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Polyphenol intake and depressive symptoms in young adults: evidence from a population-based longitudinal study

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Due to the high prevalence and incidence of depression among young adults, identifying potential prevention strategies during young adulthood is of great public health importance. Indeed, dietary intake is an important determinant of mental health during this stage of the lifespan. Dietary polyphenols, present in plant and plant-derived foods, have been inversely associated with depression in older cohorts⁽¹⁾. However, the prospective association between polyphenol intake and depression remains unclear, particularly in young adults. As such, this study aimed to assess the prospective association between the intake of total polyphenols, polyphenol classes, and polyphenol subclasses and depressive symptoms in young adults. Data from the Raine Study Generation 2 participants at 20-, 22-, and 27-year follow-ups ($n = 1,484$; 52.7% female; age range: 18 to 28 years) were used. The exposure variable, polyphenol intake, was estimated from self-reported dietary intakes using the Phenol-Explorer Database. We categorised energy-adjusted polyphenol intake into quartiles. The primary outcome was self-reported depressive symptoms assessed via the 21-item Depression, Anxiety, and Stress Scale (DASS) averaged across the three timepoints. Linear mixed-effects models were used to assess the association between the polyphenol intake exposures and depressive symptoms. Sociodemographic characteristics and lifestyle- and health-related behaviours were adjusted for in multivariable models. Participants in the highest quartiles for flavonol and hydroxybenzoic acid intake had lower depressive symptoms across time than participants in the lowest quartiles [flavonols (Q4 vs Q1 model-adjusted mean difference: -1.42 , 95% CI: -2.52 , -0.31); hydroxybenzoic acids (Q4 vs Q1: -1.37 , CI: -2.48 , -0.26)]. We found little to no evidence of a prospective association between depressive symptoms and quartiles of total polyphenols, polyphenol classes, and other polyphenol subclasses. The results from the current study in combination with previous studies in the field suggest that the intake of some, but not all, polyphenol subclasses may be useful targets for novel prevention strategies for depression. However, further mechanistic studies in human populations, and prospective studies in young adults and across the lifespan are required.

References

1. Gamage E, Orr R, Travica N *et al.* (2023) *Neurosci Biobehav Rev* **151**, 105225.