



Letter to the Editor

Response to the letter to the editor by Tomoyuki Kawada, 'Coffee/tea consumption and depression: a risk assessment'

Response

Kawada⁽¹⁾ commented on our article on bidirectional associations between intake of food groups and depressive symptoms in the InCHIANTI study⁽²⁾. Specifically, Kawada contemplated on our non-significant association between coffee and tea intake and subsequent depressive symptoms, whereas previous studies have shown associations.

In the direction from diet to depressive symptoms, we only found significant associations for fish and shellfish and for sweet foods, not for the eleven other food groups, including the group coffee and tea. We referred to the meta-analysis of Grosso *et al.*⁽³⁾ that showed that coffee consumption was significantly associated with decreased risk of depression, also when only prospective studies ($n = 3$) were examined (relative risk highest *v.* lowest category: 0.88, 95 % CI 0.79, 0.99). The meta-analysis of Wang *et al.*⁽⁴⁾, which included fewer but mainly the same individual studies as Grosso *et al.*⁽³⁾, logically showed an inverse association as well; however, when stratified by region, the pooled association of two European studies was not significant. In our discussion, we also referred to one of the largest prospective studies on this link that showed a weak association⁽⁵⁾. A more recent prospective study showed a significant inverse association for the consumption of at least four cups of coffee/d compared with less than one cup of coffee/d; yet, they found no linear dose–response association between coffee consumption and the risk of depression⁽⁶⁾.

Regarding tea consumption, Kawada⁽¹⁾ referred to two older and cross-sectional studies on tea consumption and depressive symptoms^(7,8) but did not refer to more recent meta-analyses. One study of Grosso *et al.*⁽³⁾ showed that evidence for an association between tea consumption and depression risk is less strong compared with coffee. In contrast, the meta-analysis of Dong *et al.*⁽⁹⁾ found a significant inverse association; however, they did not include the large study of Guo *et al.*⁽⁵⁾ that did not observe a tea–depression association.

There are several potential reasons for our null association. First, the coffee and tea intake of our study population was moderate (mean coffee + tea intake: about 112 (SD 78) g/d or about one cup/d). This is much less than the highest categories (three or four cups/d) that were associated with depression risk^(3,5,6). Second, we summed coffee intake and tea intake and did not examine them separately. A third reason might be that for our Italian study population of mainly older adults, other factors

might be more important in relation to depressive symptoms than the intake of most food groups.

In our study, we used residuals of coffee and tea intake, both as continuous variables as well as in quartiles. The latter was chosen to examine potential non-linear associations, as Kawada⁽¹⁾ also suggested. For both fish and sweet foods, the association was strongest for the highest quartile, while the middle quartiles had comparable regression coefficients. We observed this non-linearity also for coffee and tea but in the unexpected direction (higher intake associated with more depressive symptoms); however, the association was not statistically significant, nor was the $P_{\text{for trend}}$.

Future studies on the association between coffee/tea and depression are needed. Well-designed, prospective studies can provide more insight, if they include a large consumption range, distinguish the different types of coffee and tea and include different ethnicities. To ultimately show causality, randomised controlled trials are needed to study the potential beneficial effects of coffee and tea consumption on depressive mood.

Liset E. M. Elstgeest, Ingeborg A. Brouwer and Marjolein Visser

*Department of Health Sciences, Faculty of Science,
Amsterdam Public Health research institute, Vrije
Universiteit Amsterdam, De Boelelaan 1085, 1081 HV
Amsterdam, The Netherlands
email m.visser@vu.nl*

doi:[10.1017/S0007114520000197](https://doi.org/10.1017/S0007114520000197)

References

1. Kawada T (2019) Coffee/tea consumption and depression: a risk assessment. *Br J Nutr* **122**, 480.
2. Elstgeest LEM, Visser M, Penninx B, *et al.* (2019) Bidirectional associations between food groups and depressive symptoms: longitudinal findings from the Invecchiare in Chianti (InCHIANTI) study. *Br J Nutr* **121**, 439–450.
3. Grosso G, Micek A, Castellano S, *et al.* (2016) Coffee, tea, caffeine and risk of depression: a systematic review and dose-response meta-analysis of observational studies. *Mol Nutr Food Res* **60**, 223–234.



4. Wang L, Shen X, Wu Y, *et al.* (2016) Coffee and caffeine consumption and depression: a meta-analysis of observational studies. *Aust N Z J Psychiatry* **50**, 228–242.
5. Guo X, Park Y, Freedman ND, *et al.* (2014) Sweetened beverages, coffee, and tea and depression risk among older US adults. *PLOS ONE* **9**, e94715.
6. Navarro AM, Abasheva D, Martínez-González MÁ, *et al.* (2018) Coffee consumption and the risk of depression in a middle-aged Cohort: the SUN project. *Nutrients* **10**, 1333.
7. Niu K, Hozawa A, Kuriyama S, *et al.* (2009) Green tea consumption is associated with depressive symptoms in the elderly. *Am J Clin Nutr* **90**, 1615–1622.
8. Hintikka J, Tolmunen T, Honkalampi K, *et al.* (2005) Daily tea drinking is associated with a low level of depressive symptoms in the Finnish general population. *Eur J Epidemiol* **20**, 359–363.
9. Dong X, Yang C, Cao S, *et al.* (2015) Tea consumption and the risk of depression: a meta-analysis of observational studies. *Aust N Z J Psychiatry* **49**, 334–345.