Survey Public Knowledge and Awareness about Antibiotic Use and Resistance in Mjini Maghrib- Unguja.

Abstract

Background: Antibiotics are among drug groups that have, for centuries, played a key role in treating and combating infectious diseases worldwide.

This key role is being compromised by antibiotic resistance, driven by many factors, such as low-quality antibiotics and improper use of antibiotics. Antibiotic resistance is scrutinized as a major threat to global health today. It is estimated that in 2050, more than 10 million deaths and 100 trillion USD will be lost due to antibiotic resistance if no substantial actions have been taken to end this emerging threat.

Methods: It was a cross-sectional study conducted in MjiniMaghrib. Only people over 18 years old who live in MjiniMaghrib and non-medical personnel were allowed to participate in our research.

Questionnaires were distributed to the participants, and data were analyzed using SPSS computer software version 22. The study involved 200 people from MjiniMaghrib-Unguja.

Results: Our study showed that 64.4% of the participants were female, and 61.5% were 18-24. 47.5% of all respondents obtained antibiotics after getting a prescription from a doctor or nurse and received advice from a doctor or nurse on how to use the antibiotics.

The study also showed that 35.5% get antibiotics from a doctor or nurse. 72.5% of all respondents disagreed that it was okay to use antibiotics given to friends or family members as long as they were used to treat the same illness. 46.5% disagreed thatbuying or requesting the same antibiotics from a doctor was okay. 57.5% take all of the antibiotics as prescribed.

Lastly, our study assesses the level of education on knowledge of antibiotic resistance, and 65.5%,61.5%, and 71.5% of all respondents did not hear of antibiotic, antimicrobial, or drug resistance.

Conclusion: There was overall poor knowledge and awareness of antibiotic resistance across the study area, andthiswasirrespectiveofgenderandagethisprovesthattheproblemisworldwide,asseen in many other different research that were done around the world

Keywords:

Antibiotic Resistance, Mjini Maghrib-Unguja.**Knowledge and Awareness**

1. INTRODUCTION

Antibiotics are among drug groups that, for over centuries,have played a key role in treating and

combating infectious diseases worldwide, though reports show that this key role is being compromised by antibiotic resistance occurring everywhere.

Antibiotic resistance is scrutinized as a significant threat to global health today. If no substantial actions are taken to end this emerging threat in 2050, more than 10 million deaths and 100 trillion USD will be lost due to AR [1]

A recent multi-country public awareness survey conducted by the World Health Organization in 2015 in 12 member states showed that most respondents in developing countries believed that antibiotics could be used to treat viral infections [2].This shows that there is a big gap in knowledge about AR in both developing and developed countries.

In 2020, research was done on the “existence of bacterial resistance to some reserved antibiotics in tertiary hospitals in Tanzania” (Muhimbili National Hospital). A total of 201 clinical samples were tested, and bacterial resistance to clindamycin, cefepime, and meropenem was 68.9%, 73.2%, and 8.5%, respectively. This concluded that bacterial resistance to clindamycin and cefepime was high and low in meropenem [3].

One study in Jordan showed that the Jordanian community generally had poor knowledge and awareness of antibiotic use and AR [4].

Results in the French population highlight the need to continue informing the French public about antibiotic resistance. Indeed, the French population does not have a sufficient understanding of this phenomenon and seems to have erroneous beliefs about it and its causes [5].

In Africa,a multi-country public awareness survey about antibiotic resistance was conducted, and the results showed that Respondents classified as having no education are more likely to have taken antibiotics in the past six months. 42% of respondents with no education had taken antibiotics within the past six months compared to 35% of those with basic and 32% of those with further education [2].

Another study was conducted onthe Nigerian public, and the findings showed that about a third of the public consumes antibiotics obtained without a prescription, and respondents overall have a poor understanding of antibiotic resistance and proper antibiotic use[6].

In Tanzania mainland, a study was conducted among MD and non-MD second-year students of the University of Dodoma. The findings showed a high rate of self-medication with antibiotics and AMR illiteracy among undergraduate students, which proved the necessity of an educational program [7].

Several studies have been conducted to assess the level of awareness and knowledge about antibiotic use and resistance; no single study has been done in the Mjini-maghrib public.

1.1 Broad objective

GENERAL OBJECTIVE

To evaluate public knowledge and awareness ofantibiotic use and resistance public knowledge and awareness of antibiotic use and resistance in Mjini maghrib-Unguja.

1.2 Specific Objectives

SPECIFIC OBJECTIVES

1. To evaluate knowledge on when to use antibiotics
2. To evaluate knowledge on the importance of completing prescribed drugs.
3. To evaluate knowledge on antibiotic resistance.

2. METHODOLOGY

2.1 Description of the Study Area

A cross-sectional survey was conducted atMjiniMaghrib-Unguja, which is located approximately 25 km (about 15.53 mi) off the coast of Mainland Tanzania. Zanzibar comprises two central Islands, Unguja and Pemba, with a projected population of 1.8 million people, of which Unguja has 1.4 million (78%). Unguja has three regions: MjiniMagharibi, Kaskazini, and Kusini, with 121 Shehia[8].

2.2 Study Population

This includes both males and females who are above 18 years old and are in Mjini Maghrib-Unguja.

2.3 Study Design

A descriptive cross-sectional design was used in this study to determine the awareness of antimicrobial use and antimicrobial resistance among the general population in Unguja

2.4 Sample Size Determination

The sample population can be estimated using Cochran's formula $n = \frac{Z2pq}{e2}$

Whereby

n=estimated sample size

Z = z score, which is 1.96 at 95% confidence interval p= proportion (0.5)

q= 1-p

e= marginal error of width (0.07)

Sample size- $N = \frac{1.962X0.5X\ (1-0.5)}{0.072} = 196$

200

2.5 Inclusion Criteria

• Both male and female in MjiniMagharib over 18 years old

• They must be in Mjini Maghrib- Unguja.

2.6 Exclusion Criteria

• Both males and females within the age bracket who refused to participate

•They are not Unguja residents

• Medical personnel

2.7 Study Variable

• Dependent variables: Public Knowledge and Awareness of Antibiotic use and resistance

2.7.1 Independent variables

• Social demographic factors: Age, Gender and Educational status.

2.8 Data Collection

The following methods were employed ingathering information for this study.

Questionnaires: To collect data from the selected subjects, a self-administered pre-tested questionnaire was adapted with some improvements that correlate with the needs of our settings [2].

Interview: This was used to cover respondents who could not read the questionnaire. Information was gathered from them by asking questions from the prepared questionnaire and also including those who did not understand the item.

2.9 Data Analysis

Data wasanalyzed using Statistical Package of Science and Social Sciences (SPSS) software version 20. Logistic regression was used to compare the degree of associations. A p-value of

< 0.05 was considered as significant.

3.0 Results:

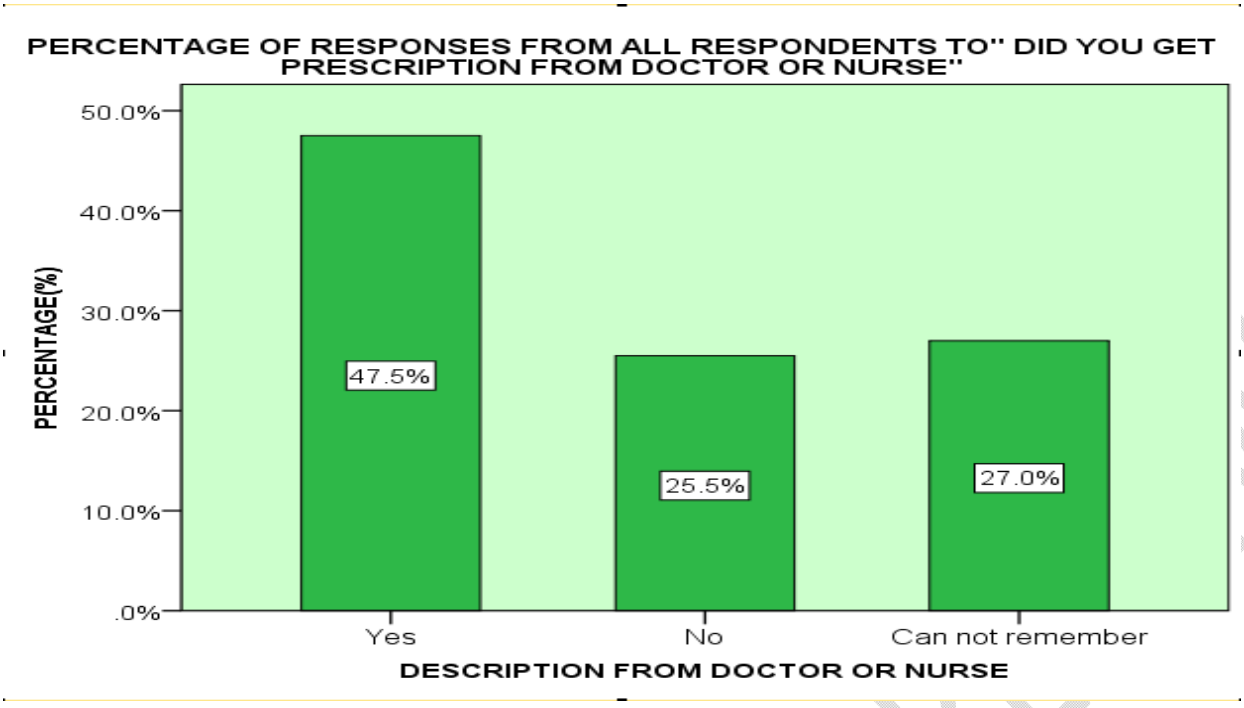
Table 1 :Demographicdata:Thestudy comprised200people from the MjiniMaghribpublic.

GENDER	FREQUENCY (n=200	PERCENTAGE(%)
MALE	71	35.5
FEMALE	129	64.5

LEVEL OF EDUCATION	FREQUENCYN(n=200)	PERCENTAGE(%)
NO SCHOOLING COMPLETED	14	7
PRIMARY EDUCATION	20	10
SECONDARY EDUCATION	65	32
HIGHER EDUCATION	101	50

AGE	FREQUENCYN(n=200)	PERCENTAGE(%)
18-24	123	61.5
24-34	45	22.5
35-44	13	6.5
45-54	7	3.5
55-64	7	3.5
>65	5	2.5

Fig .1



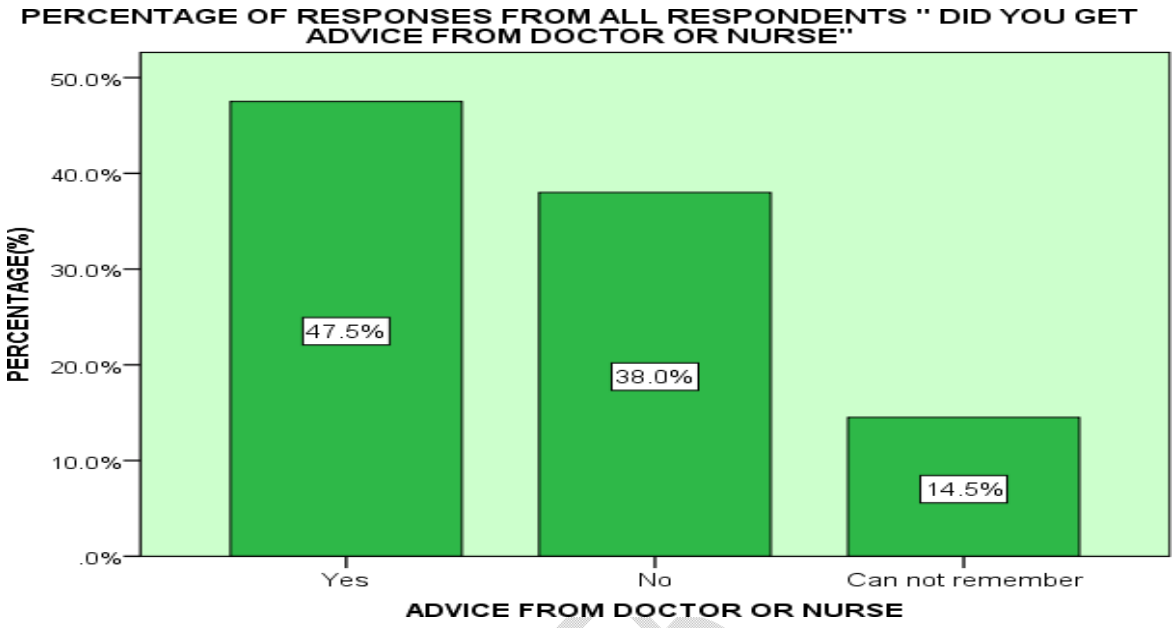
USEOFANTIBIOTICS

HOWPEOPLEOBTAINEDANTIBIOTICS

The survey finds relatively little variation in how respondents reported getting their antibiotics.About47.5%gotantibioticsfromadoctorornurse, 25.5%didn'tobtain them from a doctor or nurse, and 27.0% didn't remember where they obtained them.

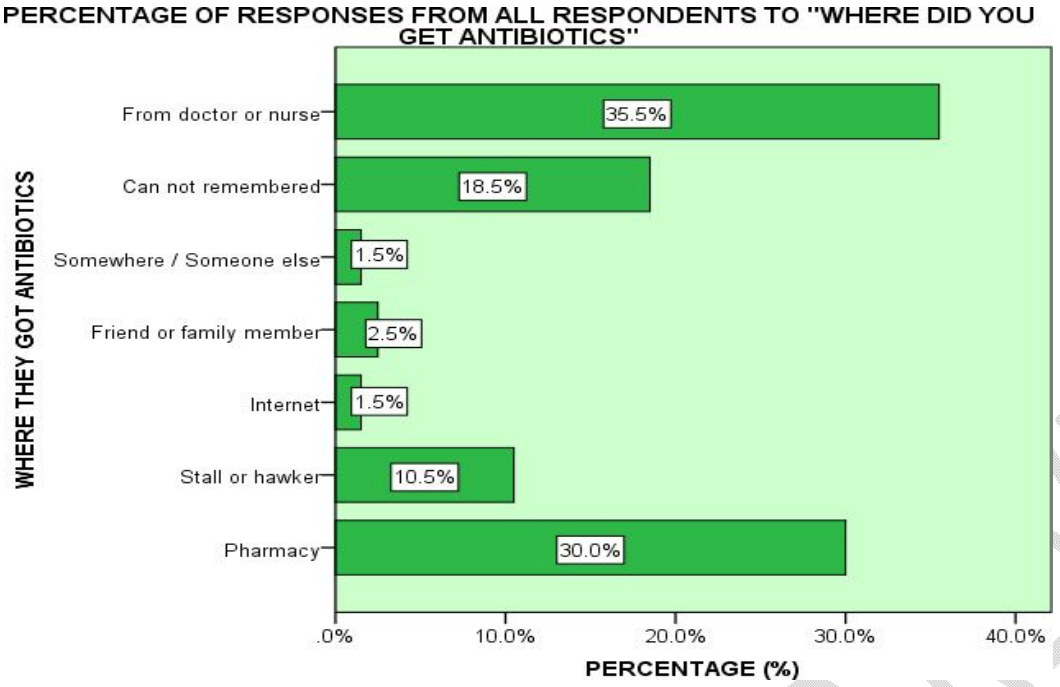
WHETHERPEOPLERECEIVEDADVICEFROMMEDICALPROFESSIONALONHOWTOTAKE ANTIBIOTICS

Fig .2



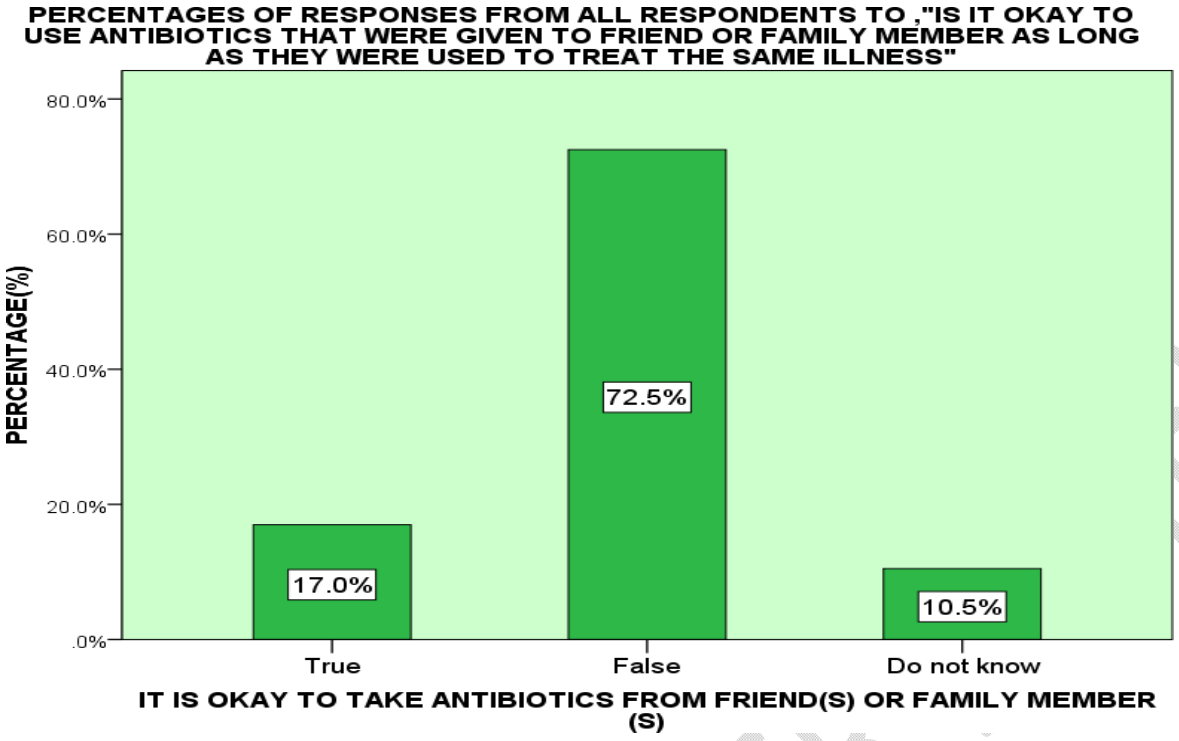
The vastmajorityofrespondentssurveyed saidtheyhad received advice from amedical professional on howtaketheantibioticstheylasttook: 47.5%,38.0%didn'treceiveadvicefrom a doctorornurse, and 14.5% couldn't remember if they received advice from a doctor or nurse.

Fig .3



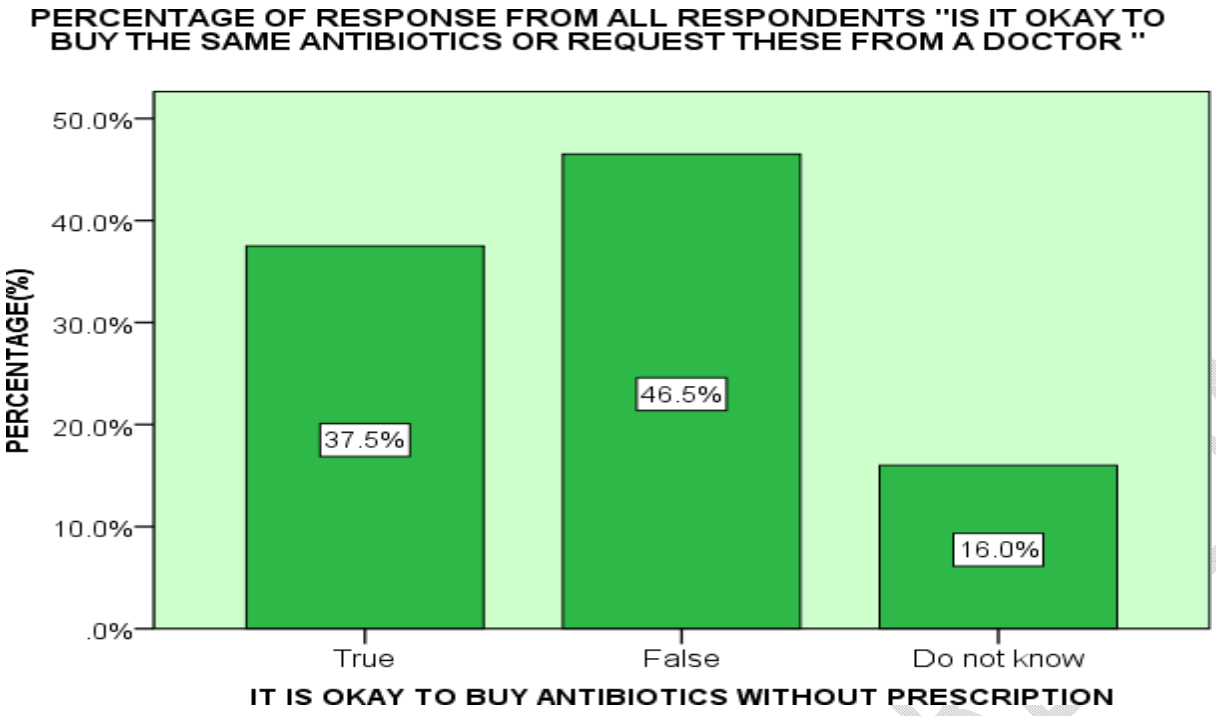
Respondents were asked where they got antibiotics, and the percentage of respondents who obtained antibiotics from a doctor or nurse is 35.5%. 30.0% obtained antibiotics from a pharmacy,10.5%fromastallorhawker,2.5%from afriendorfamily member, 1.5%from the internet, and 1.5% from someone or somewhere else.

Fig .4



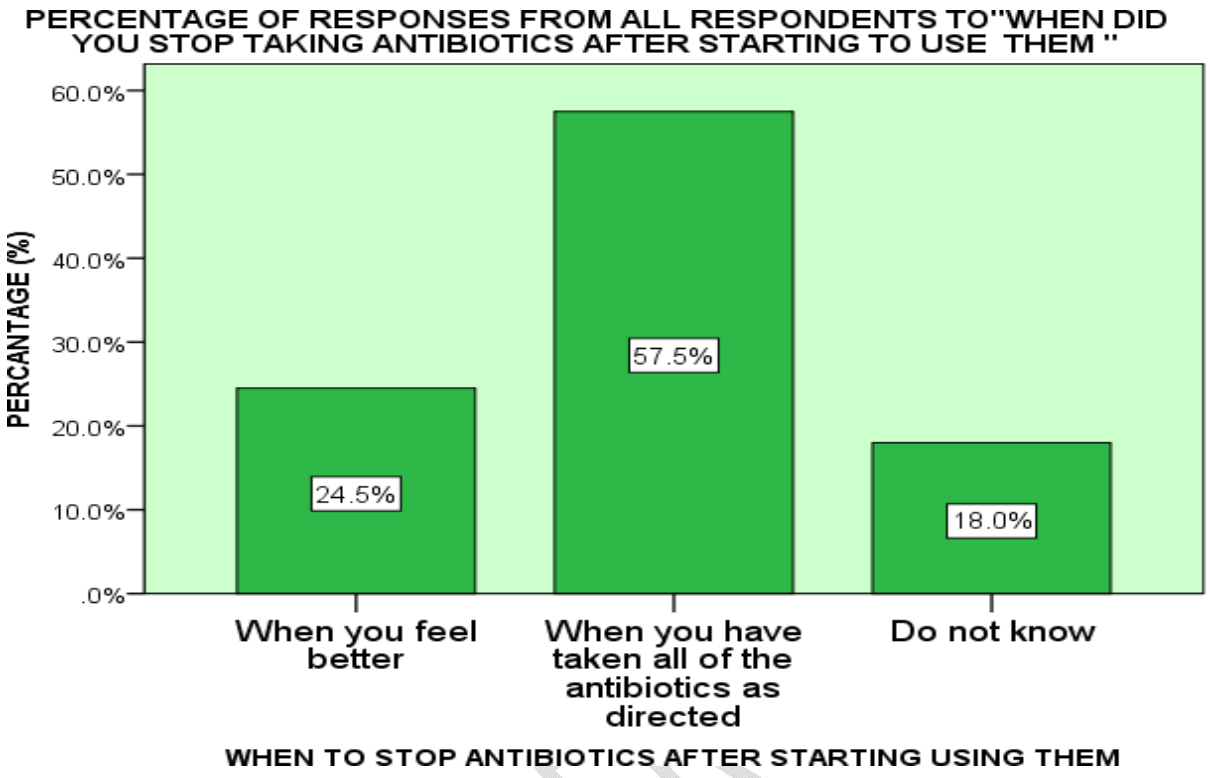
About72.5%ofrespondentsdidnotagreeon(whetherit isokaytotakeantibioticsfromfriendsorfamily members), where 17% responded that it was true, and 10.5% responded that they didn't know.

Fig .5



About46.5%ofrespondentsdidnotagreeon(isitokaytobuyantibioticswithouta prescription), where 37.5% responded True and 16.0% responded don't know

Fig.6



About57.5%ofrespondentswereaskedwhentostopantibioticsafterstartingusingthemand they answered when you have taken all of the antibiotics as directed, whereas 24.5% when theyfelt better and 18.0%, they didn't know

KNOWLEDGEOFANTIBIOTICRESISTANCE

Thefinalpartofthisreportpresentsresponsestoquestionsexploringlevelsofawarenessof antibiotic resistance.

Awarenessofkeytermsrelatedtoantibioticresistance

Respondentswereaskedwhethertheyhadheardofaseriesoftermscommonlyusedinrelation to the issue of antibiotic resistance. These included:

- ✓ Antibioticresistance
- ✓ Drug resistance
- ✓ Antimicrobial resistance

Fig .7

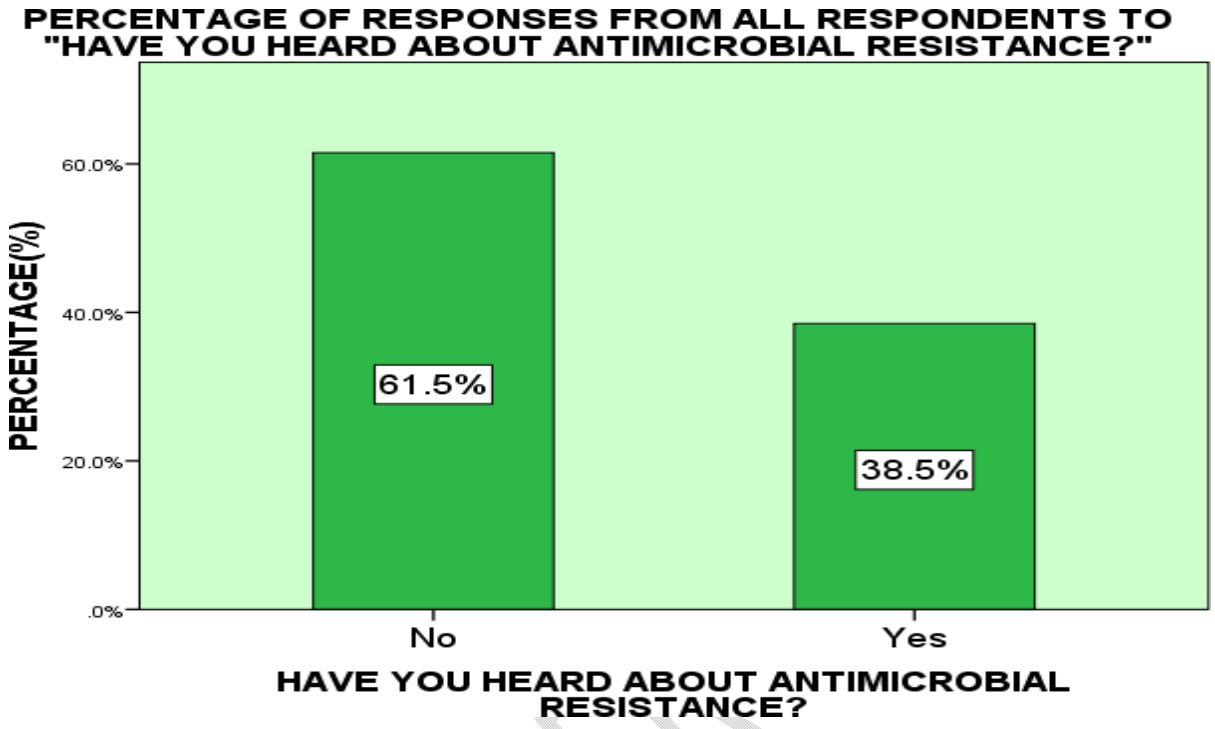
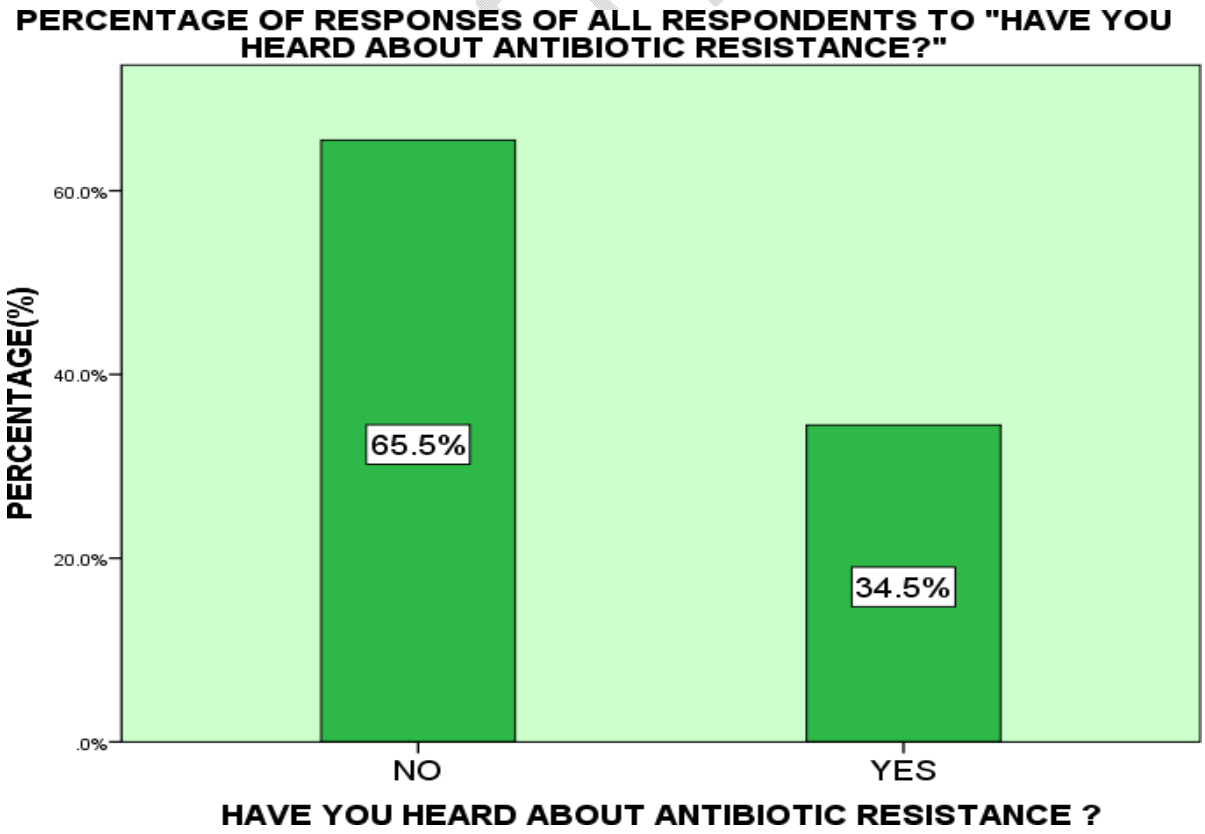

PERCENTAGE OF RESPONSES FROM ALL RESPONDENTS TO "HAVE YOU HEARD ABOUT ANTIMICROBIAL RESISTANCE?"
PERCENTAGE(%)
60.0%
40.0%
20.0%
.0%
61.5%
38.5%
No
Yes
HAVE YOU HEARD ABOUT ANTIMICROBIAL RESISTANCE?

Fig.8


PERCENTAGE OF RESPONSES OF ALL RESPONDENTS TO "HAVE YOU HEARD ABOUT ANTIBIOTIC RESISTANCE?"
PERCENTAGE(%)
60.0%
40.0%
20.0%
.0%
65.5%
34.5%
NO
YES
HAVE YOU HEARD ABOUT ANTIBIOTIC RESISTANCE ?

KNOWLEDGEABOUTDRUGRESISTANCE

Fig.9

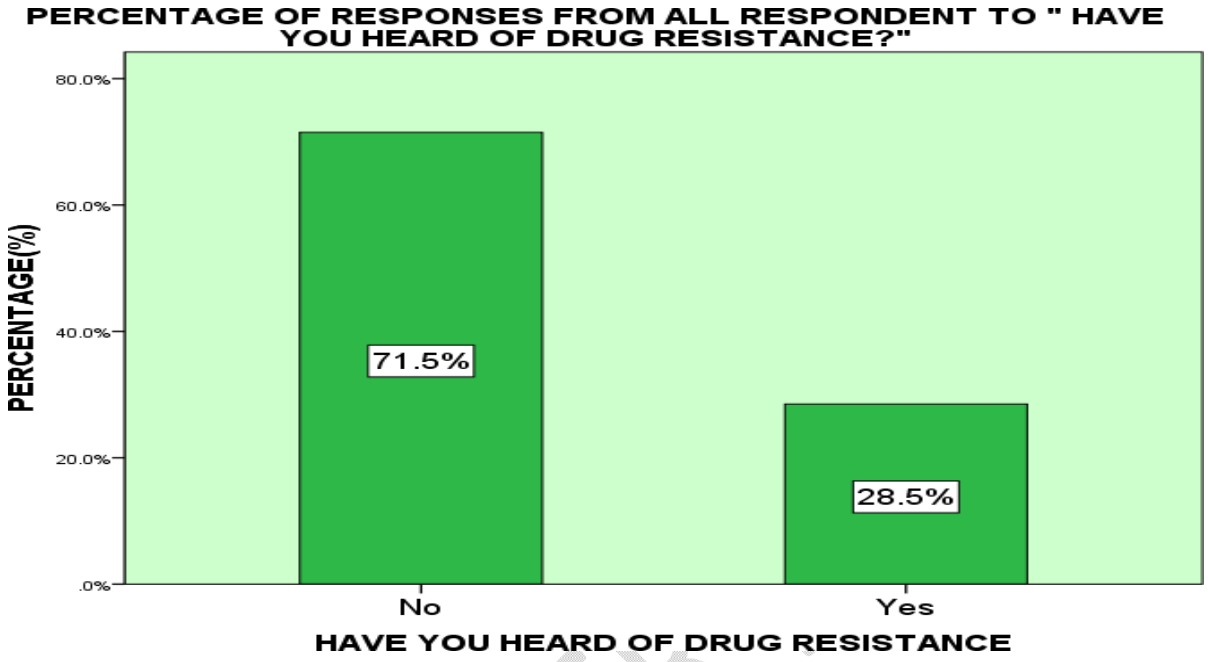


Fig.10

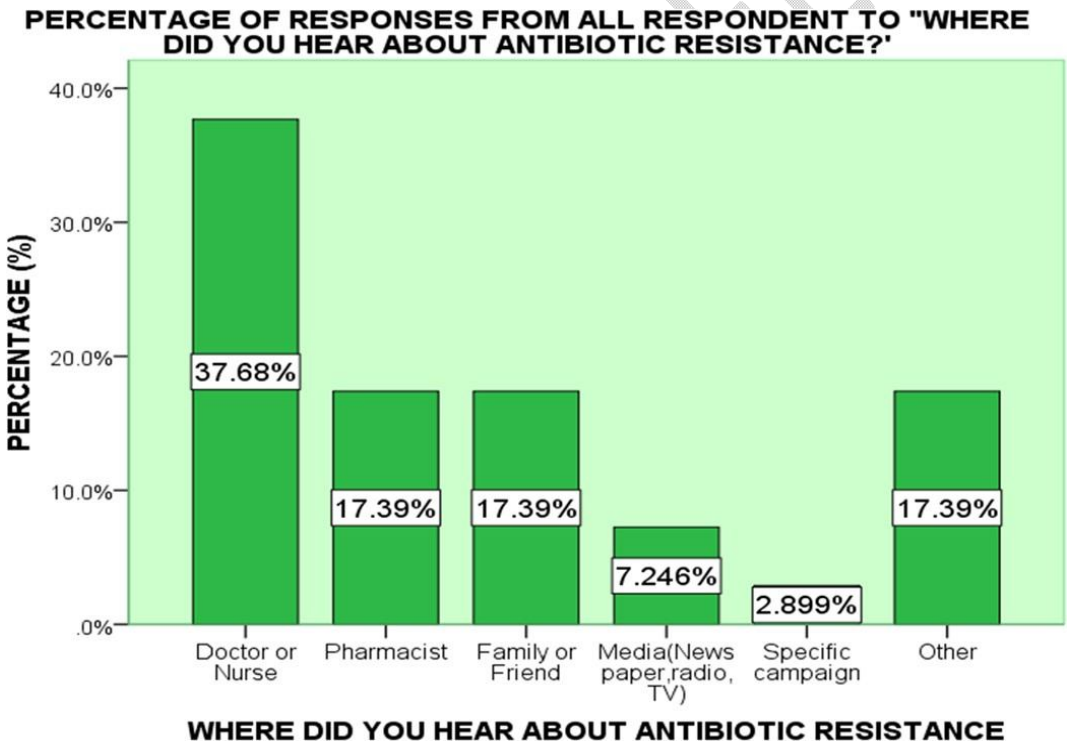


Fig.11

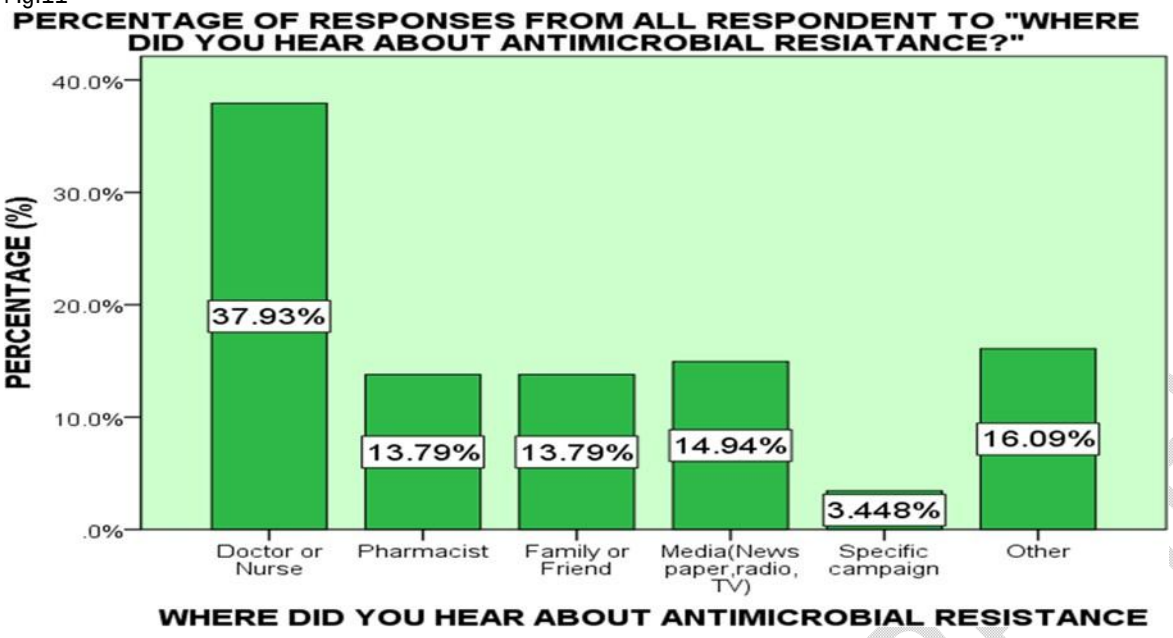
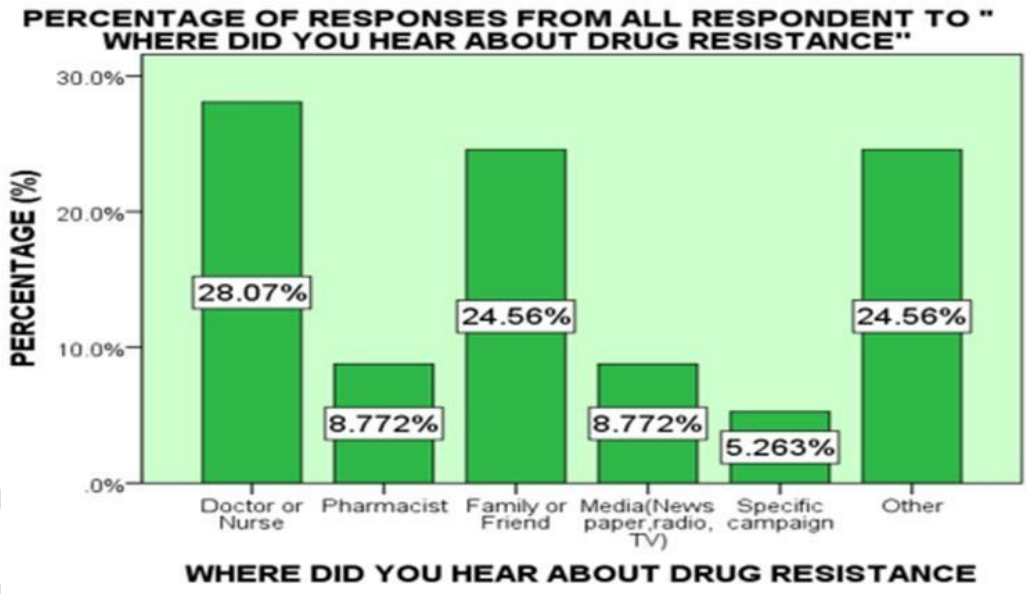


Fig.12



While(34.5%)haveheardaboutantibioticresistance,(38.5%)havelistened toaboutantimicrobial resistance and (28.5%) have heard about drug resistance and they have heard them have listened to it from a doctor or nurse (37.68%,37.93%,28.07%) respectively

RELATIONSHIP BETWEEN KNOWLEDGE OF TAKING ANTIBIOTICS FROM A FRIEND AND GENDER

Alogistic regression was performed to ascertain the effect of gender on knowledge of taking antibiotics from a friend, the logistic regression model was not statistically significant with a p-valueof 0.449 ($p<0.05$), males were 1.3 times more having good knowledge on taking antibiotics fromafriendthanfemalethoughthedifferenceinlevelofknowledgebetweenmaleandfemaleisalso less significant.

RELATIONSHIP BETWEEN KNOWLEDGE ON BUYING ANTIBIOTICS FROM A FRIEND AND GENDER

Alogistic regression was performed to ascertain the effect of gender on knowledge on buying antibiotics, the logistic regression model was not statistically significant with a p-value of 0.648 ($p<0.05$), high level of education were 0.765 times more having good knowledge on where to buyantibioticsthanlowlevelofeducationthoughthedifferenceinlevelofexpertisebetween high and low level of education is also less significant.

RELATIONSHIP BETWEEN KNOWLEDGE OF WHEN TO STOP USING ANTIBIOTICS AND GENDER

Alogistic regression was performed to ascertain the effect of gender on knowledge of when to stopusingantibiotics,thelogisticregressionmodelwas notstatisticallysignificantwitha p-valueof 0.632 ($p<0.05$), males were 0.8 times less having good knowledge of where to stop using antibioticsthanfemalethoughthedifferenceinlevelofknowledgebetweenmaleandfemaleis also less significant.

RELATIONSHIP BETWEEN KNOWLEDGE ON WHEN TO STOP USING ANTIBIOTICS AND LEVEL EDUCATION

Alogisticregressionwasperformedtoascertaintheeffectoflevelofeducationonknowledgeof when to stop using antibiotics, the logistic regression model was not statisticallysignificant with p- the value of 0.949 ($p>0.05$), males were 1.042 times more having good knowledge on when to stop using antibiotics than female though the difference in level of knowledge between male and female is also less significant.

Alogisticregressionwasperformedtoascertaintheeffectoflevelofeducationonknowledgeof taking antibiotics from a friend, the logistic regression model was not statistically significant with p- the value of 0.284 ($p<0.05$), highly educated respondents were 0.493 times less having good knowledgeontakingantibioticsfromafriendthanloweducatedthoughthedifferenceinlevelof expertise between high and low level of education is also less significant.

RELATIONSHIPBETWEENKNOWLEDGEONBUYINGANTIBIOTICSANDLEVELOF EDUCATION

Alogisticregressionwasperformedtoascertaintheeffectofgenderonknowledgeofbuying antibiotics, the logistic regression model was not statistically significant with a p-value of 0.469 ($p<0.05$), males were1.2 timesmorehaving good knowledgeof whereto buy antibioticsthan female though the difference in level of understanding between male and female is also less significant.

4.0 DISCUSSION

This study presents several important findings regarding the use of antibiotics, levels of knowledge about appropriate use, and understanding of the problem of antibiotic resistance and what can be done about it across MjiniMagharibi.

These findings can help shape future public awareness efforts and aid the evaluation of the impact of these efforts. Antibiotic resistance is one of the biggest threats to global health. It can affect anyone of any age in any country. Although antibiotic resistance occurs naturally, overuse and misuse of antibiotics in humans and animals are accelerating the process. Steps can be taken at all levels of society to reduce the impact and limit the spread of resistance, including the

public, who can help by preventing infection through good hygiene and vaccination, only using antibiotics when prescribed by a certified health professional, taking the entire course, and never sharing or using left-over antibiotics. For this reason, people must understand the problem and how they can change their behaviour. The results of this survey showed that there is much to be done. They showed that although people recognize the problem, they do not fully understand what causes it or what they can do about it.

The results of the survey questions on antibiotic use demonstrate how frequently antibiotics are taken, with a considerable majority of respondents.

Most respondents across MjiniMagharib got their last course of antibiotics, or a prescription for them, from a doctor or nurse (47.5%), and they received advice from a medical professional on how to take them (47.5%). These factors indicate that antibiotics are more likely to be taken to treat an inappropriate condition and in an inappropriate fashion.

This is in contrast to other studies [2], in which a doctor or nurse prescribed (81%) of antibiotics and (86%) gave advice on how to use them.

Although (47.5%) of respondents got a prescription from a doctor, only (35.5%) were given those antibiotics directly by a doctor and (30%) obtained them from a pharmacy, while (24.5%) them obtained from other places

On evaluating the knowledge of when to stop using antibiotics, the results show (that 57.5%) of respondents stopped using antibiotics after finishing the prescribed doses. In comparison (24.5%) stopped when they felt better, and the remaining (18%) did not know.

This shows good adherence to the antibiotic doses compared to those who do not finish the dose, though the percent is still not satisfactory.

The finding is not different from research done in Nigeria [6], where (26.1%) stopped using antibiotics when they felt better, (34.5%) had heard about antibiotic resistance, (38.5%) had heard about antimicrobial resistance, and (28.5%) had heard about drug resistance. They had heard it from a doctor or nurse (37.68%,37.93%, and 28.07%).

This implies that most of the respondents had not heard of these terms before, and doctors or nurses still have played a significant role, though their contribution to spreading awareness on antibiotic, antimicrobial, and drug resistance is still not satisfactory.

5.0.CONCLUSION

Overall, there was poor knowledge and awareness of antibiotic resistance across the study area, irrespective of gender and age. This proves that the problem is worldwide, as seen in many other studies.

6.0. RECOMMENDATION

The government should put more strategies into spreading awareness about antibiotic resistance, antimicrobial resistance and drug resistance this is by emphasising doctors and nurses to put more effort and investing in other ways of reaching more people like the use of media, specific campaigns and the internet

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CONSENT AND ETHICAL APPROVAL

Ethical clearance was obtained from ZAHRI, and consent forms were presented to the research participants in Swahili and English.

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