Journal for Research in Applied Sciences and Biotechnology

www.jrasb.com

ISSN: 2583-4053

Volume-1 Issue-3 || August 2022 || PP. 6-10

https://doi.org/10.55544/jrasb.1.3.2

Consumption of Functional Food by Cardiovascular Disease and Its Role in Disease Management

Taw Yanie[1] and Bushra Shaida[2]

[1]Student, School of Allied Health Sciences, Sharda University, Greater Noida, INDIA.

[2]Assistant Professor, School of Allied Health Sciences, Sharda University, Greater Noida, INDIA.

[2]Corresponding Author: bushra.shaida@sharda.ac.in

www.jrasb.com || Vol. 1 No. 3 (2022): August Issue

Received: 26-06-2022	**Revised:** 17-07-2022	**Accepted:** 27-07-2022

ABSTRACT

Consumption of functional food by cardiovascular disease patient plays a very important role in their management. Due to the increase globalization and changes in lifestyle, many adult populations are at high risk of hypertension and have contributed to high mortality and morbidity and related CVD risk. The purpose of this study is to assess the nutritional status of CVD patient and their intake of functional food. Many studies regarding functional food have confirmed that nutrition has great impact for prevention of chronic disease as most of them are consumed in daily life. The tool used for this study is questionnaire-based form which is physically ask by visiting the hospital. The expected outcome is we would get to know about if a patient is including any functional food in the diet and also, we would be able to know about the role of its in disease management. From this study, it has been found that many CVD patients are not awareof the importance of functional foods.

Keywords- functional food, globalization, hypertension, questionnaire.

I. INTRODUCTION

Cardiovascular can be refer to a number of situation which is associated to heart and blood vessels like heart attack, stroke, coronary artery disease etc. Heart attack or stroke are familiar in old age group of people and it is an acute event which generally occur due to blockage that prevents the blood flowing to heart /brain. Cardiovascular being the leading cause of death around the world and growing the health concern internationally.(1) The most important behavioral risk factor of CVD are unhealthy diet, physical inactivity and consumption of tobacco. Between 1990-2020, it has been assuming world widely that CVD disease is playing a major role in increased mortality and morbidity(2). The reason behind the increasing rate of CVD risk is because of two trend principle 1. The education of malnutrition and infectious disease as primary cause of death, which allowing for an aging of population. 2.The marked used of smoking cigarette. Thus, the increasing burden of CVD risk can be seen in those old and middle age in developed countries(3).

The curiosity in physiological components of that we consume plays an important role in one's life. Consuming healthy diet or healthy food can increase your lifespan. Functional foods contain physiologically active food component that supply health benefits ahead of its necessary nourishment. Functional food based on their basic nutritional function and biologically active ingredients with physiological health benefits can reduce the possibility of cardiovascular disease. Various functional foods comprise to be potentially useful in the hindrance and dealing of the CVD (4). Some of the functional foods are soyabeans, oats, psyllium, flaxseed, garlic, fish, nuts and etc. Incorporating functional food in ample quantity on regular basis can decrease the risk of CVD through reducing the LDL cholesterol, raising the level of HDL cholesterol, lowering the BP. The study was conduct to evaluate the consumption of Functional Food by cardiovascular disease patient. And Nutritional Status of the patient.

Classification of Functional Foods: Functional is classify according to 6 different classes which is further divided as you can see in below figure.

Journal for Research in Applied Sciences and Biotechnology

www.jrasb.com

ISSN: 2583-4053

Volume-1 Issue-3 || August 2022 || PP. 6-10

https://doi.org/10.55544/jrasb.1.3.2

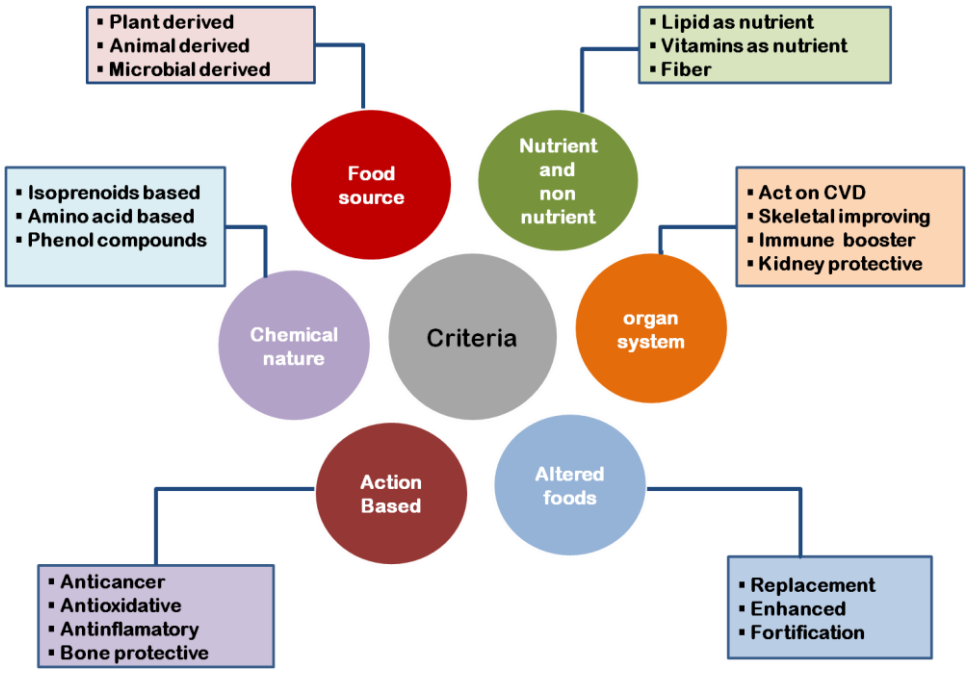

Figure 1: Classification of Functional Foods

II. METHODS

2.1. Selection of study place:

The selected place was at Sharda Hospital, located at Greater Noida, Uttar Pradesh.

2.2 Study Population:

A cross-sectional study was conducted among the patient of the hospital having CVD. A total of 100 patient were taken for the study. The data were collected in the month of march 2022 from the hospital.

Data Collection:

Data was collected by preparing a questionnaire as per demand of the study. The answer was given by the patient and the questionnaire was explain to them one by one by the person conducting the study. The data was divided into three parts. The first part of the questionnaire includes the socio-demographic profile such as name, age, gender etc. Second part of the questionnaire include the Nutritional Assessment of the patient, which include the basic Anthropometric Measurement that is BMI, height and weight and it also included if they are having, decrease food intake, losing weight, acute disease over last three month, also their mobility if they are able to move or able to walk properly. In the third part of the questionnaire, food frequency questionnaire was incorporated for the opinion of intake of functional food, where 10 functional foods were chosen and ask the patient if they consume or not. For second part of questionnaire three score were given that is 0, 1, 2 as per requirement of the questionnaire. For the third part of questionnaire, it is also included three response which is never, once/twice a day and 3 or more days.

Consumption of functional foods:

The 10 functional food was taken into account, such as tomato, soy, fermented dairy product, fruit juices, garlic, green tea, fatty fish and oats. Base on this, the questions was asked if they include any of these functional food in the diet and how many percentage of people include it in diet(5)

Functional foods	Important of functional foods
1. Tomato	Tomatoes are high in the antioxidant lycopene. It can also help protect your cells from injury in the same way. Potassium, vitamins B and E, and other minerals are also found in tomatoes.
2. Soy	Soybeans have been shown to reduce the risk of a variety of health problems, including cardiovascular disease, stroke, coronary heart disease (CHD), several malignancies, and improved bone health.
3. Fermented Dairy Product	Probiotics, prebiotics, and bioactive substances are found in fermented dairy products. Fermented dairy product shown to have a variety of health benefits in numerous studies. Consumption of fermented dairy products has been linked to health benefits.
4. Fruits Juices	Fruit juices have a wide range of nutritional content, yet they all provide a number of

ISSN: 2583-4053

Volume-1 Issue-3 || August 2022 || PP. 6-10

https://doi.org/10.55544/jrasb.1.3.2

	health benefits. They are high in antioxidants, which assist to minimize the risk of certain health problems, as well as vitamins, which help the body work properly.
5. Green Tea	Green tea was used to control bleeding and heal wounds, aid digestion, improve heart and mental health, and regulate body temperature. Green tea has been shown in studies to help with weight loss, liver disorders, type 2 diabetes, Alzheimer's disease, and other conditions.
6. Fatty Fish	The oil in fish is wealthy in Omega-3 unsaturated fats which makes them the best food of the ocean. Omega-3 unsaturated fats are known to advance heart wellbeing and mind wellbeing.
7. Whole Oat Product	It is proven that Oat product have ability to lower the LDL cholesterol. Eating oats is linked to an average 7% drop in LDL cholesterol
8. Garlic	Garlic stops the oxidizing of LDL (terrible cholesterol). This decreases cholesterol levels and further develops heart wellbeing. Ordinary utilization of garlic diminishes the occurrence of blood clumps and in this manner forestalls thromboembolism. Garlic in addition bring down circulatory strain great for patients with hypertension is as well.
9. Fruit Juices	Consuming suggested measure of products of the soil can assist individuals with diminishing their risk. These incorporate cardiovascular infection, type 2 diabetes, a few diseases, and stoutness.
10. Cruciferous Vegetables	Numerous nutrients and minerals, cruciferous vegetables are likewise an extraordinary wellspring of omega-3s. These sound fats are fundamental for some normalphysical processes — like assisting with keeping up with great mental wellbeing, decreasing the gamble of cognitive deterioration, and conditions like Alzheimer's sickness.

Statistical analysis:

The data were collected using questionnaire and were coded, tabulated and finally analyzed statistically. The tabulation of data was done in the Microsoft excel, to simplify the presentation and facilitate suitable comparisons. Statistical data were used to analyze data collected. According to koul (1992) (6) analysis data means studying the organized material in order to discover interest facts.

Before analyzing the data first, filled all the questionnaire in the excel and accordingly filled the answer, and made a excel form. After filling all the questions and answer according to the score, the result is calculated.

III. RESULTS

Socioeconomic status and Demographic factors:

Socioeconomic status is the societal or individual or group It is measured as combination of edification, wages and profession. It is said to be key determinants of health status of an individual.

Demographic investigation is study of populace base on factor such as age, race and sex. It is referred to socioeconomic information spoken statistically include employment, education, income, etc. So, both socioeconomic and demographic factors play an important role on the pattern of consumption of food and nutrients.

Age :

Age is one of the main factors that play vital role in weakening CVD function, follow-on increased risk. The AHA report, rate of CVD in US men and women is 40% (40-59 yrs), 79% (60-79 yrs), and 80% above age 89yrs (7). Age is self-determining hazard of CVD, which gradually increase as we grow older, due to which it leads to an oxidative stress.

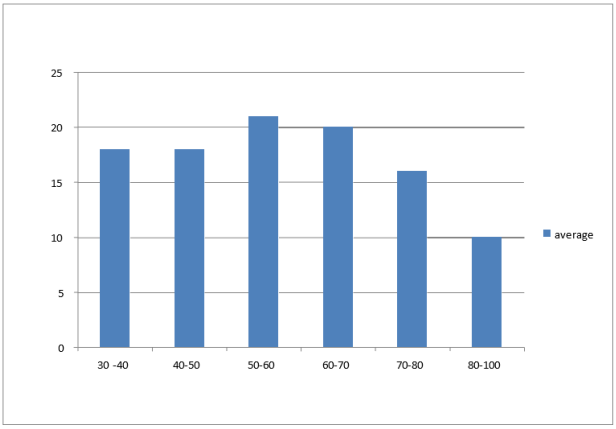

Figure 1: Patient having CVD according to age

As in present study this can be observed from this graph that age group between 50 -70 years are having CVD. So, according to the result person can developed CVD and can suffer around those ages. According to Gillian et.,al (8) it is said that the acute myocardial infraction, or demise from any reason, both man and women suffer from diabetes enter high possibility of cause, 47-54 years respectively . However ,

Journal for Research in Applied Sciences and Biotechnology

www.jrasb.com

ISSN: 2583-4053

Volume-1 Issue-3 || August 2022 || PP. 6-10

https://doi.org/10.55544/jrasb.1.3.2

people between 40 or below 40 with diabetes are at low risk of CVD. As of now, age must be in consideration to reduce risk factor diabetes and CVD.

Gender:

Both men and women can have CVD as they share the same traditional risk factors for stroke. However, at the time of stroke onset women have more prevalent as compare to men, whereas men have higher prevalence of heart disease and DM, as smoking and alcohol consumption is higher in men as of women.(9). The risk increases steadily as they get older. As women's risk of heart disease begins to increase when women reaches its menopause and her estrogen production reduce(10)

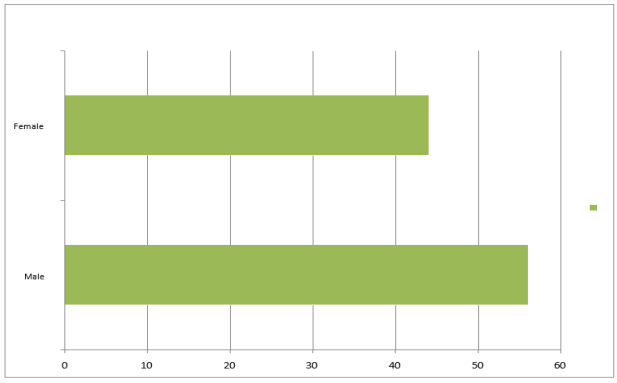

Figure 2: Percentage of men and women having CVD patient.

It can observe that from the above figure that compare to women, more percentage of men is suffering from cardiovascular disease. Out of hundred studied patient 56% of male and 44% of women are having CVD. According the result from the above graph it can be observed that compare to female there are more male patient as, men are more exposed to CVD compare to women.

Nutritional assessment is organized procedure of collect and interpret in sequence categorize to formulate decision regarding nutrition related health issue that cause an individual. (11). It reflects on what degree physiological needs for nutrients are being met.

For the nutritional assessment, BMI was calculated. The formula used for BMI calculation is weight in kg/height in m^2.

Before calculating the BMI, the height and weight were measured.

Table 3: Percentage of underweight, normal and overweight of the patient.

Status	Range	N=100	Percentage
Underweight	16-18.5	4	4%
Normal	18.5-25	73	73%
Overweight	25-30	16	16%
Obese Grade I	30-35	0	0%
Obese Grade II	35-40	0	0%
Obese Grade III	>40	0	0%

Maximum of the patient are of normal weight. Study have also asked if a patient decreased the intake of food over last three months. The result from the study have said they the decreased of food intake was normal among the patient. Out 100 patient 60% of them have lost their appetite and 40% did not loss.

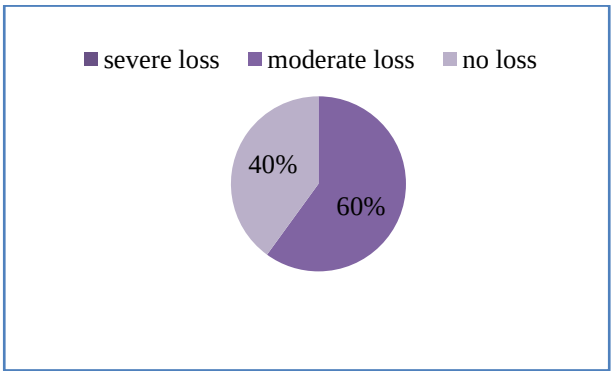

Figure 3: Decreased food intake over last 3 months.

The questionnaire also included that if any of the patient loss their weight over last three months and if they had any acute disease before.

Table 4: Percentage of patient loss their weight over last three months.

Weight lost over last three months	N= 100	Percentage
Severe loss	11	11%
Moderate loss	34	34%
No loss	35	35%

As the result in table 4 is showing that out of 100 patient 11% of them went through severe loss of weight over last three months, 34% went through a moderate loss and 35% of them did not loss any weigh over the last three months. Usually, Person suffering from CVD tend to decrease the appetite to have food as they do not feel to eat anything. So, the graph below will show the result of a studied population. The result is pointing, that there are 0% of severe loss, 60% are from moderate loss and 40%does not loss the intake of food over last three months. Usually, patient those who suffer from a health-related disease tend to decrease the food intake as they don't feel to eat anything. As we can see in the result that 60% loss their food intake during 3 months.

The third set of the questionnaire include the questions about the consumption of functional food by the patient. The 10 functional foods were chosen which is in table below. Due the maximum number of patients are vegetarian none of them consume fatty fish. The

ISSN: 2583-4053

Volume-1 Issue-3 || August 2022 || PP. 6-10

https://doi.org/10.55544/jrasb.1.3.2

maximum number of patients consume tomatoes 3 or more days among the 10 functional foods.

Table 6: Consumption of functional food by CVD patient.

Functional Food Name	Never	Once/twice a day	3 or more days
Tomatoes	0	47	53
Fermented Dairy Product	48	28	24
Garlic	0	55	45
Green Tea	40	35	25
Spinach	55	10	35
Fatty fish	0	0	0
Fruit Juices	59	28	13
Whole oat product	45	35	20
Cruciferous Vegetables	12	50	38

IV. CONCLUSION

The topic was on which study was conducted is on "Consumption of functional food by CVD patients and its role in Disease management". The study was taken at Sharda Hospital. The sample size for the study was 100 patients. For this study the nutritional assessment was assessed through anthropometric measurement, including some questions related to their health. To know the consumption of functional food, questionnaire was made and included 10 basic food ingredients. The questionnaire was explained to the patient by visiting them in the hospital. The result from this study as patient already having a CVD, so nutritional status of those patients was accordingly. For the consumption of functional food, as they include those 10 ingredients for enhancing the taste of food. They don't know how to intake them to get complete nutrient from the food, because of their lack of understanding in what is functional food. As CVD becoming principal reason of death and scientists are thorough for alternative therapy and hindrance of disease. Due to which the curiosity is rising in the field of functional food. Regular consumption of functional food at effective levels of functional may possibly offer opportunity in decline the risk. The present study concluded that, all of the participants include the 10 functional food that have been asked, but not in a way that they can consume all the nutrient from, they just use to enhance the food, due to the lack of knowledge of functional food. Therefore, more additional studies need in this area of functional food and CVD reduction, for the future and well-being of human. More people need knowledge of function food and how to consume in a way that they can get all the nutrient from it.

REFERENCES

[1] Strasser, T. (1978). Reflections on cardiovascular diseases. *Interdisciplinary science reviews*, *3*(3), 225-230.

[2] Everson-Rose, S. A., & Lewis, T. T. (2005). Psychosocial factors and cardiovascular diseases. *Annual review of public health*, *26*, 469.

[3] Stewart, J., Manmathan, G., & Wilkinson, P. (2017). Primary prevention of cardiovascular disease: A review of contemporary guidance and literature. *JRSM cardiovascular disease*, *6*, 2048004016687211.

[4] Worldwide consumption of functional foods: a systematic review (Asli E Ozen, Antoni Pons, Josep A Tur) Nutrition Reviews, Volume 70, Issue 8, 1 August 2012, Pages 472– 481,

[5] Shaida, B., Singh, K., Dubey, A. K., & Sharma, P. (2019). Anti-Depressant and Anti-Anxiety Like Effects of Cydonia Oblonga in Mice Exposed to Mild Stress. *Indian Journal of Public Health Research & Development*, *10*(10).

[6] Koul, H. L. (1992). M-estimators in linear models with long range dependent errors. *Statistics & probability letters*, *14*(2), 153-164.

[7] Functional Foods and Bioactive Compounds: A Review of Its Possible Role on Weight Management and Obesity's Metabolic Consequences, by Melina Konstantinidi and Antonios E. Koutelidakis, Department of Food Science and Nutrition, University of the Aegean, Myrina, 81400 Lemnos, Greece. Medicines 2019. https://doi.org/10.3390/medicines6030094

[8] Booth, G. L., Kapral, M. K., Fung, K., & Tu, J. V. (2006). Relation between age and cardiovascular disease in men and women with diabetes compared with non-diabetic people: a population-based retrospective cohort study. *The Lancet*, *368*(9529), 29-36.

[9] Schnohr, P., Jensen, J. S., Scharling, H., & Nordestgaard, B. G. (2002). Coronary heart disease risk factors ranked by importance for the individual and community. A 21-year follow-up of 12000 men and women from The Copenhagen City Heart Study. *European heart journal*, *23*(8), 620-626.

[10] Grodstein, F., Manson, J. E., Colditz, G. A., Willett, W. C., Speizer, F. E., & Stampfer, M. J. (2000). A prospective, observational study of postmenopausal hormone therapy and primary prevention of cardiovascular disease. *Annals of internal medicine*, *133*(12), 933-941.

[11] World Health Organization. Regional Office for the Eastern Mediterranean. (2010). *A Practical Guide to Developing and Implementing School Policy on Diet and Physical Activity*. World Health Organization.