

Mental well-being and dietary behaviour

Tulika Borah and Binapani Deka

Mental health has become a major public health issue worldwide. Physical, mental and social parameters are vital for all human beings and these are closely interwoven. Good diet has always been associated with physical health, but recent research shows that mental well-being is related to dietary behaviours. The way an individual eats is a complex mixture of thoughts, beliefs and moods.

Key Words : Mental well-being, Dietary behaviour

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INTRODUCTION

Health is the overall condition of a living organism at a given time. The widely accepted definition of health is that given by the World Health Organization (1948) "Health is a state of complete physical, mental and social wellbeing and not merely an absence of disease or infirmity". Health indicates psychosomatic well-being of an individual and is a broader concept which includes physical, social, and mental health. The maintenance and promotion of health is achieved through different combination of physical, mental and social well-being together sometimes referred to as the "Health triangle".

Mental health is the most essential and inseparable component of health. Mental health is a sense of well-

being, which produces happiness, stability, and security. It is the ability of an individual to make personal and social adjustment. Mental health is crucial to the overall wellbeing of individuals in all societies. Physical, mental and social parameters are vital for Health standards of all human beings and these are closely interwoven and deeply interdependent. Good mental health is the ability to respond to the many varied experiences of life with flexibility and sense of purpose. Maintaining good mental health is a crucial to live a long and healthy life. Good mental health can enhance one's life, while poor mental health can prevent someone from living an enriching life (Richards *et al.*, 2010).

A growing body of literature has focused attention on potential risk factors for mental disorders, involving studies on anthropology, human evolution, and biology, together with culture and environment (Logan, 2014). Fast evolution of human society has been witnessed with the rise in technological advances, global industrialization and urbanization which has happened over the last 50 years. The modern life led to the rise of non-communicable chronic diseases due to changes in lifestyle factors, including, adoption of unhealthy dietary patterns and sleeping habits (Branca *et al.*, 2019).

MEMBERS OF RESEARCH FORUM

Author for correspondence :

Tulika Borah, Department of Human Development and Family Studies, College of Community Science, Assam Agricultural University, Jorhat (Assam) India
Email: tulika.borah@aau.ac.in

Associate Authors' :

Binapani Deka, Department of Human Development and Family Studies, College of Community Science, Assam Agricultural University, Jorhat (Assam) India
Email: binapani.deka@aau.ac.in

The modern era is characterized by a “nutrition transition” process, which shows a global shift in traditional dietary patterns to rich processed energy-dense food, refined sugars, trans-fatty acids, excessive sodium, and scarce consumption of plant-derived foods, accompanied by an unbalance between calorie intake and its expenditure through regular physical activity (Logan, 2014). There are a large number of studies, considering the relation between diet and human health, showing not only an impact on cardio-metabolic diseases and certain cancers but also a potential role in affecting mental health disorders risk (GBD Diet Collaborators, 2017 and Dominguez, 2019).

Mental health and dietary behaviour:

Over the last half century, the global food industry has profoundly changed the way we eat. Unhealthy dietary behaviours such as consumption of soft drinks, caffeine, fast food, sweets and snacks and skipping breakfast have increased in today’s life style. While we understand how these dietary changes have impacted physical health, their effect on mental well-being is only now being realised. Recently, many studies have been trying to link dietary behaviour to psychological well-being and distress (Mujcic and Oswald, 2016; Lesani *et al.*, 2016 and Liu *et al.*, 2016).

Regular fruit, vegetable and breakfast intake (healthy dietary behaviours) have been found positively associated with self-reported health, happiness, and better sleep (Franckle *et al.*, 2015; Khalid *et al.*, 2016 and Peltzer and Pengpid, 2017). The way an individual eats is a complex mixture of thoughts, beliefs and ideas about food. Fundamentally, the driver of food consumption is determined by hunger and physiological needs. However, in a state of relatively high food availability and choice, many other factors impact food-related decisions and practices, like biological, personal, social, economic etc.

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impact food-related decisions and practices, like biological, personal, social, economic etc.

There are several close co-morbid links between mental and physical health, for example:

- Individuals with serious mental disorders have a significantly increased risk of cardiovascular diseases, diabetes and even some cancers.

- Individuals with depression are also at an increased risk for cardiometabolic disorders, such as obesity, diabetes and heart disease, while those disorders – in turn – increase the risk of depression.

- Individuals with gastrointestinal disorders are much more likely to have a higher prevalence of adverse mental symptoms, such as depression and anxiety.

- Individuals with depression commonly report gastrointestinal symptoms such as diarrhoea, constipation and bloating.

How foods can affect feeling:

Serotonin is a neurotransmitter that helps regulate sleep and appetite, mediate moods, and inhibit pain. Since about 95% of serotonin is produced in gastrointestinal tract, and the gastrointestinal tract is lined with a hundred million nerve cells, or neurons, it makes sense that the inner workings of digestive system don’t just help to digest food, but also guide the emotions. The function of these neurons and the production of neurotransmitters like serotonin is highly influenced by the billions of “good” bacteria that make up the intestinal microbiome. These bacteria play an essential role in maintaining good health. They protect the lining of intestines and ensure to provide a strong barrier against toxins and “bad” bacteria; they limit inflammation; they improve absorption of nutrients from food; and they activate neural pathways that travel directly between the gut and the brain. The poor nutrient content of junk or fast foods may have an effect on normal brain functioning and, thus, have an effect on negative mood via the synthesis of neurotransmitters such as serotonin (Bellisle, 2004 and Bamber *et al.*, 2007).

Brain plasticity:

One crucial factor that supports mental health is brain plasticity. Brain or neuro plasticity is the ability of the brain to alter its connections, greatly affecting its overall functions. The human brain has the capacity to re-wire itself and even form new neurons. This ability is important during the brain development and maturation in early life

and supports brain structure and function throughout life. Brain plasticity is also critical in later life to moderate cognitive decline. The process of neurogenesis (ie growth of new neurons) is partly dependent on a protein called 'brain derived neurotrophic factor' (BDNF). BDNF is present in most parts of the brain, particularly the hippocampus – the area responsible for mood and cognition. Studies show decreased levels of BDNF in stress, serious mental illness and in neurodegenerative disorders, indicating impaired brain plasticity (Fernandes *et al.*, 2014). Similarly, decreased levels of BDNF and smaller hippocampal volumes have been repeatedly associated with poor diet (Jacka *et al.*, 2015), linking concepts of diet and brain plasticity.

Oxidative and nitrosative stress:

Brain is the driver of all our actions and thoughts. Eating high-quality foods that contain lots of vitamins, minerals, and antioxidants nourishes the brain and protects it from oxidative stress. Oxidative and nitrosative processes are chemical reactions that involve oxygen or nitrogen molecules. These processes are part of normal physiological function of living organisms. However, oxidative and nitrosative stress leads to an imbalance between antioxidants and free radicals, accelerating cell damage and negatively impacting immunity and other biological processes (Firth, 2019). Evidence shows that individuals with depressive symptoms often present with a lower antioxidant capacity and higher levels of oxidative stress markers than those without depressive symptoms (Liu *et al.*, 2015). Nutritious diets high in various colourful plant foods such as fruit and vegetables deliver a great abundance of dietary antioxidants, which may reduce oxidative and nitrosative stress.

Conclusion:

The connection between nutrition and mental health are not popularly known to people. Mental illnesses are more typically thought of as biochemical-based or emotionally-rooted. But, nutrition can play a key role in mental health. Many of the dietary behaviours like poor appetite, skipping meals, and a dominant desire for restricted diet can be associated with mental illness. This clearly indicates that nutritional factors are intertwined with human cognition, behaviour and emotions. Healthy diet is essential for physical as well as mental well-being.

LITERATURE CITED

- Bamber, D., Stokes, C. and Stephen, A. (2007).** The role of diet in the prevention and management of adolescent depression. *Nutr. Bull.*, **32** : 90–99.
- Bellisle, F. (2004).** Effects of diet on behaviour and cognition in children. *Br J Nutr.*, **92** (Suppl 2) : S227–S232.
- Branca, F., Lartey, A., Oenema, S., Aguayo, V., Stordalen, G.A., Richardson, R., Arvelo, M. and Afshin, A. (2019).** Transforming the food system to fight non-communicable diseases. *BMJ*, **364** : 1296.
- Dominguez, L. J., Barbagallo, M., Muñoz-Garcia, M., Godos, J. and Martinez-Gonzalez, M.A. (2019).** Dietary patterns and cognitive decline: key features for prevention. *Current Pharmaceutical Design*, **25** (22) : 2428-2442.
- Fernandes, B.S., Berk, M., Turck, C.W., Steiner, J. and Goncalves, C.A. (2014).** Decreased peripheral brain-derived neurotrophic factor levels are a biomarker of disease activity in major psychiatric disorders: a comparative meta-analysis. *Molecular Psychiatry*, **19** (7) : 750-751.
- Firth, Joseph, Marx, Wolfgang, Dash, Sarah, Carney, Rebekah, Teasdale, Scott B., Solmi, Marco, Stubbs, Brendon, Schuch, Felipe B., Carvalho, André F., Jacka, Felice and Sarris, Jerome (2019).** The effects of dietary improvement on symptoms of depression and anxiety: A meta-analysis of randomized controlled trials, *Psychosomatic Medicine*, **81** (3): 265-280.
- Franckle, R.L., Falbe, J., Gortmaker, S., Ganter, C., Taveras, E.M., Land, T. and Davison, K.K. (2015).** Insufficient sleep among elementary and middle school students is linked with elevated soda consumption and other unhealthy dietary behaviors. *Prev. Med.*, **74** : 36–41.
- GBD Diet Collaborators (2019). Health effects of dietary risks in 195 countries, 1990–2017: A systematic analysis for the Global Burden of Disease Study 2017. *Lancet*, **393** : 1958–1972.
- Jacka, F.N., Cherbuin, N., Anstey, K.J., Sachdev, P. and Butterworth, P. (2015).** Western diet is associated with a smaller hippocampus: a longitudinal investigation. *BMC Medicine*, **13** : 215.
- Khalid, S., Williams, C.M. and Reynolds, S.A. (2016).** Is there an association between diet and depression in children and adolescents? A systematic review. *Br. J. Nutr.*, **116** (12) : 2097–108.
- Lesani, A., Mohammadpoorasl, A., Javadi, M., Esfeh, J.M. and Fakhari, A. (2016).** Eating breakfast, fruit and vegetable intake and their relation with happiness in college

students. *Eat Weight Disord.*, **21**(4) : 645–651.

Liu, T., Zhong, S., Liao, X., Chen, J., He, T., Lai, S., Jia, Yanbin (2015). A meta-analysis of oxidative stress markers in depression. *PLoS ONE*, **10** :10.

Liu, X., Yan, Y., Li, F. and Zhang, D. (2016). Fruit and vegetable consumption and the risk of depression: a meta-analysis. *Nutrition*, **32** (3) : 296–302.

Logan, A.C. and Jacka, F.N. (2014). Nutritional psychiatry research: An emerging discipline and its intersection with global urbanization, environmental challenges and the evolutionary mismatch. *J. Physiol. Anthropol.*, **33** : 22.

Mujcic, R. and Oswald, J.A. (2016). Evolution of well-being and happiness after increases in consumption of fruit and vegetables. *Am. J. Public Health*, **106** (8) : 1504–1510.

Peltzer, K. and Pengpid, S. (2017). Dietary behaviours, psychological well-being, and mental distress among University students in ASEAN. *Iran J. Psychiat. Behav. Sci.*, **11**(2): e10118.

Richards, K.C.,Campania, C., Muse-Burke, J.L. (2010). Self-care and well-being in mental health professionals: The mediating effects of self-awareness and mindfulness. *J. Mental Health Counseling*, **32** (3): 247–264.

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