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Link between Diet and Mental Health Among Female Adolescents: A Brief Note

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Abstract
Countless aspects of brain functioning require adequate nutrition. Poor dietary quality, ubiquitous in India, may be a modifiable risk factor for depression. Adolescents as defined by WHO represent children aged 10-18 years. Growth spurts are commonly seen in infants and female adolescents. Growth largely depends on our diet, mental health and exercise. We are what we eat and the best part is that it is in our control what we eat and feed our family. Undoubtedly food has a mental, physical, emotional and even spiritual effect on our mind and body. Research has already proven the link between diet and mental health which is really important for women. Various studies have shown that today's teens are more inclined towards fast food, aerated drinks, even drugs and alcohol, which have now become a part of their eating habits. Diets that include burgers, pizza, all three white i.eSugar, salt and maida (maida) are not really beneficial for any age group and these tasty foods have been found to cause depression, anxiety, mood swings, hyperactivity and widespread depression as well as other mental and emotional problems . Such diets are only expanding the fat in our bodies and making the brain cells of our youth sick. Phytochemicals from plant sources and fish from animal sources provide an important position in staying happy and preventing damage to our brain cells. In the present article we will tackle the above cited aspect which is really the need of the day.
Keywords: *Diet, food, health, adolescent, Depression, nutrition.*

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I. INTRODUCTION

Women of childbearing age are at high risk for major depressive disorder (MDD). The lifetime risk for MDD in community samples has varied from 10%–25% for women (Kessler 2003), with peak prevalence between 25– 44 years of age. Adolescence is the age of major physical, intellectual and emotional growth. It is a period of rapid growth that is undeniable as well as the most important period on which our adult generation depends. Generally teenagers need to have happier mood, more energy for sports, studies and fun activity. They are generally under heavy pressure of meeting academic and peer demand along with physical changes that are taking place in their body. What they have to say, when to say, what they have to wear, how to get attention, all are matter of great concern for them. They are in great dilemma of being consider themselves in the category of adults or children and in all this the body's most important organ brain is still developing. We all know that if teens don't choose the right things to eat, they become irritable, depressed and low, and they also suffer from obesity related eating disorders like anorexia-nervosa, bluemia. This nutrition can help prevent and manage such conditions if we give them proper nutrition.

Food we eat has direct or indirect effect on our mental, physical, social and spiritual behaviour or other way round we can say, whatever we eat affects our mind and brain. Each and every behaviour of an individual whether mental, physical or social is also influenced by the process of digestion, absorption and even elimination of food we have eaten. We all know that happiness and digestion can be related to each other. If we talk about general happiness, it also largely depends on our digestive system, the better our digestion, the more we will find ourselves happy. Digestive enzymes and metabolic processes play an important role in the digestion of food and in the development of our happiness and overall health. So, both food and mood has great impact on our digestive system as well as, i.e., digestion affects our mood. After having your meal sometimes a person have a feeling of fullness it means your food is balanced and if after having your meal you still feel hungry then it shows that your meal is not balanced and complete. It is important to include all basic foundative tastes like

sweet like sweets, sour like lemon, salty like salt, bitter like bitter gourd, astringent and pungent like spices in your meal. Balanced meal should be planned in such a way that includes all the nutrients in proper amount like proteins, complex carbohydrates, healthy fats, vitamins A, B, C, D, E & K. Water and healthy liquids must also be included in balanced meal. Diet should contain fresh fruits and vegetables. Also it is really essential to have meal as well as that time daily so that digestive system can prepare for the meal. At the time of eating meal your mind should be calm and also the person who is preparing meal should be in happy and settled mood.

1.1.1 ADOLESCENCE & DEVELOPMENT PROCESS

During adolescence, the brain is undergoing developmental process. Axons are long threads of nerve cells along which impulses are carried from the cell body to other cells, muscles and glands. These axons develop a protective layer known as myelin or white matter that enhances the brain's ability to accept and transmit information. Brain dendrites that send electrical messages to neurons dilate and grow like branches during these developmental years. At this time, synapses that are often used to process information are strengthened, while weak synapses that are not used begin to die. This brain rebuilding phase in adolescent life is known as 're-training' and without proper nutrition, the brain's ability to learn new tasks or skills decreases. The brain needs proper sleep, hydration and good food during this rapid and developmental phase of life, as what you eat affects your brain. It is very important for teenage girls to know what to eat, when to eat and how much to eat as it affects attention, memory, ability and attention. There is certainly no one food that will enhance your performance before an important test or exam, but the best way to start your day is with a breakfast that should include complex carbohydrates, protein and healthy fats that help control blood pressure. can do . And keep teens satisfied. For a few hours until lunch. Teenagers can suffer from poor concentration and fatigue if they lack essential nutrients.

1.1.2 ADOLESCENCE, NUTRITION AND MENTAL ILLNESS

Little is known about the relationship between nutrition and depression, while the link between nutrient deficiencies and physical illness is well understood. Depression is generally considered to be strictly biochemically based or emotionally rooted. Conversely, nutrition may play an important role in the onset as well as the severity and duration of depression. Before depression occurs, many of the eating patterns are similar to the patterns that occur during depression. These include loss of appetite, eating less, forgetting to eat, skipping meals and a strong desire for sweet foods. The most common mental disorders that are currently prevalent in many countries are depression, bipolar disorder (mania-depression), schizophrenia and obsessive-compulsive disorder (OCD) by Murray CJL, Lopez AD (1996).

Depression is a serious disorder and when its treatment part is discussed one mostly depends on psychotherapy and psychopharmacological interventions (Martinson, 2008). The common link between daily diet chart, nutrition and mental illness as a treatment method is still under process but focus is shifting towards this side also. With increasing interest, research is being conducted that shows that proper diet and nutritional effects can significantly reduce depression (Bamber et al., 2007). Teen depression has been one of the focus areas over the past several years. There are several studies showing that better diet quality is associated with better mental health outcomes (Jacka et al., 2013). An inverse relationship between a healthy diet and depression has also been confirmed. There is very less data available regarding impact of diet, nutrition and adolescent depression. However, there are several studies related to adult mental health disorders (Oddy *et al*., 2009). There has been a correlation between adverse mental stage and western diet pattern which includes red meat, processed foods, sugary and refined food products (O'Neil *et al*., 2014). Appropriate health results were found in those who consume fresh seasonal fruit and vegetables. Today's adolescent generation is mostly dependent on aerated beverages and processed refined and sugary products rather than going for freshly cooked vegetables or fish or pulses. They are far away from fresh fruits and juices. Tetra pack juice is also very harmful when we talk about freshly prepared juice of any seasonal fruit or shake like papaya or mango or banana. The need today is to reduce the increasing use of caffeine in the form of daily coffee or tea. Studies have suggested that the increased incidence of mental health problems in recent years may be related to changes in dietary patterns over the same time frame, a shift from whole foods to more refined and processed diets (Bottomley and McCain, 2008). According to Greenstone (2007), a key growth hormone in the brain called brain-derived neurotrophic factor (BDNF) remains suppressed even after regularly consuming processed and refined foods. So it's time to say goodbye to such harmful foods that are slowly destroying the brain cells of our kids and taking away our health by promoting momentary happiness.

1.2 ADOLESCENCE, CALORIES AND PHYSICAL CHANGES

Adolescence is the period of lots of physical changes, growth spurt is their development is at very rapid pace. This is the critical period when a person needs the most calories in their entire life span. However, calorie intake also depends on the type of daily work the worker performs, for example a sedentary, moderate or heavy

worker. But in general teenage boys need 2800 calories a day and teenage girls 2200 calories which varies according to the nature of their work. Protein intake should be 45 to 60 g/day. The source of protein intake can be either vegetarian or non-vegetarian eg. Meat, fish, eggs, soy protein are all considered large amounts of protein. Fat is also an important nutrient essential for teens but care must be taken to have healthy fats that help the body activate and absorb vitamins A, D, E and K. Fats are also characterized as Mono unsaturated fats, Poly unsaturated fats and Saturated fats. Out of these saturated fats are commonly harmful and gave adverse effect on health. They increase cholesterol level and also maximize frequency of heart diseases and Type 2 diabetes including other life style diseases. However, monounsaturated and polyunsaturated fats are healthy fats that improve blood cholesterol level and lower blood sugar. The diet of teens should contain less than 30% of calories from fat. Saturated fats are mainly from animal sources of food like full fat milk products and red meat. Most of the examples of healthy fats are coconut oil, olive oil, eggs and avocados. Complex carbs are generally better than carbohydrates because they convert the sugar we take in into energy. Research states that adolescents should consume 130 grams of carbohydrates per day, that is, 50 to 60% of their daily calories should be filled with complex carbohydrates such as brown rice, popcorn, vegetables, peas, beans, whole grains. Calcium intake should be 1300mg/day. As we know calcium is required for strong bones and teeth. But teenagers should avoid consuming aerated drinks and soda as it hinders the absorption of calcium in the body and harmful effects have also been observed. If it is not taken in the right quantity in the initial years it can have serious consequences. The recommended dosage is 8 to 11 mg/day for boys and 15 mg/day for girls and up to 18 mg upon reaching 18 years of age. Teenagers need 600 IU of vitamin D a day which is a bit difficult to get from food sources alone. Exposure to sunlight helps 3 to 4 servings of milk to get the recommended vitamin D. Don't forget omega 3 fatty acids, which are mainly found in fish like salmon, mackerel, sardines, trout, and flax seeds in vegetarian sources. . Omega 3 fatty acids help to reduce the risk of mental problems and improve focus and memory and also have a positive effect.

II. RESULT AND DISCUSSION

THE SCIENTIFIC FACTS BEHIND FOOD AND MENTAL HEALTH

The connection between diet and emotions is highlighted by the close connection between your brain and your gastrointestinal tract, often referred to as the "second brain." Eating healthy foods encourages the growth of "good" bacteria, which in turn positively affect neurotransmitter production. On the other hand, a stagnant diet can lead to inflammation that hinders production and growth. When neurotransmitter production is in a good state, your brain receives these positive messages loud and clear, and your emotions reflect it. But when production goes awry, your mood and mental health can also suffer. Sugar, in particular, is thought to be a major cause of inflammation, plus it feeds the "bad" bacteria in the GI tract. Ironically, this can cause a temporary spike in "feel good" neurotransmitters like dopamine that have detrimental effects on our health. The connection between diet and emotions stems from the close connection between your brain and your gastrointestinal tract, often referred to as the "second brain." Eating healthy foods encourages the growth of "good" bacteria, which in turn positively affect neurotransmitter production. On the other hand, a steady diet of junk food can cause inflammation that hinders production. When neurotransmitter production is in a good state, your brain receives these positive messages loud and clear, and your emotions reflect it. But when the production goes awry, your mood can also be spoiled. Sugar, in particular, is thought to be a major culprit of inflammation, plus it feeds the "bad" bacteria in the GI tract. Ironically, this can cause a temporary spike in "feel good" neurotransmitters like dopamine.

a) Whole/complete Foods- Some studies have shown that preservatives, food coloring and other additives can cause or worsen hyperactivity and depression. So if you have one thing to remember, it's "eat real food" or "food that's minimally processed and has some healthy ingredients."

b) Fiber—Plant-based foods are packed with fiber, which helps your body absorb glucose -- or edible sugar -- more slowly and helps you avoid sugar rushes and accidents. Fiber-rich foods include fruits, vegetables and nutrient-rich carbs such as whole grains and beans.

c) Antioxidants- These are especially good for inflammation-fighting berries, leafy green vegetables, spicy turmeric and foods rich in omega-3 fatty acids, including salmon and black chia seeds. Dark chocolate also contains antioxidants -- and sugar -- so indulge in moderation.

D) Folate – This type of B vitamin helps with dopamine production without increasing the way sugar is processed. Find it in leafy greens, lentils and melons.

e) Vitamin D – Vitamin D helps with the production of serotonin, and we usually get it from exposure to sunlight. But mushrooms -- especially reishi, cordycep, and maitake -- are another good source, Jacobs says. (If you have a vitamin D deficiency, your doctor may also recommend taking a supplement. Aitna members can get discounts on supplements; check the benefits of your plan for details.)

f) Magnesium- This essential mineral helps with everything from nerve and muscle function to keeping the heartbeat steady. But it's also important for the food-mood connection: A mineral deficiency can damage the

bacteria in your gut and cause symptoms like depression and anxiety. Rich in natural sources like dark chocolate, cocoa nibs, almonds and cashews, spinach and other dark green leafy greens, bananas and beans.

g) Fermented foods- Fermented foods are full of probiotics, which are some live bacteria that are good for your digestive system. Examples include sauerkraut, kimchi, miso, tempeh and the fermented drink kombucha.

III. CONCLUSION

There are at least three mechanisms by which nutrition can be effective in improving mental health. First, modifying dietary intake or supplementing the diet with single or multiple vitamins and minerals can correct existing nutrient deficiencies that contribute to poor mental health. Pregnant and lactating women are particularly vulnerable to nutritional deficiencies because their needs are significantly increased compared to non-pregnant and non-lactating women, and these needs can be met through a normal diet, can be done. It is possible. Or the existing maternal can be completed through stores. It is difficult to stay mentally and physically healthy if you are unable to consume quality food. If you are in the habit of consuming low quality food containing the most dangerous three whites, i.e. sugar, sodium and fat, it can lead to increased brain development, diabetes and obesity as well as anxiety and depression. 2014). However, unfortunately the potentially important role of diet in mental well-being has not been recognized, perhaps due to a lack of awareness of research evidence or skepticism surrounding diet being able to influence mood and behavior. Second, pharmacological doses of one or more dietary supplements may improve mental health, in patients with dementia who have metabolic abnormalities that dramatically increase nutrient requirements, such as nutrient absorption, transport and persons with changes in storage. Third, improving the brain's nutritional environment may increase the effectiveness of antidepressant medication (and possibly other psychotropic drugs). Antidepressant medication is known to have varying degrees of effectiveness among depressed individuals, with extreme resistance to treatment occurring in 30%–40% of patients (Fava and Davidson 1996).

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