

Food and Mood: Rethinking of Mental Illness through Nutrition

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Psychological disorders are thought as a leading cause of disability worldwide [1]. The economic, social and health burdens associated with these disorders are substantial [2]. Whilst psychotherapy and psychopharmacology offer clear benefits as the core treatment choices for dealing with mental illness, their efficacy can be doubted [3-5]. This last notion strongly stresses the need for the development of novel strategies to prevent and treat mental disorders.

In recent years, the rather new nutritional psychiatry/psychology research field examines the relation and effects of nutritional habits and diets on different psychological disorders, and *vice versa* [6]. Apparently, the potential of nutrition in preventing and intervening in mental concerns is obvious. In order to operate, the brain demands a high metabolic rate, exploiting a significant proportion of the body's energy and food intake. Brain function by itself is built upon the constant usage of fats, vitamins, minerals and amino acids [7]. Thus, it would not be odd to claim that what we eat can influence how we would feel, and that our feelings may guide what food we would consume.

Specifically with regard to anxiety and depression, it was shown that Mediterranean diet is associated with a reduction in anxiety and depressive symptoms, while a Western diet is associated with an increase in symptoms [8]. Mediterranean diet is considered healthier and is characterized by an increased consumption of vegetables, fruits, fishes, whole grains, olive oil and a decreased consumption of snacks, candies, and processed food. In contrast, Western diet is considered less healthy and is characterized by the consumption of processed meat, saturated fat, trans fat, refined grains, candies and alcohol [9]. In addition to the general diet types, studies also examine the associations between specific types of fatty acids, anxiety and depression. Often, studies refer to two types of fatty acids: the first, a Polyunsaturated fatty acid (PUFA) which includes, among others, the Omega 3 fatty acid mostly found in fishes and Omega 6 fatty acid mostly found in vegetable oils [10]; the other, is a Saturated fatty acid (SFA) mostly found in meat fat, eggs and dairy products [11]. Measuring fat consumption is usually being done by calculating the ratio between these two fatty acids. In general, higher PUFA consumption over SFA consumption is favoured [12]. Yet, very high consumption of PUFA by itself is somewhat tricky due to proportion of Omega 6 fatty acid which in certain amounts is less healthy [13]. In general, findings point on a negative association between Omega 3 (specifically, Docosahexaenoic - DHA) consumption and depression [14] and a positive association between saturated fat and depression [15]. In spite of these findings, most data regarding these associations are still scarce and those that do exist often point to contradicting findings [16]. Moreover, still, most studies rely heavily on subjective self-report methods to untangle these relations while only few assimilate new tools, such as: psychophysiological, biological, gastrointestinal microbiome or imaging tools. In a similar manner to other fields of research, the use of a multidisciplinary research approach would probably enhance our progress of understanding these disorders in a more efficient and less expensive ways.

Thus, it seems that Nutritional psychiatry/psychology research field has a great potential to yield significant interventions to both prevent and manage mental disorders in a rather low and almost effortless costs. Studies have already revealed a reliable association between diets and certain types of mental illnesses [17,18]. Incorporating cutting-edge novel research tools into the observational study that is already being done should establish a pivotal pathway to reveal the possible action mechanisms underlying these associations. Evidence supporting the feasibility and efficacy of dietary based interventions also start to emerge [19]. Hopefully, altogether, these

progresses would eventually lead to changes in public policy to affect eating behaviour in a wide population [20]. Yet, a significant research is still required using large cohorts and clinically relevant populations, particularly in patients with depression and anxiety disorders.

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