Omega-3 awareness and consumption among KFU medical students

(Does our awareness influence our behavior?)

Anwar Sami Al-khalifah, Wejdan Saleh Al-Drees, Malak Jawad Al-Haddad, Asmaa Esmaeel Al-Smaeel, Hessa Salman Al-Moaibed, Fatimah Mohammed Al-Mubarak.

Medical students, King Faisal University, College of Medicine, Al-hasa, Saudi Arabia.

Abstract— Aim To measure the level of awareness and consumption of Omega-3 among different ages of medical students at KFU. In addition, to discover whether there is any relationship between males and females in their consumption. Finally, to assess whether medical students apply their knowledge in the reality specifically. Research background Omega-3 fatty acids have been acknowledged as an essential very long-chain fatty acids contributing to either achieving optimal health or protection against diseases [(3),(4),(5)]. Method It is a cross sectional study, the number of participants was 204 students. Data collected through a questionnaire, which distributed online and through hard copies distribution. The questionnaire covered three parts, biographical data; assess the awareness of Omega-3, and consumption. Data analyzed statically using chi-square test.Result the study demonstrated that there was a relationship in the level of consumption and awareness among males and females of KFU. In addition, medical students within age of 21-23 years old are having the highest level of awareness of Omega-3 comparing to other age group that lies between 18-20 years old. In spite of the high level of the awareness, these students do not consider consumption of Omega-3 as a part of their healthy diet. Conclusion Medical students of KFU are not applying their knowledge in their daily life.

Index Terms— Omega-3, fatty acids, awareness, consumption, knowledge, and medical students.

1 Introduction

Dietary fats typically are categorized as saturated or unsaturated fatty acids. The saturated fats are solid at room temperature, which include butter and lard. The second type of fats, which is unsaturated fatty acids, are liquid at room temperature. Example of this type is vegetable oils such as corn and olive. In addition, unsaturated fatty acids may be monounsaturated or polyunsaturated [(1)]. There are two types of polyunsaturated fatty acids essential for health, which are omega-3 (n-3 fatty acids) and omega-6[(2)]. Omega-3 fatty acids have been acknowledged as essential very long-chain fatty acids contributing to either achieving optimal health or protection against diseases, and even longevity [(3),(4),(5)]. Although they are important for health, the body cannot produce them.They are found in fish, such as salmon, tuna, and halibut, other seafood including algae and krill, some plants, and nut oils [(6)]. Apropos to the types of Omega-3 Fatty Acid, there are two main types. The first type is alpha-linolenic acid (ALA), which can be found mainly in vegetable oils, such as soybean, flaxseed and in walnuts. The second type is eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), which is can be found in fatty fish. Normally, the body converts ALA to EPA and DHA during digestion [(7)]. The recommended intake of Omega -3 Fatty acids is at least 2.5 grams per day. There are many benefits of omega-3 and because of these benefits, they are considered as essential and important for maintaining health. Their importance in reducing inflammation, fights wrinkles, protect our vision is well known and may lower risk of chronic diseases [(8)] [(9)]. Furthermore, they can lower elevated triglyceride levels. Thus lowering the risk of heart disease, protecting those at risk of developing Coronary heart disease. They also help on decreasing the risk for thrombosis, which can lead to heart attack and stroke [(10)]. Similarly, Omega-3 fatty acids help in decreasing the blood pressure in people with untreated hypertension. In addition, there is increasing evidence that omega-3 fatty acids may also be important to mental health, contributing to brain memory, performance and behavioral functions [(11)]. Omega-3s helps in lowering the levels of depression. Fish oil enhances the effects of antidepressants [(12)]. On the other hand, there are negative health consequences of consuming

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high doses of Omega-3 fatty acids. For instant, they can alter immune function that lead to a dysfunctional immune response to infections, and they led to increase the risk of colitis [13]. High doses of omega-3 fatty acids may also increase the risk of bleeding. People with bleeding disorders should use omega-3 fatty acids cautiously, or who take blood-thinning medications [14]. In addition, it is known to increase the risk of childhood allergies. Menstrual flow or, vaginal bleeding, nosebleeds, paralysis, prolonged bleeding from cuts, puffiness or swelling of the eyelids. With this background in mind, it wasxdecided to conduct a research to explore the awareness of the benefits of omega 3 fatty acids among the medical students in King Faisal University. In addition, an enquiry was made into the level of consumption of this nutrient among the students.

2 Research methodology

2.1 Study design:

Cross sectional: in a cross-sectional survey, a sample of individuals is selected from a previously defined population and contacted at a particular point in time to understand the level of medical students' awareness and their consumption of omega 3 fatty acid [15].

2.2 Study participant:

In order to assess the knowledge and consumption of Omega 3 fatty acid, this study will be conducted on male and female medical students in KFU not other students from other departments. The choice of medical students due to the fact that medical students know more about health benefits than others, and more expected to promote the health awareness among public.

While our sample is a convenience samples, the study participant have an equal chance of being selected. This study sample will be about 204 out of the total number of first, second and third year medical students, which is approximately 450. This sample size represents about 50% of the study population. Therefore, the results will represent the level of the awareness and consumption among medical students. The participant age is ranged from 18 years old to above.

2.3 Method of data collection:

This study's data will be collected by a questionnaire to assess the level of awareness and consumption of Omega 3 fatty acid among medical students in KFU. The researchers themselves design the questionnaire in a way to be able to collect that reflects the awareness and consumption of Omega 3 fatty acid. The first part is designed to collect demographic data such as name, place of living, age, social status and gender. The second part of the questionnaire is designed to detect the awareness of the importance of Omega 3. The last part is designed to detect the level of consumption of omega-3 fatty acid. To grantee effective and sufficient data collection, this study's questionnaire will be administered online and hard copies. Therefore, target population can easily access.

2.4 Analysis:

Descriptive statistics are disciplines of quantitatively that are used to summarize and describe data, which can either be a representation of the entire population or a sample [15]. The data could be analyzed in multiple ways, but because the data is qualitative it used to be chi square test. In addition, Chi Square would help to determine the relationship among the variable factors that affect the consumption of omega3 of medical student in KFU by the aid of SPSS.

2.5 Ethical consideration:

Conducting a research by asking the participations of medical students, required to achieve many ethical considerations. First, it has promised to keep the confidentiality of the students, which would help them to feel freely while filling the survey. Second, it has considered the autonomy and the privacy of the students by putting the name field optional. Finally, it has taken the permission from the students to use their data in the research.

2.6 Limitaion

- Study population is only medical students so the result does not reveal the general population perspectives.
- Some questions in the study's questionnaire students found them difficult to answer such as the amount of the vegetables that contain Omega 3 that they consume.

However, the above limitations do not influence the reliability of the research.

3 Results

The research concluded the association between medical students' age and the level of Omaga-3 awareness. According to the analysis 93.7% of medical students whose ages range between 21-23 years old are aware of omega 3, comparing to 18 – 20 years old medical students with a percentage of 69.2%. (Figure1). In contrast to the age, the research indicate that there is no association between the gender and the level of level of awareness. The results advocate that 79.5% of male medical students, 81.6% of female medical students are aware of Omega-3 (Figure2). Furthermore, the research concluded that there were an association between the age, and the level of Omega-3 consumption. The research indicated that 12.5% of medical student whom age between 18-20 eat the required amount of spinach compared with 29.6% of medical students whom age between 21-23. Resulting in concluding that medical students whom age range between 21-23 consume

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more amount of spinach compared with other students. Similarly, the research concluded that there were an association between the gender, and the level of Omega-3 consumption. It indicated that 25.0% of the total male students eat the required amount of spinach (0.17 grams) and 25.0% of them eat less than 0.17 grams. While 18.9% of the total female students eat 0.17 grams of spinach and 51.4% of them eat less than 0.17 grams.

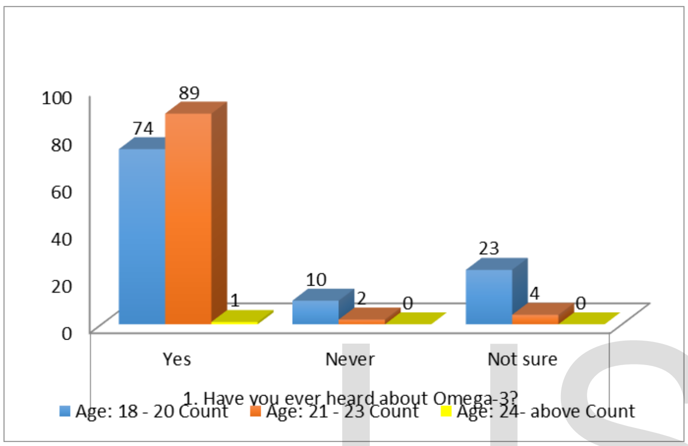

Figure 1: Graph illustrates the relationship between the students' age and level of awareness about Omega-3.

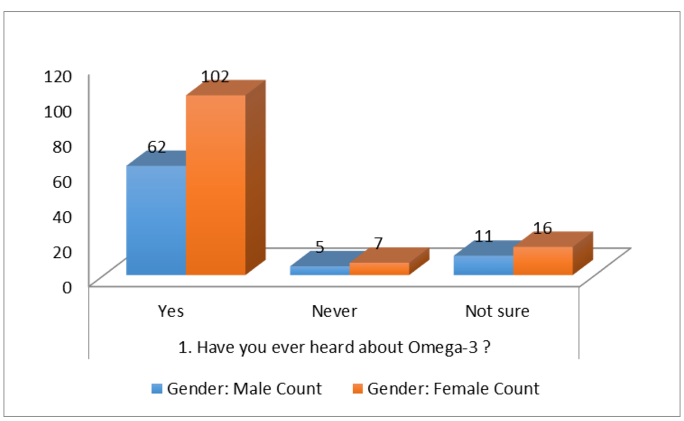

Figure 2: Graph illustrates the relationship between the gender and the level of awareness of Omega-3.

4 Discussion

The purpose of the study is to reveal whether medical students at King Faisal University are applying their knowledge about the beneficial food in including them as a part of their food consumption, specifically the food that contain omega 3. In addition, this research has conducted the level of awareness of omega-3 among medical students. The results of the study has supported that medical students in King Faisal University have awareness of omega-3, but unfortunately they did not apply the advantages of their knowledge in their daily life. To advocate this, the results revealed that medical student between the ages of 21-23 are more aware of omega-3 regarding its benefits comparing to their younger colleagues. This referred to the samples that have been studied about Omega-3 Fatty Acid in their medicine's course. The study also revealed that the level of consumption is low because the medical students didn't engage the information they studied with their daily life. As in the result, most of medical students that did not consume omega-3 Fatty Acid in their daily life explain that the reason is that they had not like the food that usually contain omega-3 Fatty Acid. The results had proven that medical students in KFU had a high level of awareness about omega3, but their consumption is low and that awareness does not help them to increase their consumption. This may associate with several reasons. One of these reasons is the inability of the students to provide the food that contains omega3, or omega3 supplements. A second reason, some of the students do not like the food that contain omega3 or have a difficulty to adhere to omga3 supplements. A third reason, some of the students do not focus on the types and benefits of food that they eat. Finally, and the most important reason, being in an health care environment that provides the awareness of the advantages or disadvantages of a certain food or another thing, is not a reason to follow their awareness. This hypothesis is supported by a study done by Stojanović M et al. (2013) in Serbia, which indicated that out of 1,383 participants, 45.60% were smokers, of whom 34.13% were physicians and 51.87% nurses. There were 46.4% male and 45.4% female smokers[(20)]. This study claims that there is a high percentage of health providers who smoke even they are the most people know about the disadvantages of smoking. In addition, Food and Nutrition Board in the United States (2002) recommended adequate intake for omega-3 fatty acid for males whose age within 18 years and within 19 years or older [(21)]. Apropos to the types of Omega-3 Fatty Acid, there are two main types. The first type is alpha-linolenic acid (ALA), which can be found mainly in vegetable oils, such as soybean, flaxseed and in walnuts. The second type is eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), which is can be found in fatty fish. Normally, the body converts ALA to EPA and DHA during digestion [(16)]. The minimal intake of omega-

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3 fatty acids for males whose age within 18 years is 1.6 g/day, and 1.1 g/day for males within age 19 years or older. However, male consumption of omega-3 can vary according to the family history. For example, American Heart Association (AHA) recommends eating fish at least 2 times per week healthy male adults with no history of heart disease [21]. Regarding the gender, the study endorsed the absence of the relationship between the gender and the awareness and consumption of Omega-3 Fatty Acid. In addition, students between the age 18-20, especially female students are supplied with omega-3 from Spinach rather than other food comparing to others students who are less eating Spinach. Over and above, these female still consume low amount of Omega-3 products. In subject of the relationship and gender, a study conducted by Papanikolaou Y1 et al. in USA, (2014) had showed that males Intakes of fish high in omega-3 fatty acids were higher in older adults 19-50 years and in males as compared to females, few consumed recommended levels. Males also had higher intake of EPA and DHA from foods and dietary supplements relative to females, and older adults had higher intakes of EPA, but not DHA compared to younger adults [17]. These results support that medical students in KFU are not completely aware of omega-3. Moreover, a clinical study showed that revealed that people with lower levels of omega-3 fatty acids had more learning and behavioral problems than people with normal omega-3 fatty acids level. According to experimental studies in animals that shown disturbances in neural function because of the researchers applied diets lacking omega-3[18]. Deficiency of Omega-3 fatty acid is responsible of causing several mental problems. For example, depression, which is a disorder that disturbs the mood, causes a loss of interest or pleasure in activities that person should enjoy, and makes the person irritable. Consequently, this research conducted that medical students are more supposed to be depressed regarding to the low consumption of Omega-3 Fatty Acid in their food. Furthermore, experts in a particular study examined healthy young males and females ages 18 to 25 from all ethnicities who heightened their Omega-3 intake with supplements for 6 months. A working memory test was then given to the participants, in which they were provided a series of letters and numbers they had to remember. Moghaddam, is a researcher, explained: "What was particularly interesting about the presupplementation memory test was that it correlated positively with plasma Omega-3. This means that the Omega-3s they were getting from their diet already positively correlated with their working memory. "Prior research on rodents suggested that eliminating Omega-3 from the diet can lower dopamine storage - the neurotransmitter linked to mood and working memory - and reduce density in the striatal vesicular monoamine transporter type 2 (VMAT2) - a protein linked to decision making. On going trials in the Moghaddam lab on animals demonstrated that brain mechanisms that are impacted by Omega-3s might be affected differently in young adults and adolescents than in older adults [19]. Moreover, Omega-3 plays a significant role in cardiovascular diseases. One of the effective ways to prevent cardiovascular diseases is to eat foods rich in omega-3 fatty acids. Therefore, clinical evidence suggests that the two types of omega-3 (EPA and DHA), which they found in fish oil help to decrease high cholesterol and high blood pressure, which they consider as risk factors for heart disease [6].

5 Conclusion

The present study is conducted the level of awareness of omega-3 consumption among medical students, revealed important results. The results demonstrated that medical students within age of 21-23 years old are having the highest level of awareness of omega-3 comparing to other age group that lays between 18-20 years old. In spite of the high level of the awareness, these students have studied about Omega-3 and its consumption due to their educational level, they do not consider consumption of omega-3 as a part of their healthy dietary supplement. That is included that medical students are not applying their knowledge in their daily life. According to this result, medical students who consume low level of omega-3 could put their health at risk of a number of physical and mental health to adverse consequences. As indicated in the literature deficiency of omega-3 may increase the risk of depression, memory defects and coronary heart diseases.

6 Recommendation

- Bigger sample size that is representatives to the general population.
- Another study needed to discover the factors that affect and prevent medical students from consuming Omega-3 Fatty Acid.

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