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Food as medicine in psychiatric care: Which profession should be responsible for imparting knowledge and use of omega-3 fatty acids in psychiatry

Berit Johannessen*, Ingjerd Skagestad, Anne Mari Bergkaasa

University of Agder, Faculty of Health and Sports, Institute of Health and Nursing Science, Norway

abstract

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The effect of omega-3 fatty acids on depression is well documented. The purpose of this study was to determine if and how food is used as medicine in psychiatric care, especially how omega-3 fatty acids are used as a supplement in the treatment of depression. This is a pilot study with a qualitative design using questionnaires and interviews among nursing students, tutor nurses and psychiatrists. Three main categories emerged: 1. Nutrition is considered important but few evaluations are made. 2. There was a lack of knowledge of the effects of Omega 3. 3. There was an unclear divisions of responsibility among health personell. A change in knowledge paradigms and clarification of responsibility is called for if food-as-medicine is to take its true place in psychiatric care. It is also necessary to include CAM and holistic perspectives. Further research is needed to determine why health education and health workers do not focus on nutrition therapy in psychiatric care. Further research is also needed to reveal both the patients, the GPs and the CAM practitioners knowledge and attitude to the use of dietary supplements.

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1. Introduction

The numbers of patients with mental health disorders are increasing in Western countries. Researchers have observed that the increase in the prevalence of mental health disorders in developed countries is associated with deterioration in the quality of the Western diet. Essential vitamins, minerals and omega-3 fatty acids are often deficient in the general population and are exceptionally deficient in patients suffering from mental disorders.^{1,2} The brain, two-thirds of which consists of fat, depends on an adequate supply of fatty acids to develop and function normally. The amygdala, which controls emotion, is particularly dependent on adequate supplies of fatty acids. Omega-3 fatty acid is an essential nutrient because the body cannot make omega-3 fatty acid bonds. A typical Western diet yields 0.3e0.4 g of omega-3 fatty acids per day, whereas nutrition experts recommend a minimum daily omega-3 fatty acid intake of 1 g per day. Fish and shellfish are the richest sources of omega-3 fatty acids, which is why it is recommended that adults eat fatty fish at least twice weekly. The most important omega-3 fatty acids are docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA). EPA is assumed to have the greatest antidepressant effect of the two, but the significance of this is mainly theoretical because fish oil is a mixture of these two components.³

In our experience as teachers and supervisors in the field of nursing, food and food supplements are not used for the treatment of mental disorders and awareness of the importance of nutrition and omega-3 fatty acids for mental health is inadequate. The aim of our study was to test this hypothesis.

We restricted the study to patients with depression because depression is a very common diagnosis and because the effect of omega-3 fatty acids on depression is well documented. The purpose of the study was to determine if and how food is used as medicine in psychiatric care, especially how omega-3 fatty acids are used as a supplement in the treatment of depression.

The Norwegian public health service has a traditional allopathic paradigm, which has evolved into what is now called conventional Western scientific medicine (biomedicine). It has two levels of responsibility: doctors are responsible for curing, and nurses and other health personnel are responsible for caring. This is known as a bilateral health service.⁴ Furthermore, nurses and other health personnel are responsible for several delegated tasks, the most important being the distribution of medication prescribed by the doctor. Responsibility for patient nutrition is most often allocated to dieticians and personnel in centralized kitchens. Nonetheless, health workers in general and nurses in particular have a responsibility to ensure that patients' food and drink requirements are met. Complementary and alternative medicine (CAM) is not offered by the public health service but is very commonly used on a private basis. Recent surveys show that every second Norwegian has used CAM (www.nifab.no). The use of food as medicine is common in CAM.

* Corresponding author.

E-mail address: berit.johannessen@uia.no (B. Johannessen).

2. Previous research

The search term, "depression and omega-3 fatty acids" produced 467 hits on the Cinahl/Medline database and 526 hits on the PubMed database (January 2010). Because of the lack of a comprehensive review of research on depression and omega-3 fatty acids, a professional committee consisting of 11 leading researchers in this field was established (Committee on Research on Psychiatric Treatments of the American Psychiatric Association). This group has evaluated all the relevant research on omega-3 fatty acids up to 2006. Their analysis shows that omega-3 fatty acids prevent cardiovascular disease and that they can be used to prevent and treat gastrointestinal problems and rheumatoid and lung ailments. Furthermore, omega-3 fatty acids reduce the risk of developing breast, prostate or lung cancer and increase the cognitive capacity of the fetus. Interestingly, research shows that fatty acids affect the part of the brain that controls emotion (behavior, memory, concentration and mood).

Freeman et al.⁵ (p. 1954) came to the following conclusion:

Studies support a protection effect of omega-3 intake, particularly eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) in mood disorders. Meta-analyses of randomized controlled trials demonstrate statistically significant benefit in unipolar and bipolar depression (p ¼ .02).

Augmentation with omega-3 fatty acids should be considered for many individuals with major depressive disorders because their general health benefits are well established and adjunctive use has a low risk.⁶ A daily dose of 1e9 g of omega-3 fatty acids was recommended. No side effects have been reported.⁵

The Cochrane review of omega-3 fatty acids in the treatment of bipolar depression found that omega-3 fatty acids have a significant effect on depression.⁷ Colangelo et al.⁸ assessed multivariable-adjusted associations of fish consumption and dietary intakes of EPA and DHA with depressive symptoms in a population-based sample of 3317 people. They concluded that dietary intake of fish and fatty acids may be inversely associated with chronic depressive symptoms in women but did not observe this effect in men.

A deficit of omega-3 fatty acids has been identified as a contributing factor in the development of mood disorders.³ Several reviews on this topic have been published.^{9e13} Sontrop and Campell¹³ concluded, amongst other things, that:

The relationship between omega-3 fatty acids and depression is biologically plausible and is consistent across study designs, study groups, and diverse populations, which increases the likelihood of a causal relationship.

There is a strong correlation between depression and suicide, and studies have shown that there are more suicides among depressed persons with low blood levels of omega-3 fatty acids than among those with high blood levels of omega-3 fatty acids.¹⁴

Furthermore, Parker et al.³ reviewed several studies that show a correlation between depression and cardiovascular ailments. Interventions aimed at increasing blood levels of omega-3 fatty acids may help to prevent depression and adverse cardiovascular events.^{15,16} A Norwegian doctoral thesis concluded that persons with mental disorders are doubly exposed to cardiovascular disease.¹⁷ Therefore, a sufficient intake of omega-3 fatty acids is "twice as important" for persons with mental disorders than others.

Fatty acid (as in fish) is food, not medicine, but when food is used as medicine, who is responsible for giving it to the patients? The delegation of responsibility in the health service is dominated by the relationship between doctors, who are responsible for

curing illness, and health workers (mostly nurses), who focus on care and health promotion.⁴ This relationship is complicated by the fact that health workers are also delegated tasks by doctors. Bauman et al.¹⁸ showed that the division between care and cure has an adverse effect on patients and called for closer cooperation and mutual respect between these groups. Others have emphasized problems such as the different philosophical bases of cure (doctors) and care (nurses)¹⁹ and the unclear border between care and cure, a dilemma that is particularly relevant to nurses who offer CAM.^{20,21} Research has also revealed that there is a desire and a need for better communication and cooperation among the conventional medical establishment, CAM practitioners and patients. Gamst et al.²² examined the situation in Denmark and Norway. They argued that closer cooperation between conventional and alternative therapists across professional boundaries in an interactive partnership with patients is required to optimize treatment outcomes in the future.

3. Methods

This is a pilot study with a qualitative design. We used various methods and target groups. First we distributed a simple questionnaire with open questions to nursing students who were completing a 9-week placement period in psychiatry and to the nurses who were tutors of the students. After analyzing these responses, we conducted semistructured interviews with psychiatrists in the same psychiatric field.

3.1. Respondents and selection

There were three source groups in this survey: nursing students, tutor nurses and psychiatrists. Nursing students were selected because they were involved in the psychiatric field throughout the region, which had a population of 250 000. Fifty students were selected. Some were second-year students and some were third-year students. They were asked to join the survey and to provide written responses during one of the lecture periods at the university. Tutor nurses were selected by the placement coordinator at the university. An email that included a simple questionnaire was distributed to 20 of these tutor nurses.

The leader of a large psychiatric institution was contacted by email and interviews with psychiatrists were requested. He was asked to mention the request to the staff and to ask them to respond via email. We received only one positive reply. The other psychiatrists were contacted using the snowball effect, that is, via someone who knew someone else they thought might be interested. We then contacted these respondents by phone or email and arranged interviews. Interviews with five psychiatrists were chosen strategically. We were also referred to a psychiatric nurse in a leadership position and chose to interview him as well. We conducted a total of six interviews.

3.2. Questionnaire and interview guide

The students received a two-page questionnaire with two closed and eight open questions. The closed questions concerned the type of institution they were placed in and the number of patients there. The open questions addressed routines and responsibilities relating to nutrition in general and omega-3 fatty acids in particular.

Questionnaires were distributed to the nurse tutors by email. The questionnaire consisted of nine open questions and one closed question and involved decision making, routines and distribution of responsibility relating to nutrition in general and omega-3 fatty acids in particular.

The interview guide was based on research literature and the completed surveys, and consisted of five main themes: 1. Nutrition and mental health; 2. Treatment of depression; 3. Omega-3 fatty acids and depression; 4. Sources of knowledge; and 5. Challenges.

3.3. Completion of the survey

The teacher responsible for clinical placement collected the forms from the nursing students at the end of their 9-week placement in psychiatric care. Twenty-four students responded, a response rate of 50%. We reminded them only once.

Tutor nurses were contacted via an email in which the study was briefly described and to which a simple questionnaire was attached. The nurses were requested to return the questionnaire via email. Only five nurses replied, a response rate of 25%.

The interviews were conducted in different ways. Two of the interviews were conducted using tape recorders and were then transcribed, and three were conducted while taking notes. All interviews were carried out at the employees' places of work and lasted for 1e2 h.

3.4. Ethical considerations

The project was registered with the Norwegian Social Science Data Services and complied with the ethical principles of research in terms of informed consent (voluntary participation and anonymity). The students received this information orally when presented with the project and the nurses received it by email when they were contacted. Interviewees signed a written form giving informed consent.

3.5. Data processing and analysis

The replies to the questionnaires were read and discussed by the research group. Each reply was analyzed in the light of the questionnaire as a whole and a numerical summary of the theme or reply was compiled. Themes were grouped by how often they were mentioned. Analysing these answers made it clear that we needed to interview psychiatrists.

Analysis of the interviews was conducted by repeatedly reading through each interview and discussing it among the research group. The analysis was conducted as content analysis by condensing the statements into concentrated statements of meaning and categorizing them. First we categorized the answers from the students, then the nurses and the psychiatrists. When reading through all the data, three main categories were uncovered. The last phase was to interpret and discuss the findings in light of theory and research.²³

3.6. Critical comments on the method used

Our first idea in this research study was to interview GPs about their use of Omega-3 in the treatment of depression. We sent enquiry to 30 GPs, but only 1 answered. This might be because of lack of time, lack of interest or other reasons. We then turned to students, nurses and psychiatrists.

Several of the answers we received from students and nurses were brief and provided information that would have been interesting to elaborate on. Furthermore, we believe that the reason few nurses responded to the email enquiry was that email was not the most appropriate medium and that the theme was regarded as irrelevant or not of interest. It is easy to forget or delete an email and it does not impose a commitment. From the replies, we gauged that this was not a theme of much interest to them, which may have affected their motivation to reply. As some of the questions and answers in the questionnaires could be interpreted in various ways,

the psychiatrists were interviewed in person. That few employees at the hospital replied to our enquiries may have been caused by lack of interest or lack of time. Informal conversations with persons in charge of educating psychiatric health workers at the university and with two patients suffering from depression supported our findings.

4. Results

Results will be presented in 3 main categories where both students, nurses and psychiatrists will be quoted.

4.1. Nutrition is considered important but few evaluations are made

We were interested in how the patients' nutrition status was assessed. The most common responses involved obesity and anorexia, sugar consumption and whether they eat rather than what they eat. That they did not eat enough fruit and vegetables was evident and several consumed too many calories and drank too much coffee. The students also drew attention to what they perceived as bad routines and inadequate mapping. Only two students replied that nutrition is mentioned when patients are admitted to a ward. Assessments concerning omega-3 fatty acids were not carried out. One student replied that omega-3 fatty acids were mentioned when patients had sores or eczema and another associated omega-3 fatty acids with eating disorders. None of the respondents associated omega-3 fatty acids with depression.

The students highlighted different aspects of nutrition. One wrote, "The patients eat what they get," and another wrote, "The patients choose whatever is good." The students' opinion was that patients are not concerned with eating healthy food or omega-3 fatty acids.

Because the best way to absorb enough omega-3 fatty acids is to eat fatty fish, we examined to what extent fish was served. Students replied that patients are given fish as sandwich spread everyday and as dinner two or three times per week, but most patients refuse to eat it.

Psychiatrists do not know much about what food is served, but they do know patients don't like fish. Some of the psychiatrists were made aware of what the patients ate when they were admitted but others had no idea of what was being served. According to one: "I think we serve ordinary traditional food and no special assessment is made concerning omega-3 fatty acids." They knew that the patients did not want to eat fish: "The patients are given fish but they don't like it and make the staff order something else." One replied, "The patients have to be taught to eat fish; they choose not to eat it." One mentioned that several patients had requested a certificate stating they should not eat fish. When asked whether fish was provided as a sandwich spread, they replied that they thought canned mackerel in tomato sauce was provided, as on any Norwegian table. One replied, "They are given canned mackerel in tomato sauce but they prefer chocolate spread."

The nurses highlighted many different circumstances in which they considered nutrition important. Some mentioned over-nutrition and malnutrition as the most important circumstances. Others mentioned eating disorders, medication, tiredness, lethargy, hyperactivity and substance abuse. One nurse mentioned diabetes, cancer and cardiovascular disease. Only one explicitly mentioned depression. When asked whether, and if so why, nutritional supplements are relevant to patients with depression, two of the replies were positive; one responded that it may be relevant if the patient mentions nutritional supplements. The reason why nutritional supplements should be taken involved the patient's lack of initiative and reduced appetite.

When asked when they would consider recommending omega-3 fatty acids, nurses mentioned several diseases. Two mentioned heart afflictions, one mentioned afflictions of the joints, one mentioned poor nutrition, one mentioned reduced levels of activity, one mentioned high blood pressure, one mentioned obesity, one mentioned diabetes, one mentioned cancer, one mentioned those who eat no seafood and two mentioned ADHD. Nobody mentioned depression.

Both nurses and psychiatrists answered that there is no established opinion on nutrition in their workplace and that they do not map out what the patients eat. One of the nurses responded that nutrition varies according to the opinion of the individual patient. Some of the nurses and psychiatrists personally took omega-3 fatty acids daily to prevent cardiovascular disease.

All respondents had a perception that patients in general had poor diets, particularly substance abusers. Numerous problems were identified. One psychiatrist replied, "The patients have little experience with normal mealtimes, and their feelings of hunger are affected by the medication they are taking. I find it is the lack of vegetables in their diet that is the main problem." Others emphasized the danger of eating too much sugar and fat and too much fast food. Furthermore, they pointed out that the main problems are obesity and anorexia. The psychiatrists emphasized that even if the patients received nutritional supplements when admitted, they would not continue taking them after discharge. One said, "The patients themselves are not concerned with it, and I rarely talk very much with them about nutrition." The nurses also emphasized that the patients themselves are not concerned with nutrition and dietary supplements; one puts it as follows: "They are concerned with everything but nutrition."

4.2. Lack of knowledge of the effects of Omega-3

The study revealed a lack of knowledge about the effect of omega-3 fatty acids on mental health and disorders. When they were asked what they learnt during their education about the association between mental health and nutrition, all replied that they learnt nothing about it. One mentioned that they learnt that psychiatric patients eat unhealthily. At the same time, nurses and psychiatrists claimed that their recommendations are based on a combination between evidence, experience, general knowledge and common sense.

The psychiatrists replied as follows, "I know little about fatty acids and haven't really had reason to.", "I haven't read about omega-3 fatty acids to counteract depression and I don't know anything about it.", "I haven't heard about the association between omega-3 fatty acids and depression." and "There are no evaluations made here in connection with omega-3 fatty acids and depression." They queried whether omega-3 fatty acids counteract depression and seemed to think that it does not. They perceived omega-3 fatty acid supplementation as CAM and not evidence based. One stated, "I suppose it's uncertain whether omega-3 fatty acids work or not and it's not an issue here and we don't believe in it enough."

There were various opinions on whether nutrition is important. One psychiatrist said that talking about nutrition might be perceived as a sidetrack. She responded, "I think talking too much about nutrition can be a sidetrack and they expect us to grapple with the feelings, the anxiety and the problems. We have to make priorities, and nutrition is not a priority." Another said that they sometimes arranged nutrition courses for the patients but did not discuss omega-3 fatty acids with them unless maybe if they suffered from a heart complaint.

The respondents stated that fatty acids are not discussed in the professional environment, but nutrition surfaces now and then as a theme when an employee is particularly concerned about it. One stated, "It is not systemized in any way. It is a side issue, perhaps

mentioned, but it has never been on the agenda at any of our further training courses or at our professional meetings."

There was no systematic analysis of the nutritional status of the patients, but blood tests were performed on occasion to check vitamin B12 and folic acid status. There was a clear opinion that drug addicts should be given vitamin B supplements because such patients are known to be deficient in vitamin B.

4.3. Unclear divisions of responsibility

When asked who should be responsible for evaluating the nutrition of patients and the possible use of omega-3 fatty acids as a supplement the answers varied. The majority of students responded that this should be carried out by the doctor, whereas a minority responded that it would not be evaluated or that it would be a joint effort between the patient and other personnel.

Because omega-3 fatty acids can be perceived both as medicine and as food, it was not clear who should be responsible for giving omega-3 fatty acid supplementation. The psychiatrists were of the opinion that food should be the responsibility of the nurses, but they were not sure who was responsible for the diets of the patients. One said, "I think the nurses should take charge, but they don't." Another, unsure as to whether they did not take charge or were not given the responsibility, responded, "The nurses don't take or aren't given responsibility." One of the psychiatrists mentioned that they should not be spending time on this, "One can hold a discussion on who should spend time on this; I don't think it is us, the doctors." She suggested I should talk to the kitchen personnel and ended by asking, "Where are the nurses when it comes to this, perhaps we could train nurses especially?"

Other psychiatrists defined Omega-3 as medicine rather than food. One stated, "In my opinion the doctor should decide nutritional supplements; the nurses could hand them out together with the medicine. It must be prescribed as medicine by the doctor or the patients don't receive it." Another psychiatrist supported this, replying, "It is medicine so it should be noted on the medication sheet. Even though it isn't by prescription it is still medicine."

Some psychiatrists emphasized the role of the patient's general practitioner (GP) as being central and thought that the GP should take responsibility for nutrition, "We have expectations connected to the GP when it comes to changes in diet and a focus on nutrition, as the GPs see their patients over a longer period of time." None of the psychiatrists mentioned cooperation with a CAM practitioner.

The respondents emphasized that the health service in general was not particularly concerned with nutrition. One responded, "I do not think we are concerned enough with it. We will look more into diet and nutrition." Perhaps we could contact a nutritionist. One suggested that they could start educating both patients and employees and that concern with nutrition could form part of a more holistic approach. He responded, "We can bake it into the whole and focus more both on physical activity and self-esteem; many have very low self-esteem."

There was a focus on nutrition at one institution, "We have concocted a simple cookbook; the goal is to ensure a certain minimum supply of nutrients and it's better than none. We're betting on simple food they can cook themselves. We have a specific kitchen group which trains them." The short interval between admittance and discharge was perceived as the greatest hindrance. One put this as follows, "There is no time for great changes and on average they stay only 17 days."

5. Discussion

The results revealed a lack of knowledge and interest in nutrition and fatty acids as a supportive treatment for depression. In

general, few evaluations were made concerning the diets of patients²⁴. The results of Abayomi²⁵ support this contention and show how psychiatric nurses overlook the patients' poor nutritional status:

The comparison revealed that nurses did not identify malnutrition in the same patients as the risk score, overlooking 27 (29%) at-risk patients. Nurses associated malnutrition with psychotic illness, suggesting that depressed patients are more likely to be overlooked (p. 430).

She concluded with a recommendation to start with routine mapping and education of health personnel.

Our study shows that in general no particular evaluations are made concerning omega-3 fatty acids. Furthermore, the answers varied widely when asked in which cases a particular focus on nutrition would be important.

The evidence on omega-3 fatty acids and depression is comprehensive and has been published in highly ranked medical journals. However, this does not mean that this knowledge has been integrated into medical practice. When knowledge does not fit into the established body of opinion, it may meet with disinterest, skepticism and under-appreciation. The division between body and mind in Western medicine blocks a holistic approach. A dichotomy between mind and body is prevalent throughout the health services, and training programs and new insight into the relationship between the mind and the body has no natural place.

The role of n-3 PUFAs in immunity and mood function supports the promising hypothesis of psychoneuroimmunology (PNI) of depression and provides an excellent interface between 'mind' and 'body'²⁵ (p. 144).

For some people, learning about nutrition when being trained to take care of people with psychiatric disorders seems out of place. Furthermore, the use of food as medicine is often associated with CAM and is described in various books on CAM.^{26e29} However, CAM is not offered in the Norwegian public health care service.

Where do nurses and psychiatrists gain their knowledge? Primarily, they learn through the education they have received. It is uncertain how much weight is placed on the importance of nutrition in their training, but a brief overview of the study plans for psychiatric nurses showed that nutrition and omega-3 fatty acids were not on the schedule. Neither was CAM. When a theme is not touched upon throughout the course of one's studies, one might conclude that it is not important. Information brochures on depression written by leading psychiatrists in Norway do not mention nutrition. Only psychotherapy, medication and electro shock therapy are described.³⁰

The respondents in this study said that omega-3 fatty acids had not been a theme in their professional meetings or courses. Therefore, they do not possess up-to-date knowledge of this field. The psychiatrists did not know or believe that omega-3 fatty acids counteract depression. Servan-Schreiber³¹ (p. 148) describes how doctors are uninformed about the importance of nutrition for health. He stated that these attitudes are common, "Don't bore us with too much talk about nutrition.", "The experts disagree." and "Human beings don't want to change anyhow."

There is a need for a change in attitude. Lakhan and Vieira¹ support our findings in that they claim there is tremendous resistance to the use of supplements as treatments from clinicians, mostly because of their lack of knowledge. They also claim that clinicians would rather prescribe drugs. However, for some patients, prescription drugs do not have the efficacy of nutritional supplements and they sometimes have dangerous side effects. Food and food supplements are of little interest to pharmaceutical companies that cannot patent or own them.

If the importance of fatty acids is not appreciated or accepted among health personnel, they are unlikely to encourage or motivate patients to eat fish or to take supplements. The psychiatrist is an authority with great power. If he/she fails to raise an issue, it is seen as unimportant. It is possible that a patient may take omega-3 fatty acids as a nutritional supplement without others knowing. If it is perceived as CAM, the patient may keep the information to himself/herself and may not talk about it.

Prousky³² uses food supplements for the treatment of anxiety and depression. He claims that the patients themselves are the most important agents of change in this field. Patients want alternatives to the traditional treatment, as is demonstrated by the growing number of people seeking CAM.

In Norway, consumption of fish for dinner two to three times a week is traditional, as is the use of canned mackerel, smoked salmon and sardines as sandwich spread. When patients are offered this, it is probably because of tradition. However, many patients avoid fish because they dislike it. They are not told that fish is important for their mental health. What one eats is linked to one's habits; a change in lifestyle requires motivation. The patients need help to succeed.

Our results show that there is no clear answer regarding who is responsible for "food-as-medicine." The students' answers show that they perceive this as the doctor's responsibility. In our opinion, this shows that the nursing students regard omega-3 fatty acids more as medicine than as food. It is the responsibility of the nurse to ensure adequate nutrition for the patients, but the answers show that nobody takes responsibility for ensuring that patients are given food containing enough fatty acids. The disagreement between doctors and nurses regarding who is responsible seems to be associated with the lack of experience in using food as medicine. When omega-3 fatty acids are provided as supplements, they are perceived as pills and as the doctor's responsibility. When omega-3 fatty acids are provided as food, the division of responsibility between kitchen staff and health personnel is unclear. On one hand, psychiatrists think that nurses should be held responsible; on the other hand, they argue that this is their responsibility because it is perceived as medication. The vague division of responsibility is further complicated by the perception of employees that the duration of the patients' admission is too short to implement dietary changes. Thus, the psychiatrists think it is the patient's personal GP's responsibility to follow up on these aspects. GPs see the patients more frequently and would have an important role. The fact that none of the patients used Omega-3 supplements when admitted to the wards can be understood as if the GPs don't take it in consideration.

Both the division between body and mind and the division between "disease cure" and "health care" that characterize our health service cause a large degree of differentiation and low levels of integration.³³ The result is that initiatives not clearly defined as somatic or psychiatric remain marginalized and no one feels responsible for them. In the medical world, it is well known that omega-3 fatty acids can be used to preempt and repair cardiovascular diseases. When psychiatric patients are twice as exposed to such diseases, and the respondents themselves use Omega-3 for prevention, it is thought provoking that they are not given omega-3 fatty acids. Can this be because they are first and foremost seen as psychiatric patients and because the profession is not sufficiently attuned to their physical needs?

CAM practitioners have a holistic approach and knowledge about food as medicine, but they are not members of staff in the Norwegian Public Health Service. This study reveals a need for cooperation between CAM practitioners, nurses and medical doctors. Freeman⁶ argued that patients should receive advice about CAM and all available treatment options, including risks, benefits and possible drug interactions, as well as full evaluations and regular monitoring.

6. Conclusion

Nutritional therapies have become a long-forgotten method of treatment. There is a lot of evidence supporting the use of food as medicine, but at the same time there is a lack of knowledge about it. A change in knowledge paradigms and clarification of responsibility is called for if food-as-medicine is to take its true place in psychiatric care. It is also necessary to include CAM and holistic perspectives. Further research is needed to determine why health education and health workers do not focus on nutrition therapy in psychiatric care. Further research is also needed to reveal both the patients, the GPs and the CAM practitioners knowledge and attitude to the use of dietary supplements.

References

- Lakhan SE, Vieira KF. Nutritional therapies for mental disorders. *Nutr J* 2008;7:2. doi:10.1186/1475-2891-7-2.
- Schreiber DS. *Evne til Helbred*. Oslo: Pax Forlag; 2005.
- Parker G, Gibson NA, Brotchie H, Heruc G, et al. Omega-3 fatty acids and mood disorders. *Am J Psychiatry* 2006;163.
- Svenson R. *Samfunn, medisin, sykepleie*. Oslo: Ad Notam Gyldendal; 1998.
- Freeman M, Hibbeln J, et al. Omega-3 fatty acids: evidence basis for treatment and future research in psychiatry. *J Clin Psychiatry* 2006;67(12).
- Freeman MP. Omega-3 fatty acids in major depressive disorder. *J Clin Psychiatry* 2009;70.
- Montgomery P, Richardson AJ. Omega-3 fatty acids for bipolar disorder. *Cochrane Database Syst Rev*; 2008. CD005169.
- Colangelo LA, He Ka, Whooley MA, Daviglius ML, Liu K. Higher dietary intake of long-chain U-3 polyunsaturated fatty acids is inversely associated with depressive symptoms in women. *Nutrition* 2009;25.
- Riediger ND, Othman RA, Suh M, Mogadasian MH. A systemic review of the roles of n-3 fatty acids in health and disease. *J Am Diet Assoc* 2009;109.
- Osher Y, Belmaker RH, Nemets B. Clinical trials of PUFAs in depression: state of the art. *World J Biol Psychiatry* 2006;7.
- Sanchez-Villegas A, Henríquez P, Figueiras A, Ortuño F, et al. Long chain omega-3 fatty acids intake, fish consumption and mental disorders in the SUN cohort study. *Eur J Nutr* 2007;6.
- Osher Y, Belmaker RH. Omega-3 fatty acids in depression: a review of three studies. *CNS Neurosci Ther* 2009;15.
- Sontrop J, Campbell MK. Omega-3 polyunsaturated fatty acids and depression: a review of the evidence and a methodological critique. *Prev Med* 2006;42.
- Sublette E, Hibbeln J, et al. Omega 3 polyunsaturated essential fatty acid status as a predictor for future suicide risk. *Am J Psychiatry* Jun 2006;6.
- Amin AA, Menon RA, Reid KJ, et al. Acute coronary syndrome patients with depression have low blood cell membrane omega-3 fatty acid levels. *Psychosomatic Med* 2008;70.
- McNamara RK. Membrane omega-3 fatty acid deficiency as a preventable risk factor for comorbid coronary heart disease in major depressive disorder. *Cardiovasc Psychiatry Neurol*; 2009. Article ID 362795.
- Birkenæs AB. *Cardiovaskular risk factors in patients with severe mental illness. Series of dissertations submitted to the Faculty of Medicine. University of Oslo No. 667. ISBN: 978-82-8072-905-7.*
- Bauman A, Deber R, Silverman B, Malette C. Who cares? Who cures? The ongoing debate in the provision of health care. *J Adv Nurs* 1998;28(5).
- Widdershoven GAM. Care, cure and interpersonal understanding. *J Adv Nurs* 1999;29(5).
- Johannessen B. Norwegian nurses choice to work with CAM: how will this affect their professional identity? *Int J Hum Caring* 2004;2.
- Johannessen B. Why do Norwegian nurses leave the public health service to practice CAM? *Complement Ther Clin Pract* 2009;15.
- Gamst A, Haahr N, Kristoffersen AE, Launsø L. Integrative care and bridge building among health care providers in Norway and Denmark. *J Altern Complement Med* 2006;2.
- Malterud K. *Kvalitative metoder i medisinsk forskning*. Oslo Universitetsforlaget; 2003.
- Abayomi J, Hackett A. Assessment of malnutrition in mental health clients: nurses' judgement vs. a nutrition risk tool. *J Adv Nurs* 2004;45(4).
- Su KP. Biological mechanism of antidepressant effect of omega-3 fatty acids: how does fish oil act as a 'mind-body interface'? *Rev Neurosignals* 2009;17(2).
- Nordheim A. *Komplementær og alternativ medisin*. Kristiansand: Høgskoleforlaget; 2008.
- Johannessen B. *Komplementær og alternativ behandling*. Oslo: Ad Notam Gyldendal; 2008.
- Myskja A. *På vei mot en integrert medisin*. Oslo: Fagbokforlaget; 2008.
- Snyder M, Lindquist R. *Complementary/alternative therapies in nursing*. New York: Springer Pub.; 2006.
- Kringlen E. *Depresjon. Brosjyre*. Stiftelsen Psykiatrisk opplysning.
- Schreiber DS. *Anti cancer. A new way of life*. Penguin Books; 2008.
- Prousky J. *Anxiety. Orthomolecular diagnosis and treatment*. CCNM Press; 2006.
- Glouberman S, Mintzberg H. *Managing the care of health and cure of disease*. *Health Care Manage Rev*; 2001.