Link between dietary fiber and depression partially explained by gut-brain interactions

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Fiber is a commonly recommended part of a healthy diet. That's because it's good for your health in so many ways—from weight management to reducing the risk of diabetes, heart disease, and some types of cancer. A

new study also finds that it might be linked with a reduced risk of depression, especially in premenopausal women. Study results are published online in *Menopause*, the journal of The North American Menopause Society (NAMS).

Depression is a common and serious mental health condition that not only affects a person's ability to perform daily activities but can also lead to suicide. It's estimated that more than 264 million people worldwide have depression, with numbers increasing over time. This debilitating condition is much more common in women, and there are a number of theories as to why this is the case. Changes in hormone levels in perimenopausal women have been linked to depression.

Because of the serious consequences and prevalence of depression, numerous studies have been undertaken to evaluate treatment options beyond the use of antidepressants. Lifestyle interventions, including diet, exercise, and mindfulness, may help to reduce the risk for depression. In this new study involving more than 5,800 women of various ages, researchers specifically sought to investigate the relationship between dietary fiber intake and depression in women by menopause status. Dietary fiber is found mainly in fruit, vegetables, whole grains, and legumes.

Previous studies have already suggested the benefits of fiber for mental health, but this is the first known study to categorize the association in premenopausal and postmenopausal women. It also included a broader range of ages in participants and involved women who underwent natural, as well as surgical, menopause.

The study confirmed an inverse association between dietary-fiber intake and depression in premenopausal women after adjusting for other variables, but no significant difference was documented in postmenopausal women. Research has suggested that estrogen depletion

may play a role in explaining why postmenopausal women don't benefit as much from increased dietary fiber, because estrogen affects the balance of gut microorganisms found in premenopausal and postmenopausal women. The link between dietary fiber and depression may be partially explained by gut-brain interactions, because it is theorized that changes in gut-microbiota composition may affect neurotransmission. Fiber improves the richness and diversity of gut microbiota.

Results are published in the article "Inverse association between dietary fiber intake and depression in premenopausal women: a nationwide population-based survey."

"This study highlights an important link between dietary fiber intake and depression, but the direction of the association is unclear in this observational study, such that women with better mental health may have had a healthier diet and consumed more fiber, or a higher dietary fiber intake may have contributed to improved brain health by modulating the gut microbiome or some combination. Nonetheless, it has never been more true that 'you are what you eat,' given that what we eat has a profound effect on the gut microbiome which appears to play a key role in health and disease," says Dr. Stephanie Faubion, NAMS medical director.

More information: Yunsun Kim et al. Inverse association between dietary fiber intake and depression in premenopausal women, *Menopause* (2020). DOI: 10.1097/GME.0000000000001711

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