The Impact of Diet On Mental Health

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In watching diseases, both in private houses and public hospitals, the thing that strikes the experienced observer most forcibly is this, that the symptoms and sufferings generally considered to be inevitable and incident to the disease are very often not symptoms of the disease at all, but of something quite different - of the want of fresh air, or of light, or of warmth, or of quiet, or of cleanliness, or of punctuality and care in the administration of diet, of each or all of these. (Nightingale, 1860, reprinted 1969)

The profound relationship between diet and health (physical and mental) has been remarked on since ancient times. Greek and Chinese medicine, for example, both posit interrelationships between diet and the processing of nutrients and mood, wellbeing, temperament and mental disorder, all mediated by biological and familial factors. A breakdown in a normative relationship with food has also been associated with mental illness; for example, in Daniel 4 v33: ‘That very hour the word was fulfilled concerning Nebuchadnezzar; he was driven from men and ate grass like oxen…’

In terms of the development of modern health care diet has remained important but we have perhaps lost the sense of the centrality of nutrition to human health and wellbeing. Specifically we seem to have lost any sense that diet may be closely related to mental health. In response to this deficit, the Mental Health Foundation, working in partnership with Sustain, the alliance for better food and farming, recently published the report *Feeding Minds* (Mental Health Foundation, 2006). This article is largely based upon this work but sets it in context and seeks to explore the background and the policy and practice implications of the work.

Mental health

Readers of this journal will be familiar with various definitions of mental health. For the purposes of this work it is important simply to give a broad sense of what is meant by mental health so that we are clear what is being affected by diet and our relationship with food. For these purposes it is assumed that good mental health is displayed by sound cognitive, emotional and perceptual functioning. While not taking a reductionist approach it is assumed that a healthy brain and nervous system are the platform for good mental health and that at least some of the effects of diet (good or bad) on mental health will be mediated by the effects of nutrients on the brain. However, there may also be indirect effects via social and psychological mechanisms.

The major influences on mental health are well understood. The Mental Health Foundation focuses its efforts around 10 major factors (Table 1). Many of these factors are also influences on physical health for a variety of reasons, including, fundamentally, the interdependence of the central nervous system (CNS), cardiovascular and endocrine systems. This interdependence presumably reflects observed correlations - for example, between cardiovascular disease, depression and type II diabetes. Of these ten, diet is one of the less well understood because of the dearth of thinking and gold standard research on this issue during the 20th century. However, this evidence base is growing.
Mental illness

Similarly, this is not the place for a discourse about mental illness. For these purposes we recognise the broad relevance of the major diagnostic groups. We are interested in both prevention and treatment of any disorders that affect the functioning of mind and brain, whether the initial insult to the system is thought to be organic or socio-psychological.

Clearly the possible relationships between diet and mental health and mental illnesses will be complex. People do not eat in a vacuum. Diet is influenced by social, psychological and cultural issues and by the pre-existence of mental or physical disorder. Some of the possible relationships, which are not mutually exclusive, will be as follows:

- a biochemical developmental relationship in which the diet of the individual and his or her mother will affect brain development because of the impact of nutrients or their absence during crucial developmental stages. This model can equally well apply to senecence which might not, in a strict sense, be seen as a continuation of ‘development’. Some have suggested that this may be important in diseases such as schizophrenia or dementia
- recent biochemical impacts on the brain; for example, down-regulation after sugar or caffeine highs. Anecdotally children seem to be particularly prone to these episodes and some have linked this with attention deficit hyperactivity disorder (ADHD)
- poor diet could be seen as ‘causal’. Poor diet will usually be a part of a complex web of causation. Other common elements of this web may include income, geography, culture, upbringing, institutional history, substance misuse and physical health and activity
- good diet can be seen as protective of good mental health and preventative of mental illness. While generally speaking we could recommend a ‘Mediterranean’ diet as protective there would be complications. Some diets will be better than others at protecting against specific mental disorders and some individuals with, for example, metabolic disorders or learning disabilities, may require highly specific diets to help them remain mentally well
- socio-psychological aspects of our relationship with food, such as eating in family or other groups, may be more beneficial than eating alone, but this may be affected by personality and how the situation is construed by the individual or individuals involved. There is little research on this issue or other indirect relationships between diet and mental health such as links between obesity and bullying and self-esteem.

Generally speaking these possible different relationships have not been well thought through, and most of the research so far has adopted a simplistic causal model between the absence or presence of dietary components and certain mental illnesses.

The evidence base

The evidence base on diet is not very strong relative to some of the other factors on which the Mental Health Foundation focuses its activity, such as exercise or alcohol. However, the research team that worked on Feeding Minds was able to find 600 items of research literature to support the review. Nonetheless this position must not distract us from the overwhelming intellectual case for considering diet in the treatment and prevention of mental illness. This is founded upon both the general proposition that the brain is the platform for the mind and our more detailed understanding of how nutrients might or might not contribute to brain development and function. In addition, we have a body of empirical and anecdotal evidence, including personal testimony from service users and carers, of the impact of diet. The evidence that does exist focuses mainly on four disorders discussed below. Detailed references to support all the statements made below are available in the Feeding Minds report which can be downloaded from the Mental Health Foundation website: www.mentalhealth.org.uk.
ADHD

Whether or not ADHD is a robust disease classification there is a lot of empirical and anecdotal evidence from parents, schools and young people’s institutions that diet can affect children’s behaviour, learning and adjustment. This relates to the content and, as Florence Nightingale asserts, timing of meals. Specifically, some studies have shown essential fatty acid (EFA) deficits and mineral deficiencies in children with ADHD. It also seems highly likely that down-regulation will not benefit children with any sort of attention problems whether or not the relationship ‘causes’ the syndrome. However, the evidence base remains debatable and the biochemical mechanism(s) that might be at work are not clear.

Schizophrenia

There are a number of important strands in the relationship between diet and schizophrenia. There is little doubt that the diets of people with this diagnosis who suffer from repeated episodes of illness are poor and this is reflected in standardised mortality ratios (SMRs) for many relevant disease groups. The overall SMR for people with schizophrenia is 157 (quoted in Jenkins et al., 2002), the population average being 100. In addition the atypical anti-psychotics cause weight-gain which, coupled with a poor diet and a sedentary lifestyle, results in widespread obesity within this client group. A number of practical projects involving physical and mental health promotion have shown how this can be tackled.

The studies relating to diet and the onset and treatment of schizophrenia have so far been inconclusive. However, it is interesting that there is a possible correlation between saturated fat intake and schizophrenia as there is stronger evidence that this is the case with Alzheimer’s disease and there are possible links between the two conditions (see, for example, Norton & Owen, 2005). Other interesting findings from the research include possible links between schizophrenia and famine in terms of in-utero malnutrition, and possible treatments using omega-3 EFA and antioxidants/vitamin supplements. However, more research is needed to elucidate possible treatment and prevention strategies.

Alzheimer’s disease

The data on risk factors for Alzheimer’s disease provide the most convincing link between diet and mental illness, with quite strong data that a Mediterranean diet is protective. The occurrence of this form of dementia appears to correlate positively with a diet rich in saturated fat and negatively with a diet rich in polyunsaturated fatty acids. In addition to the classic Mediterranean diet including vegetables, fish, fruit and olive oil, there is some evidence that cereals are also beneficial. EFAs and anti-oxidants could both be implicated in sustaining healthy brain repair mechanisms as dysfunction in these mechanisms is thought to trigger the illness.

Depression

The links between food and depression are likely to be profound at a number of levels. Loss of appetite is a classic feature of clinical depression and any relationship may be confounded by the fact that once depression has set in nutrition generally may be compromised. There is a different issue with some people with mild depression/dysthymia who may be overeating and become obese. However, at present the precise relationship between depression and diet is not particularly well understood.

Research so far can be summarised as follows:

- a good intake of EFAs seems to be protective
- some micronutrients (for example, folate, zinc, selenium and vitamins B1, B2 and C) seem to help
- adequate carbohydrate in the diet may be important as this allows processing of EFAs
- direct treatment with tryptophan (which is a precursor of serotonin) gives unclear results
- there is some evidence that a ‘good’ diet will enhance the functionality of anti-depressant medication.

While the precise mix of nutrients which may be of benefit and the related mechanisms are not yet fully clear, there is anecdotal and empirical evidence that treatment of depression with EFAs and micronutrients does work. For example, Professor Malcolm Peat is using such a treatment regime in the mental health service in Doncaster with positive results.

What have we learned so far?

While much of the relationship between mental health and diet is unclear in public health terms we already know enough to promote a Mediterranean-style diet both for mental and physical health reasons. We also have enough evidence to justify public policies which promote healthy diets in children and pregnant women as the long-term damage of
unhealthy eating may impact more on the developing brain. We need to be clear that the absence of gold standard research on the links between specific mental illnesses and treatments does not mean that we do not have a sufficiently clear case for public health measures.

Once we explicitly recognise that diet is one of the fundamental cornerstones of good mental health, significant practice implications emerge. These include:

- ensuring that diet is part of an overall lifestyle assessment for people with mental illness, which also includes issues such as physical activity, relationships and substance misuse

- ensuring that primary and secondary care services can routinely provide dietary advice

- developing more treatment and health promotion services for those key groups which may benefit, such as people with depression that does not respond to anti-depressants and people on atypical anti-psychotics

- understanding that diet can underpin other approaches to treatment, especially medication and exercise.

Some respected commentators believe we are in the grip of an epidemic of mental illness that is partially related to unhealthy diets rich in saturated fats, sugars and additives. We cannot wait another 20 years to be sure that this is the case. The risks of waiting are too great and the prize in terms of physical and mental health by promoting healthy diets is potentially huge.

**References**


