

Title:

An Apple (or Carrot) a Day Keeps the Stress Away

SUMMARY**Background**

Fruit and vegetable (FV) intake has been linked to improvements in psychological well-being. However, because FV consumption is often measured with error, the health benefits of FV may be under-estimated in prior studies.

Methods

Using two waves of longitudinal data collected from N=2,500 respondents from an urban township in South Africa, we examined the relationship between the respondent's FV intake and the respondent's psychological distress and perceived stress. We first used pooled ordinary least squares (OLS) regression to control for confounders, and then applied fixed effect regression to remove the effect of any time-invariant omitted variables. Because FV intake may be measured with error, we next applied instrumental variables regression to control for problems arising from omitted variables, measurement error, and potential reverse causation.

Findings

OLS and fixed effect estimates showed that FV consumption needed to increase by three servings per day to over-ride the increase in distress from having one additional chronic illness. The instrumental variable regressions, however, showed that FV intake only needed to be higher by one serving to cancel out the distress effect of one additional chronic illness. This magnitude is three to four times larger than the effects obtained without correcting for omitted variable, measurement error, and reverse causation. Similar patterns were also found for the relationship between FV and perceived distress.

Interpretation

FV consumption may causally reduce psychological distress and perceived stress. Measurement error in FV consumption may have resulted in an underestimate of the psychological benefits of FV in prior studies. Using the properly estimated benefit of FV on psychological health may provide a more forceful public health message.

Funding

NIH, FCT