

Effect of vitamins, minerals and other dietary supplements on mental health symptoms for people with ADHD, anxiety disorders, bipolar disorder or depression

This is an excerpt from the full technical report, which is written in Norwegian.

The excerpt provides the report's main messages in English.

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Systematic review

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Norwegian Knowledge Centre for the Health Services summarizes and disseminates evidence concerning the effect of treatments, methods, and interventions in health services, in addition to monitoring health service quality. Our goal is to support good decision making in order to provide patients in Norway with the best possible care. The Centre is organized under The Norwegian Directorate for Health, but is scientifically and professionally independent. The Centre has no authority to develop health policy or responsibility to implement policies.

We would like to thank all contributors for their expertise in this project. Norwegian Knowledge Centre for the Health Services assumes final responsibility for the content of this report.

Norwegian Knowledge Centre for the Health Services
Oslo, February 2011

Key Messages (in English)

Mental disorders are prevalent and they have major consequences for those affected, including reduction in patients' social functioning and workplace productivity. The mainstays of treatment are various types of psychotropic drugs and conversational therapies. Dietary supplements, such as polyunsaturated fatty acids and vitamins, are sometimes used in the treatment of mental disorders, but their effect is debated.

The present review aimed to answer: What is the effect of vitamins, minerals and other dietary supplements on mental health symptoms for people with ADHD (attention deficit hyperactivity disorder), anxiety disorders, bipolar disorder or depression?

We completed an overview of recent systematic reviews (overview of reviews). Eleven systematic reviews were included, three of high methodological quality and eight of moderate methodological quality. The interventions included in the systematic reviews were polyunsaturated fatty acids, inositol, folate, and vitamin B-6.

The findings were:

- We did not find any systematic reviews that included patients with anxiety disorders.
- It is unclear whether dietary supplements in the form of polyunsaturated fatty acids are effective in the treatment of mental disorders.
- The documentation was too limited to draw any conclusions about the effect of inositol, folate, and vitamin B-6.
- The documentation was too limited to draw any conclusions about adverse events from dietary supplements.
- Several of the systematic reviews were published more than six years ago.

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What kind of report is this?

Systematic review

A systematic review is the result of gathering, critically evaluate and summarize relevant research findings by using pre-defined and explicit methods

This report includes:

Eleven systematic reviews. Three of high methodological quality and eight of moderate methodological quality.

Not included:

Non-systematic reviews, systematic reviews of low quality, and primary studies of all types of design. Studies that examined the effect of supplements in people with schizophrenia and studies that examined the effect of ayurveda or Arabic and Chinese herbal medicines.

Who produced it?

The Norwegian Knowledge Centre on behalf of the Norwegian Directorate of Health

When was the literature search done?

Latest search for studies: July 2010.

Executive summary (in English)

Effect of vitamins, minerals and other dietary supplements on mental health symptoms for people with ADHD, anxiety disorders, bipolar disorder or depression

Background

Mental disorders such as depression and anxiety are prevalent. Mental disorders have major consequences for those affected, including reduction in patients' social functioning and workplace productivity. While the treatments of mental disorders vary, the mainstays of treatment are various types of psychotropic drugs and conversational therapies. There is also increased awareness regarding the use of dietary supplements in the treatment of mental disorders, but the effect of such treatment is subject to discussion. In the present review, we aimed to answer: What is the effect of vitamins, minerals and other dietary supplements on mental health symptoms for people with ADHD (attention deficit hyperactivity disorder), anxiety disorders, bipolar disorder or depression?

Methods

We searched for systematic reviews in CDSR, DARE, HTA, Embase, and Medline up to July 2010. The search strategy was formed around the population of interest and the type of intervention that we wanted to examine. The inclusion criteria were:

- Study design: Systematic reviews of high or moderate methodological quality, published since 2004.
- Population: People with one or more of the following mental disorders: ADHD (attention deficit hyperactivity disorder), anxiety disorders, bipolar disorder or depression.
- Intervention: Various types of dietary supplements (alone or in combination with standard treatments for mental disorders) such as vitamins, minerals, fatty acids, amino acids, enzymes, and other dietary supplements.
- Comparison: No treatment, placebo or another active treatment for mental disorders.
- Outcomes: Mental health symptoms measured by the Hamilton Depression Rating Scale, or similar validated indicator instruments.
- Language: All languages.

We excluded non-systematic reviews, systematic reviews of low quality, and primary studies of all types of design. We also excluded studies that examined the effect of supplements in people with schizophrenia and studies that examined the effect of ayurveda or Arabic and Chinese herbal medicines.

Two reviewers independently assessed systematic reviews for inclusion according to the pre-specified inclusion criteria and considered the methodological quality of the systematic reviews using a checklist. In cases where included systematic reviews overlapped (same question, same included studies), we selected the most updated systematic review of highest methodological quality. We summarized the results in text and tables. We applied the instrument GRADE to assess the extent to which we could have confidence in the effect estimates.

Results

Eleven systematic reviews met our inclusion criteria. Of these, three had high methodological quality and eight had moderate methodological quality. The systematic reviews were published between 2004 and 2010 and included people with ADHD (attention deficit hyperactivity disorder), bipolar disorder, and depression. We did not find any systematic reviews that assessed the effect of dietary supplements in people with anxiety disorders. The interventions included in the systematic review were polyunsaturated fatty acids, inositol, folate, and vitamin B-6.

Polyunsaturated fatty acids

Two systematic reviews examined the effect of polyunsaturated fatty acids on mental health in people with ADHD, and we used the most updated systematic review of highest methodological quality. This was a Health Technology Assessment report from 2005 of high methodological quality. It included three randomized controlled trials (RCTs) that assessed the effect of polyunsaturated fatty acids alone and three RCTs that assessed the effect of polyunsaturated fatty acids plus psychotropic drugs as combination therapy. The report did not present meta-analyses. The results of the primary studies showed few significant differences between the groups.

There were seven systematic reviews about the effect of polyunsaturated fatty acids on mental health symptoms in people with bipolar disorder and we used the most updated systematic review, from 2009, which was of moderate methodological quality. Results from the meta-analysis showed that there was no statistical difference between the groups on manic symptoms (SMD=0.22, 95%CI=-0.21 to 0.65).

There were six systematic reviews on the effect of omega-3 fatty acids on depression in people with depression. We used the most updated systematic review, from 2009, which was of moderate methodological quality. Meta-analysis results showed that there was a statistical difference between the groups with respect to depression score, favouring combination treatment with psychotropic drugs plus omega-3 fatty acids (SMD=-0.47, 95%CI=-0.92 to -0.02). However, the meta-analysis showed serious heterogeneity ($I^2=82.7\%$).

Inositol

We identified one systematic review that examined the effect of inositol on mental health symptoms in people with depression. It was published in the Cochrane library in 2009 and was judged to be of high methodological quality. It included four RCTs. Inositol was administered as single treatment in one study and as combination therapy in addition to psychotropic drugs in the other three studies. The study that examined the effect of inositol as single treatment compared with placebo found no statistical difference between the groups (SMD=-0.71, 95%CI=-1.48 to 0.06). The meta-analysis result of the three RCTs that examined the effect of inositol in combination with psychotropic drugs compared with psychotropic drugs plus placebo showed no statistical difference between the groups (SMD=0.12, 95%CI=-0.31 to 0.55). The meta-analysis showed that there was no statistical difference between the groups with respect to experiencing side effects (RR=0.89, 95%CI=0.48 to 1.64).

Folate

One systematic review summarized the effect of the vitamin folate on mental health symptoms in people with depression. The systematic review was published in 2004 and was of moderate methodological quality. It included three RCTs. One of the RCTs assessed the effect of treatment with folate alone versus psychotropic drugs in elderly people with depression. At the end of treatment, there were no statistical differences between the groups with respect to depression and side effects. Two of the RCTs examined the effect of combination therapy with folate and psychotropic drugs compared with only psychotropic drugs in people with severe depression. At the end of treatment, the meta-analysis results showed that there was a statistical difference between the groups in depression, favouring combination therapy with folate and psychotropic drugs (WMD=-2.65, 95%CI=-4.93 to -0.38).

Vitamin B-6

We identified one systematic review, from 2005, that summarized the effect of vitamin B-6 in people with depression. The systematic review was of moderate methodological quality and included five RCTs where vitamin B-6 was given in combination with antidepressants. It did not include meta-analyses and study-level results showed few statistical differences between the groups.

Discussion

It seems there is more research on the effects of polyunsaturated fatty acids, especially omega-3 fatty acids, compared to other dietary supplement therapies for the treatment of mental disorders. Some of the included systematic reviews were completed six years ago and newer primary studies may exist that could change our conclusions.

Conclusions

It is unclear whether polyunsaturated fatty acids are effective in the treatment of mental disorders. The few systematic reviews on the effects of inositol, folate, and

vitamin B-6 that exist are generally not large enough to draw any conclusions about the effects on mental health symptoms. Similarly, the documentation was too limited to draw any conclusions regarding adverse events following treatment with dietary supplements.

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