

**FACTORS CONTRIBUTING TO INCREASED POLYPHARMACY AMONG ADULT PATIENTS
ATTENDING KAYUNGA REGIONAL REFERRAL HOSPITAL, KAYUNGA DISTRICT.
A CROSS-SECTIONAL STUDY.**

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ABSTRACT.

Background:

Purpose: To determine the factors contributing to increased cases of polypharmacy among adult patients attending Kayunga Regionals Referral Hospital in Kayunga district.

Specific objectives: Finding out individual factors contributing to increased cases of polypharmacy among adult patients attending Kayunga Regional Referral Hospital. To determine health facility-related factors contributing to increased cases of polypharmacy among adult patients attending Kayunga Regional Referral Hospital.

Methods:

A descriptive cross-sectional study was used among 50 respondents. A simple random sampling technique was used. A questionnaire was used as a data collection tool. The data was analyzed manually using tally sheets and presented as tables, pie charts, and bar graphs.

Results:

The majority of the respondents (30%) were aged 45-50 years, (70%) reported having been diagnosed with multiple diseases all at once, (64%) reported that they received more than five medications for managing the same condition, 60% took the drug with other supplements, 76% were not aware of the consequence of polypharmacy, (44%) got medication from the clinic, (82%) reported not having private prescribers, (56%) had been hospitalized for a week, (64%) reported that health workers are less experienced in the treatment of old adults leading to polypharmacy.

Conclusion:

Factors contributing to increased cases of polypharmacy are having multiple diagnoses, having more than five medications, internship prescribers, less experienced prescribers, taking drugs with supplements, chronic diseases, advanced age, and lack of improved hospitals with better services.

Recommendation:

The MoH and government should build better hospitals in rural areas so that people can access better services offered by well-trained medical workers, the management of Kayunga RRH should provide their health workers with continuous professional development through conducting seminars, academic worker shops, and appraisals to keep them updated on current treatment and prevention guidelines.

Keywords: Polypharmacy, Adult patients, Kayunga Regional Referral Hospital.

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BACKGROUND OF THE STUDY.

Polypharmacy is the concurrent use of multiple medications. Polypharmacy is among the risk factors for adverse drug reactions (WHO, 2019).

Polypharmacy is common in older people with chronic disease and is associated with potential harm. A global report on people are living longer nowadays but generally not in full health, living longer might result in people expiring a period of life characterized by multiple morbidities resulting in the increasing number of medication leading to inappropriate prescribing, overdose, adverse drug events, polypharmacy among older associated with an increase health cost, adverse health consequence whereby 50.1 per 1000 person-

years in ambulatory older adult 1.89 per 100 person institutionalized older community-dwelling have experienced adverse drug events—a nationwide report Italian medicine agency (Lizhen Ye, 2022).

In a cross-sectional study conducted in Germany (Anja Rieckert, 2018) of 3904 patients recruited, risk factors associated with excessive polypharmacy like frailty and of 95% of patients, 5% had physical scores with eight diagnoses of polypharmacy and frailty relationship and impact on mortality in French of 2350 old people (Marie Herr, 2015).

In a study conducted in Tanzania by (Antimon TM, 2023) total of 285 adult HIV patients found that females

were the majority (62.5%), and (42.5%) were married polypharmacy was seen in 52(18.2) of participants due to the presence of comorbidities. The prevalence of polypharmacy was high and was linked to the presence of comorbidities.

According to a report from MoH, Uganda between March 2015 to July 2015, 444 patients were approached to participate in a study of which 33(7.4%) were not included, 6 declined, and 17 were (Micheal Ssonko, 2018). below the age of 50 years, 9 were not on ART and had missing results. Of the participants analyzed 411 of which 95% 63, 5% had polypharmacy of commonly used medicine among participants and the subgroup with polypharmacy were antihypertensive, diuretic, non-steroidal, anti-inflammatory A study was conducted between March and July 2015 on the prevalence of polypharmacy with adverse effects among older adults attending ART at urban HIV Clinic Mild may Uganda of 12500 patients of which 1206, 9.6% are over 50 years associated with polypharmacy (Micheal Ssonko, 2018).

The study aimed at identifying factors contributing to increased polypharmacy among patients attending Kayunga Regional Referral Hospital, Kayunga District.

METHODOLOGY.

Study design.

A cross-sectional descriptive study was applied. Quantitative data was collected within the specified period, and across cross-sectional design was selected to suit the time frame for the study. The study involved factors contributing to increased polypharmacy among adult patients attending Kayunga Regional Referral Hospital, Kayunga district.

Study area.

The study was carried out in Kayunga Regional Referral Hospital which was located in Kayunga District, Central Uganda approximately 51 kilometers northeast. The hospital offered several health services to patients such as HIV/AIDS services, and maternity. The hospital received patients from other Hospitals such as Sanyu Medical Centre, Suubi Medical Center, and other health units. The study was carried out from April 2023 to November 2023.

Study population.

The study population included all the adult patients attending Kayunga Regional Referral Hospital. It involved giving questionnaires to patients attending the hospital.

Sample size determination.

A sample size of patients suffering from polypharmacy was determined using Burton's formula given below, (Burton's 1965).

$S = (QR)/O$:

Where:

S=required sample size

Q=number of days the researcher will spend while collecting data
R=maximum number of respondents per day

O=maximum time the interviewer spent on each respondent and;

Q=5 days

R=5 respondents
O=1/2hour
S=5*5/1/2

Therefore, the researcher will use 50 respondents.

Sampling technique.

The researcher used simple random sampling. This technique was used because it gave all participants equal opportunity participation and it was easy to administer.

Sampling procedure.

The researcher determined the population of interest by specific characteristics, took a sample size of 110, created a sample frame, and then selected objects randomly from the sample frame using a lottery or random number table

Data collection method.

To ensure the validity and reliability of the data, primary data was collected using the survey questionnaire. An open and closed-ended questionnaire was administered to the patients. The researcher reviewed some records of the prescribing patterns of medicines to patients. This was done using an observation checklist and recording all relevant information.

Data collection tools.

Open-ended and closed-ended questionnaires were self-administered to respondents, prepared in English and some questions were interpreted to the respondents.

Data collection procedure.

Before administering the questionnaires, the researcher first introduced himself, explained the purpose of the study, and sought informed consent from the participants (patients). The administration of questionnaires and observation checklist was conducted only after consent had been obtained from the respondents, the researcher ensured that the respondents fully understood and translated the questions (s) asked. The researcher reviewed records of the prescribing patterns of medicines to patients to obtain prescribing indicators of medicines. This was carried out using observation and recording checklist all relevant information was recorded.

Study variables.

Both independent and dependent variables were used in this study.

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Independent variable.

It included individual factors and hospital-related factors.

Dependent variable.

Increased cases of polypharmacy among adult patients attending Kayunga RRH

Quality control.

The questionnaire was thoroughly checked by the supervisor to ensure that it was properly designed. The sample size was determined using the approved formula.

Pretesting of data collection tools was done before the actual data collection. I trained my research assistants.

I gave ample time for data collection.

Pre-visit to the study area for the exercise with authorities was conducted.

Inclusion criteria.

The study only included adult patients attending Kayunga Regional Referral Hospital who consented and older adults with chronic infections.

Exclusion criteria.

The study excluded adults who were unstable and very sick.

Data analysis and presentation.

Data was collected and analyzed using a computer system Microsoft Excel program and then presented in the form of descriptive statements, pie charts, bar graphs, histograms, and tables.

Ethical Considerations.

An introductory letter was obtained from the school of pharmacy, KSHS, Buloba which introduced the researcher to the hospital headed by the hospital in charge which permitted the researcher to carry out the study. The researcher exercised utmost caution while administering the data collection instruments to the respondents to ensure that their rights and privacy were respected. Before collecting data during research, a precise explanation of the aim and the purpose of the study was explained well to the respondents.

The researcher sought the consent of the respondents

before they were provided with all the requirements of the study. To ensure confidentiality, the questionnaires were given numerical codes instead of names participation was voluntary. The study findings were presented without any bias and manipulation of data in favor of the researchers' expectations.

RESULTS.

Demographic data of respondents.

Table 1: Shows respondents' demographic data. (N=50)

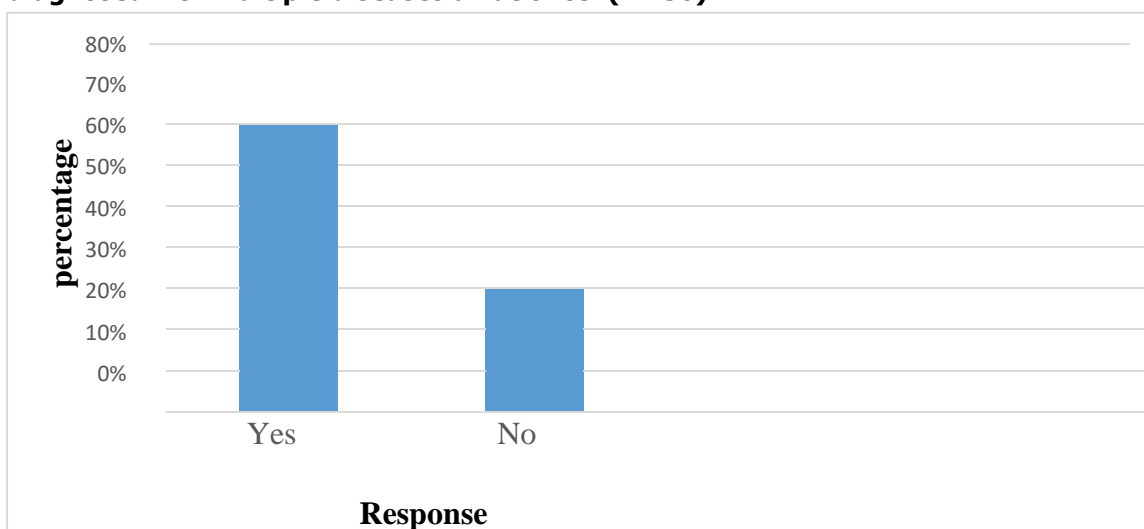
Characteristic	Variable	Frequency (f)	Percentage (%)
Age	25-30	08	16
	35-40	05	10
	45-50	15	30
	55-60	14	28
	65-70	06	12
	75-80	02	04
Marital status	Single	11	22
	Married	28	56
	Widow	06	12
	Divorced	05	10
Level of education	Tertiary	08	16
	Secondary	13	26
	Primary	22	44
	Not educated	07	14
Occupation	Peasant	Self-employed	50
	Civil servant	05	10
	Self employed	10	20
	Unemployed	10	20
Total		50	100

From Table 1, most of the respondents reported that they are aged between 45-50 years (30%), whereas the least reported that they are aged 75-80 years (4%). Most of the respondents reported that they are married (56%), while the least reported that they are divorced (10%). Most of

the respondents reported that they attended primary (44%) while the least (14%) reported being uneducated. Most of the respondents reported being peasants (50%), whereas the least (10%) reported being civil servants.

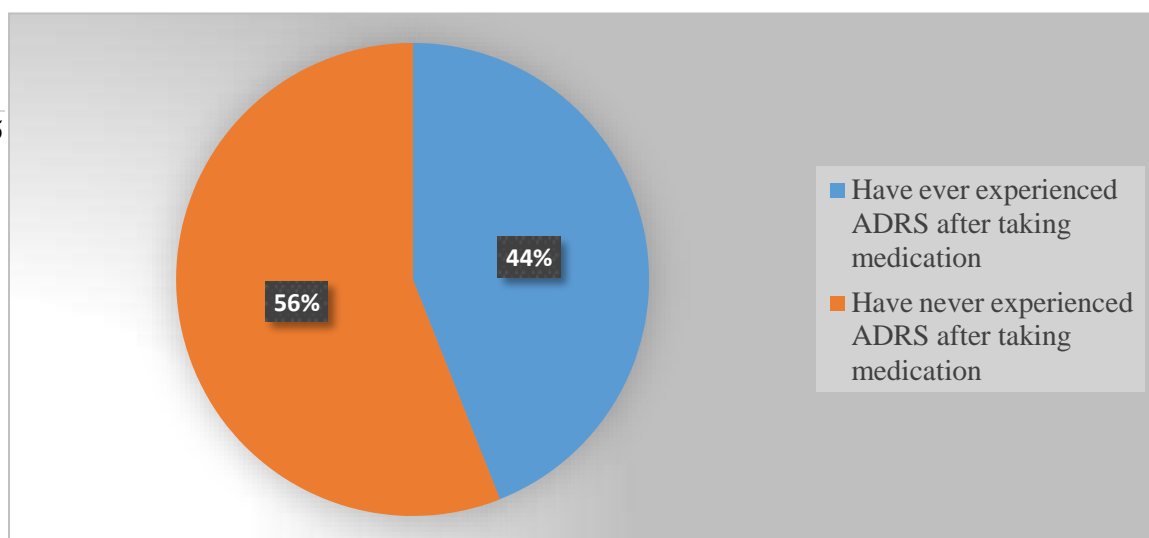
Individual factors contribute to increased polypharmacy.

Figure 1: Shows respondents' distribution according to whether they have been diagnosed with multiple diseases all at once. (N=50)



From Figure 1, the majority of the respondents (70%) reported having been diagnosed with multiple diseases all at once while the minority (30%) of the respondents reported not having been diagnosed with multiple diseases all at once.

Figure 2: Shows respondents' distribution according to whether they have experienced adverse effects after taking any medication. (N=50)



From Figure 2, most of the respondents (56%) reported that they have never experienced adverse effects after taking medication while the least of the respondents (44%) reported that they have ever experienced adverse effects after taking medication.

Table 2: Shows the respondents' response to whether they receive more than five medications for managing the same condition. (N=50)

Response	Frequency (f)	Percentage (%)
True	32	64
False	18	36
Total	50	100

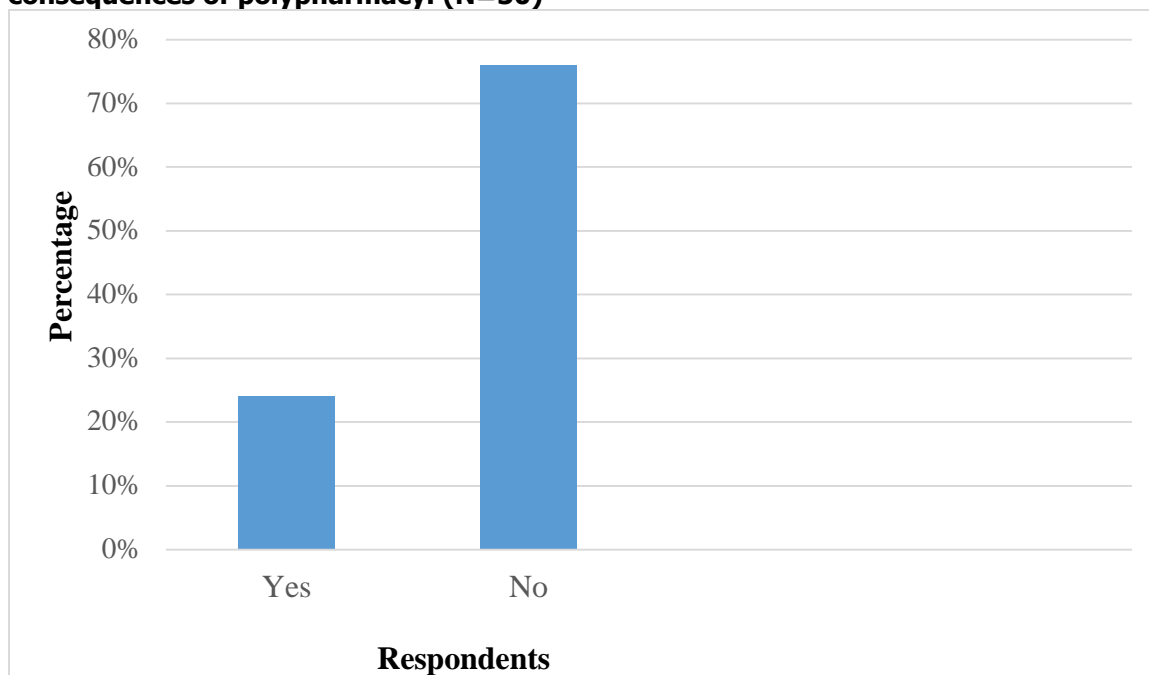
From Table 2, the majority of the respondents (64%) reported that they receive more than five medications for managing the same condition while a minority of the respondents (36%) reported that they do not receive more than five medications for the same condition.

Table 3: Shows respondents' distribution according to whether they follow the health workers' advice on how to take the medicine. (N=50)

Response	Frequency (f)	Percentage (%)
Never	05	10
Sometimes	28	56
Always	17	34
Total	50	100

From Table 3, most (56%) of the respondents reported that they sometimes follow the health workers' advice on how to take the medicine while the least (05%) of the respondents reported that they have never followed the health workers' advice on how to take medicines.

Figure 3: Shows respondents' distribution according to whether they are aware of the consequences of polypharmacy. (N=50)



From Figure 3, the majority (76%) of the respondents reported that they are not aware of the consequences of polypharmacy while a minority of the respondents (24%) reported that they are aware of the consequences of polypharmacy.

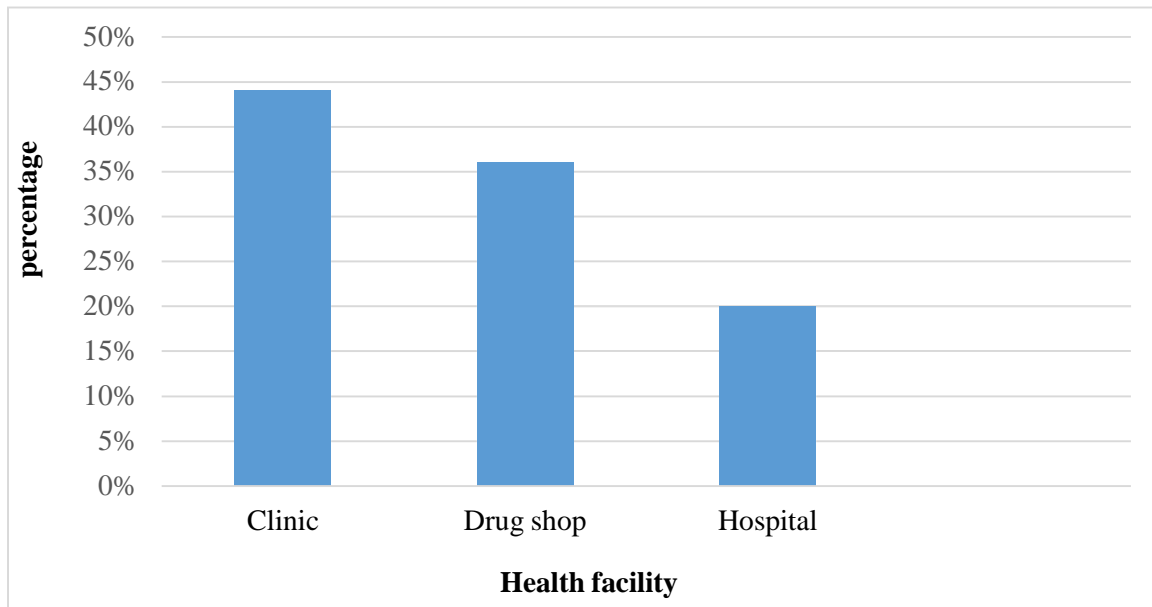
Health facility-related factors contributing to increased polypharmacy.

Table 4: Shows respondents' distribution according to whether they have a private prescriber for their medication. (N=50)

Response	Frequency (f)	Percentage (%)
Yes	09	18
No	41	82
Total	50	100

From Table 4, the majority of respondents (82%) reported not having private prescribers while a minority (18%) of the respondents reported having private prescribers.

Figure 4: Shows respondents' distribution according to where they get their medication from. (N=50)



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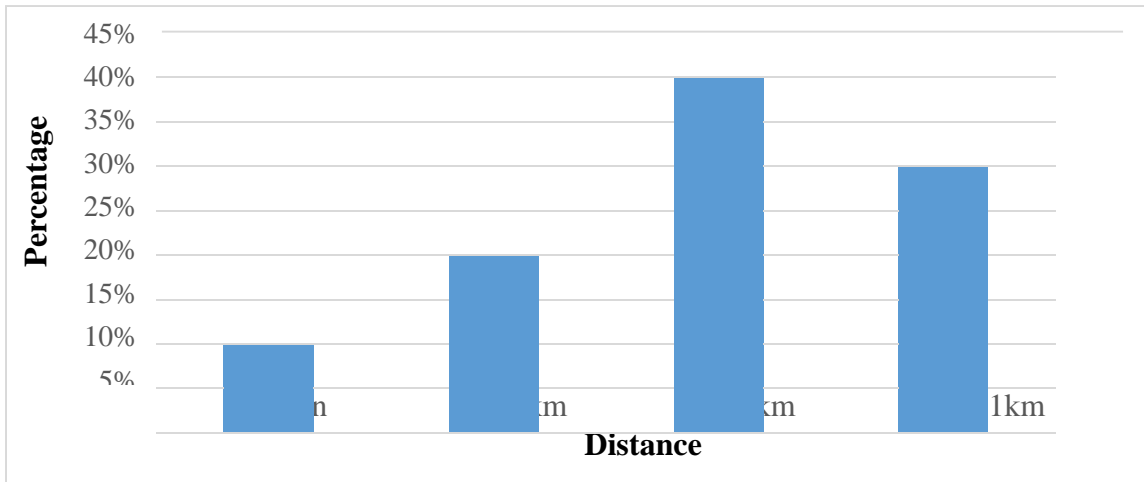
From Figure 4, most of the respondents (44%) reported that they get medication from clinics whereas the least (20%) of the respondents reported that they get medication from a hospital.

Table 5: shows respondents' distribution according to whether there are health facilities around their areas. (N=50)

Response	Frequency (f)	Percentage (%)
Yes	15	30
No	35	70
Total	50	100

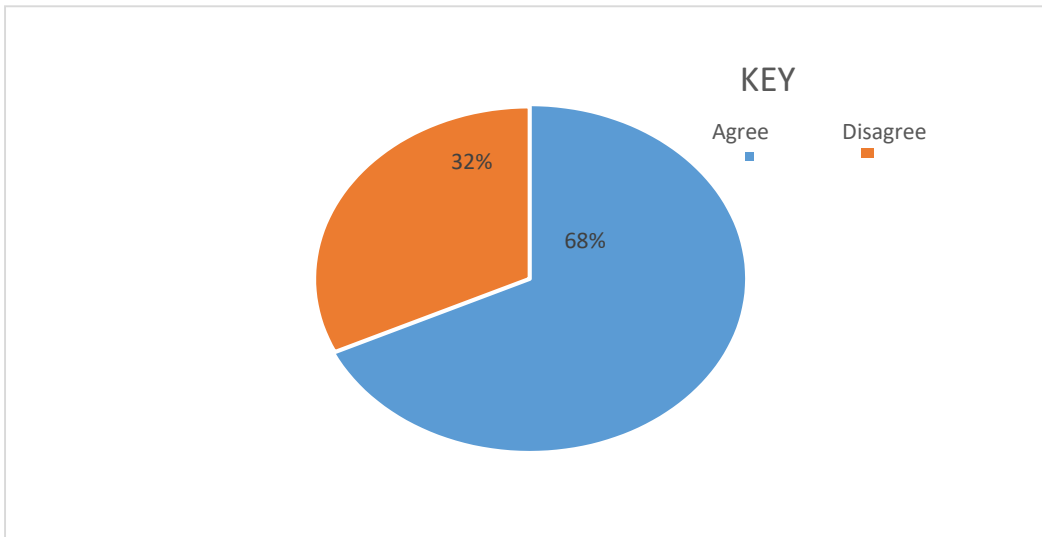
From Table 5, the majority (70%) of the respondents reported that there are no health facilities around their areas while the minority (30%) of the respondents reported that there are health facilities around their areas.

Figure 5: Shows respondents' distribution according to how far the health facility is from their homes. (N=50)



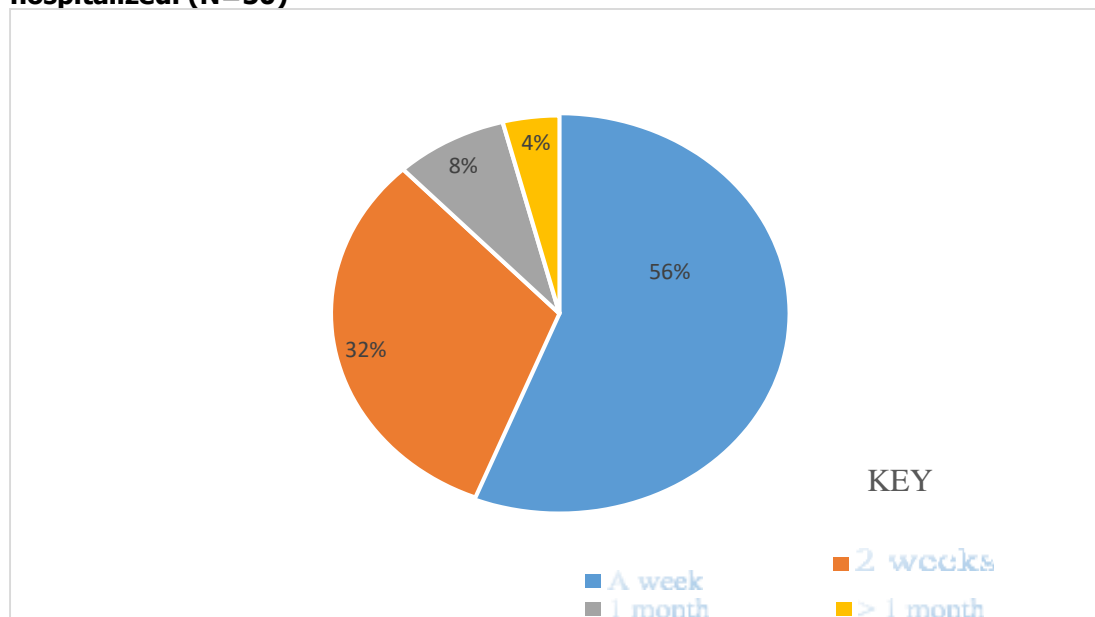
From figure 5, most of the respondents (40%) reported that they move distances of 1 km to reach the health facility while the least (10%) of the respondents reported that the health facilities are within their areas of residence.

Figure 6: Shows respondents' distribution according to whether they receive treatment from intern prescribers. (N=50)



From Figure 6, the majority of respondents (68%) reported that they receive treatment from internship prescribers whereas a minority (32%) of the respondents reported that they do not receive treatment from internship prescribers.

Figure 7: Shows respondents' distribution according to how long they have been hospitalized. (N=50)



From Figure 7, most (56%) of the respondents reported that they had been hospitalized for a week while the least of the respondents (04%) reported that they had been hospitalized for morethan one month.

Table 6: Shows respondents' distribution according to whether health workers in the facility have information on the treatment of older adults. (N=50).

Response	Frequency (f)	Percentage (%)
Less experienced	32	64
Experienced	13	26
More experienced	05	10
Experts	00	00
Total	50	100

From Table 6, the majority of the respondents (64%) reported that health workers have less experience in treating older adults while a minority of the respondents (05%) reported that health workers are more experienced in treating older patients.

DISCUSSION.

Individual factors contribute to increased cases of polypharmacy.

From the study findings, the majority of the respondents (70%) reported having been diagnosed with multiple diseases all at once. This is in line with a study done by (Anja Rieckert et al, 2018) whichrevealed that the risk factors associated with excessive polypharmacy were frailty of 95%, and 5% hadphysical health scores with more than eight diagnoses. This is attributed to advanced age.

According to the study findings, the majority of the respondents (64%) reported that they receive morethan 5 medications for managing the same condition. This is

attributed to inadequate knowledge among prescribers on managing certain conditions since most of the respondents reported that they get their treatment from internship prescribers.

More so, most (56%) of the respondents reported that they sometimes follow the health workers' advice on how to take the medicine while the least (05%) of the respondents reported that they have never followed the health workers' advice on how to take medicines. This is in line with the studydone by (Yi Wen Tan et al, 2019) which showed that the prevalence of polypharmacy was 14.5 % among dwelling elderly with non-adherence. Poor compliance and adherence to medications increase the rate of hospitalization and polypharmacy.

Also, the majority of the respondents (60%) reported that they take drugs with other supplements. This is in line with a study done by (Lim, L. M et al, 2017) which revealed that the prevalence of polypharmacy was 45.9% while supplement users made up 56.9% of the cohort. This is attributed to having many diseases and being vulnerable which they require some supplements to improve their quality of life.

Lastly, the majority (76%) of the respondents reported that they are not aware of the consequences of polypharmacy. This was in disagreement with a cross-sectional study done by (Micheal Ssonko et al, 2018) which showed that of the 7.4 million older adults, 4.6% did not know that polypharmacy results in any harm.

Health facility-related factors contributing to increased polypharmacy.

From the study findings, the majority (82%) of the respondents reported not having private prescribers. This was in disagreement with a study done in Brazil by (Freitas et al, 2021) which revealed that about 95% who had private medical prescribers had polypharmacy.

According to the findings of the study, most of the respondents (44%) reported that they get medication from the clinics and the least (20%) get medication from the hospital. This is attributed to less or no availability of improved hospitals within their areas of residence since the majority of the respondents (70%), most (40%) reported that there are no health facilities around their areas of residence and move distance of 1 km to reach the health facility respectively.

More so, the majority of the respondents (68%) reported that they receive treatment from internship prescribers. This is in line with a study done in Uganda by (Micheal Ssonko et al, 2018) which showed that 95 participants on ART had a prescription by an internist prescriber and this resulted in high mobility and high frailty and so polypharmacy. This is attributed to internist prescribers having inadequate knowledge and guidance about the management of certain conditions and being left alone in clinical rooms by the senior prescribers.

In addition, most (56%) of the respondents reported that they had been hospitalized for a week. This was in agreement with a study carried out by (P. Zaninotto et al, 2020) which showed that the prevalence of polypharmacy was bigger among those who had hospital admissions.

Lastly, the majority (64%) of the respondents reported that health workers are less experienced in the treatment of older adults. This is in line with a study done by (Seyede Salehe Mortazavi et al, 2019) which showed that cramblers of prescribers could not judge whether the prescription was appropriate hence misdiagnosis, inappropriate prescribing, and insufficient patient education.

CONCLUSION.

Increased polypharmacy is attributed to, advanced age, multiple diagnoses, inadequate knowledge of prescribers, non-adherence and compliance to medication, taking drugs with other supplements, lack of improved hospitals with better services, employment of internship prescribers who have inadequate medical knowledge, lazy health workers who do not participate in continuous professional development sessions.

RECOMMENDATIONS.

The MOH and the government of Uganda should build better hospitals in rural areas so that people can assess better services offered by well-trained medical workers. The management of Kayunga Regional Referral Hospital should provide their health workers with continuous professional development through conducting seminars, academic workshops, and appraisals to keep them updated on the current treatment and prevention guidelines. Health workers should use UCG to get adequate information on the treatment of patients and to make the right diagnosis and prescription of medicine for adult patients with chronic infections to reduce polypharmacy.

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LIST OF ABBREVIATIONS.

ADR:	Adverse Drug Reaction.
AIDS:	Acquired Immune Deficiency Syndromes.
ART:	Anti-Retroviral Therapy.
HIV:	Human immunodeficiency virus.
KSHS:	Kampala school of Health Sciences.
MOH:	Ministry of Health.
RRH:	Regional Referral Hospital.
UAHEB:	Uganda Allied Health Examinations Board.
UCG:	Uganda Clinical Guidelines.
WHO:	Whole Health Organization


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