

Positive Health Effects of Being an Adolescent Vegetarian

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Introduction

Vegetarians are known as those who do not consume any kind of meat from an animal. The trend of being a vegetarian has become favored recently, and in the United States in the age range of six to seventeen year olds, about two percent are vegetarian (Amit, 2010). Research shows that vegetarian diets give the right amount of nutrients needed for a healthy lifestyle. Many of the major health problems in society are caused by poor diets. These poor diets lead to obesity, diabetes, and heart disease (Appleby and Key, 2015).

A study conducted on vegetarians versus non-vegetarians in western countries shows how these health problems correlate with diet. There are over 1 billion overweight adults in the world (Appleby and Key, 2015). This is caused by unhealthy diets and is a leading factor to other health problems, which cause death. Diabetes and heart disease are two diseases linked to being overweight. Type two diabetes, which can be cured with exercise and a healthy diet is expected to increase 49% in people under twenty years old, 2.3% annually until 2050. It has a death risk in youth under twenty of 1.5 (Imperatore et.al., 2012). Vegetarians have a lower body mass index, BMI, lessening their chance of getting type two diabetes, since they are not overweight (Appleby and Key, 2015). Heart disease causes over 30% of deaths in the United States and is one of the major causes of death (Schieb et.al., 2013). These deaths could have been lower with an improved diet, such as a vegetarian diet. Being vegetarian also decreases low density lipoprotein cholesterol because there is no animal fat being consumed, which leads to a healthier heart (Appleby and Key, 2015). Poor diets, lack of exercise, high cholesterol, obesity and more are 80% of the reasons for heart disease deaths (Schieb et.al., 2013).

Healthy People 2030 has worked to make a 10-year plan for improved dietary health among populations. Many of the objectives for nutrition are aimed at increasing healthy eating of fruits and vegetables at age two and up. The goals target decreasing chronic health issues, such as obesity, type two diabetes, and heart disease, which are the three main health issues that can be avoided by being a vegetarian. Some of the specific goals aimed at ages two and higher are increasing the amount of fruits, vegetables, and whole grains in diets, while reducing added sugars and sodium. These objectives are working to be met through policies such as obtaining more fresh markets in community areas as well as providing healthier foods in daycare centers and schools (Healthy People, n.d.).

Theory

Theories are used to determine a deeper understanding to explain a problem or occurrence and how to change it in a positive way. It is made up of different concepts, which are the foundation of theory. Constructs, which are a major part of theories, are developed concepts. The Health Belief Model and the Theory of Planned Behavior are commonly used in influencing the behavior of diet change to vegetarianism.

Health Belief Model

The Health Belief Model focuses on how a person's opinion or attitude will influence them to do a behavior. It is often used to influence a diet change because it studies behaviors that are performed with the purpose to prevent illnesses. Considering future health problems is the top reason 50% of people chose to change to a vegetarian diet. The Health Belief Model states that outside environments influence a person's behavior as well. This includes social norms, friends and family and more. With social norms this means what others believe influences how one thinks. In this theory one examines the risk of disease or how bad a disease may become before deciding a behavior. Studies show that a person who already has a disease will most likely change behaviors over someone who does not have it. However, some people face barriers. Some cultures may value meat and others may not have knowledge of how beneficial a vegetarian diet can be. Some restaurants do not have vegetarian options on their menu, and it can also be hard for people to change their behavior, which plays a part in self-efficacy. Believing that changing a behavior is possible and being able to perform the behavior of being vegetarian is important. One may be more tempted to have a vegetarian lifestyle if they believe the benefits outweigh the risks. On the other hand, if refraining from meat is a social norm, talked about with one's friends and family, or seen on social media, it is likely the individual's attitude will lean towards vegetarianism. The "cues to action" component of the Health Belief Model can range from a doctor's suggestion to family and friends. In the study done using the Health Belief Model 514 adults, aging eighteen to seventy-three years living in the United States were studied. In the study, 33% became vegetarian because of family and friends influences, while 14% took their doctor's recommendation. The participants were asked if they knew what a plant based diet was and seventy-six of the participants did not know what it was. Out of the 514, 391 ate some type of meat. The study used a Likert-type scale for measurements. A few of the barriers found included low iron from being vegetarian, not having vegetarian options at restaurants, and not having enough determination to become a vegetarian. As for the benefits in the study, improving

health and weight, spending less money on meat, and protecting the environment were found to be beneficial. People felt they would be able to have a plant based diet, so they had self-efficacy. As for the social norms, the study showed people did not believe their family and friends would support their vegetarianism. Cues to action were studied through a survey. The participants were asked questions pertaining to if they were aware of what a plant based diet was and how if they did know. Hearing from a friend was the most common, while speaking with a health counselor or fitness professional were the least common. In the end, social norms and self-efficacy were found to have the most effect on changing to a vegetarian diet, while the barriers such as changing eating habits and restaurants were the hardest to overcome (Urbanovich et.al., 2020). Looking at these adults it shows how effective starting a vegetarian diet at a young age can be. Changing eating habits will not be a huge barrier, and finding foods that fit the vegetarian diet will become second nature.

Theory of Reasoned Action and Planned Behavior

The Theory of Planned behavior is often used when looking into what goes into deciding on doing a particular behavior. The theory involves behavioral beliefs, normative beliefs, and control beliefs. Behavioral beliefs involve what the outcomes of the behavior are. Normative beliefs pertain to what others think and how it influences one's behaviors, control beliefs are what allow or constrain the behavior.

A study using the Theory of Reasoned Action and Planned Behavior determined how a garden project would affect eating habits among the youth. In the study all constructs were examined along with the effect of a pre-survey and post-survey. The population was made up of low income, and ethnically diverse children in Minneapolis and St. Paul Minnesota. The program was named Youth Farm and Market Project, which aims towards teaching the youth about gardening. There were forty-two boys and fifty-four girls in the age range of eight to fifteen. It was found that girls ate more vegetables prior to the program, but boys began eating more vegetables after the program. In the study it was found that with both boys and girls, two constructs: subjective norms and attitudes, had the most effect on influencing them to eat vegetables. In the girls only the pre-survey showed an association between intent to do the behavior and actually doing it. With the two surveys, the boys did not follow through with learning more about gardening and actually gardening. The girls did not follow through with eating the right amount of vegetables each day, learning to cook, or eating ethnic foods. The

Theory of Planned Behavior anticipates that the diet of the youth will be healthy. The study found that perceived behavioral control could be predicted among the girls, but not the boys. At the beginning of the study, girls already ate more vegetables and fruits than boys, but girls did not have nearly as much of an increase as boys with the amount they consumed. Girls may not have liked the behaviors that were taught to them in the program. There was a success in changing the boys' behavior to healthier eating from this study. In the future, programs such as these should work to comprehend the current beliefs, and norms of the youth in order to make the change more successful (Lautenschlager, et.al., 2007).

Intrapersonal Factors

Intrapersonal factors include attitudes, beliefs, knowledge, personality, demographics and psychological characteristics that influence behavior. These factors can influence eating habits to be beneficial or harmful.

A study was conducted on adolescents to determine what factored into their eating habits and how to better these habits. The study focused on 7th and 12th graders with sixteen being the average age. In the study, the participants were required to write what they had eaten in the past day to help determine what influenced these food choices. Many participants stated cravings, food appearance, and preparation were factors that lead to food choice. A few factors that were less common were cost, sticking to the same food options, weight, and thoughts on vegetarianism. Many of these factors influence unhealthy eating. Time can result in choosing something such as getting fast food or a sweet roll as two seventh graders explained. Making foods like salads, fruits and vegetables more noticeably available at restaurants can help. Many of the participants eat fast food because it is cheaper which correlates with socioeconomic status as well as employment which determines the time available to cook meals. Healthier drinks like milk, cost more than sodas (Dianne Neumark-Sztainer, et.al., 1999). In another study it is shown on a likert-scale that adolescents also believe being vegetarian results in a longer life. They also choose to be vegetarian because there is less harm done to the environment and their attitudes towards killing animals for food are negative (Pribis, et.al., 2010).

Studies have concluded that most people who adopt the vegetarian diet have a higher socioeconomic status. Vegetarians also have lower risks of heart diseases and diabetes than non vegetarians, so some people believe they will have a better health outcome with this diet. In the study conducted on socioeconomic status compared to vegetarian status, participants were asked

questions pertaining to their demographics, exercise, health, and diet. The study found that women and younger people with a higher level of education were vegetarians. With a higher level of education people are more knowledgeable about the benefits of vegetarianism and are more likely to choose this lifestyle than those with less education (Allès, et al., 2017).

Psychological factors can also factor into eating decisions. The “Meat paradox” was discussed, which is the belief in animals having feelings related to humans eating meat. Some people also believe food animals are capable of having emotions such as fear, happiness, pain, hope, guilt and more, which are similar to humans. This creates a sense of empathy towards the animals resulting in people with this belief to be less likely to consume meat (Cliceri, et.al., 2018).

Interpersonal Factors

A cross-sectional study done on families showed the influences that parents had on children's eating habits. It is shown that fathers influence their children to eat fruits, fats, and foods with small amounts of nutrients the most. Whether a mother or father has more influence on a child is unknown. Parents have a high influence over children's diets and it is mostly positive (Robinson 2014). A case study done on a family with one child showed that since the mother was vegan, she had a strong impact on the diet of the child. The child's diet was mostly vegetarian with some fish once a week. Since the child was a baby he did not have much choice over what he ate (Farella, et.al., 2020). In another study done observing weaning methods for babies becoming vegetarian, doctors are reported to be wary of supporting making children vegetarian because of the risks for certain deficiencies and anemia, or they do not have a sufficient level of information on the vegetarian diets in children. About 77.4% of parents in the study consulted a doctor, which influenced their way of weaning, but 22.6% did not consult anyone. It is shown that mothers have greater control over their children's diets than fathers. Mothers are more likely to be vegetarians than fathers at 51.5% for mothers and 27.3% for fathers (Baldassarre, et.al., 2020).

In Belgium there is a weekly program called “Thursday Veggie Day” where students are served vegetarian lunches. The focus was on children aged one to twelve. Parents were able to have a say in their child's lunch options by opting out of the vegetarian lunch, however many did not. The meal consisted of vegetables, a starch, and meat, like tofu. Having vegetarian lunch

introduced other food options to the children at young ages. The children approved of these lunches also, showing that providing new food choices can be effective (Keyzer, 2012).

Organizational, Community, Environment, and Policy Factors

The organization, Vegetarian and Vegan Youth, advocates for young vegetarians. They provide advice and help in fulfilling a vegetarian or vegan lifestyle. The organization has different activities that help with this as well such as a 30-Day Veg Challenge. The challenge consists of students cutting out different animal products each week until they are finally vegetarian or vegan (Veg Youth, 2010). This opens up an opportunity to experience a new diet, which is also healthy. Another organization aimed at teenagers aged thirteen to eighteen is called the Veg Student Alliance. This group provides education about food, how it ties into the environment, and how certain diets lead to problems in health. The teenagers are in charge of the meetings, and provide cooking ideas for preparation of different meals, which is beneficial to learn to be able to continue the vegetarian diet. These organizations allow like-minded individuals to come together not only changing their future but the future of the world (Veg Student Alliance, n.d.).

In the community aspect, there is a school campaign called, Meatless Mondays, for K-12 students. It was introduced in New York City Public Schools giving children a vegetarian breakfast and lunch on Mondays. A few of the lunch options were salads, grilled cheese, and tacos (Monday Campaigns, 2019). The New York mayor, Bill de Blasio, explains how the youth will have a better lifestyle by having “Meatless Mondays,” especially starting at a young age (Monday Campaigns, 2019). This has affected not only the health of the students, but also the environment in the area of greenhouse gases (Monday Campaigns, 2019). Humans and other living things need carbon as it is part of our makeup. Eating vegetables allows us to get this carbon (Aiking, 2019). Agriculture accounts for a large portion of pollution. Greenhouse gases are emitted during the production of food and especially when food is being transported. About 18% of greenhouse gas emissions are from livestock alone (Aiking, 2019). Pollutants often come from fertilizers and the bacteria produced in the soil gives off carcinogenic effects (Aiking, 2019). This is very harmful to not only the earth, but humans as well. It is important for children to learn this, while they are young. The primary focus of Meatless Mondays is to change the health outcomes of students in the future and the well-being of the planet (Monday Campaigns, 2019).

The environment children are in has a heavy impact on how they eat. The majority of the meals children consume are at school. This is why it is important that the food served in schools is healthy and contains fruits and vegetables. In France students are required to eat the lunch the school provides. This is to make sure that children are getting the nutrients they need. They have recently added in having one vegetarian meal a week. Having vegetarian meals once a week in school cuts out some processed meats, which can cause diabetes, heart problems, and other health issues. France has a higher percentage of meat consumption over vegetable consumption, so introducing plant based options at a young age could change this percentage (Poinsot, et.al., 2020). A study was conducted on how much fruits and vegetables were eaten at school versus at home. It was concluded that homes with parents with a higher education had children that ate a greater amount of vegetables and fruit. Minorities also consumed more fruits and vegetables at home (Ishdorj, et.al., 2013).

Europe has worked towards establishing policies to do with consumption of fruits and vegetables. In April of 2007, the European Commission planned to get fruit and vegetable policies passed in schools. A study was done to interpret whether these policies in school would get children to eat more fruits and vegetables. It is shown that adults do consume less vegetables than children, but children who eat vegetables growing up continue to do so into adulthood. The goal of this study is to improve vegetable and fruit perceptions and increase the amount consumed by the youth. A few ways this was done through schools was by making more fruits and vegetables available in school lunches, marketing to parents in school newspapers and holding classes, which teach how to cook food with more vegetables. All of these and more interventions contributed to the increase in fruit and vegetable consumption by seventy percent. Policies on obesity in children have been put into place with the belief that changing diets at a younger age is not as hard as changing it in someone who is older. Having funding for these types of programs and policies is important to be able to make them successful (de Sa & Lock, 2008). The National School Lunch Program and the School Breakfast Program are two programs important to children's diets. The National School Lunch Program works to make sure the Child Nutrition Act of 1966 is followed. The program assists children by offering lower priced or even free lunches to those who qualify. About sixty-eight percent of lunches were served at a low cost or no cost in 2012 meaning the majority of students use this program to get food. Forty percent of the daily amount of vegetables that should be eaten is how much children eat. With the

percentage being this low, it is important to have healthy lunches in the schools and get children their required amount of vegetables a day. It is proven that children in the National School Lunch Program and School Breakfast Program are among those receiving the highest amounts of vegetables needed. One policy in schools was to stop the sale of unhealthy snacks in schools, but this only led to students eating these types of snacks at home, lessening their intake of vegetables. The policy excluding dessert was successful only in raising the amount of vegetables eaten at school (Ishdorj, et.al., 2013).

Suggestions for Intervention

The Self-Regulation and Social Cognitive Theory discusses types of interventions for behavior. A few of the major interventions for promoting a vegetarian diet are changes in the environment, reinforcements for health, beliefs, and social norms.

Changing the environment someone is in is one way that heavily influences the way someone eats. Colleges are a great example of how environment change can influence what a person eats by offering different options in dining halls and restaurants on campus. A case-control study on two university campus restaurants attempts to passively pull people away from eating so much meat. In the restaurants, one is the control, while the other is being changed. The restaurants serve one dish each of a vegetarian, meat, and fish choice. The study involved how moving the placement of the vegetarian dish to the top of the menu and displaying it outside would affect the amount of people who ordered it. Displaying the food where it was noticeable made the dish twenty percent more likely to sell. In the changed restaurant, the sales for the vegetarian dishes went up six percent. This demonstrates how environmental changes can alter the eating habits of many people (Kurz, 2018).

Another strategy for intervention is reinforcements. Reinforcements that come from a vegetarian diet are health outcomes, such as a lower risk of heart disease and cancers. Many vegetarians consume foods such as nuts, which are known for lowering the likelihood of cardiovascular disease. Fruits and vegetables are among the categories of food that help with cancer risks. Vegetarians also eat smaller amounts of fats and sugar. This is consumed in higher amounts in non-vegetarians causing health problems such as obesity and cardiovascular disease (Duke Medicine Health, 2015). A cross-sectional study done in Brazil examines the quality of life and how a vegetarian diet helps to improve it. Motivation to have a healthier life and lessen diseases that are caused by diet are major reinforcements in becoming a vegetarian. Being

vegetarian affects the physical body in ways of disease prevention. The amount of fruits and vegetables vegetarians eat is close to the daily amount that should be consumed, which is five servings. Processed foods are also less likely to be eaten among vegetarians. These small changes in diets help decrease the susceptibility of chronic diseases, which can prolong life. Large amounts of protein in the body can affect the intestines by causing bacteria and fermentation, which can generate inflammation and cancer. The fibers and carbs in vegetables counteract the protein effects making it safer for the person consuming it. A study done by the Diabetes and Nutrition Study Group of the European Association for the Study of Diabetes concluded vegetarian diets decreased the rate of heart disease by twenty-eight percent along with the mortality rate by twenty-two percent. It also showed that diabetes is about two times lower in vegetarians due to lower weight and insulin regulation (Hargreaves, et.al., 2021). Many health problems are affected by diet, and people with a disease or at risk of developing a disease should look to changing their diet. It is a simple way to improve health outcomes.

Personal beliefs factor into how successful an intervention will turn out. Some believe that animals are put through a lot of suffering, only for humans to eat them. Those that believe this, sustain from meat and improve their mental health. Religion also factors into beliefs on vegetarianism. Religions have different views on the uses of meat, which affects whether they consume animals or not. The feelings one has about vegetarianism determines the extent to which the person will perform the behavior (Hargreaves, et.al., 2021).

Social norms such as how family, friends and society perceive vegetarians also affects the behavior. The study explains how being vegetarian puts a person in a group, and they are not only changing their behavior. This diet affects lifestyle factors as well such as making better relationships with like-minded people. Some negative societal effects come from the vegetarian diet. People who are omnivores judge vegetarians and make them want to avoid being put in these types of situations. Having a group that supports vegetarianism can help stop these negative effects, while improving their life quality. Living with people, having friends or people close all contribute to greater capabilities of keeping up with a vegetarian diet. Different cultures influence vegetarian behavior as well. Some cultures see certain meats as better than others to be consumed, while others do not have positive beliefs towards eating meats. Another factor that influences social norms is gender. More women, on the contrary, see the benefits of eating a vegetarian diet and look at meats like beef and pork as bad. This makes women more likely to

adhere to the vegetarian diet. Men are usually seen as less masculine if they do not eat meat. This results in men usually eating decreased amounts of vegetables (Hargreaves, et.al., 2021). In certain societies, like Argentina, men who eat meat are perceived to have increased masculinity. If men do not have meat in their diet, they must show their masculinity in various other ways (DeLessio-Parson, 2017). It is important to change these gender stereotypes as well as support people's choices in diet.

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