

Letter to the Editor

Invited Letter to Editor in response to: Milk intake and depressive symptom: a risk assessment

Our research group recently published an article that observed the inverse association between dietary protein and depressive symptoms in American adults⁽¹⁾. Meanwhile, another article by our research group found that the relationship between different types of dairy products and depression was inconsistent. Skimmed milk and moderate milk desserts were negatively associated with depressive symptoms, while whole milk was positively associated with depressive symptoms⁽²⁾. Kawada provided some concerns about the association between milk intake and depressive symptoms⁽³⁾.

Both of our studies were investigating factors affecting depressive symptoms. The difference is Li *et al.* focused on studying the relationship between dietary protein intake and depression and detected an inverse relationship between protein derived from milk and depression⁽¹⁾. While Sun *et al.* focused on the association between dairy and depression symptoms and found that the relationship between different types of milk and depression was inconsistent⁽²⁾. Based on these two studies, different types of milk might have different effects on depressive symptoms. The mechanism may be due to the different nutrients contained in different types of milk.

Previous studies have inconsistent conclusions on evaluating the association between dietary protein and depressive symptoms. Some of them found that the intake of dietary protein was inversely related to the risk of depression^(4–6), whereas the relationship was not statistically significant in other studies^(7–9). Milk is an important source of dietary protein. However, few studies have determined the effect of protein from milk on depressive symptoms. To our knowledge, only Li *et al.* examined the relationship between protein from milk and depressive symptom and found the negative association⁽¹⁾. More research is needed to explore and verify the relationship between protein and other nutrients from milk and depression in the future.

Limited studies have examined the impact of milk on depressive symptoms. Hockey *et al.* reviewed studies on the relationship between dairy consumption and depressive symptoms or disorders in adults⁽¹⁰⁾. Part of the studies were about milk and depressive symptoms or disorders. In a Polish cross-sectional study of 150 men and women, no association of milk and clinically diagnosed depression was observed⁽¹¹⁾. While a cohort study found that lower milk intake was related to increased risk of depressive symptoms in men, whereas these relationship were not statistically significant in women⁽⁴⁾. Moreover, Pasco *et al.* conducted a cohort study to evaluate the effect of milk intake on depression in pre- and postmenopausal Australian

women and found that milk intake was a risk factor for depression in postmenopausal Australian women⁽¹²⁾. In addition, some studies on the relationship between milk intake and depressive symptoms were limited to specific groups, such as older adults⁽¹³⁾, pregnant women⁽¹⁴⁾ and overweight adults⁽¹⁵⁾. Moreover, there was no study to explore the effect of different types of milk on depressive symptoms except the study conducted by Sun *et al.*⁽²⁾.

In the present limited studies, significant heterogeneity existed between study designs, especially there were widespread variations in measurement and categorisation of milk intake. A small number of studies and high heterogeneity among studies limited the ability to conduct meta-analysis. As Kawada mentioned⁽³⁾, higher-quality studies on the association between different types of milk and depressive symptoms are needed in the future.

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Tong Wang¹, Yan Li², Jing Sun¹ and Dongfeng Zhang¹

¹Department of Epidemiology and Health Statistics, Public Health College, Qingdao University, Qingdao, Shandong Province, People's Republic of China

²Cixi Municipal Centre for Disease Control and Prevention, Cixi, Zhejiang Province, People's Republic of China
 email zhangdf1961@126.com

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