



The Impact of a Vegan Diet on Health

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ABSTRACT

Imagine a world where heart disease, type 2 diabetes, and certain cancers could be significantly reduced, all by making a simple dietary change. A vegan diet, which eliminates all animal products, has been shown to do just that. Studies have found that individuals who follow a vegan diet have lower levels of cholesterol and blood pressure, as well as a reduced risk of obesity. A vegan diet can also lead to a lower body mass index (BMI), with vegans having an average BMI that is 2-3 points lower than non-vegans. Furthermore, research has shown that a vegan diet can improve kidney function and reduce the symptoms of arthritis. In fact, research shows that those who follow a vegan diet have a 75% lower risk of developing high blood pressure and a 50% lower risk of developing type 2 diabetes. This paper aims to review the latest research on the health impact of a vegan diet, highlighting its potential to promote health and prevent disease.

Keywords: Plant-based diet, Veganism, Health benefits, Disease prevention

Introduction

Diet is a critical factor in promoting health and preventing chronic diseases. A vegan diet is a plant-based eating pattern that excludes all animal products such as meat, dairy, eggs, and honey. The diet includes fruits, vegetables, grains, legumes, nuts, and seeds as a source of essential nutrients such as protein, carbohydrates, fats, and vitamins. The increasing popularity of veganism has led to a growing interest in the impact of a vegan diet on health. The vegan diet has become a lifestyle choice for many individuals for various reasons, including animal welfare, environmental sustainability, and health benefits.

The vegan diet is a well-balanced, nutrient-dense diet that has been associated with various health benefits. Several studies have suggested that a vegan diet may lower the risk of chronic diseases such as heart disease, type 2 diabetes, and cancer. A meta-analysis of 11 studies found that a vegan diet was associated with a lower risk of developing heart disease by 25% compared to non-vegan diets (Dinu et al., 2017). Another meta-analysis of 12 studies found that a vegan diet was associated with a lower risk of developing type 2 diabetes by 23% compared to non-vegan diets (Qin et al., 2018).

The vegan diet has also been associated with lower BMI and reduced risk of obesity. A systematic review and meta-analysis of 12 randomized controlled trials found that the vegan diet significantly reduced BMI and body weight compared to non-vegan diets (Huang et al., 2016). Moreover, vegan diets have been linked to lower blood pressure and cholesterol levels, reducing the risk of cardiovascular diseases (Sabat e et al., 2010).

However, some experts have raised concerns about the potential risks of a vegan diet, including the risk of nutrient deficiencies and malnutrition. Studies have shown that vegan diets may be deficient in nutrients such as vitamin B12, iron, calcium, and omega-3 fatty acids (Craig, 2009). Therefore, the risk of malnutrition among vegans is a concern, and adequate nutrition education and counseling are essential to avoid any potential risks.

Despite the growing interest in the vegan diet and its potential health benefits, more research is needed to evaluate the health impact of the vegan diet fully. Specifically, it is necessary to investigate the impact of the vegan diet on different health outcomes and sub-populations, including children, pregnant women, and athletes.

This research aims to explore the impact of the vegan diet on health and well-being. The study will examine the potential health benefits and risks associated with following a vegan diet, including the impact on weight, blood pressure, cholesterol levels, and the incidence of chronic diseases such as heart disease, type 2 diabetes, and cancer.

In conclusion, the vegan diet is a plant-based diet that has become popular among individuals worldwide due to its potential health benefits, animal welfare, and environmental sustainability. While research has suggested that the vegan diet has various health benefits, the diet also has potential risks of nutrient deficiencies and malnutrition. Therefore, the impact of the vegan diet on health needs to be evaluated to provide evidence-based information to healthcare professionals, individuals, and policymakers.

Background of the study

A vegan diet has grown in appeal in recent years as a result of its possible health advantages and environmental impact. A vegan diet can provide adequate nutrition and has been shown to reduce the likelihood of developing chronic conditions like heart disease and specific forms of cancer. However, some concerns have been raised about the potential nutritional deficiencies associated with this vegan type diet. Those that are essential include vitamin B12, iron, calcium, and omega-3 fatty acids. Over the past 50 years, Nutritional guidelines published by public health agencies. to prevent dietary deficiencies. However, Optimal dietary consumption to minimize the incidence of avoidable illnesses including CVD, cancer, and diabetes has not been determined to a high degree of certainty. T2DM. Vegetarian diets have been studied in prospective and cross-sectional studies, such as the Heidelberg Study, the Health Food Shoppers' Study, the Oxford Vegetarian Study, and the Adventist Health Study.

Vegetarians have been demonstrated to have a lower body mass index, lower risk of chronic illnesses, and longer life expectancy than omnivores. Given the growing popularity of veganism and the need for more research in this area, This document seeks to summarize the current scientific literature about the effects of a vegan diet on health. We will examine the potential benefits and limitations of a vegan diet, as well as the potential nutritional deficiencies and strategies for addressing them. Additionally, we will discuss the challenges and barriers to adopting and maintaining a vegan diet, and the possible effects of a vegan diet on the health of animals and the planet. The overarching purpose of this research is to offer a thorough analysis of how a vegan diet affects health and wellbeing.

Need for the Study

With the increasing popularity of vegetarianism has on your body and mind of a vegan diet on health and well-being. Previous studies have suggested that a vegan diet can reduce the risk of chronic diseases and improve overall health. The possible advantages and disadvantages of a vegan diet, however, need to be investigated further.

Furthermore, there is a need to address potential nutritional deficiencies that may arise from a vegan diet. Understanding the strategies for addressing these deficiencies and ensuring adequate nutrition on a vegan diet is essential to promote the long-term health and well-being of individuals who follow a vegan diet. In addition, it is crucial to consider the challenges and barriers to adopting. It can be more expensive than a non-vegan diet, and individuals may require additional planning to ensure adequate nutrition. Furthermore, social and cultural factors can make it difficult for individuals to adopt and maintain a vegan diet.

Therefore, this study tries to synthesise the current literature on the effects of a vegan diet on health. By examining possible outcomes and limitations of a vegan diet, as well as the strategies for addressing nutritional deficiencies and the challenges and barriers to adopting and maintaining a vegan diet, this study can provide valuable insights into the impact of a vegan diet on health and well-being. Overall, this study can help us figure out what a vegan diet can do for us and what it can't and can inform dietary recommendations and interventions aimed at improving public health.

Problem Statement

There is a paucity of current and thorough data on how a vegan diet affects health, despite veganism's rising popularity. There is conflicting evidence on the health advantages of a vegan diet, with some research suggesting it can lower the risk of chronic illnesses including heart disease and type 2 diabetes, while other research has raised concerns about possible nutritional shortages. and other health risks associated with a vegan diet. Furthermore, there are several challenges and barriers to adopting and maintaining a vegan diet, including social and cultural norms surrounding food choices, the affordability and accessibility of vegan food options, and the need for careful planning to ensure adequate nutrition.

This lack of comprehensive and up-to-date information on the impact of a vegan diet on health, combined with the potential challenges and barriers to adopting and maintaining a vegan diet, creates a significant problem for individuals who are interested in exploring the potential health benefits of a vegan diet. this study aims to address these knowledge gaps and provide a comprehensive review of the latest research on the impact of a vegan diet on health, as well as strategies for addressing potential nutritional deficiencies and other concerns associated with a vegan diet. By doing so, this study can help inform individuals who are interested in exploring the potential health benefits of a vegan diet and can contribute to the development of public health policies and interventions aimed at promoting healthy dietary choices.

Research Objective

The primary goal of this study was to synthesise the most recent findings on the effects of a vegan diet on health. The study's overarching goal is to investigate the nutritional advantages and disadvantages of veganism and strategies for addressing them. Additionally, the study aims to explore the challenges and barriers to adopting and maintaining a vegan diet, as well as the potential impact of a vegan diet on the environment and animal welfare. The study aims to contribute to a better understanding of the impact of a vegan diet on health and well-being, and to inform dietary recommendations and interventions aimed at improving public health. Overall, the study aims to address the knowledge gaps and provide up-to-date information on the impact of a vegan diet and to provide insights into the potential benefits and limitations of a vegan diet.

This review will examine the potential benefits and limitations of a vegan diet, as well as the potential nutritional deficiencies and strategies for addressing them. Additionally, the study will discuss the challenges and barriers to adopting and maintaining a vegan diet, as well as the potential impact of a vegan

diet on the environment and animal welfare. In doing so, the authors want to educate public health dietary guidelines and interventions and contribute to a deeper knowledge of the effects of a vegan diet.

Review of Literature

1.

The possible advantages and disadvantages of vegan diets for health have been the subject of numerous research. A well-planned vegan diet may offer protection against various chronic diseases, including heart disease, type 2 diabetes, and some forms of cancer, according to some research. Additionally, studies have connected vegan diets to lower levels of cholesterol, blood pressure, and body mass index.

There are worries that vegan diets could cause dietary deficiencies, such as insufficient intake of calcium, vitamin D, omega-3 fatty acids, and vitamin B12. Vegans must make sure they consume adequate amounts of essential nutrients through fortified foods or supplements.

Overall, additional study is required to completely comprehend how vegan diets affect long-term health. Although they may be a good option for you, you should carefully plan and monitor your nutrient intake to prevent shortages. (Winston J Craig, 2009)

2.

There is a lot of discussion about vegan diets and whether or not they are healthy. Some claim that a well-planned vegan diet can aid in the prevention of chronic conditions like diabetes, heart disease, and some forms of cancer. Others are concerned that vegans may be deficient in essential minerals including calcium, vitamin D, vitamin B12, and omega-3 fatty acids.

Please don't worry, dear reader! A vegan diet can be a scrumptious and nutritious way to feed your body if it is planned out carefully and executed to the last detail. According to studies, vegans typically have lower blood pressure, cholesterol, and body mass index values, all of which are excellent for preserving general health.

It's crucial to ensure that you're getting all the nutrients you require, of course. To achieve your nutrient needs, this entails including a range of fruits, vegetables, whole grains, and plant-based proteins in your meals as well as taking supplements or eating fortified foods. Anyone wishing to nurture their body and spirit can choose a delicious and healthy vegan diet with a little imagination and consideration. (Lap Tai Le et al., 2014)

3.

Recent research on the human microbiome has found the host's physiology is significantly impacted, with implications for both health and sickness. The human gut microbiome is thought to include about 3.3 million non-redundant microbial genes, and the human microbiota is made up of trillions of microorganisms, including bacteria, viruses, fungus, protozoa, and archaea. In contrast to the variation in human genomics, each individual's microbiome exhibits a tremendous diversity. According to research, the gut microbiota behaves as a distinct "organ" by having a significant impact on host cells and genes. Obesity, cancer, and neurological problems are just a few of the gastrointestinal and systemic conditions that have been related to dysbiota imbalances in the gut. Dietary habits over time and in the short term have a big impact on the composition of the gut microbiota, which produces various postbiotics that help with host metabolism. The development of therapeutic interventions, such as individualised nutrition, and establishing causal linkages in humans are the main goals of current study.

(Aleksandra Tomova et al., 2019)

4.

The possible advantages and hazards of vegetarian and vegan diets during pregnancy for both mothers and infants have been examined in recent studies. Diets that are vegetarian or vegan tend to be high in fiber, fruits, vegetables, and legumes while being low in saturated fat and cholesterol. This can improve maternal health by lowering the risk of conditions including gestational diabetes, preeclampsia, and hypertension. These diets could also be deficient in some vitamins and minerals, including iron, vitamin B12, vitamin D, and omega-3 fatty acids, which could raise the risk of anemia, cognitive impairments, and developmental delays in kids. Additionally, vegetarian and vegan diets during pregnancy may restrict the consumption of essential nutrients like choline, which is vital for foetal brain development.

While some research suggests that eating a vegetarian or vegan diet while pregnant is safe and may even have some benefits, other studies have found adverse impacts on the health of the mother and the unborn child, underscoring the necessity of careful nutritional planning and supplements in these diets. Overall, more research is required to better understand the effects of vegetarian and vegan diets during pregnancy on the health of the mother and the unborn child as well as to develop evidence-based recommendations to maximise nutritional adequacy and guarantee the safety of these diets during this crucial stage of development. (Giorgia Sebastiani et al., 6 March 2019)

5.

Numerous research have looked into the dietary habits and health condition of those who choose to live a vegan lifestyle for moral and practical reasons. According to the research, vegans generally lead better lifestyles than non-vegans, engaging in more physical activity, abstaining from alcohol and cigarette use, and having lower body mass indices (BMI). Vegan diets, however, could present some nutritional problems, like insufficient consumption

of vitamin B12, vitamin D, iron, calcium, and omega-3 fatty acids. Therefore, it is essential for vegans to eat a well-planned diet that satisfies their nutrient needs, or to think about taking supplements. The main reasons for going vegan are ethical concerns about animal welfare and environmental sustainability. According to studies, those who consume a vegan diet are more supportive of animal rights and environmental protection. Additionally, vegans are frequently more aware of how their lifestyle choices affect the environment and may incorporate eco-friendly and sustainable practices into their daily lives.

In conclusion, adopting a vegan diet can have a number of positive health effects and be consistent with moral principles that promote animal welfare and environmental sustainability. But it's crucial to make sure that nutritional needs are satisfied through a well-planned diet or supplementation. In order to better understand how a vegan diet affects health outcomes over time and to create more sustainable and eco-friendly practice. (Cynthia Radnitz et al., July 2015)

6

Numerous studies have shown that vegetarian diets can confer health benefits, such as lower risks of heart disease, several forms of cancer, and diabetes type 2. Fiber, vitamins, minerals, and phytonutrient content tend to be higher in plant-based diets, whereas saturated fat, cholesterol, and calorie content tend to be lower. The risk of developing ischemic heart disease (IHD) was reduced by 25% in a meta-analysis of 15 observational studies comparing vegetarian and non-vegetarian diets. The risk of cancer was also shown to be 16% lower in vegetarians compared to non-vegetarians in a meta-analysis of 12 studies. Vegetarians had a 34% decreased chance of developing type 2 diabetes, according to a meta-analysis of 11 separate research. Other research also suggests that adhering to a plant-based diet will improve your mental health.

Low-meat diets, which include occasional or moderate meat intake, may also confer some health advantages, but fewer in number and magnitude compared to vegetarian diets. A study of 23 research found that eating less meat was linked to a 22% decreased risk of IHD. A meta-analysis of 18 research revealed a similar pattern, concluding that low-meat diets were linked to a 14% reduced risk of cancer than high-meat diets. The health advantages of low-meat diets have been suggested, however there is not enough data to support these claims at this time.

Overall, plant-based diets, including vegetarian and low-meat diets, may provide health benefits for a variety of conditions. However, it is crucial that these diets have enough protein, iron, calcium, and vitamin B12 to support healthy bodies. The right amount and mix of nutrients can be achieved by consultation with a trained dietitian.

(April 2012)

7

Several health outcomes were studied in a 2021 comprehensive review and meta-analysis of observational research relating to vegetarian and vegan diets. There were a total of 31 studies and 293 793 individuals in the meta-analysis. Vegetarians and vegans were shown to have a decreased chance of getting some cancers, including colon cancer, as well as hypertension and ischemic heart disease. Stroke, cardiovascular disease, and death from any cause were not significantly correlated with vegetarian or vegan diets.

The study also reported that vegetarians and vegans had a lower body mass and lower total cholesterol levels compared to non-vegetarians. Furthermore, the analysis suggested that the health benefits of a vegetarian may be more pronounced in men, younger individuals, and those with a lower BMI.

Overall, This meta-analysis and comprehensive review shows that vegetarian diets are associated with less and vegan diets may have a protective effect against several chronic diseases. However, the authors caution that the observational nature. Because causal inference cannot be made from the included studies, and further research is required to validate the health advantages of vegetarian and vegan diets.

(Cambridge University Press, 03 April 2012)

8.

"Planetary health" refers to the state of the Earth's natural systems or the ecological buffer zone within which human population growth is safe. Expanding past Earth's boundaries may create environments unfavourable to human progress (e.g., altering the quality and availability of food and water). Humanity has grown to a size and level of economic activity that is beyond what the planet can support. Climate change, biodiversity loss, and biogeochemical fluxes of nitrogen and phosphorus are three biophysical thresholds of natural systems that have already been crossed, as reported by Rock Strom et al. The Earth is rapidly approaching its freshwater use limits, changing land use patterns, and ocean acidification boundaries. As a result of declining agricultural yields, climate change and environmental changes have an impact on food production.

(Ujué Fresán, Joan Sabaté, 15th November 2019)

9.

Plant-based diets typically forbid eating any kind of meat, including fish, but they may also restrict consumption of other animal products such as eggs and dairy. Plant-based diets focus on eating whole grains, beans, vegetables, fruits, nuts, and mushrooms. The four most common forms of vegetarianism are veganism, lacto-ovo-vegetarianism, lacto-vegetarianism, and ovo-vegetarianism. Semi-vegetarianism, pescatarianism, and flexitarianism are all subtypes of vegetarianism in which meat and/or fish are consumed to varying degrees. It's important to remember that the term "plant-based" is not standardised and has varied meanings to different people. The results of this study imply that those who are overweight, have type 2 diabetes, are at high risk for cardiovascular disease, or suffer from rheumatoid arthritis may benefit from adopting a plant-based diet. Weight reduction can be attributed to a

diet higher in fibre, polyunsaturated fats, and plant proteins and lower in calories, saturated fats, and animal proteins. Because of fat restriction in numerous studies, followed by decreased calorie intake, the effects of the various treatments differ depending on the specific plant-based diets examined. Because the investigated plant-based diets varied in their nutrient and calorie content, it's unlikely that the advantages can be attributable to the diet alone.

(Elisabeth Tran, Hanna Fjeldheim Dale, Caroline Jensen, Gülen Arslan Lied, 2020 September 30th)

10.

There is still a significant gap in scientific knowledge on the nutritional effects of vegetarian diets on humans. Yet, according to recent scientific discoveries, our knowledge of how vegetarian diets effect human health and illness has shifted significantly. Throughout the past century, life expectancy in affluent countries has increased dramatically due to efficient public health measures. As sickness patterns shifted from food shortages and infectious illnesses to chronic and degenerative diseases, so too was the focus of nutritional study and policy. By definition, an adequate diet limits nutrient deficiencies since it provides enough calories and nutrients for human development and reproduction. Furthermore, a nutritious diet promotes longevity and excellent health while decreasing the risk of food-related chronic illnesses. A adequate diet's components are known, but the optimal diet's are not. Yet, current scientific evidence suggests that plant-based diets, such some vegetarian, Mediterranean, or Asian diets, may be the best strategy to prevent nutritional deficiencies and diet-related chronic illnesses. The meat component of these diets is minimal at best. Earlier beliefs about what to eat to avoid illness conditions may need to be revised if diets based on plants are typically healthier than diets based on meat. (Joan Sabaté, 1st September 2003)

11.

During the past several years, interest in PBD among the general public and scientists has increased to the point that it is currently one of the main dietary patterns used in Western countries. In fact, a significant crowd of people have accepted PBDs, which has caused it to expand widely. PBDs allow for the distinction of a number of diets, including those that limit the intake of meat and fish but allow the intake of milk, milk items, and eggs, in addition to those that prohibit the intake of any food derived from an animal. PBDs are associated with a much decreased risk of getting cancer and cardiovascular disease (CVD), in accordance with a recent study. Body mass index (BMI) is often lower in subjects who have undergone a PBD, and substances, fatty acids, and phytochemicals. Compared to omnivores, well-reduced levels of Hypertriglyceridemia, reduced cholesterol lipoprotein, and sugar levels, and total cholesterol (TC), respectively. The biggest concern with regard to these dietary regimens is the potential for developing nutritional deficits of carbohydrates, essential fats, b Vitamins, calcium, zinc, salt, vitamin B12, and calcium. PBDs, on the reverse side, are differentiated by their high levels of fibre and antioxidants and are rich in veggies and fruits. If properly planned and balanced, PBDs can be beneficial for people of all ages, including those who are expecting or lactating. (Giulia Marrone, Cristina Guerriero, Daniela Palazzetti, Paolo Lido, Alessandro Marolla, Francesca Di Daniele, Annalisa Noce, 2nd March 2021)

12.

Healthy vegetarian diets provide distinct advantages over diets that include meat as well as other meat, according to a growing body of scientific data. While intakes of saturated fat, cholesterol, and animal protein are lowered, consumption of refined carbs, soluble fiber, calcium, folate, vit C and E, carotene, and some other phytonutrients are raised. As vegetarians eat tremendously diverse diets, it is necessary to distinguish between various kinds of vegetarian diets. In actuality, several contradictions and erroneous beliefs regarding vegetarianism are brought about by scientific data from investigations lacking this separation. Past studies have suggested that vegetarian diets are low in a number of minerals. Many investigations have revealed that poor meal preparation is frequently to blame for the stated deficits. All ages, including children, teenagers, expectant competitive athletes, nursing mothers, the elderly, and others can get benefited from balanced vegetarian diets. Many ailments, such as dementia, diverticular disease, gallstones, rheumatoid arthritis, diabetes, hypertension, cancer, and disorders of the kidney, heart, and blood vessels can be prevented or treated with vegetarian diets. A vegetarian diet is popular among many individuals for reasons other than their health and welfare, such as economic, ecological, and social factors.

(Claus Leitzmann, 1st February 2005)

13.

In terms of nutrition, this primarily refers to dairy, eggs, and honey. Clothing is another important area where materials like leather, wool, feathers, or silk should be avoided. Zoos and some circuses are examples of practises that should be avoided since they involve live animals rather than animal products. The concept specifically states that adherence should go as far as practical and practicable because these ideals frequently conflict with surviving in contemporary society. However, there is typically little to no tolerance for foods among vegans. This is likely because it is quite simple to totally eliminate animal products in this context, since labels and laws clearly identify which items are vegan without any exceptions. Since antiquity, vegetarian diets have been popular, with Even though one of the earliest well-known advocates was Pythagoras, explicitly vegetarian diets devoid of dairy and eggs didn't emerge until the beginning of the 19th century. By symbolically removing the middle letters of the word vegetarian, a small group in Scotland under the direction of Donald Watson coined the term "vegan" in 1944. From Scotland, veganism expanded to other nations, although for more than 50 years, it only represented a tiny portion of the population.

(Daniel Olivier Sutter, 4th July 2017)

14.

Well-planned vegetarian diets are nourishing and healthy, and they can aid in the prevention and treatment of a number of chronic illnesses. Long-chain omega-3 fatty acids, vitamin B12, calcium, vitamin D, zinc, and vitamin D may be deficient in poorly prepared vegetarian meals. Vegetarians must

include in their diets items that provide adequate levels of essential vitamins, minerals, and omega-3 fatty acids. The foods and fortified products that offer considerable amounts of these nutrients are included in tables. The association between the variety of vegetarian food alternatives and the likelihood of developing chronic diseases needs further study.

(Craig, W. J. 2010)

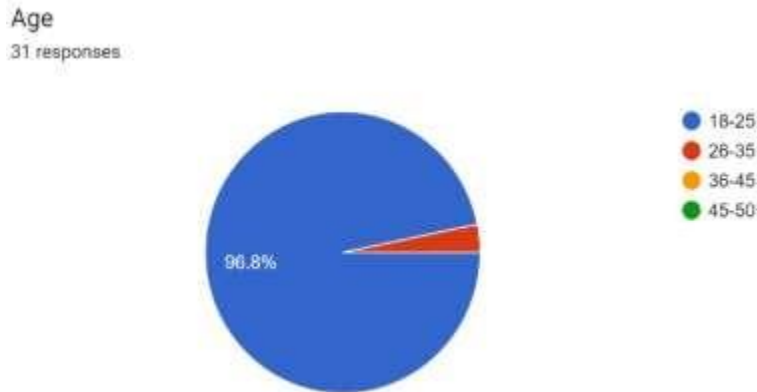
15.

We can state that numerous research have show link between a vegan diet and a lower prevalence or incidence of T2D, even though in some cohorts it is difficult to tell whether the positive effects are due to the vegan food only or to a generally active living. The amount of easy and complicated carbs and the standard of the fiber consumed should be assessed in medical studies involving plant based diets in pre-diabetes and T2D patients. In this approach, certain discrepancies in the results from the many published clinical trials may be explained, and a suitable vegan diet for those with pre-diabetes and type 2 diabetes could be developed for use as a nutraceutical intervention. The vegan diet has been characterized as a therapeutic diet with negative effects related to the long-term exclusion of some nutrients, but it must be stated that it has been considered to be an acceptable and safe alternative to Western diets and seems comparable to other advised healthful eating models (Daniela Pollakova et al.,2021)

Research Methodology

This research paper intends to look at the health impact of a vegan diet. The main objective of this study is to find out what are the impacts of a vegan diet on human health and whether it has more positive or negative impact.

- **Research Design:** We used a quantitative research design for our research strategy. Surveys are used to gather the information for our study. we have chosen the quantitative approach of data collection in order to make the results of the quantitative analysis simple to depict in the form of statistics, graphs, charts, and numbers.
 - **Data Collection:** Due to its simplicity and lack of systematic errors, we chose to collect our data using a Google Form. Another factor is that most participants are familiar with using Google Forms, which doesn't need for specialised knowledge.
1. **Survey Questionnaires:** We used MCQs with 15 closed-ended questions, and we received a total of 32 responses. Questionnaires were dispersed at random around the internet. First, we asked the participants' gender and age group, but we skipped the name question because some of them might not feel comfortable disclosing their identities. Also, we disclosed their employment status. The following questions, which are the important ones, were posed.
 - i. How aware are you about vegan diet?
 - ii. How often do you follow vegan diet?
 - iii. How you think vegan diet have impact on health?
 - iv. What do you mean by vegan diet?
 - v. why do you think majority people go for vegan diet?
 - vi. What do you think vegan diet is mostly linked to?
 - vii. Do you think vegan diet have effect on human brain?
 - viii. Should people start going for more plant-based diet for better health?
 - ix. Do you think most of the diseases is caused due to unhealthy diet?
 - x. Would you recommend plant-based diet to others?
 - xi. On the scale of 100 rate the importance of vegan diet on health.
 2. **Focus Group:** Our focus group comprised people of all religions and ethnicities as well as senior adults, who are far more likely to experience health problems. But the majority of our participants were between the ages of 18 to 25 and most are students because we distributed our survey questions to our college acquaintances and asked them to spread the word further among their peers.

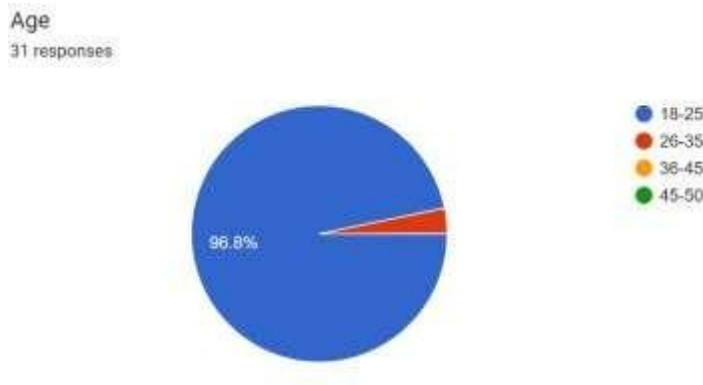


- **Data analysis:**

Statistical analysis is the process of examining connections, trends, and patterns using quantitative data. Therefore, to analyse our data, we are employing statistical analysis techniques. In order to get trustworthy results, statistical analysis must be meticulously prepared from the very beginning of the study process. Along with outlining our hypotheses, we also need to make decisions about our study design, sample size, and sampling strategy.

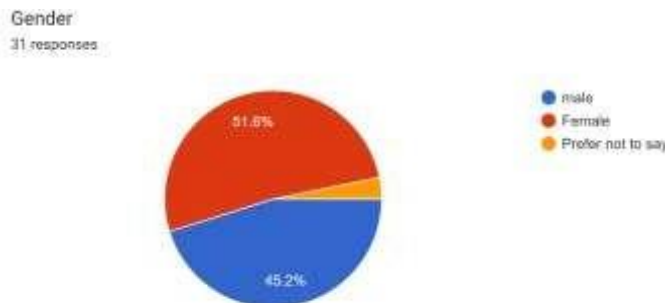
With the information acquired for our group, we may organise and compile the data using descriptive statistics. Then, using inferential statistics, we formally test hypotheses and derive population estimates. We finally generalise and examine our findings.

- Finding 1 (age).



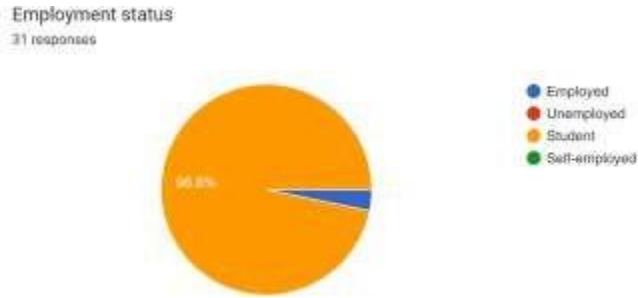
More than 90% of our participant are in the age group of 18-25 so maximum number of participant for our research include teens and teen adults.

- Finding 2 (gender).



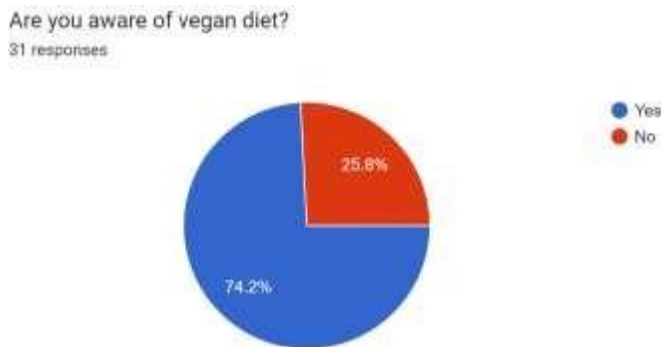
We have almost balanced number of both male and female gender who have participated in our research.

- Finding 3 (employment status).



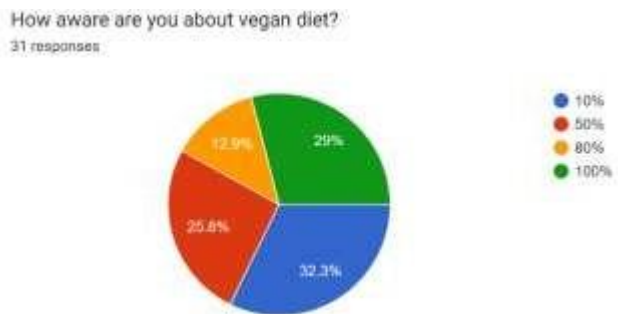
We have almost all student participant except for one participant so our results and findings would be more teen oriented.

- Findings 4 (are you aware of vegan diet).



Majority of our participant are aware of vegan diet but some participants are still not aware of vegan diet from which we can conclude that there are still people who doesn't know what a vegan diet is.

- Finding 5 (How aware are you about vegan diet?)

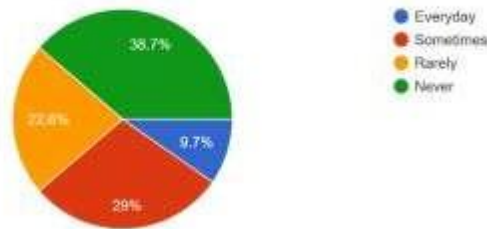


So majority of the participant who are aware of the vegan diet are only partially aware (10%) about the vegan diet from which we can conclude that there are many people who are aware about the vegan diet but aren't well educated about vegan diet or have only little knowledge about it.

- Finding 6 (How often do you follow vegan diet?)

How often do you follow vegan diet?

31 responses

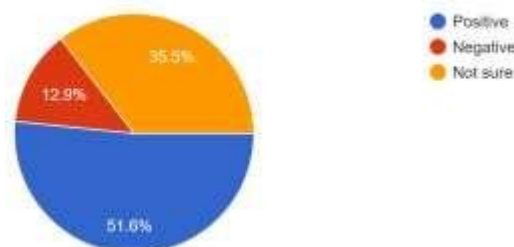


Almost 40% of participant doesn't follow vegan diet and less than 10% only follows vegan diet everyday. So from this we conclude that even though a lot of people are aware of vegan diet, only few of them follow and most of them doesn't.

- Finding 7 (How you think vegan diet have impact on health?)

How you think vegan diet have impact on health?

31 responses

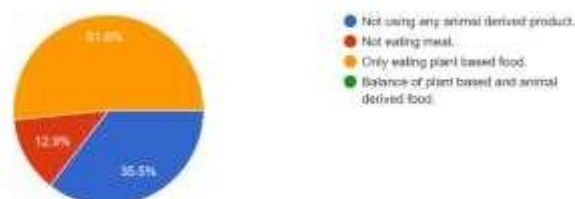


More than 50% of the participant believes that vegan diet have more positive impact on our health and more than 35% of participant are not sure. From this we come to know that most people associate positive results with vegan diet but there are also people who are not able to weigh their opinion about the impact of vegan diet. So there are more prospective participant who would opt for vegan diet. Nonetheless there are also few number of participant who believe vegan diet have negative impact like vitamin deficiency.

- Finding 8 (What do you mean by vegan diet?)

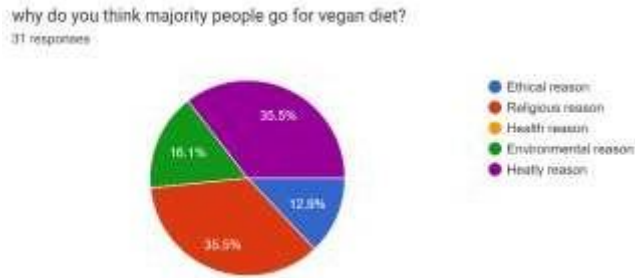
What do you mean by vegan diet?

31 responses



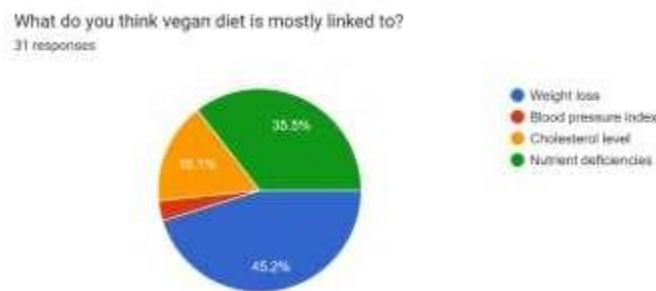
Most of the participant define vegan diet as only eating plant based food but there are also huge number of participant who define vegan diet as not using any animal derived product. From which we have come to conclusion that most of the people doesn't understand that vegan diet also includes of avoiding consuming animal derived product like dairy products, cosmetics, non vegan skin and body care products, use of animal derived material in fashion and a lot more.

- Finding 9 (why do you think majority people go for vegan diet?)



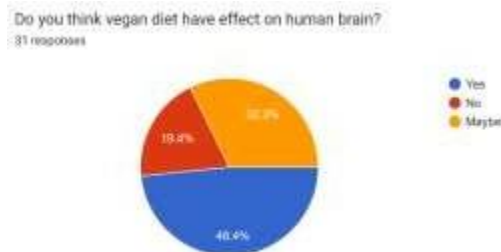
So almost same number of participant believes that people turn into vegan due to religion reason and health reason. Somehow according to data it is true that most of the people turn into vegan because they are health conscious or due to religious background. And we can conclude that most people are aware of that.

- Finding 10 (what do you think vegan diet is mostly linked to?)



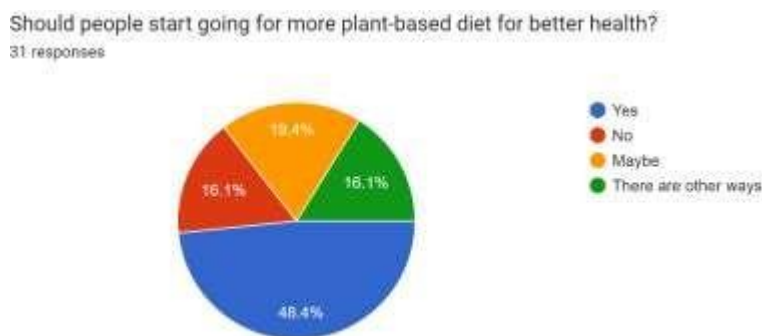
According to this data we can come to a point that most people think vegan diet is mostly followed for weight loss due to keeping up with beauty standard or due to being health conscious.

- Finding 11 (Do you think vegan diet have effect on human brain?)



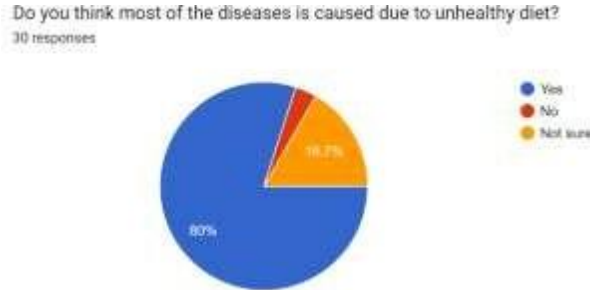
Almost half of the participant believe that vegan diet does effect human brain be it in positive or negative way.

- Finding 12 (Should people start going for more plant-based diet for better health?)



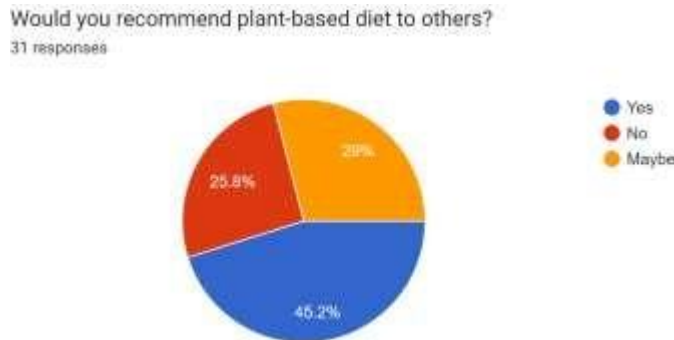
Most people do believe that vegan diet has positive impact on health and should be followed for better health but according to the data above most of the participant doesn't follow the vegan diet themselves. So most people are aware of vegan diet but the enthusiasm for implementing effective vegan is lacking and very low number of population is actually following it.

- Finding 13 (Do you think most of the diseases is caused due to unhealthy diet?)



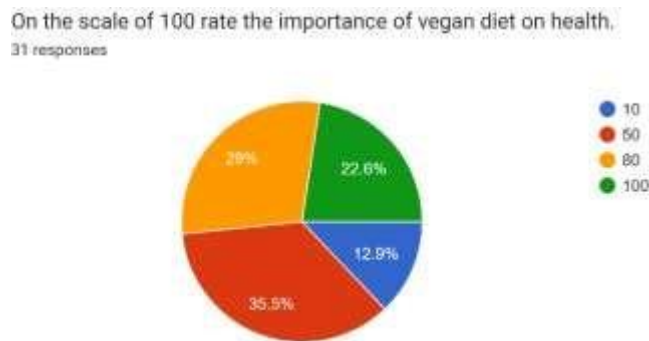
Yes, once more most population understand that most of the diseases are cause due to unhealthy diet that lacks proper balance of nutrition in our body.

- Finding 14 (Would you recommend plant-based diet to others?)



We can conclude from this data that not many people are confident enough to follow or recommend vegan diet to others.

- Finding 15 (On the scale of 100 rate the importance of vegan diet on health.)



Majority of the participant has rated the importance of vegan diet 50/100 which mean they are only partially aware of vegan diet.

Summary of findings

1	Timestamp	Gender	Age	Employment statu	Are you aware of vegan di
2	2-19-2023 21:37:33	Prefer not to say	18-25	Student	Yes
3	2-19-2023 21:39:01	Female	18-25	Student	No
4	2-19-2023 21:40:04	Female	18-25	Student	Yes
5	2-19-2023 21:43:32	Female	18-25	Student	Yes
6	2-19-2023 21:46:54	male	18-25	Student	No
7	2-19-2023 22:22:22	Female	18-25	Student	Yes
8	2-19-2023 23:55:25	Female	18-25	Student	Yes
9	2-20-2023 0:14:19	Female	18-25	Student	Yes
10	2-20-2023 9:06:29	Female	18-25	Student	No
11	2-20-2023 9:33:27	Female	18-25	Student	Yes
12	2-20-2023 9:35:27	male	18-25	Employed	Yes
13	2-20-2023 9:47:04	Female	18-25	Student	Yes
14	2-20-2023 10:08:28	Female	18-25	Student	Yes
15	2-20-2023 10:23:27	male	18-25	Student	Yes
16	2-20-2023 11:09:01	Female	18-25	Student	No
17	2-21-2023 18:46:33	Female	18-25	Student	Yes
18	2-21-2023 19:37:22	Female	18-25	Student	Yes
19	3-1-2023 17:41:59	male	18-25	Student	Yes
20	3-1-2023 17:43:00	male	18-25	Student	Yes
21	3-1-2023 17:43:27	male	18-25	Student	Yes
22	3-1-2023 17:44:56	male	18-25	Student	Yes
23	3-1-2023 17:45:25	male	18-25	Student	Yes
24	3-1-2023 17:50:54	male	18-25	Student	No
25	3-1-2023 18:47:07	Female	18-25	Student	Yes
26	3-1-2023 18:55:21	male	18-25	Student	No
27	3-1-2023 19:00:59	male	18-25	Student	No
28	3-1-2023 19:06:10	Female	18-25	Student	No
29	3-1-2023 21:24:19	male	18-25	Student	Yes
30	3-2-2023 9:39:12	male	18-25	Student	Yes
31	3-5-2023 5:43:47	male	26-35	Student	Yes
32	3-6-2023 17:42:31	Female	18-25	Student	Yes

- **Limitation:** This study may have limitations due to its small sample size, poor data quality, and lack of trustworthy secondary data. The research on home utility application for developing nations like Nepal in urban areas is a complex topic that requires significant attention to the research context, resources, and limitations. In this regard, the following limitations may be anticipated:
 1. **Aspect of Excellence Ignored:** Statistical methods are not used to study the nature of phenomena that cannot be quantitatively characterised. Such occurrences are not permitted in statistical research. They consist of health, money, wisdom, etc. It is necessary to translate qualitative data into quantitative data.very little literature.
 2. **Statistics does not address specific objects:** According to Prof. Horace Sacrist's definition of statistics, "By statistics we mean aggregates of facts... and placed in relation to each other," statistics only addresses aggregates of facts or things and does not acknowledge any particular item. Statistics cannot be created from isolated expressions like "6 people died in an accident," "85% of a class at a school in a certain year," and similar expressions.
 3. **It does not cover the entire history of the phenomenon:** Even events have a variety of causes, but it is hard to account for every one of these causes using statistics. As a result, we are unable to make the proper conclusions. A number of social elements, such as the parents' financial condition, education, culture, location, and governmental administration, among others, have an impact on how a group develops. But data cannot capture any of these aspects. So, removing any qualitative data, we only study the numerical data that we discover. Because of this, the findings or conclusion are not totally true.
 4. **It excludes some of the development of the phenomena.** Even occurrences have a range of causes, but it is challenging to use statistics to account for each one of these reasons. We are unable to draw the appropriate conclusions as a result. The way a group grows is influenced by a variety of social factors, including the parents' financial situation, education, culture, geography, and political administration, among others. However, none of these aspects can be captured by data. We then just analyse the numerical data we find after deleting all qualitative data. The results or conclusion are therefore not entirely accurate.

Hypothesis

Numerous theories are examined in the research papers on the impact of a vegan diet on health. Several examples drawn from our research are as follows:

Hypothesis 1: states that a vegan diet is associated with a lower risk of chronic diseases such cardiovascular disease, type 2 diabetes, and various cancers when compared to a non-vegan diet.

Hypothesis 2: A vegan diet is associated with lower levels of oxidative stress, inflammation, and other risk factors for disease when compared to a non-vegan diet.

Hypothesis 3: A vegan diet is associated with a lower body mass index (BMI) and lower rates of obesity when compared to a non-vegan diet.

Hypothesis 4: A vegan diet is linked to increased diversity and function of the gut microbiota, which may result in greater general health.

Hypothesis 5: Consuming a vegan diet is linked to higher intakes of some nutrients, including fiber, the antioxidant vitamins C and E, and potassium, all of which are crucial for preserving overall health.

It is crucial to test these assumptions with the right statistical techniques and to analyse the findings in light of the body of prior research.

Sampling Method

Here are the steps we took to create a sample strategy for our study on the impact of a vegan diet on health:

1. **Specifying the research problem:** The research question was precisely defined in the first step. There are a total of 15 questions for each participant.
2. **Identifying the target population:** Although college students between the ages of 18 and 25 made up 99% of the respondents, adults in their early to mid-30s or 40s were the study's intended target population.
3. **The sample size was determined to be 32 participants,** which is rather small and solely includes college students.
4. **Selecting a sampling technique:** There are various sampling techniques, and we selected convenience sampling and random sampling. where our survey form was dispersed at random.
5. **Choosing the sampling frame:** The sampling frame is the group of people from which the sample will be drawn. Therefore, our sampling frame includes everyone who is vegetarian, vegetarian-in-progress, and omnivorous.

The sampling design for our research study on the effects of a vegan diet on health was carefully planned and executed in order to ensure that the sample is representative of the target community and that the findings can be generalised to a larger population.

Analysis and Findings

According to research, most participant agreed that switching to a vegan diet can improve health, albeit the degree of this impact may differ depending on the person's lifestyle and eating habits as a whole. The effects of a vegan diet on health are discussed in the following significant findings and analyses:

1. **Better heart health:** By lowering cholesterol levels, blood pressure, and inflammation, a vegan diet can help reduce the chance of developing heart disease. Animal products, which are frequently heavy in saturated and trans fats and cause heart disease, are not present.
2. **Lower risk of some cancers:** A vegan diet may help lower the risk of some cancers, including breast, prostate, and colon cancer. The consumption of a lot of plant-based foods, which are strong in fiber, antioxidants, and other cancer-preventing ingredients, may be to blame for this.
3. **Improved weight control:** As long as the diet is balanced and contains all the essential nutrients, adopting a vegan diet can aid in weight loss and weight management. Vegan diets often contain fewer calories and saturated fat than omnivore diets, lowering the risk of obesity and other related health problems.
4. **Better digestion:** By consuming more fiber and fewer processed foods and animal products, which can be more difficult to digest, a vegan diet can aid in better digestion.
5. **Lessening the chance of type 2 diabetes:** Research has revealed that a vegan diet may lessen the chance of getting type 2 diabetes by enhancing insulin sensitivity and blood sugar management. This might be because vegan diets are high in fiber and low in fat. However, it's important to note that simply adopting a vegan diet does not guarantee good health. Vegans still need to ensure that they are getting all the necessary nutrients, such as protein, calcium, iron, and vitamin B12, which are typically found in animal products. A poorly planned vegan diet can lead to deficiencies and health issues.

In conclusion, a well-planned vegan diet can provide a variety of health advantages, such as better heart health, a lower risk of developing certain malignancies, better weight control, better digestion, and a lesser chance of developing type 2 diabetes. To avoid shortages and associated health problems, it's crucial to make sure the diet is balanced and contains all essential elements

Suggestion and Recommendations

To avoid B-12 deficiency, vegans should regularly consume foods fortified with vitamin B-12, such as nutritional yeast, some breakfast cereals, and meat substitutes, or take a daily vitamin B-12 supplement. You shouldn't rely on seaweed, leafy greens, or products derived from fermented soy as sources of active vitamin B-12. No plant food that isn't fortified contains a significant amount of active vitamin B-12. To ensure they are getting adequate calcium in their diet, vegans should routinely consume calcium-fortified plant foods in addition to the typical calcium sources (spinach, tofu, tahini). Among the foods with calcium added are ready-to-eat cereals, soy and rice beverages, orange and apple juices, and other drinks.

Comparable to calcium carbonate in soy drinks and calcium citrate malate in apple or orange juice, calcium in milk has a high bioavailability. It has been demonstrated that the calcium bioavailability in soy milk with phosphate tricalcium added is somewhat less compared to beef milk. Vegans must regularly consume items fortified with vitamin D, such as soy milk, rice milk, orange juice, breakfast cereals, and margarines, to keep their vitamin D levels within acceptable ranges, especially during the winter. If fortified foods are not accessible, it would be essential to consume 5–10 grammes of vitamin D daily. For older vegans, the dosage might be particularly advisable. Linseed, hazelnuts, soybean oil, soy protein, and other plant foods elevated in the n-3 fatty acid ALA should all be consumed on a regular basis by vegans and beverages made from hemp seeds. Vegans are also encouraged to consume foods enriched with the long-chain n-3 fatty acid DHA, such as some soy milks and cereal bars. DHA-rich microalgae supplements might be advantageous for those with elevated needs for long-chain n-3 fatty acids, like those found in expectant and nursing moms. Vegans are also encouraged to consume foods enriched with the long-chain n-3 fatty acid DHA, such as some soy milks and cereal bars. Women who need to consume more long-chain n-3 fatty acids, such as those who are carrying a child or nursing, would profit from taking a supplement with DHA-rich microalgae. DHA-rich microalgae supplements might be advantageous for those with elevated needs n-3 fatty compounds with a long chain such those consumed by expectant women and nursing mothers. Vegans are also encouraged to consume foods enriched with the long-chain n-3 fatty acid DHA, such as some soy milks and cereal bars. DHA-rich microalgae supplements might be advantageous for those with elevated needs for long-chain n-3 fatty compounds, such as pregnant and breastfeeding mothers.

Further Scope Of Research

1. You'll observe that a lot of businesses and individuals are now entering the vegan market. According to a study, individuals are mostly worried about the ethical and health implications of their eating. Because consumers are becoming more aware of how animals are treated, which encourages businesses to improve their products to make them better for people, this is a widespread worry for many people.
2. The global market for plant-based foods is growing. Shops now see this as a chance to draw in new customers. In order to convert "omnivores," or people who eat both plants and animals, smaller-scale merchants are now employing vegan products to draw in new clients. As the vegan market continues to expand, more well-known merchants are gradually discovering that there is a substantial potential to enter the plant-based food industry.
3. Because animals can emit harmful gases and contribute to global warming, vegan products are also better for the environment than non-vegan food. Also, animals that reside on farms emit methane, which contributes to the environment's pollution and the release of greenhouse gases.
4. In the same way that some people may be inspired to for a variety of reasons, switch to a vegetarian diet., others may be deterred by psychological, social, or environmental factors. A person's desire to become a vegetarian may be hampered by a fear of social isolation or stigma. Together with the association that people have with meat and masculinity, cultural factors that favour meat eating may also have a similar impact. Last but not least, since adopting an alternate dietary pattern also depends on environmental factors like food availability and cost, people may have trouble adopting a vegetarian diet if there aren't enough plant-based food options available to them.

Conclusion

In conclusion, a large body of research favours moving communities towards wholesome plant-based diets that minimise negative "One Health" effects on human, animal, and environmental health while reducing or eliminating use of animal products. Yet, there is still conflicting research about the consequences of eating a plant-based diet on the brain and mind. Furthermore whether stated effects are related to the diet is unclear itself, particular Other facets of vegetarian or vegan diets may include dietary nutrients (or the avoidance of specific animal-based nutrients). According to emerging theories, mental disease and emotional distress are related to how the microbiota affects neurological function and may be addressed with microbial intervention techniques. Additionally, having been asserted that certain microbial compositions cause certain disorders, like stoutness, and good ageing is associated with a balanced gut microbiota. This suggests that eating a plant-based diet may have an impact on how your brain works through as-yet-unidentified systemic metabolic alterations and changed microbiota status are caused by underlying processes. Yet, , no research has been done connecting plant-based diets with neurally-based cognitive capacities, which urgently represent the untapped potential as a dietary treatment strategy. Also, additional study is needed to distinguish between dietary changes driven by psychological factors and effects on physical and mental health, such as those brought on by adjustments to metabolism or the gut microbiome.

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