ANALYSIS OF THE HEALTH DATA FROM 2022 OUTREACH ORGANIZED BY 'FRIENDS WHO PRAY'.

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1 Introduction

1.0 Introduction

This report shows the analysis made from the patient data that was obtained during the outreach organized by The Friends Who Pray Organization on 24th of December 2022 at Pepesa.

1.1 Purpose of Analysis

 The purpose of this analysis is to gain insights in the health profile of the members of the community, identify key health issues, to gain insights about the variety and quantity of medications used and also to provide recommendations for targeted interventions and outreach improvement strategies.

2 Methodology

2.0 Collection of Data

The data was collected from the medical reports obtained during the outreach.

2.1 Overview of the Data Analysis Process

Descriptive Statistics, Data Visualisation and other key Python Programming Language tools were employed to clean, organise and analyse the collected data.

3 Data Overview

3.0 Overview of the Dataset

The dataset comprises information from 135 participants who attended the outreach program for healthcare. It includes variables such as name, age, gender, Blood Pressure (BP), Random Blood Glucose level (RBS), Blood Rate (P), Medical Condition and Medication dispensed.

3.1 Summary Statistics and Key metrics

The summary statistics reveal that the average age of participants is 33 years with a higher representation of females (63%). The average Systolic and Diastolic Blood Pressures are 125mmHg and 75mmHg respectively. The average Random Blood Glucose level is 6.1 mmol/L and average Heart Rate of 83 bpm. The reported health condition per participant is 2.5 and the medication per participant is 3.5.
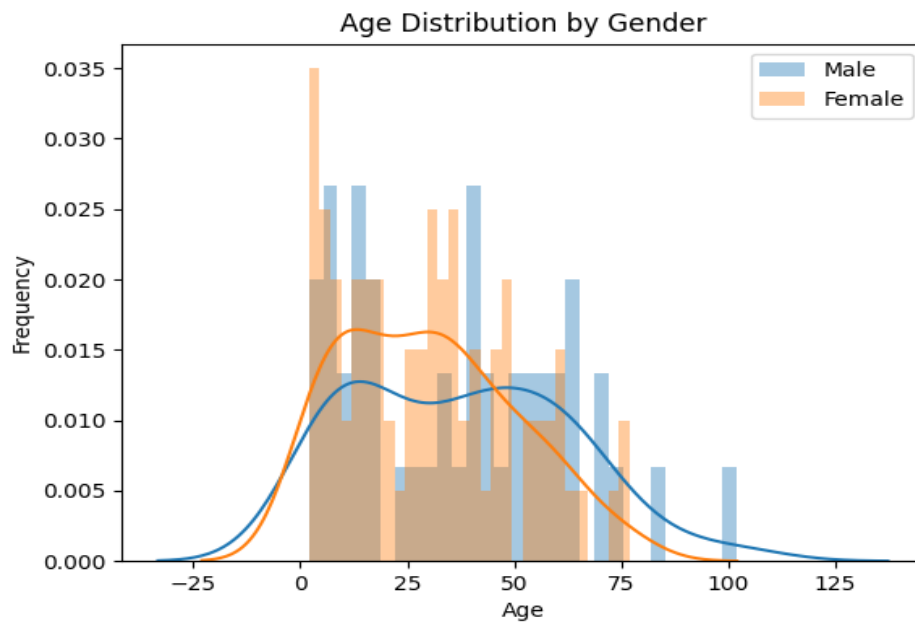
3.2 Data Quality Assessment

The Data underwent thorough quality checks. The data showed high integrity and reliability for analysis purpose.

4. Demographic Analysis

4.0 Target population

The target consist individuals living in a farming area with low development in health, amenities and strict hygiene insurance.

4.1 Age and Gender Distribution

Males have a total number of 40 with average age of 37 years and females have a total number of 85 with average age of 30 years. There are 24 children within the ages of 0 – 10 years are with 8 males and 16 females and a mean age of 5 years. Adolescents between 10 to 19 years are 19 with 12 females and 7 males and a mean age of 14 years. Participants from 19 to 40 years are 34 with 27 females and 7 males and a mean age of 29years. Adults from 41 to 60 years are 30 with 17 females and 13 males and a mean age of 48. Participants above the age of 60 are 18 in number with 10 males and 6 females with mean age of 69 years. Participants with unknown age are 10 with 5 males and 5 females.
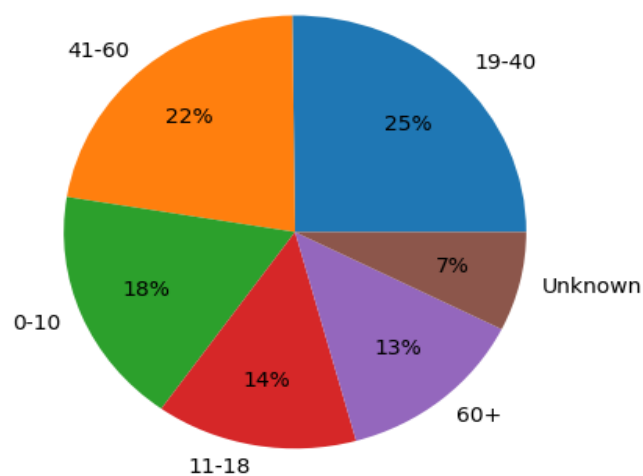
Children from 0 to 18 are 32% and adults above 60 are 13%. 47% of the participants fall within the age range of 19 to 60 years.

It can be inferred from the distribution that the dataset predominantly consists of adult participants, with significant number of females in the younger age groups. The variation in the age distribution among different age brackets suggests the need for targeted interventions tailored to specific age and potential gender – specific health considerations, especially about the types of medications.

4.2 Blood Pressure Analysis

The average Systolic and Diastolic Pressures were respectively 124mmHg and 75mmHg with the minimums being 76mmHg and 40mmHg and the maximums being 225mmHg and 163mmHg respectively. The visualizations below show the percentages for various ranges of the blood pressures.

Representation of Systolic BP of Participants

91-115
39.58%
70-90
4.17%
126-140 20.83%
116-125
15.62%
19.79%
140+
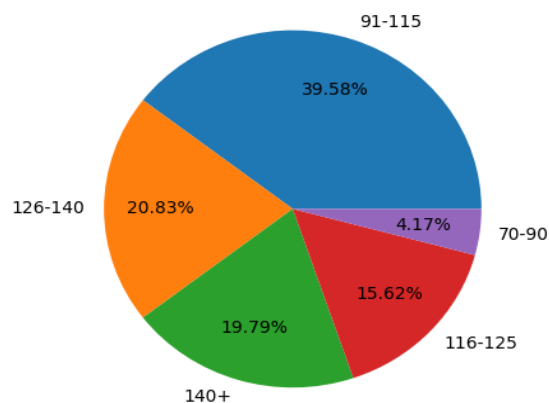
The representation shows that approximately 40% of the participants had the systolic BP below the normal range and approximately 45% had above the considerable range as well.

Representation of Diastolic BP of Participants

61-75
51.04%
100+
9.38%
76-85
18.75%
86-100
10.42%
10.42%
30-60
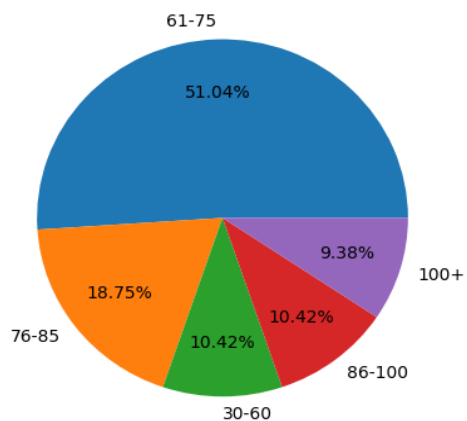
The representation of the Diastolic Pressure also shows that about 60% of the participants had their diastolic pressure below the normal range and about 20% also falling above the considerable range.

4.3 Disease Conditions

**4.3.0 Analysis of Overall Disease Conditions**

39 different kinds of disease conditions were recorded during the outreach with conditions per participant being 2.5 and their prevalence in terms of percentages are showcased below.

Disease Conditions	Percentage
body pains	13.70262
cough	10.49563
itchy eyes	8.163265
fever	8.163265
tearing	7.28863
abdominal pains	7.28863
headache	6.997085
burning eye	4.664723
chills	4.373178
poor vision	4.373178
itchy body	2.915452
known hypertension	2.623907
dizziness	2.332362
myopia	2.040816
runny nose	2.040816
loss of appetite	1.749271
heartburns	1.457726
cataract	1.166181
malaria	0.874636
rashes	0.874636
infection	0.58309
numbness	0.58309
chest pains	0.58309
syphillis	0.291545
sore on the leg	0.291545
syphilis	0.291545
pregnant woman	0.291545
swollen leg	0.291545
stomach infection	0.291545
lipima	0.291545
photophobic	0.291545
known diabetes	0.291545
allergic reaction	0.291545
infections	0.291545

frequent urine	0.291545
easy fatigue	0.291545
ear pain	0.291545
diarrhoea	0.291545
vomiting	0.291545

Among these diseases, the top ten most prevalent are showcased in the pie chart below.

Disease Conditions with Highest Prevalence
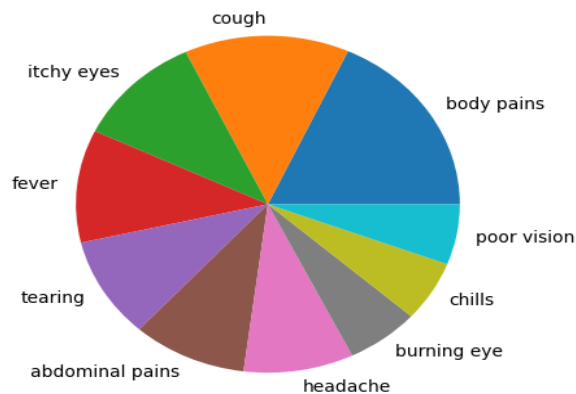
From the chart, it could be seen that body pains was the highest, then cough, and the eye problems were very prominent too together with headache, chills, abdominal pains and fever.

4.3.1 Disease Conditions In Children from 0 to 10 years

There are 24 children within the ages of 0 – 10 years are with 8 males and 16 females and a mean age of 5 years. Analysis shows that in the 14 varying conditions recorded, fever was the most prevalent disease condition followed by cough, abdominal pains, headache, rashes and some other diseases. The disease per participant ratio for this age group is 2.04. The table and the pie chart below show the disease prevalence in children

Condition	frequency
fever	16
cough	10
abdominal pains	7
headache	4
rashes	3
allergic reaction	1
diarrhoea	1
ear pain	1
itchy body	1
loss of appetite	1
runny nose	1
sore on the leg	1
stomach infection	1

vomiting	1

Condition Prevalence in Children from 0-10yrs
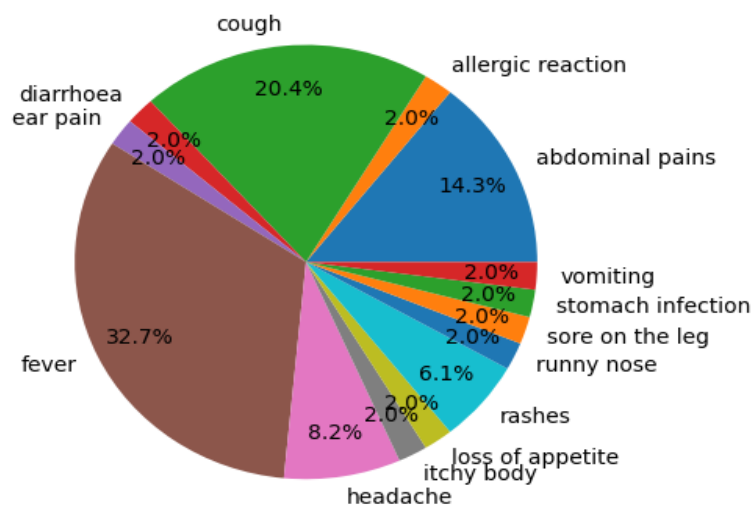
Some of the conditions recorded here are symptoms of underlying conditions such as Malaria.

The most common condition in this age group is fever. Other notable conditions include cough, abdominal pains and headache. Rashes, allergic reactions, diarrhoea, ear pain, itchy body, loss of appetite, runny nose, sore on the leg, and stomach infection each have a frequency of 1.

4.3.2 Disease Conditions In Adolescence from 11 to 18 years

Adolescents between 10 to 19 years are 19 with 12 females and 7 males and a mean age of 14 years. A total of 16 varying conditions were recorded for this age group with 2.16 disease per participant ratio. The table and the pie chart below shows the percentages of occurrence various diseases in adolescence from 11 to 18 years.

Condition	Number of Participants
abdominal pains	8
cough	8
headache	6
itchy eyes	6
tearing	6
burning eye	4
body pains	3
chills	3
fever	3
heartburns	2
itchy body	1
lipima	1

photophobic	1
poor vision	1
pregnant woman	1
syphilis	1

Disease Predominance Chart for Adolescent
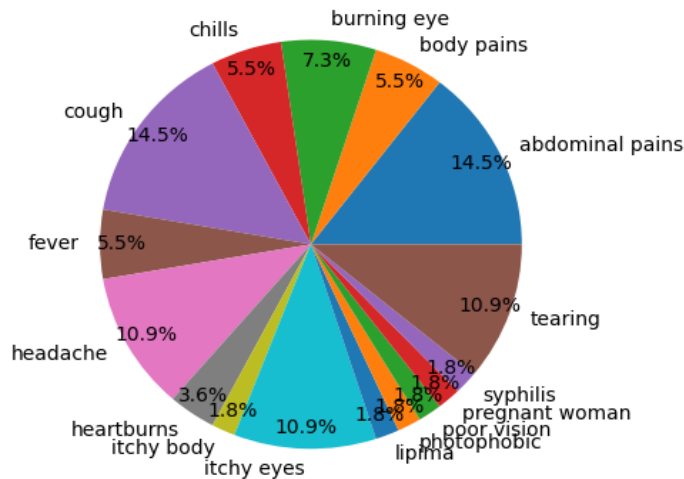
The representation shows that cough and abdominal pains were most prevalent amongst these age category. Eye problems are the highest disease category reported among this age range with various eye conditions such as itchy eyes, tearing, burning sensation in the eye and poor vision. Headache, fever and chills had moderate frequencies too and thus Malaria must be considered. Body pains present could be of different form such as joint pains, waist pains, etc. and therefore must be considered. The presence of Syphilis also indicates STIs must be considered.

4.3.3 Disease Conditions In Adults from 19 to 40 years

Participants from 19 to 40 years are 34 with 27 females and 7 males and a mean age of 29years. 16 different conditions were recorded with condition per participant being 2.7. The table and the pie chart below shows the percentages of occurrence of various diseases in adults from 19 to 40 years.

Condition	No of Participants
body pains	12
chills	8
cough	8
headache	8
itchy eyes	8
abdominal pains	6
fever	6
tearing	6
burning eye	5

dizziness	5
known hypertension	5
loss of appetite	4
heartburns	3
itchy body	3
runny nose	3
chest pains	2

The pie chart below shows the percentages of occurrence of various diseases in adults from 19 to 40

Condition Predominance for Adults from 19-40 years
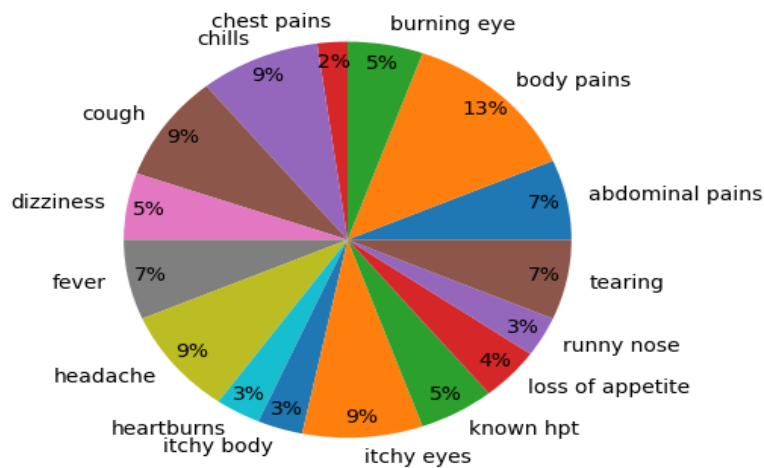
Body pains, chills, cough, headache, and itchy eyes have relatively higher prevalence. Abdominal pains, burning eye, fever, known hypertension, and eye tearing have moderate occurrence whilst chest pains, dizziness, heartburns, itchy body, loss of appetite, runny nose and sore throat have relatively lower occurrence.

4.3.4 Disease Conditions In Adults from 41 to 60 years

Adults from 41 to 60 years are 30 with 17 females and 13 males and a mean age of 48. A total of 21 different number of conditions were recorded for the age group with ratio of condition per participant being 2.5. The table and the pie chart below show the frequency and percentages of occurrence of various disease in adults from 41 to 60 years.

Condition	No of Participants
body pains	15
tearing	7
poor vision	6
myopia	6
headache	5
itchy eyes	5
abdominal pains	4

chills	4
cough	3
malaria	3
burning eye	3
infection	2
known hypertension	2
itchy body	2
frequent urine	1
easy fatigue	1
dizziness	1
known diabetes	1
loss of appetite	1
runny nose	1
swollen leg	1

The chart below shows the prevalence of disease conditions present in adults from 41 to 60 years.
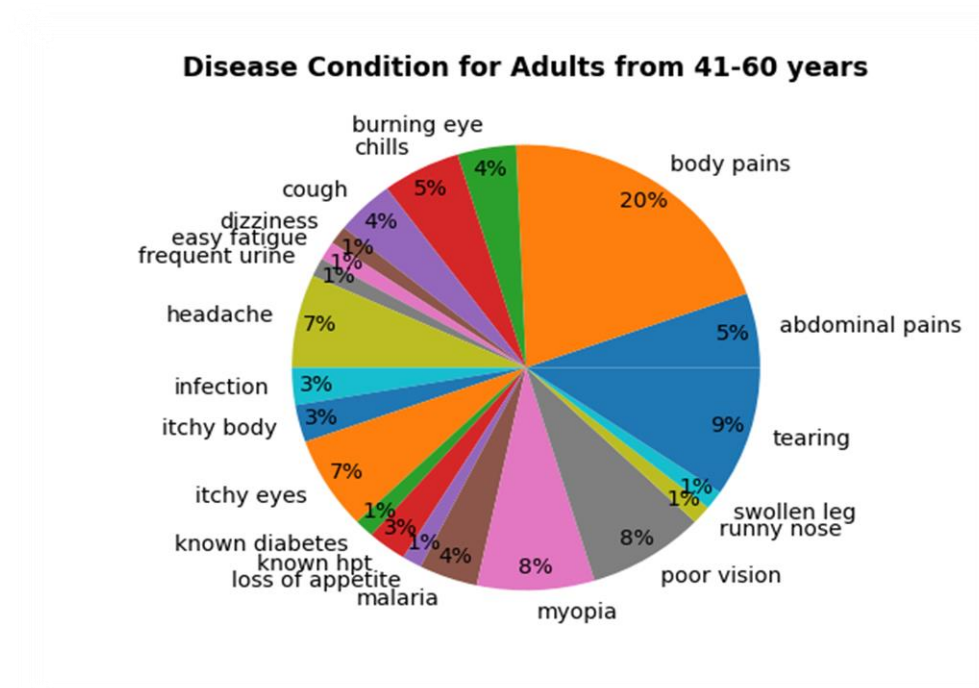

Body pains in various forms such as waist and joint pains, etc. has the highest prevalence followed by eye tearing, myopia, poor vision, itchy eyes and headache. It could be observed that among this age group, the prevalence of eye problems has increased.

4.3.5 Disease Conditions In Adults above 60 years

Participants above the age of 60 are 18 in number with 10 males and 8 females with mean age of 69 years. 17 different conditions were recorded among this age group with condition per participant ratio being 2.9. The table and the pie chart below show the frequency and percentages of occurrence of various disease in adults above 60 years.

Condition	No of Participants
body pains	13
poor vision	8
itchy eyes	7
tearing	5
cough	3
cataract	3
itchy body	3
known hypertension	2
dizziness	1
fever	1
headache	1
infections	1
burning eye	1
myopia	1
numbness	1
runny nose	1
syphilis	1

The chart below visualises the prevalence of disease conditions present in adults above 60 years.

Disease Condition for Adults for 60+ years
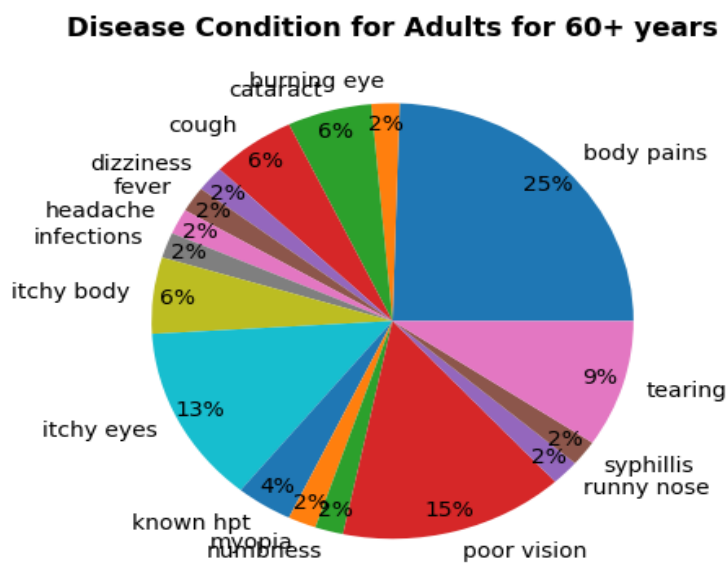
Body pains in varying forms is consistent in this age group as well, and the prevalence of eye problems has increased in this age group. Itchy body and hypertension are as well, prominent.

4.3.6 Disease Conditions In Participants with unknown age

Disease Conditions for those with unknown Age
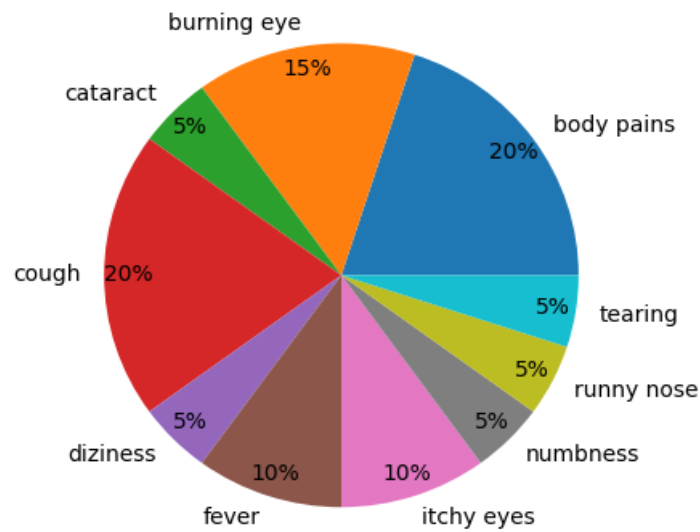
The chart above visualises the prevalence of disease conditions recorded for participants with unknown age. Participants with unknown age are 10 with 5 males and 5 females. A total of 10 different conditions were recorded. Body pains and cough tend to be most prevalent. Burning eye, fever, itchy eye, cataract and other eye problems also follow.

4.4 Medication Analysis

4.4.0 Overall Medication Analysis

49 different types of medications were reported to be dispensed to the participants and the overall medication per participant is 3.5. Percentages of each medicine dispensed is shown in the table below.

Medicines	Percentage
paracetamol	9.725159
vitamin c	5.919662
ibuprofen	4.862579
a/l	4.651163
folic acid	4.651163
amoxicillin	4.651163
flagyl	4.439746
epicrom	4.22833
cool eyes	4.016913
tramadol	4.016913
omeprazole	3.382664

cefuroxime	3.171247
diclo gel	2.748414
paracetamol suspension	2.536998
cetirizine suspension	2.536998
a/l suspension	2.325581
amoxiclav	2.325581
haematinic	2.114165
gutt ciprofloxacin	2.114165
ciprofloxacin	1.902748
simple lintus suspension	1.902748
albendazole	1.691332
amoxicillin suspension	1.691332
cetirizine	1.691332
metronidazole	1.691332
spectacle	1.479915
cefuroxime suspension	1.479915
p alaxin	1.268499
antacid suspension	1.268499
nifedipine	1.057082
antacid	0.845666
lisinopril	0.845666
albendazole suspension	0.845666
penicillin	0.845666
zinc tablet	0.634249
flagyl suspension	0.634249
ear drop	0.634249
azithromycin	0.634249
mmt suspension	0.422833
spectacles	0.211416
vitamin b	0.211416
furosemide	0.211416
nizoral shampoo	0.211416
nifidipine	0.211416
metformin	0.211416
glibenclamide	0.211416
bendro	0.211416
amitrypthylene	0.211416
zinwrit	0.211416

The chart below visualises the frequency of the top 10 medications used.
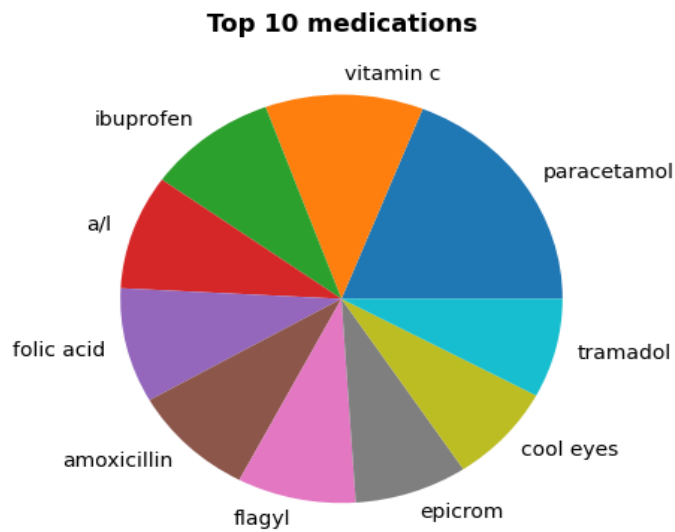
Top 10 medications

Paracetomol happens to be the most dispensed medicine during the outreach. Tramadol, ibuprofen, folic acid, amoxicillin, A/L, flagyl and the ophthalmic products are also very prominent.

4.4.1 Medications for Children from 0 to 10 years

The table and chart below show the frequency and percentage of medications that were dispensed for children in this age range. A total of 18 different medications were dispensed with medications per participant ratio being 2.75.

Medications	frequency
cetirizine suspension	11
paracetamol suspension	11
paracetamol	10
a/l suspension	9
vitamin c	6
flagyl	4
cefuroxime suspension	2
albendazole suspension	2
flagyl suspension	2
cefuroxime	1
ear drop	1
ibuprofen	1
mmt suspension	1
nizoral shampoo	1
omeprazole	1
antacid	1
amoxicillin suspension	1
penicillin	1

Medications Administered to Children from 0 to 10yrs
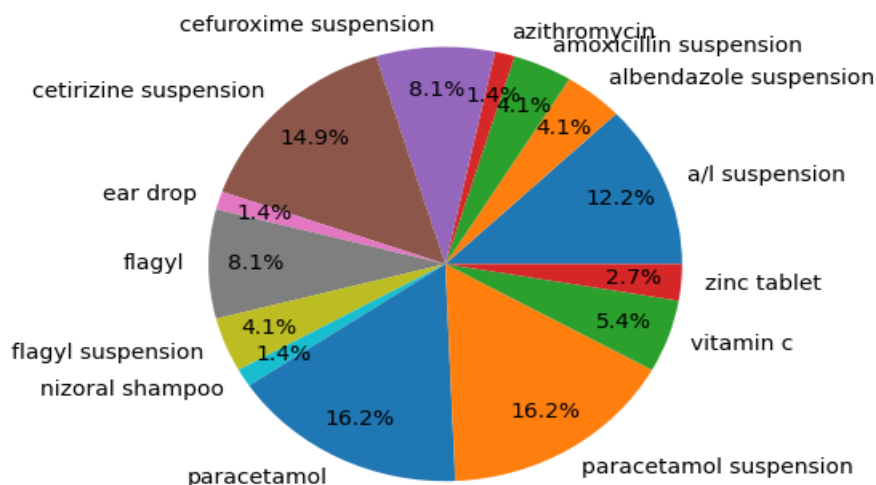
Paracetamol, both suspension and tablet was the most dispensed drug for children under this age. Paracetamol tablets were dispensed in shortage of suspension. Cetirizine suspension and A/L suspension were also dispensed in high frequencies. Flagyl, Cefuroxime suspension and Vitamin C were also prominent.
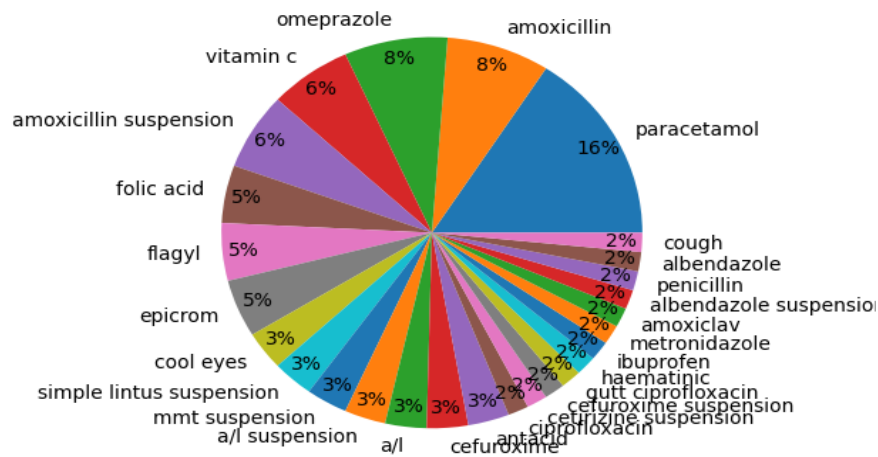
4.4.2 Medications for Adolescents from 11 to 18 years

The table and chart below show the frequency and percentage of medications that were dispensed to adolescents in this age range. A total of 26 different medications were dispensed with medications per participant ratio being 3.3.

Medications	frequency
paracetamol	10
amoxicillin	5
omeprazole	5
vitamin c	4
amoxicillin suspension	4
folic acid	3
flagyl	3
epicrom	3
simple lintus suspension	3
cool eyes	2
mmt suspension	2
a/l suspension	2
a/l	2
cefuroxime	2
antacid	2
ciprofloxacin	1
cetirizine suspension	1

cefuroxime suspension	1
gutt ciprofloxacin	1
haematinic	1
ibuprofen	1
metronidazole	1
amoxiclav	1
albendazole suspension	1
penicillin	1
albendazole	1

Medications for Adolescent from 11 to 18yrs

Paracetamol had the highest frequency. Omeprazole and amoxicillin are also very prominent together with other medications as shown above.
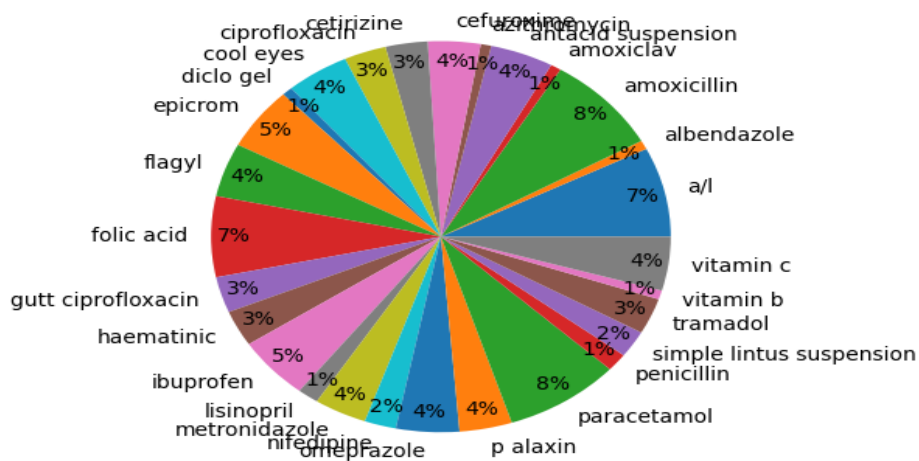
4.4.3 Medications for Adults from 19 to 40 years

The table and chart below show the frequency and percentage of medications that were dispensed to adults in this age range. A total of 28 different medications were dispensed with medications per participant ratio being 3.97.

Medications	frequency
amoxicillin	11
paracetamol	11
a/l	10
folic acid	9
ibuprofen	7
epicrom	7
cool eyes	6
omeprazole	6
flagyl	6
vitamin c	6
antacid suspension	6

cefuroxime	5
p alaxin	5
metronidazole	5
gutt ciprofloxacin	4
cetirizine	4
tramadol	4
haematinic	4
ciprofloxacin	4
simple lintus suspension	3
nifedipine	3
lisinopril	2
penicillin	2
amoxiclav	1
azithromycin	1
albendazole	1
vitamin b	1
diclo gel	1

Medications chart for Adults from 19-40 years

Medicines that had highest rate of dispensing are A/L Tablets, Paracetamol tablets, Amoxicillin and Folic acid. Ibuprofen, antacids, vitamin supplements and products for eye problems were prominent

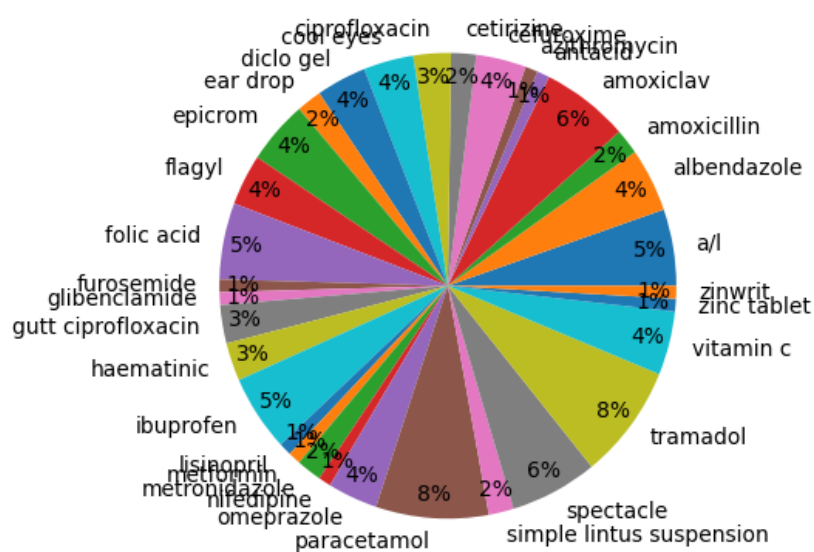**4.4.4 Medications for Adults from 41 to 60 years**

32 different medications were use and the medication per participant ratio is 3.7.

The percentage and frequency of medications dispensed for participants within this age group is shown in the chart and table below.

Condition	frequency
paracetamol	9
tramadol	9
spectacle	7
amoxiclav	7

folic acid	6
ibuprofen	6
a/l	6
vitamin c	5
albendazole	5
epicrom	5
diclo gel	4
omeprazole	4
flagyl	4
cefuroxime	4
cool eyes	4
ciprofloxacin	3
gutt ciprofloxacin	3
haematinic	3
ear drop	2
amoxicillin	2
simple lintus suspension	2
metronidazole	2
cetirizine	2
zinc tablet	1
glibenclamide	1
nifedipine	1
metformin	1
lisinopril	1
furosemide	1
azithromycin	1
antacid	1
zinwrit	1

Medications chart for Adults from 41-60 years

We can see that among other medicines, tramadol and paracetamol were the most highly dispensed medicines. An alternative for tramadol would be recommended since it can cause addiction. Spectacles, ibuprofen, folic acid, A/L and amoxiclav also had a moderate dispensing rate. All the other medicines are also very significant and must be considered.
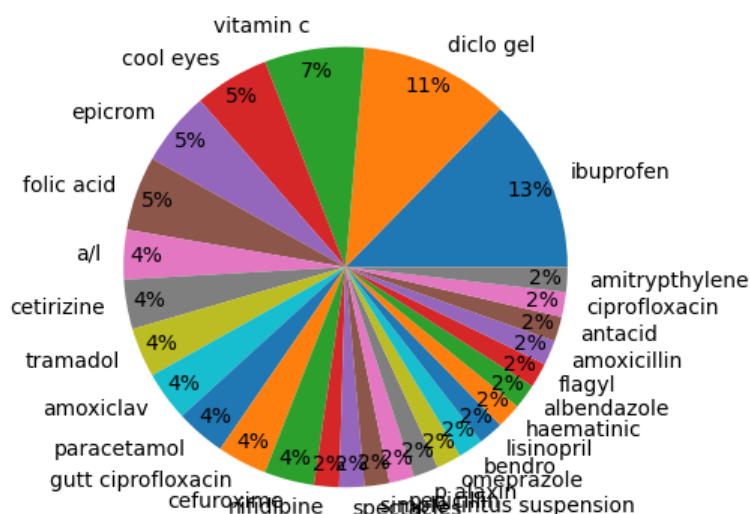

4.4.5 Medications for Adults above 60 years

28 different medications were use and the medication per participant ratio is 3.05.

The percentage and frequency of medications dispensed for participants within this age group is shown in the chart and table below.

Condition	frequency
ibuprofen	7
diclo gel	6
vitamin c	4
cool eyes	3
epicrom	3
folic acid	3
a/l	2
cetirizine	2
tramadol	2
amoxiclav	2
paracetamol	2
gutt ciprofloxacin	2
cefuroxime	2
nifidipine	1
spectacles	1
simple lintus suspension	1
penicillin	1
p alaxin	1
omeprazole	1
bendro	1
lisinopril	1
haematinic	1
albendazole	1
flagyl	1
amoxicillin	1
antacid	1
ciprofloxacin	1
amitrypthylene	1

Medications for Adults above 60 years

Ibuprofen has the highest frequency followed by Diclofenac gel. Vitamin C, folic acid and the eye products were also prominent here. The high frequency for the ibuprofen indicate lack of alternative for safer analgesics and the low frequency of paracetomol indicates its shortage. This must be considered as well as all other medications present.

4.4.5 Medications for those with unknown age

15 different medications were use and the medication per participant ratio is 3.3.

The percentage and frequency of medications dispensed for participants within this age group is shown in the chart and table below.

Condition	frequency
vitamin c	5
cool eyes	4
tramadol	4
amoxicillin	3
a/l	2
cefuroxime	2
diclo gel	2
epicrom	2
ibuprofen	2
paracetamol	2
amoxicillin suspension	1
flagyl	1
folic acid	1
haematinic	1
nifedipine	1

Medications for those with unknown Age
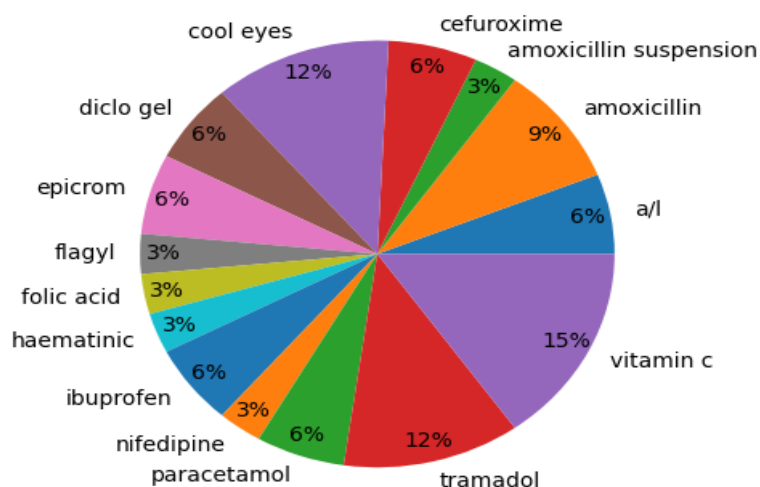
The chart shows tramadol, vitamin and eye products were on high demand here. Amoxicillin, Paracetamol, A/L and ibuprofen are prominent in this age group too.

5 Conclusion

5.0 Insights on disease conditions

- Common Conditions: Fever, cough, and abdominal pains are consistently observed as common conditions across multiple age groups, including 0-10 years, 11-18 years, and 19-40 years whiles body pains is consistent throughout. This indicates that these conditions are prevalent and require attention in healthcare outreach programs.

- Age-Specific Conditions: Certain conditions show variations in frequency across different age groups. For example, rashes are more prevalent in the 0-10 year's group, while conditions like heartburns and pregnant women are specific to the 11-18 years group.

- Vision-Related Conditions: Poor vision, itchy eyes, and tearing appear consistently in the age groups of 41-60 years and above 60 years. This highlights the importance of eye health and the need for vision-related screenings and interventions among the elderly population.

- Chronic Conditions: Known hypertension, known diabetes, and syphilis are mentioned in the data. While their frequencies are relatively low, it indicates the presence of chronic conditions among certain age groups. This suggests the importance of ongoing management and awareness campaigns for these conditions.

- Uncommon Conditions: Some conditions have a low frequency across all age groups, such as malaria, swollen leg, and numbness. Although they occur less frequently, they still warrant attention and may require targeted interventions when identified

5.1 Insights on medications

- Medications commonly used for participants aged 0-10 years include cetirizine suspension, paracetamol suspension, paracetamol, and a/l suspension. These medications are often used to manage symptoms such as allergies, fever, and pain in this age group.

- Participants aged 11-18 years commonly use medications such as paracetamol, amoxicillin, omeprazole, and vitamin C. These medications are often used for pain relief, antibiotic treatment, and addressing gastrointestinal issues.

- For participants aged 19-40 years, common medications include amoxicillin, paracetamol, a/l, folic acid, and ibuprofen. These medications are often used to manage various conditions such as infections, pain, and nutritional deficiencies.

- In the age group of 41-60 years, participants commonly use medications like paracetamol, tramadol, spectacle, amoxiclav, and folic acid. These medications are often used for pain management, vision-related issues, and treatment of infections.

- Among participants above 60 years of age, common medications include ibuprofen, diclo gel, vitamin C, and cool eyes. These medications are often used for pain relief, joint-related issues, and eye health.

- In the unknown age category, medications such as vitamin C, cool eyes, tramadol, and amoxicillin are frequently used. These medications are commonly associated with pain management and addressing general health concerns.

5.2 Potential Unavailability of Medications that requires intervention

- Itching eyes and fever have relatively high percentages among the reported conditions at 8.16%, but medications specifically indicated for these conditions, such as antihistamines or fever reducers, have lower percentages.

- Abdominal pains and chills are conditions with moderate percentages ranging from 6.99% to 7.29%. However, the corresponding medications for these conditions have even lower percentages.

- Poor vision, itchy body, and known hypertension have percentages ranging from 2.33% to 4.37% among the reported conditions. However, medications specifically associated with these conditions have even lower percentages.

- Loss of appetite, heartburns, and runny nose have relatively low percentages among the reported conditions, ranging from 1.75% to 2.04%. However, corresponding medications for these conditions, such as appetite stimulants or antacids, have even lower percentages.

- Conditions such as swollen leg, stomach infection, lipoma, known diabetes, and allergic reaction have very low percentages among the reported conditions, indicating their relative rarity. However the corresponding medications for these conditions have even lower percentages.

- Diarrhoea, frequent urination, and easy fatigue have percentages below 1% among the reported conditions. However the corresponding medications for these conditions were low.