare accessibility between urban and rural regions. Notably, communication-related factors were significant predictors. Participants who were not actively engaged with healthcare providers or felt inadequately informed were much less likely to have good medication knowledge. These findings highlight the crucial role of effective patient-provider communication as a potentially modifiable factor for enhancing medication safety among older adults.

A key point is the importance of educating patients about their illnesses, regardless of their backgrounds, especially in chronic conditions where patients may not fully understand why they are taking their medications [18]. Nearly half of the patients (49%) in our study reported not receiving any education or counseling about their

medications. This finding reveals a significant gap in structured patient education among geriatric patients in selected hospitals in Mogadishu, Somalia. Among those who did receive counseling in our study, most received it from doctors (32.5%), followed by nurses (16%), and very few from pharmacists (1.5%), highlighting the limited role of pharmacists in patient education. Another study found that fifty-two percent of the patients reported that their general practitioner was the primary source of their medication knowledge, indicating a high level of trust in prescribers, particularly general practitioners (GPs), who also contributed most to patients' medication knowledge in our study [19]. This pattern suggests that medication education in the study setting is predominantly physician-centered, with minimal involvement of pharmacists in patient counseling activities. Taibanguay et al. (2019) in Thailand reported that educating patients with rheumatoid arthritis significantly improved adherence to treatment [20]. While participants who received education or counseling in our study tended to have better medication knowledge, the association was not statistically significant, suggesting that the quality and consistency of counseling may be lacking. Previous studies have shown that counseling by pharmacists can enhance medication knowledge, highlighting the potential value of more structured and frequent patient education [21–24]. Additionally, 76.5% of the patients expressed a desire for more information underscores that current communication does not fully satisfy patients' informational needs. These findings stress the necessity for clearer, more patient-centered communication approaches tailored to older adult populations.

## Conclusion

In conclusion, this research identifies a critical gap in medication safety for older adult patients in certain hospitals in Mogadishu, Somalia. Most elderly patients have alarmingly low understanding of their medication regimens. This lack of knowledge is further worsened by inadequate communication from healthcare providers. The discovery that only half of the participants received any form of medication education, with pharmacists contributing minimally, points to a systemic breakdown in patient-provider interactions. These findings highlight the pressing need for organized, multidisciplinary intervention strategies in Somali healthcare environments. We strongly advocate for the implementation of standardized patient education protocols, the increased involvement of clinical pharmacists in direct patient care, and the training of physicians and nurses in effective communication techniques specifically designed for older adults. Enhancing medication literacy is not just an educational objective but a crucial requirement for improving the quality of care and patient safety for Somalia's growing elderly population. Future studies should aim to develop and assess the effectiveness of such interventions within this particular context.

## Declarations

# Ethics approval and consent to participate

The study was conducted in accordance with the Declaration of Helsinki, and ethical approval was obtained from the Institutional Review Board (IRB) of SIMAD University in Mogadishu, Somalia (Ref.: 2025/SU-IRB/FMHS/P0026). All individual participants were consulted, clarified, and accepted participation in the study by signing an Informed Consent Form.

# Consent for publication

Not applicable.

**Competing interests**

The authors declare no competing interests.

# Funding

No funding was received for this study.

# Author Contribution

Z.S. conceptualized the study, designed the methodology, supervised data analysis, and drafted the manuscript. S.A.M. and A.D.H., contributed to data collection, manuscript review, and editing. J.H., and A.A.A. contributed to manuscript review, and editing. All authors approved the final manuscript.

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# Data Availability

Data will be available upon reasonable request from the corresponding author.

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## Figures

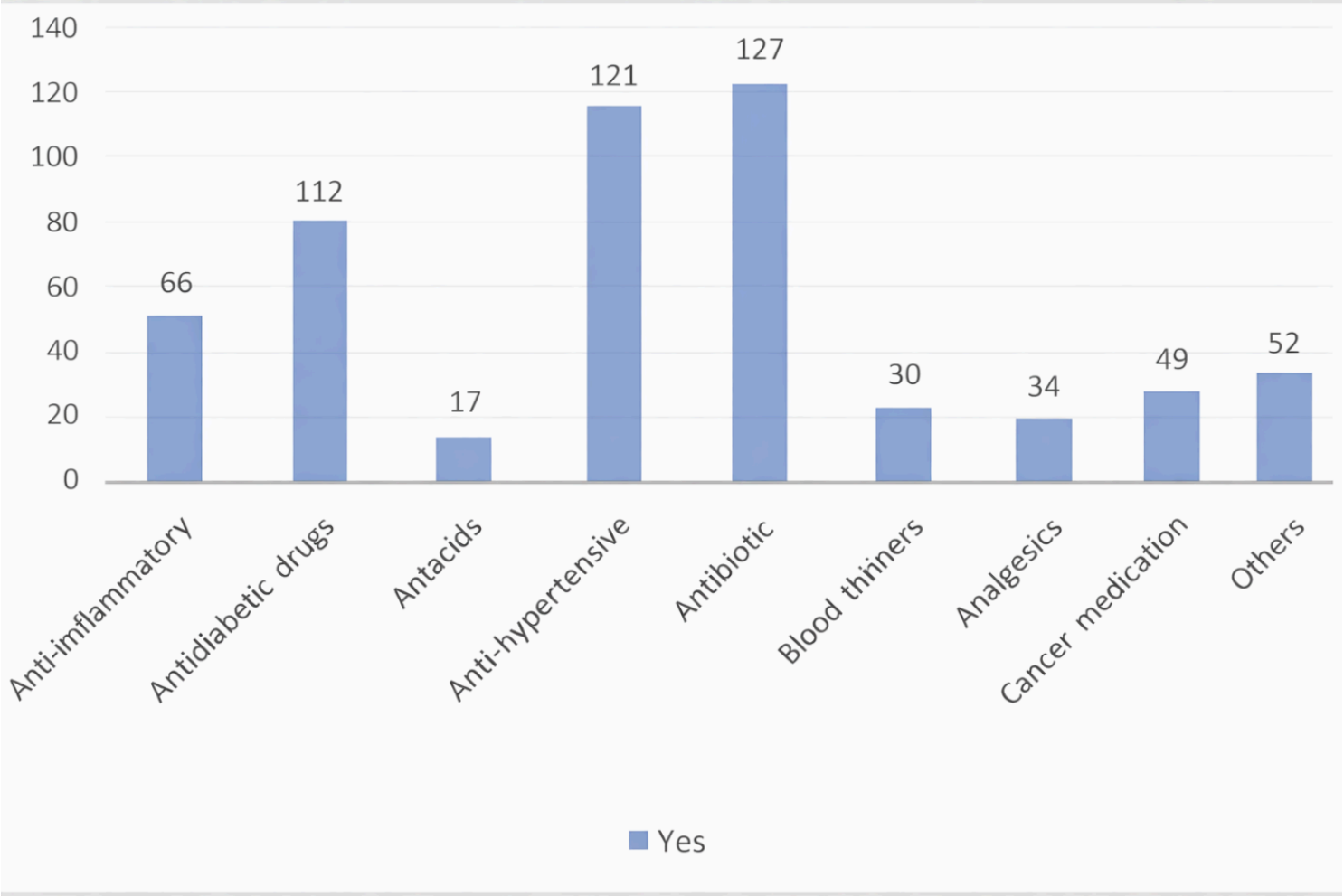



**Figure 1**

Most frequently prescribed medication classes among geriatric patients in the study.

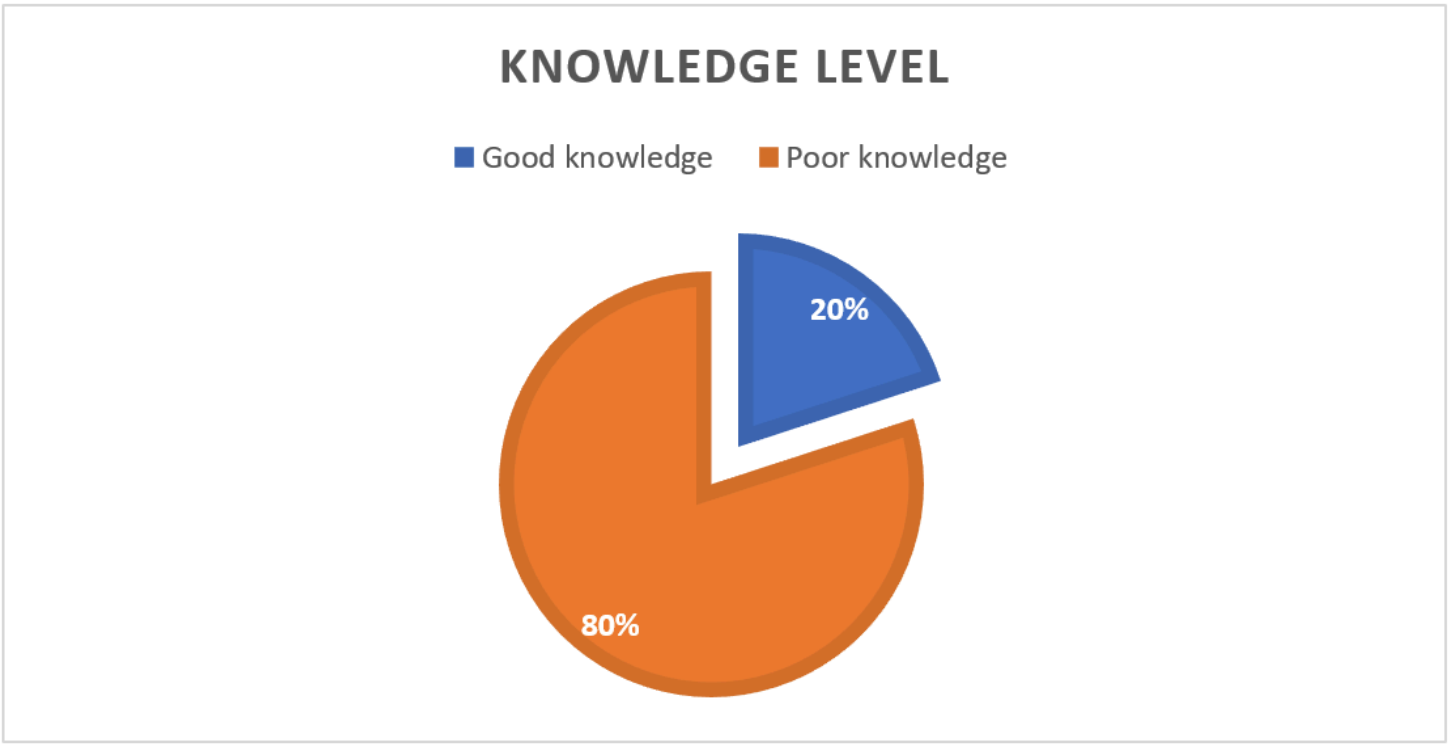



**Figure 2**

Overall medication knowledge among geriatric patients in the study.

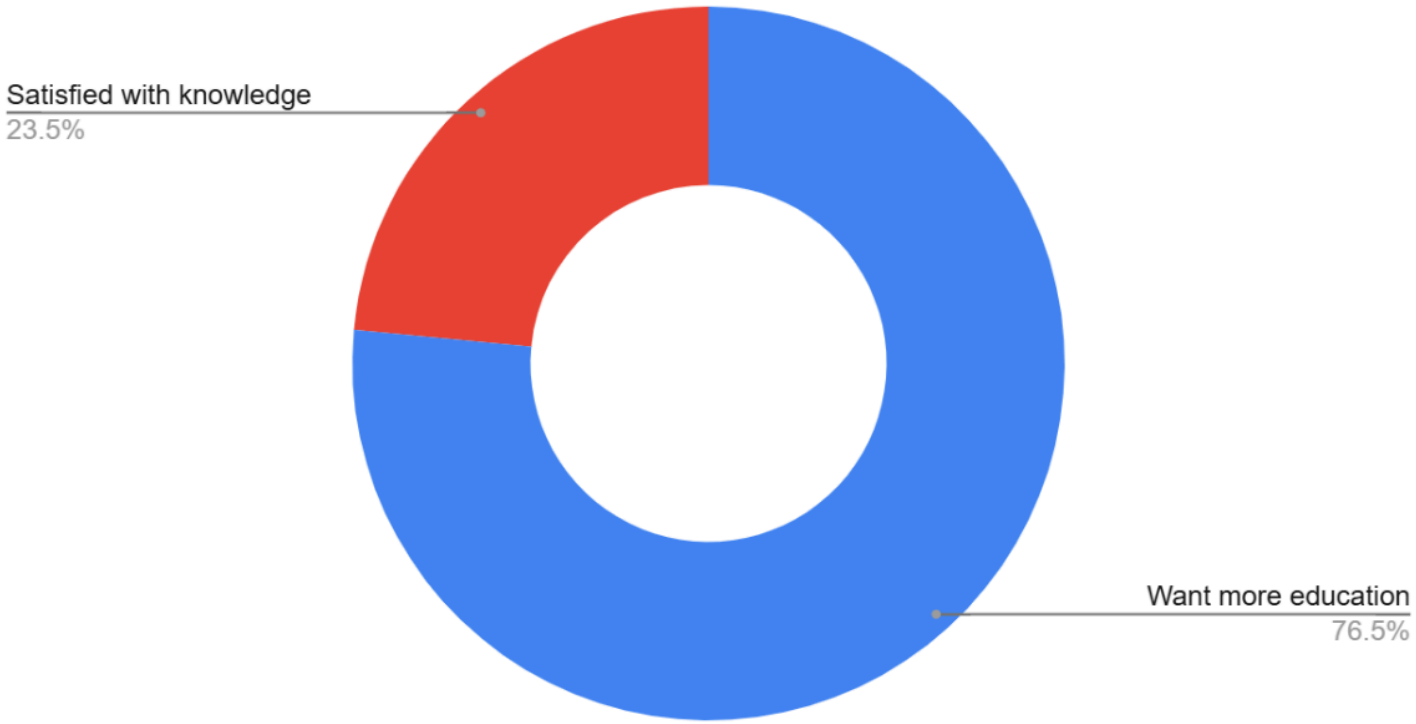



**Figure 3**

Patients' desire for additional medication education.

## Supplementary Files

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- QUESTIONNAIRE.docx