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Assessment of Knowledge, Attitude And Practice on the Use of Natural Antioxidants Towards Cancer Prevention Among Health Personnel at Muhimbili

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ABSTRACT

There is a concern that antioxidants reduce oxidizing free radicals created by radiation, drug and metal ions by stopping the chain reaction. Antioxidants alone are found to produce beneficial effects in various cancers. In fact, considerable data exist showing increased effectiveness of many cancer therapeutic agents, as well as a decrease in adverse effects, when given concurrently with antioxidants. That is why this research aimed at determining the knowledge, practice and attitude of health personnel towards cancer prevention by using natural antioxidants. It was a cross sectional descriptive study where by self administered questionnaires were given to 150 health personnel such as Doctors, Nurses, Pharmacists, Radiologists and Laboratory Technicians at Muhimbili. Simple random sampling was used. The Statistical Package for Social Sciences version 20 was used for data analysis. The knowledge of health personnel about natural antioxidants was good since 9.3% were found to have low knowledge, 37.3% moderate knowledge and 53.4% high knowledge on natural antioxidants. Practice was not good as 42.7% of the health personnel were found to be practicing and 57.3% not practicing. The results for the reasons to those health personnel not practicing were ,44.7% due to lack of knowledge, 37.6% due to economic problems ,15.3% due to environment and 2.4% said not available . Recommendation on using natural antioxidants for health care was good as 80.7% of them recommended and 19.3% not recommended. Attitude of the health personnel on the use of the natural antioxidant was also good as 78.6.% were found to have positive attitude, and 21.4% of the health personnel gave negative attitude. Also 85.7% of doctors have positive attitude, 84% of pharmacists, 80% of laboratory technicians. 70% of nurses and 55% of radiologists. In general the knowledge, practice and attitude of the health personnel towards the use of natural antioxidants in cancer prevention were good, but still there is a need to improve on these variables especially in knowledge and practice.

Key words: antioxidants, cancer prevention

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INTRODUCTION

We live in a world where free radicals can come from many sources and contribute to deterioration of health. Sources of free radicals include pollutants, drugs, metal ions, radiation, high intakes of polyunsaturated fatty acids and smoking. These may result into damaging cells which can result in cancer, neurological diseases, lung diseases, diabetes, vascular diseases, autoimmune diseases, aging and eye diseases. Each day, each cell in the human body endures 104 hits from free radicals—that is about three hundred trillion of free radicals hits to the body per day!,[1] Antioxidants can inhibit oxidation by giving away an oxygen molecule without requiring much energy. Oxidation is the addition of oxygen or the removal of hydrogen and can be caused by free radicals. An antioxidant can slow down or even stop the chain reaction of oxidation. It is true that the consumption of high antioxidant containing foods is associated with a decreased risk of cancer and cardiovascular disease. Epidemiological studies have shown that consumption of fruits and vegetables is associated with reduced risk of chronic diseases. Increased consumption of fruits and vegetables containing high levels of phytochemicals has been recommended to prevent chronic diseases related to oxidative stress in the human body, [1].Antioxidants are capable of counteracting the damaging effects of oxidation in body tissues. They are divided into two classes based on mechanism of action: (1) chain-breaking antioxidants, such as Vitamin E and beta-carotene, “break the chain” of free radical formation by donating an electron to stabilize an existing free radical; and (2) preventive antioxidants are enzymes that scavenge initiating radicals before they start an oxidation chain

Cancer is killing many people than malaria, tuberculosis and HIV/ Aids, [2]. There is a need to fight cancer like other major diseases. The worldwide average for infection-related cancers is about 22 %; in Africa, the figures are much higher: Forty per cent of cases in women and 30 % in men. In Tanzania, every year about 10,000 people die of cancer. About 32% of all deaths due to cancer are in people less than 60 yrs. For women in this age group, cancer is responsible for about 43% of deaths, [2]. Cancer is raising in the health agenda throughout the world. In Tanzania we are not only experiencing different kinds of cancer as those seen in developed world but we appear to be undergoing a cancer epidemic in some kinds of cancers, [2]. Cancer has been recognized as a serious public health problem in Tanzania. For the past few decades the number of cancer patients treated at Ocean Road Cancer Institute (ORCI) has been rising steadily. For example in 1975 there were 48 new patients, 1989 were 916, 1995 were 1639 and in 2004 there were 2866. A report given in 2011, about 40,000 people were detected with different kinds of cancer, out of whom 30,000 died of the disease, [2].

World Health Organization (WHO), estimated that 21,000 new cancer cases occur each year in Tanzania which was 10,080 men and 10,920 women for the year 2002. Data from Ocean Road Cancer Institute (ORCI), shows that a fifty fold increase in the number of patients reporting for treatment at ORCI has been noted from 1975 – 2000. According to the 2010 report of the World Health Organization (WHO), about 12 million people are detected with cancer every year, out of whom, 7.6 million die of the disease in developing countries. Ngoma warns that cancer is only going to become a growing burden as more people are now reaching the middle age, a time when cancer becomes more prevalent. Every February

4th of each year, the world marks the World Cancer Day and for 2011 the theme in Tanzania was “Cancer is preventable.” Sound public health policies in cancer care must include cancer prevention, education, as well as strengthening civil society and community for cancer control. It is widely believed that a National Cancer Policy has to go beyond the doctor patient relationship so as to include what can be done to prevent the occurrence of cancer

Several studies have shown that antioxidants have beneficial long-term health effects. Some studies conclude that antioxidants can slow or prevent the onset of cancer. For these reasons, antioxidants are widely recommended to be a major component of our diet. Other studies have shown that patients treated with antioxidants, with or without chemotherapy and radiation, have many benefits. Patients have been noted to tolerate standard treatment better, experience less weight loss, have a better quality of life, and most importantly, live longer than patients receiving no antioxidants, [3]. Flavonoids present in many plants are valuable in cancer prevention, [4]. Tea has been shown to inhibit carcinogenesis at the initiation, promotion and progression stages of cancer. In a report of 2000, it was concluded that Green Tea consumption was associated with a lower incidence of developing cancer in a study population in Japan, [4]. Therefore, the more Green Tea patients consume, the less likely they are to develop cancer. A study done in Tanzania, near Loliondo, north of Ngorongoro shows that bark from *Acacia nilotica* is used by the Maasai to flavour their meat soups and milk. The acacia extracts have shown to have stronger antioxidant properties than either vitamin C or vitamin E — the most popular antioxidants sold in the North. Johns said, there are several possible explanations for the Maasai's low cholesterol levels including their high fitness level. Their cholesterol levels may be influenced by substances found in traditional plant products, [5]. So far, the research team has identified some 25 plant products used by the Maasai that make them less likely to develop several diseases.

Different studies have shown several gaps in knowledge on the antioxidant–cancer prevention. The attitude of many practitioners toward antioxidant therapy for cancer is still low, [3]. Radioprotectivity by use of antioxidants is rarely applied in current clinical practice⁶. This appears to be an example of where there is a large gap in knowledge on the one hand and professional practice on the other hand. Most of the textbooks concerned with radiation protection read by radiologists and others do not even mention this cell biology approach, basically the use of antioxidants, and it is not part of the training. Nutritionists and researchers have called for use of multiple antioxidants, for protecting humans against low doses of ionizing radiation. The problem is that the practicing community has paid little attention. Thirty years ago there was little-to-no hard research on the actions or effectiveness of antioxidants and most mainstream medical doctors. Today there is much research validating both for their effectiveness and their biological mechanisms of action - but penetration of this knowledge into medical curricula has been slow and the old attitudes are still existing, [6].

The study will help in the efforts of preventing cancer by using natural antioxidants to stop its onset. The study also will raise the level of knowledge, practice and attitudes of health personnel towards the use of natural antioxidants as they are still low. Not only that, but also

the country (Tanzania) will be protected from the burden of cancer disease since antioxidants reduce the risk of developing cancer

METHODS

The study design was cross-sectional descriptive study and was conducted at Muhimbili. The study population involved health personnel at Muhimbili. The number of health personnel who were interviewed was 150 which included Doctors, Nurses, Pharmacists, Radiologists and Laboratory Technicians.

Sampling method

Simple random sampling was used, where 29.3% were Doctors, 20.7% Nurses, 17.3% Pharmacists, 14% Radiologists and 18.7% Laboratory Technicians

Data collection

Data was collected by using self administered questionnaires. For reasons of confidentiality, the names of respondents were not written down in the research instrument that were used for data collection, only the serial number was used to identify the questionnaires.

Data analysis

Data obtained was transferred from questionnaires to Computer software Program (Statistical Package for Social Sciences version 20 (SPSS 20) for data analysis. Different forms of analysis like figures and tables were applied to present the results.

RESULTS AND DISCUSSIONS

A total of 150 health personnel were interviewed and among them, 57.3% were males and 42.7% were females, 68% were Christians, 28.7% Muslims and 3.3% other religions. When grouped according to professionals 29.3% were Doctors, 20.7% Nurses, 18.7% Laboratory Technicians, 17.3% Pharmacist and 14% Radiologist. With regards to settlement 69.3% came from urban while 30.7% were from the rural and the mean age was 31 years.

KNOWLEDGE OF THE HEALTH PERSONNEL ON NATURAL ANTIOXIDANTS,

Different questions were asked in different approaches, there were 7 questions assessing the knowledge, where those who scored 0-2 were considered to have low knowledge, 3-5 moderate knowledge and those who scored 6-7 considered to have high knowledge. Example of questions asked were,

First, if they were aware that natural antioxidants are useful in cancer prevention,

Second, were asked to select the right answer for the food substances which are rich in natural antioxidants.

Third, were asked to select the right answer for the substances which are sources of free radicals.

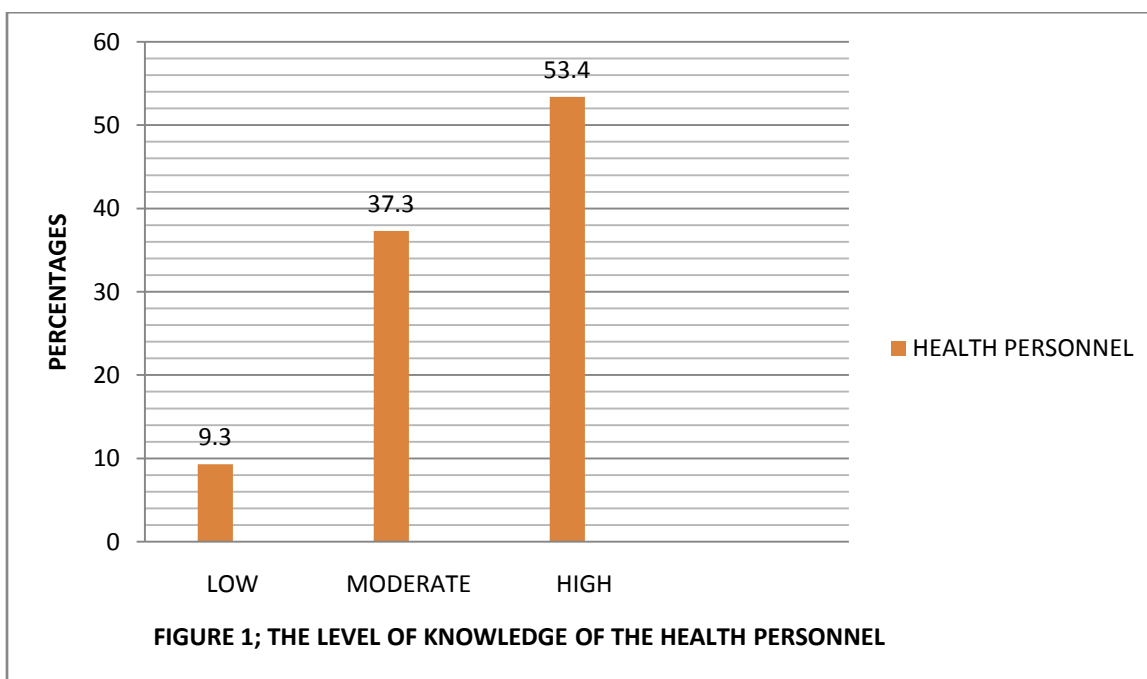
The fourth question was asking if they knew free radicals are harmful in our bodies and cause cancer development.

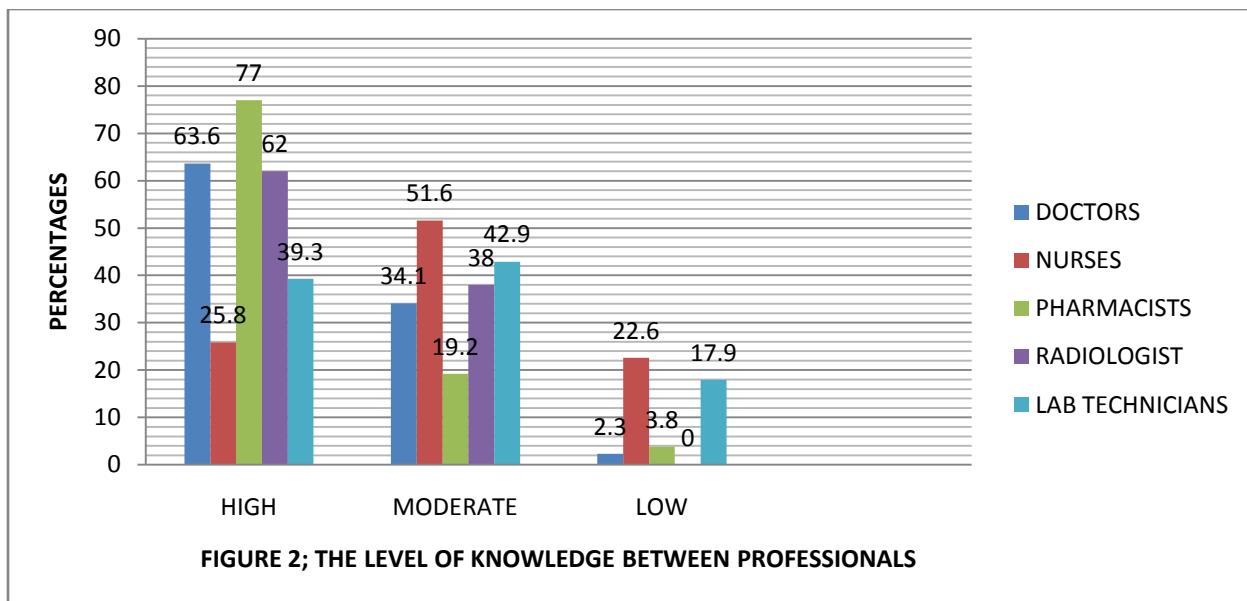
The fifth question was asking if natural antioxidants can protect against cell damage from free radicals.

The sixth question was asking if natural antioxidants can prevent the onset of cancer.

The last question was asking if they know that patients suffering from cancer and use natural antioxidants live longer than patients without antioxidants.

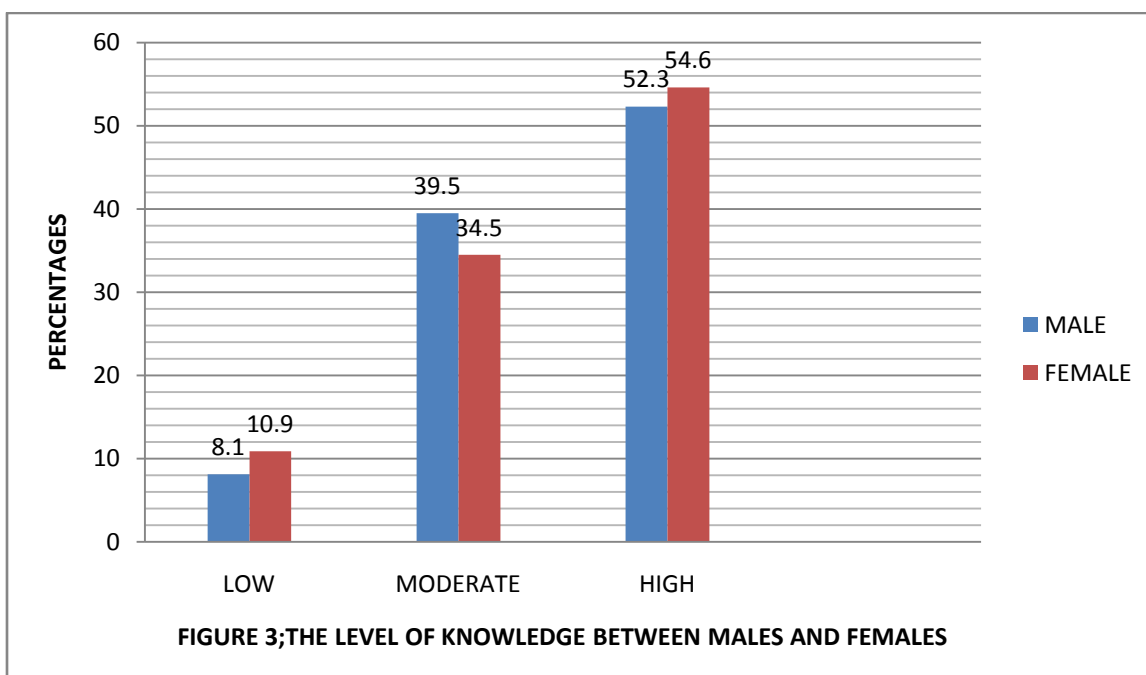
The results were as shown in Figures 1-6 below;

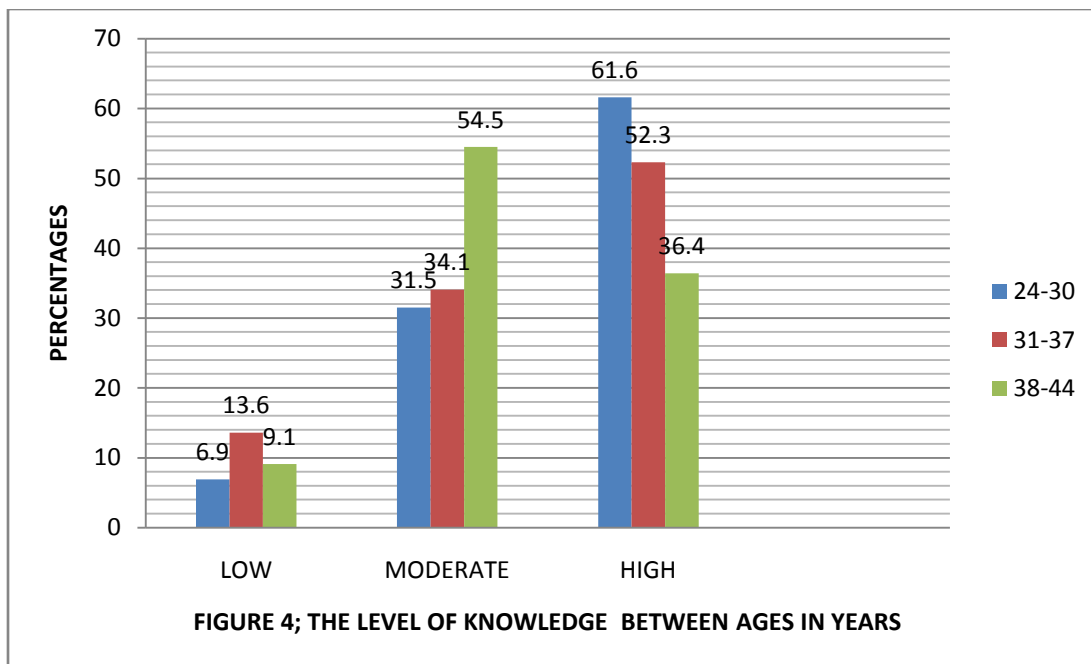




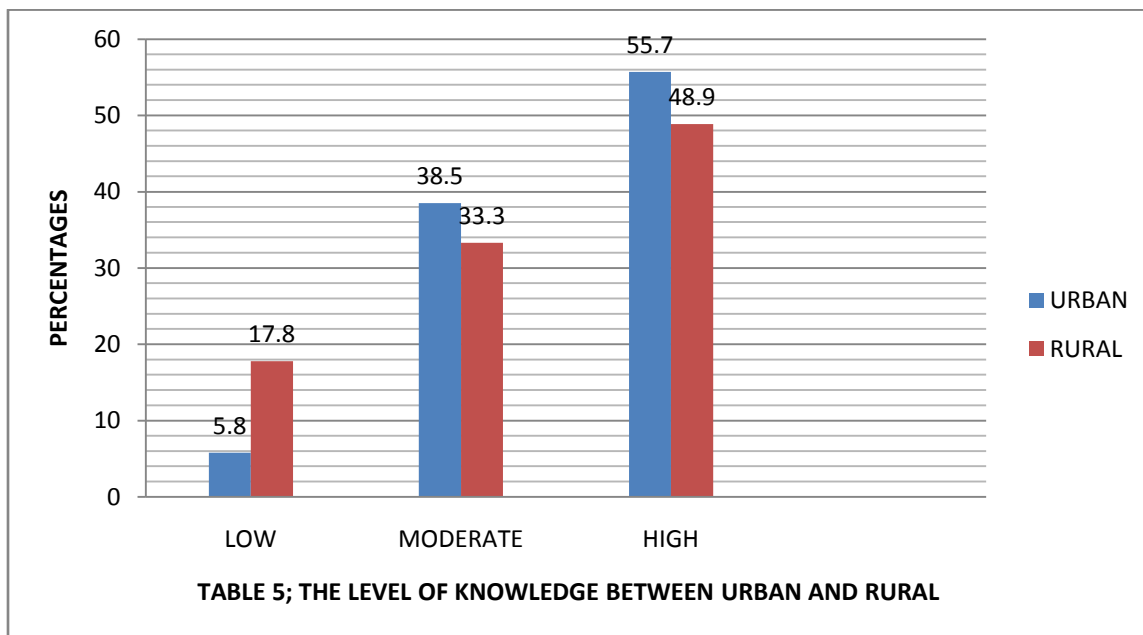
The p value was 0.001 thus, the difference in knowledge between professionals was statistical significant. From the above results, there was a significant difference in knowledge between professionals whereby, pharmacist were found to have the highest knowledge by 77%, followed by doctors 63.6%, followed by radiologist 62%, followed by laboratory technicians 39.3% and the last was nurses by 25.8.

The p value was 0.74 thus, the difference in knowledge between male and female was not statistical significant as shown in Figure 3 below.

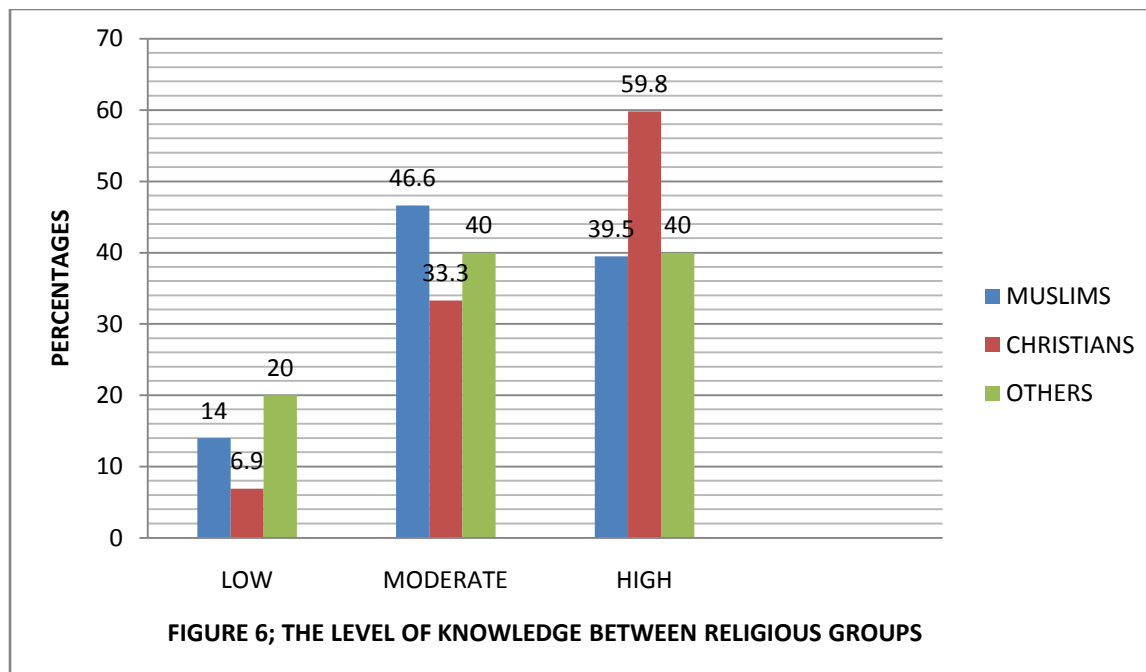




The p value was 0.11 thus, the difference in knowledge between age groups was not statistical significant



The p value was 0.078 which is greater than 0.05, thus the difference in knowledge between urban and rural was not statistical significant



The p value was 0.186 thus, the difference in knowledge between religious groups was not statistical significant

PRACTICE OF THE HEALTH PERSONNEL ON NATURAL ANTIOXIDANTS

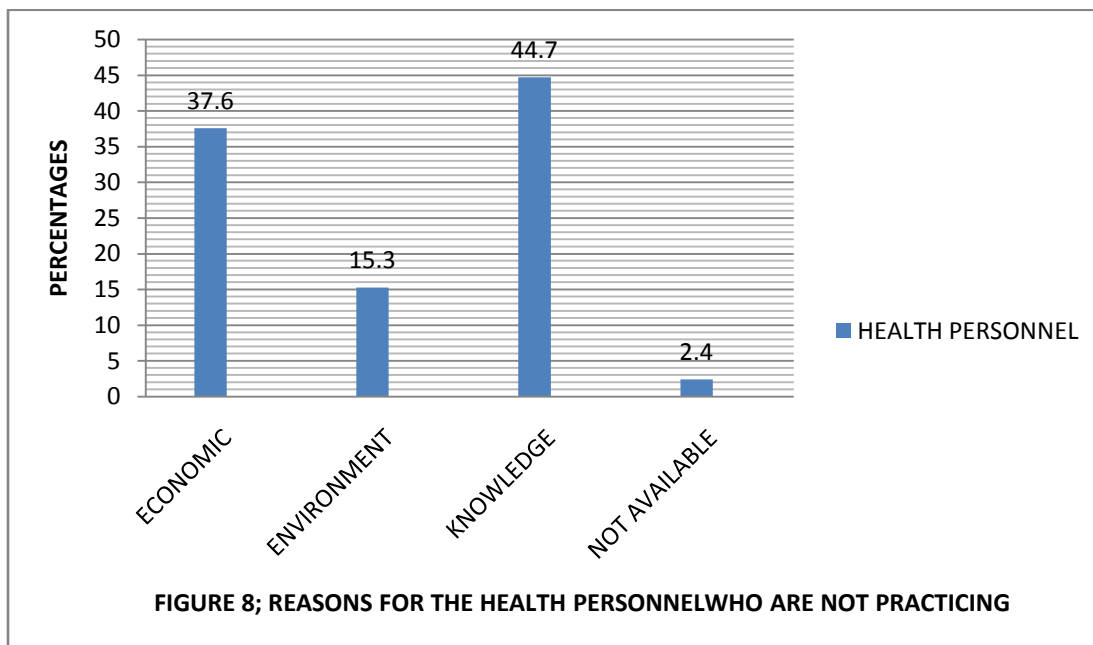
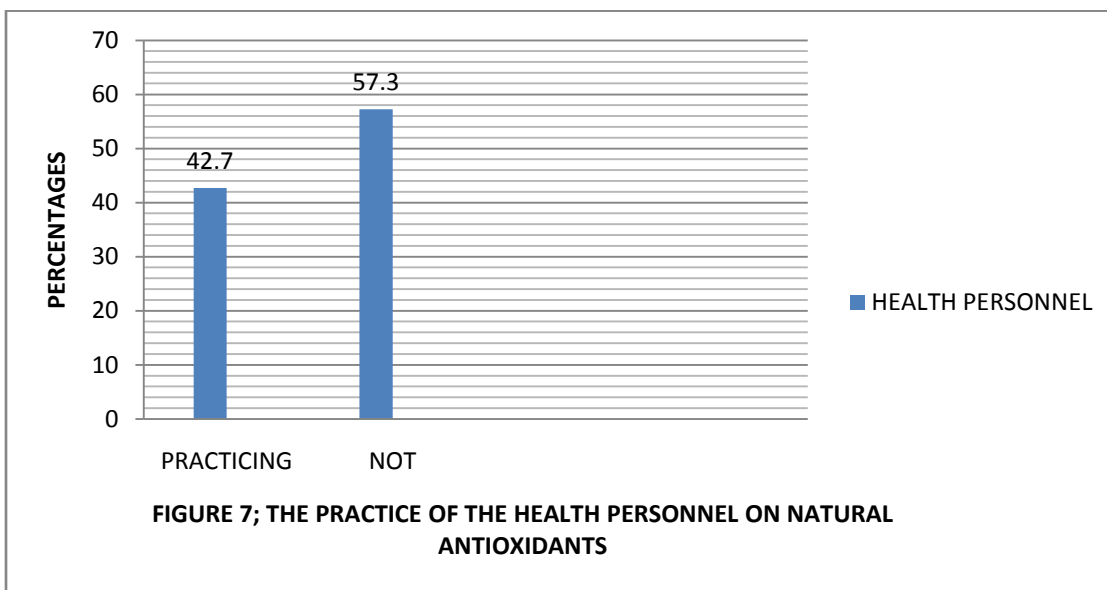
During assessing practice of the health personnel about the use of natural antioxidants in cancer prevention, the question was asking if they are taking enough foods which are containing natural antioxidants, those who answered yes were considered to be practicing and those who answered no were considered not practicing. Those not practicing were asked why not, the answers were economic problems, lack of knowledge, environment and not available.

The results were as follows; 42.7% of the health personnel were found to be practicing and 57.3% not practicing. The results for the reasons to those health personnel not practicing were, 44.7% due to lack of knowledge, 37.6% due to economic problems, 15.3% due to environment and 2.4% said not available. Therefore lack of knowledge of some health personnel is the source of not taking enough foods containing natural antioxidants.

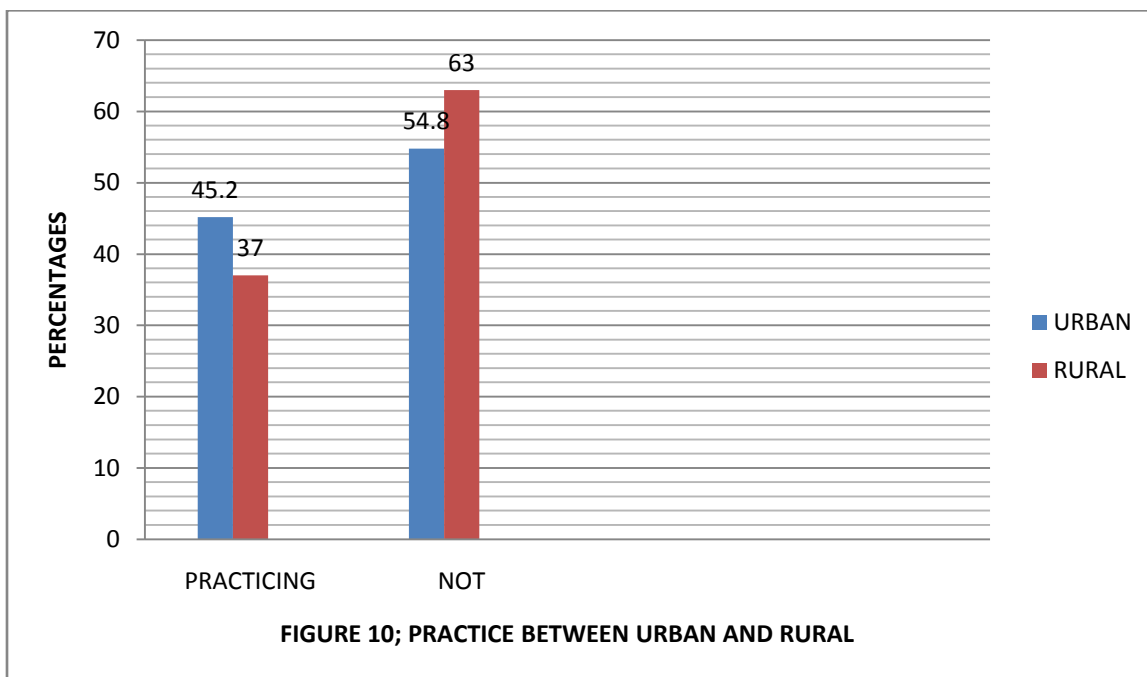
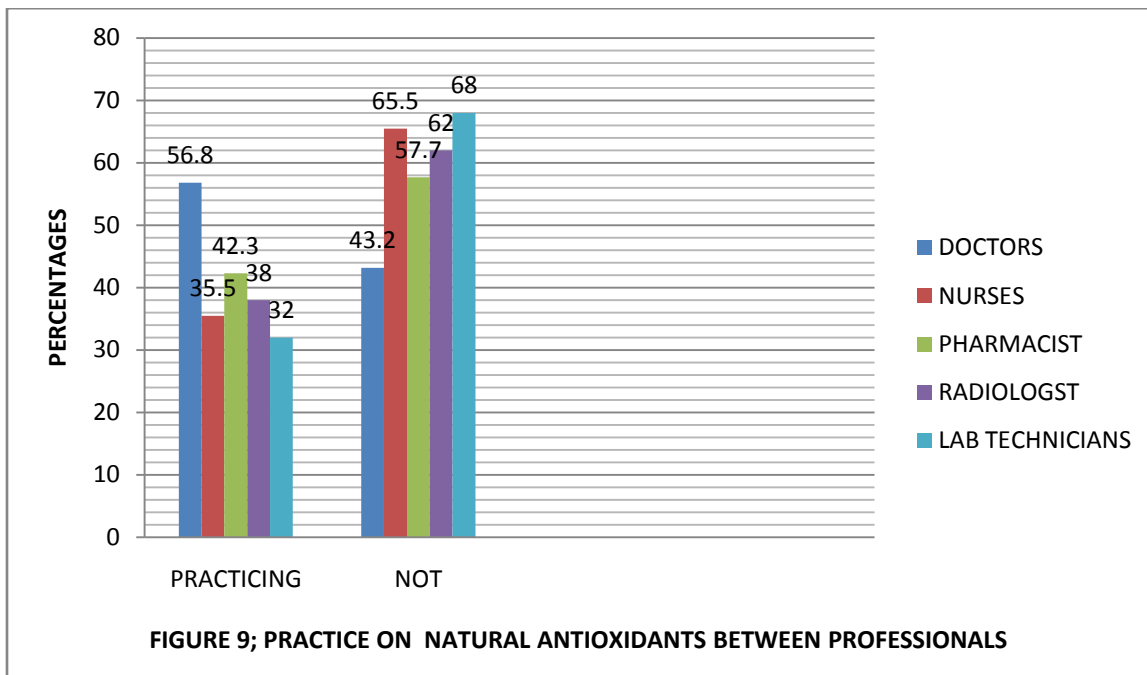
Radio protectivity by use of antioxidants is rarely applied in current clinical practice, [6]. Nutritionists and researchers have called for use of multiple antioxidants for protecting humans against low doses of ionizing radiation. The problem is that the practicing community has paid little attention. Thirty years ago there was little-to-no hard research on the actions or effectiveness of antioxidants and most mainstream medical doctors. Today there is much research validating both for their effectiveness and their biological mechanisms of action - but penetration of this knowledge into medical curricula has been slow, [6].

Also they were asked if they recommend the use of natural antioxidant for cancer patient and for normal person, 80.7% said yes they recommend, and 19.3 % said no, they do not recommend.

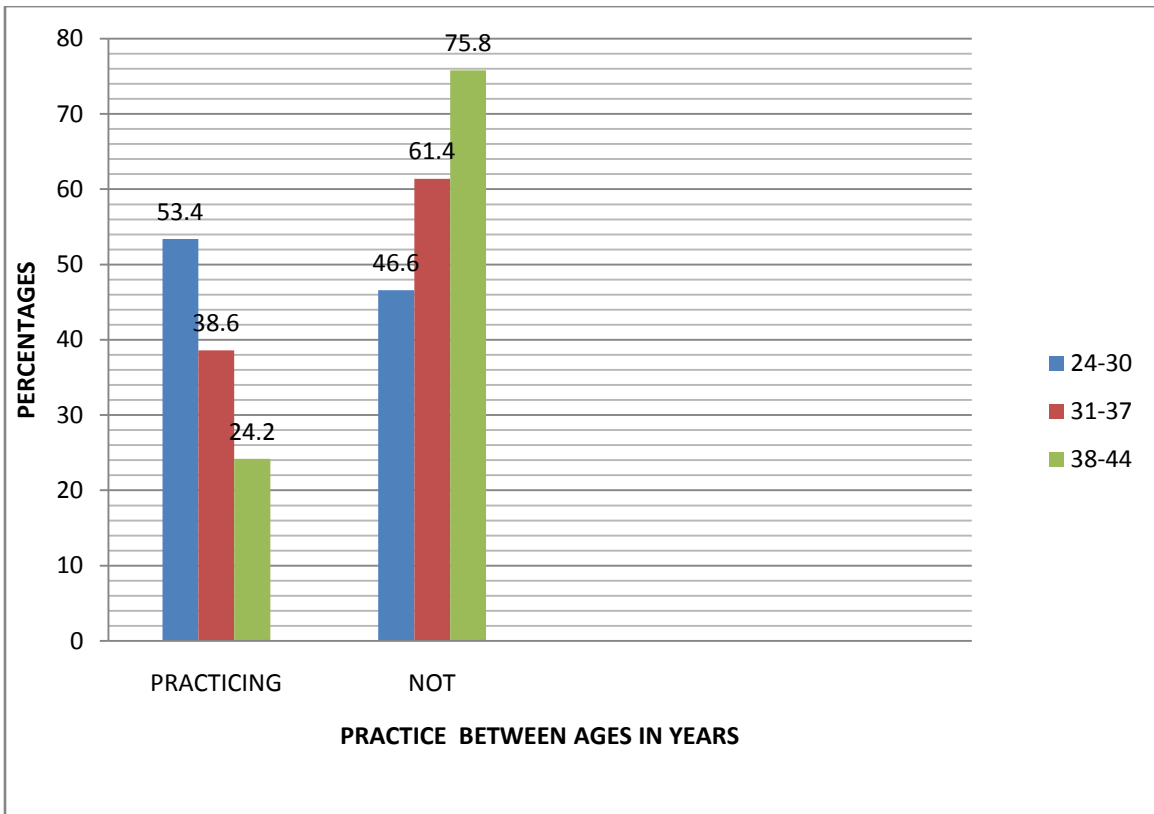
Finally they were asked if they recommend that natural foods containing antioxidants should be a major component of our diet, 90% said yes they recommend and 10% said no, they do not recommend. Therefore general recommendation was good, that means foods rich in antioxidants from natural source should be taken enough for the health care. The results are as shown in Figures 7-13 below



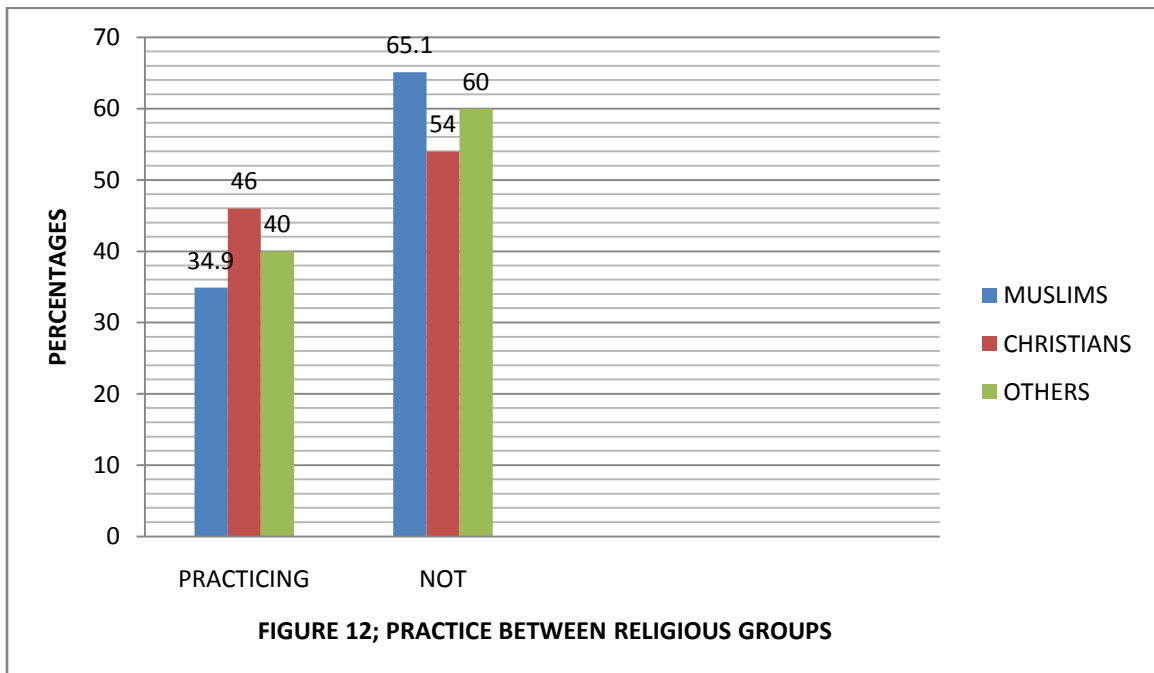
The p value was 0.22 therefore the difference in practice between professionals was not statistical significant



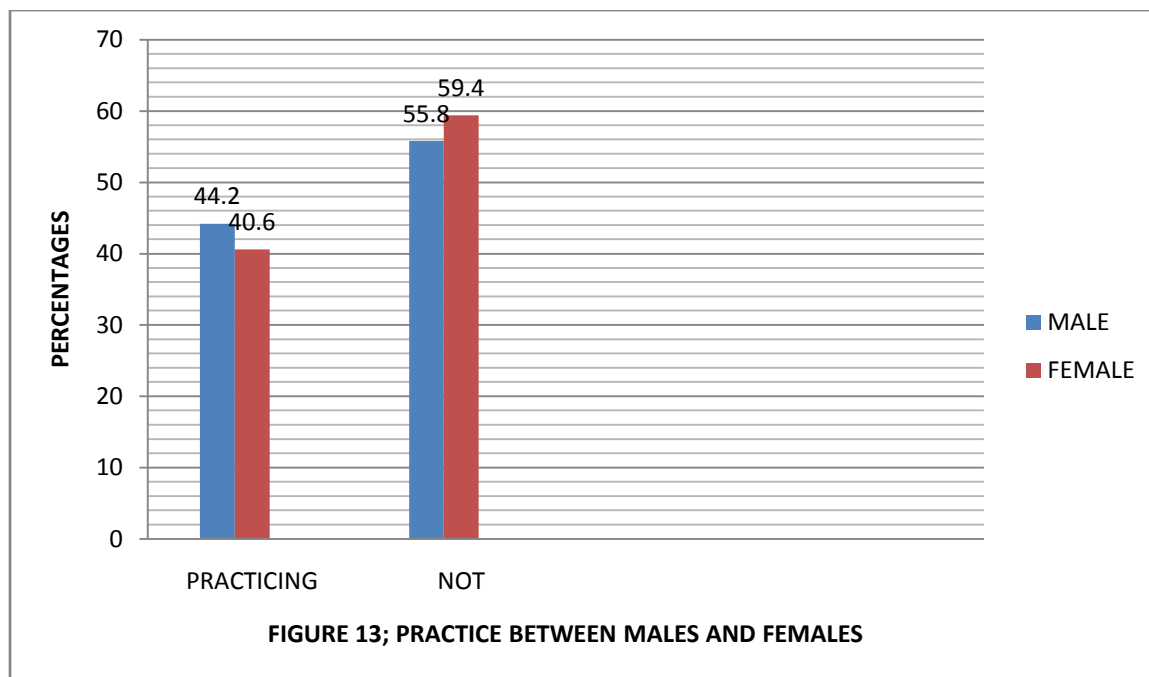
The p value was 0.35 thus, the difference in practice between urban and rural was not statistical significant



The p value was 0.016 thus, the difference in practice was statistical significance between age groups



The p value was 0.45 thus, the difference in practice between religious groups was not statistical significant.



The p value was 0.65 thus, the difference in practice between males and females was not statistical significant

ATTITUDE OF THE HEALTH PERSONNEL TOWARDS NATURAL ANTIOXIDANTS

Three questions were asked;

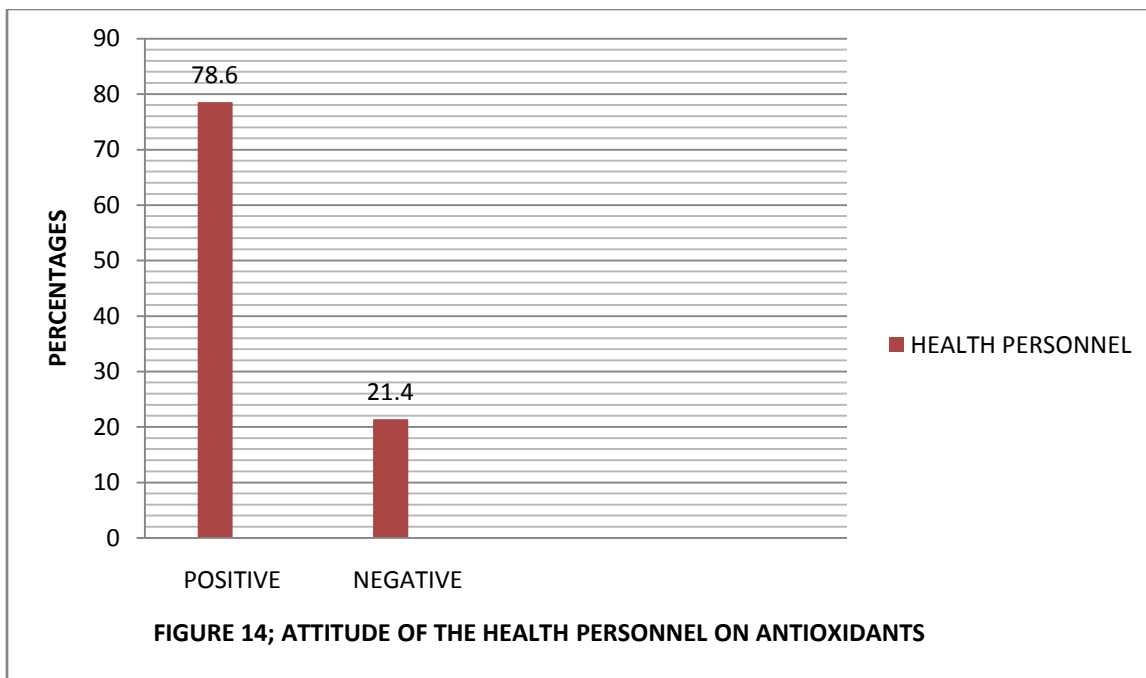
If natural antioxidants are safe and effective in cancer prevention,

If they believe that by not taking enough foods containing natural antioxidants they can develop cancer,

If there is a need to learn about natural antioxidants,

Those who responded yes to 2-3 questions were considered to have positive attitude and those who responded yes in only one question plus those responded no to all questions were considered to have negative attitude

Results were as follows; 21.4% of the health personnel gave negative attitude and 78.6% gave positive attitude as shown in Figure 14 below.

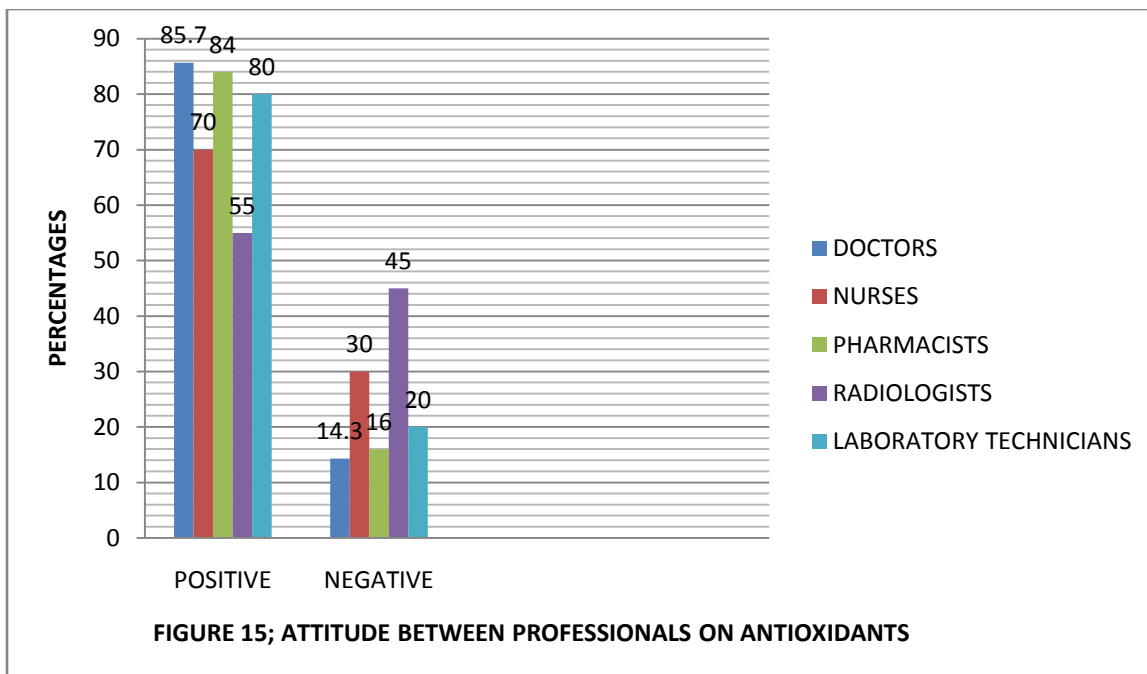


Attitude between professionals

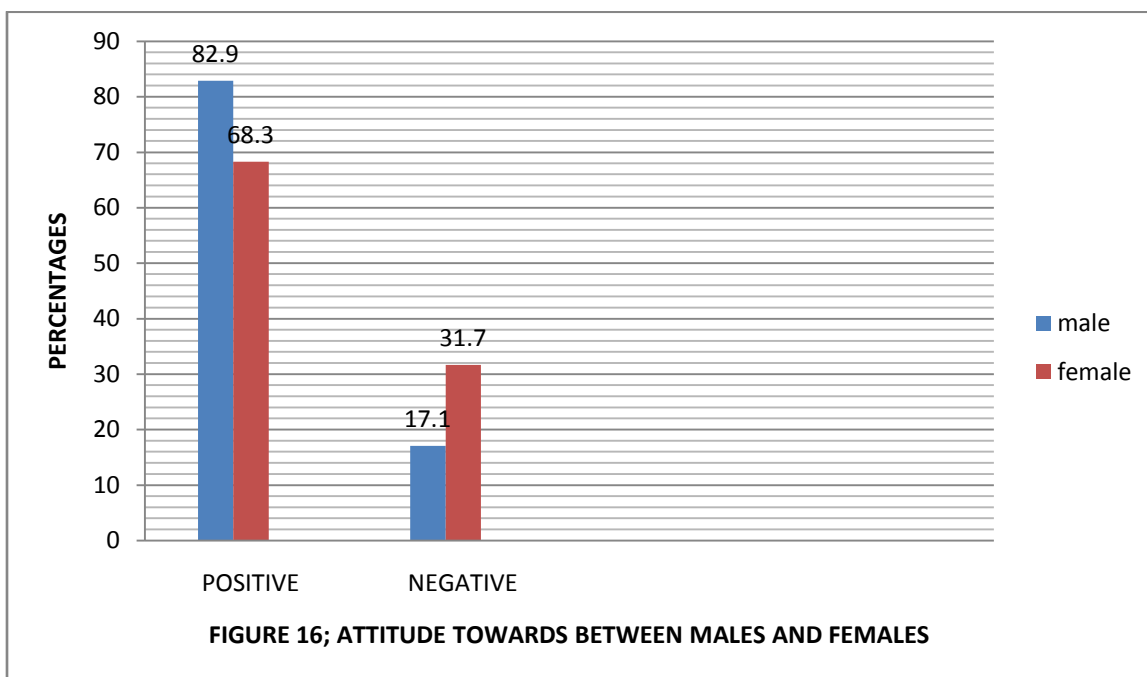
There was a positive attitude on the use of natural antioxidant in cancer prevention where 85.7% of doctors, 70% of nurses, 84% of pharmacists, 55% of radiologists and 80% of laboratory technicians.

When comparing the previous attitude with the present attitude of the practitioners, the present attitude is higher (85.7%) than that of the previous which is low.

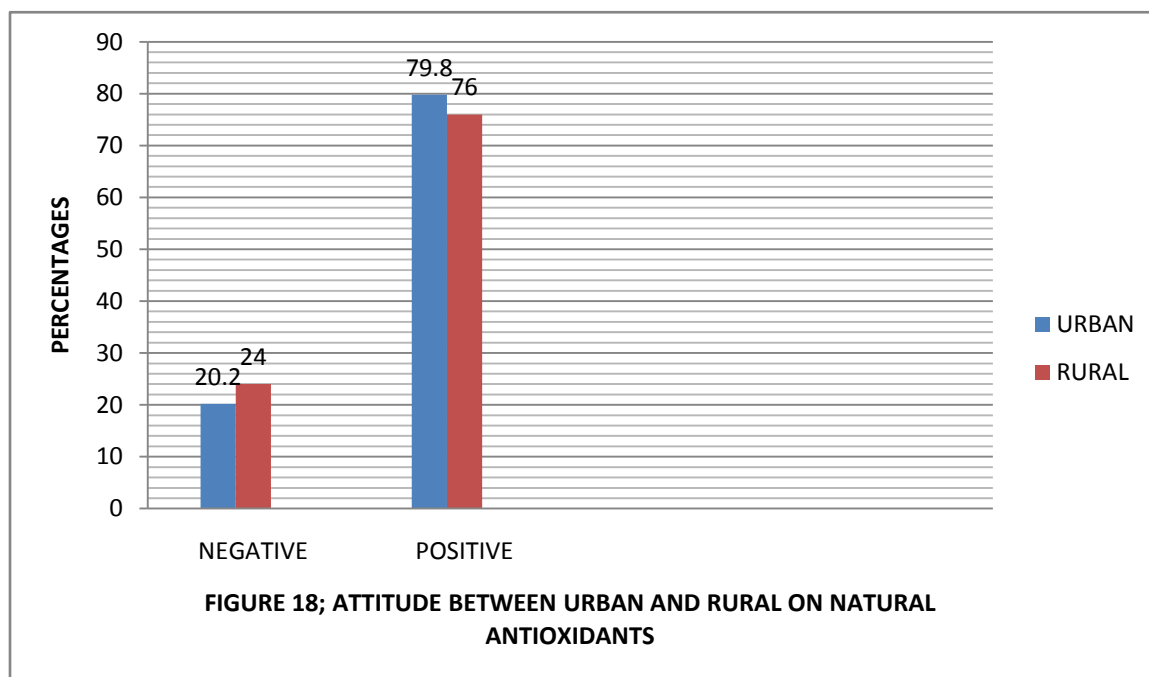
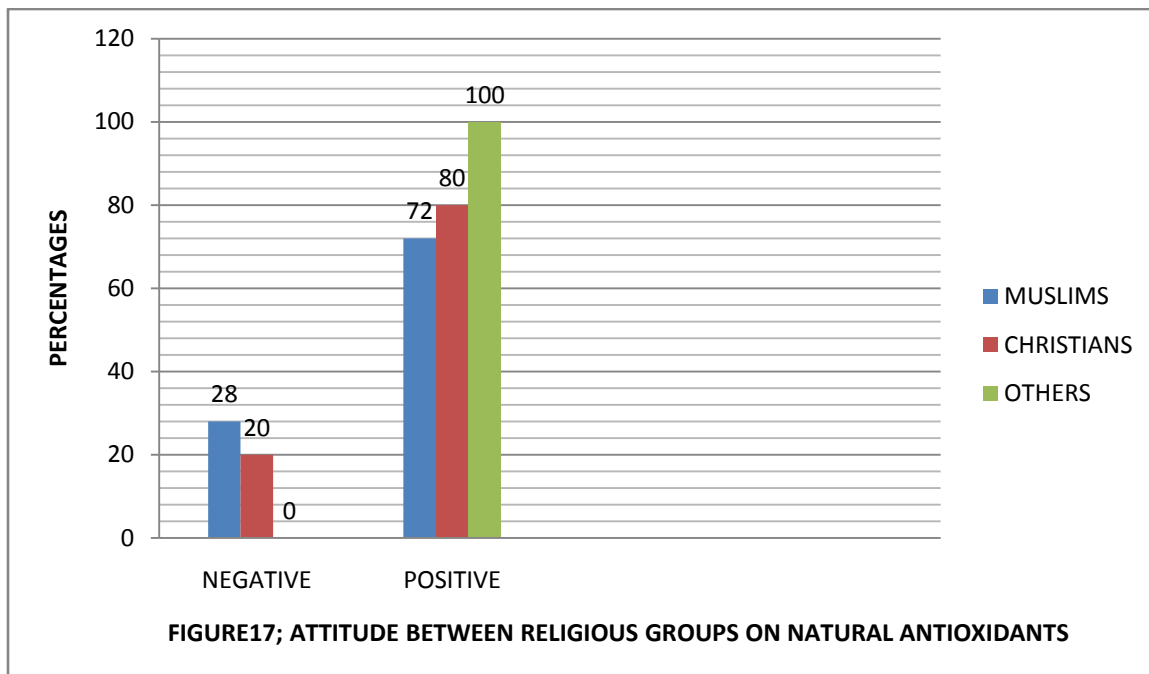
The attitude of many practitioners toward antioxidant therapy for cancer is still low, [5].



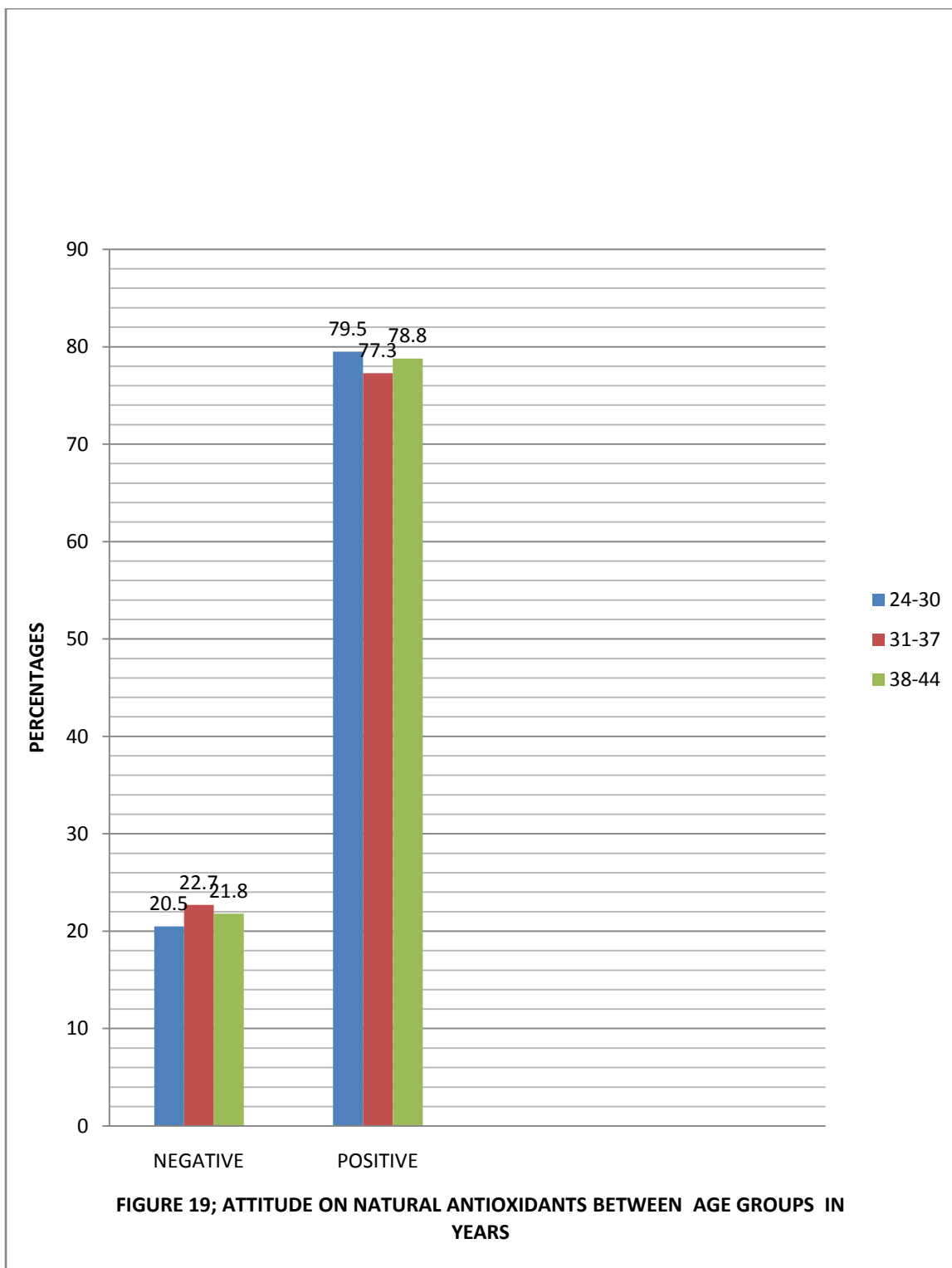
The p value was 0.065 thus; the difference in attitude between professionals was not statistical significance, all professionals found to have positive attitude on natural antioxidants to be used in health care.



The p value was 0.045 thus, the difference in attitude between males and females was statistical significance, where males were found to have positive attitude more than females by 82.9% of males and 68.3% of females



The p value was 0.16 thus, the difference in attitude between urban and rural was not statistical significant.



The p value was 0.58 thus, the difference in attitude between age groups was not statistical significant



CONCLUSION

The purpose of the study was to assess knowledge, attitude and practice of health personnel (DOCTORS, NURSES, PHARMACISTS, RADIOLOGISTS AND LABORATORY TECHNICIANS) at MUHIMBILI towards natural antioxidants. From the results we conclude that, health personnel in all Professionals had good knowledge and attitudes towards natural antioxidants but practice was not good. There was a significant difference in knowledge between professionals, whereby pharmacist were found to have highest knowledge by 77%, followed by doctors, 63.6%; radiologist 62%; laboratory technicians 39.3%; and the last were nurses by 25.8%. There was no significant difference in knowledge between, religious groups, age, settlements and sex.

Also there was a significant difference in practice between age groups where the age between 24-30 was found to practice by 53.4%, followed by 38.6% of age between 31-37, and the last was between age group 38-44 which was 24.2%. The settlement, professional, sex and religious have no significant effect on practice of the health personnel on natural antioxidants.

There was also a significant difference in attitude between males and females, where males were found to have positive attitude more than females by 82.9% of males and 68.3% of females. The settlement, professional, age and religious have no significant effect on attitude of the health personnel towards the use of natural antioxidants in cancer prevention.

RECOMMENDATION

Further study should be done in a large sample size, and should be done in other health facilities like BUGANDO and MBEYA Referral Hospitals.

All health personnel in health training institutes in Tanzania should consider natural antioxidants as part of the courses to be covered, since the results shown indicate that pharmacists have higher knowledge (77%) than other professionals, this reflects that only pharmacists covered this course. Thus, to improve health care provisions, other professionals should also be exposed to this course.

Also many health personnel have recommended the use of natural antioxidants in cancer patients and in health people. So in order for this to be done, they are the ones to start practicing, since the results have shown that they are not practicing due to low knowledge. Therefore there is a need for this course to be included in the curriculum.

Further more natural antioxidants should be used in cancer patients to reduce treatment cost and to prevent the onset of cancer in normal person. Patients will tolerate standard treatment better, experience less weight loss, have a better quality of life, and most importantly, live longer than patients receiving no antioxidants. Thus, the burden of cancer in Tanzania will be reduced.



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