INTERNATIONAL JOURNAL FOR INNOVATIVE RESEARCH IN MULTIDISCIPLINARY FIELD
ISSN(O): 2455-0620 [Impact Factor: 9.47]
Monthly, Peer-Reviewed, Refereed, Indexed Journal with IC Value : 86.87
Volume - 11, Issue - 07, July - 2025

DOIs:10.2015/IJIRMF/202507058 --:-- Research Paper / Article / Review

Gut microbes and mental health and A pilot survey among college students of South Dum Dum area, West Bengal

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Abstract: *Quality of food consumed in a regular basis can cause both beneficial as well as harmful impact on our body and mind. There is a direct contact between brain and stomach or gut which is known as gut brain axis . So the food we are consuming can trigger some impacts on the gut environment, that is in the number of gut normal microbial flora, which can adversely effect the secretion of hormones and neurotransmitters which are directly responsible for our well being. So it can be said food can be one of the gateway of our healthy mental health too. I have had a pilot survey which shows that how food directly impacts the mood and mental health condition, focusing on studies directly.*

Key Words: *food, mental health, stress, anger.*

1. INTRODUCTION:

Human body has a huge no of bacteria residing in various part of our body in a particular number and causes no harm. Those are called Normal micr obial flora

These flora can be increased or decreased according to the food habbit, that is when gut environment changes, the flora changes. This imbalance of normal flora is called Dysbiosis. Dysbiosis can effect the secretion of hormones and neurotransmitters which are responsible for the mental health cognitive functions (1)of human. By consuming more sugar containing food or high fat food increases the number of various microorganisms . Due to such dysbiosis, the metabolites produced by them can directly effect the gut brain axis . All our emotions and mental conditions are regulated by the hypothallamus of brain. So Dysbiosis can cause imbalance in neurotransmitters as well as the secretion of different immune cells, responsible for immunity, that is protection against diseases and several disorders. The gut microbiota can affect the immune system directly via activation of the vagus nerve,(2)

Metabolites of becteria of the gut have a substantial impact on the regulatory function of the gut–brain axis and local and systemic immunity. SCFAs, produced by the bacterial fermentation of dietary carbohydrates, have immunomodulatory properties[3.4.5] which interacts with nerve cells by stimulating the sympathetic and autonomic nervous system via G-protein-coupled (GPR) receptor 41 (GPR41) (6) and GPR43. In addition, they can even modulate brain development and behaviors.

Studies have shown people having different mental issues have different kind of microbial flora than a healthier one.

2. Methodology: A questionnaire was prepared and distributed among some college students and responses were collected. It describes that students consuming more carbohydrates and fat rich food are mostly prone to have anxiety and stress.

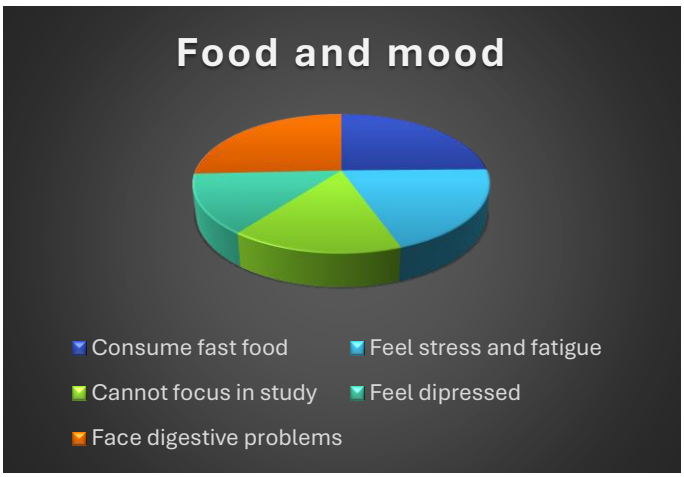
Total no of respondents= 50

Among them majority are college going students who are mostly prone to frequent fast food consumption and having some mental issues.

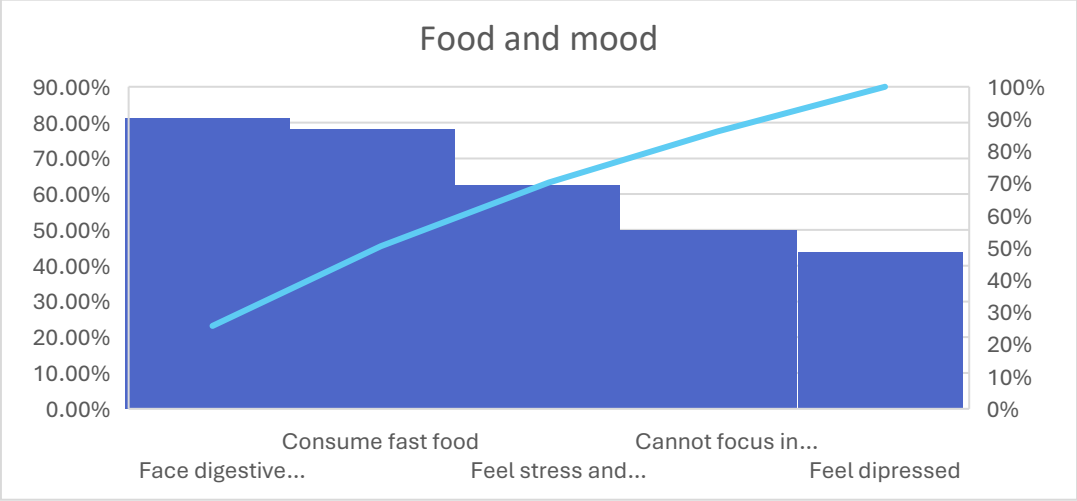
3. Result:

Age group	parameters	Percentage
15-25	Consume fast food	78.1 %
	Feel stress and fatigue	62.5%
	Cannot focus in study	50%
	Feel dipressed	43.8%
	Face digestive problems	81.3%

Table :1



Graph 1 pie chart of food and mood percentage



Graph 2: showing the relationship between food and mood.

4. Result and discussion:

- From the result we can see that 78.1% respondents consume fast food very frequently at least twice a week. They mostly consume high carbohydrate and surgar rich food which impacts their mental health.
- Among them 62.5% feel fatigue and stress due to the dysbiosis in gut environment which causes the imbalance in neuro transmitters and hormone secretion.

- 50% of respondents having problem to focus while studying which indicates lack of concentration which may effect their process of study resulting depression in long term, and 43.8 are already having depression due to the interrupted secretion of happy factors like oxytocin, endorphine dopamine.
- Majority (81.3%)among them frequenly suffer from indigestion problems which directly indicates the imbalance in gut microbes and the impact of their secondary metabolites.

5. Conclusion:

From the above pilot survey we can clearly conclude that there is an impact of consuming high carbohydrate and fat rich food on the mental health. So we can suggest to low sugar and fat containing food for consumption and intake fibre rich low fat and sugar food which helps to maintain our normal gut microbial environment . It also can be suggested to practice some free hand exercise, brisk walking and practicing yoga for a healthy body and mind.

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