

“CAN AN APPLE A DAY KEEP THE PSYCHOLOGIST AWAY?”

THE ROLE OF NUTRITION IN PSYCHOLOGICAL WELL-BEING IN YOUNG ADULTS

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“Let food be thy medicine and medicine be thy food”

- Hippocrates

Lack of fruit and vegetables (FV) in our diets can lead to nutritional insufficiencies which can have disastrous consequences for our physical health - but what about our psychological state? FV intake is reportedly implicated in a number of negative and positive psychological factors.

FV consumption has shown to play a protective role against depression, stress, and anxiety – illnesses which contribute greatly to disability worldwide (Rooney et al., 2012).

In addition to buffering the bad, FV consumption is linked to improvements in aspects of positive wellbeing also. Those who eat more FV experience greater life satisfaction, optimism, and ‘happiness gains’ over time (Mujcic & Oswald, 2016).

However, nutritional psychology is lacking intervention studies – crucial to establish causality. Given the global burden of mental illness, dietary intervention may provide an easy, safe, and affordable route of care for those in the mental health system.

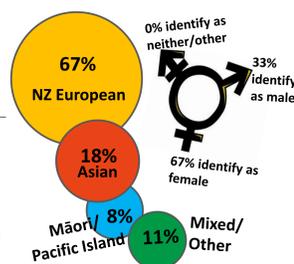
THE PRESENT STUDY

This 14-day registered RCT tested the psychological benefits of increased FV consumption in low-consuming young adults (age 18-25). Participants were randomly assigned into control, an ecological momentary intervention (EMI) involving text messages, and a fruit and vegetable (FV) supplementation condition comprising two additional daily servings of FV. Two prominent biomarkers – vitamin C and carotenoids were taken pre- and post-intervention as an objective marker of FV intake.

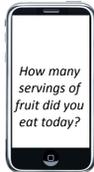
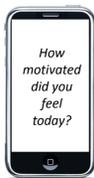
The RCT tested:

- The effectiveness of two intervention strategies in increasing daily FV consumption compared to control.
- Whether increased FV consumption is associated with improvements in positive wellbeing including, flourishing, vitality, and eudaimonic behaviours.

These were assessed nightly for two weeks using smartphone accessed daily diaries.



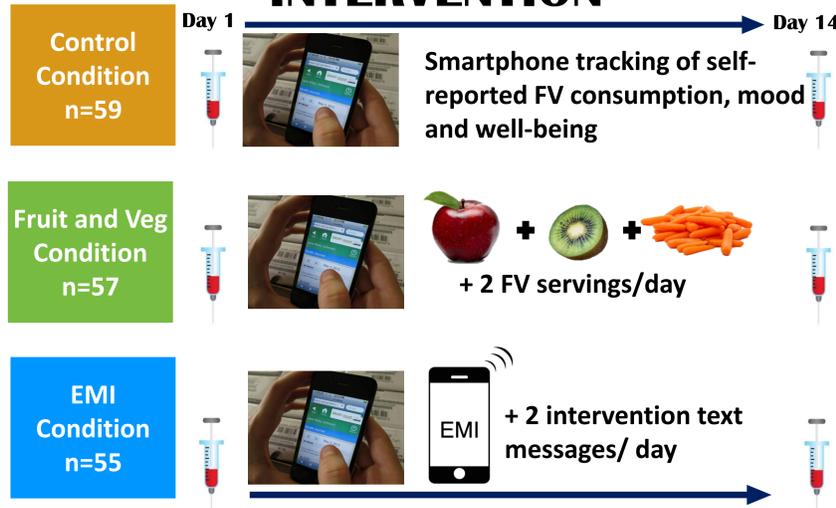
ECOLOGICAL MOMENTARY ASSESSMENT (EMA)



EMA allows insight into daily experiences, by reducing the memory biases and heuristics associated with traditional assessment. The considerable variability in both diet behaviours and subjective feelings of mood and wellbeing is best captured using this ‘real time’ assessment.

Participants completed a brief daily diary using their smart phones every night for two weeks.

INTERVENTION



ECOLOGICAL MOMENTARY INTERVENTION (EMI)

EMI allows interventions to be delivered in ‘real time’, as participants go about their daily lives – this removes some of the temporal and physical barriers associated with traditional intervention.

Participants in the EMI condition were sent 2 intervention text messages/ day. These messages were tailored to what we know is important to young adults – based on both qualitative focus groups and prominent health behaviour change theory.

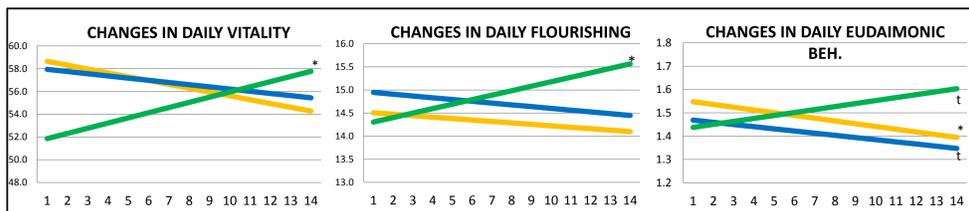


RESULTS – Did they eat more fruit and vegetables?



YES, participants in the EMI and FV conditions reported higher daily servings of FV – approximately +1 serving per day more compared to control (EMI = 3.7 servings/day; FV = 3.7 servings/day; Control = 2.8 servings/day) and approximately +1.2 servings compared to baseline. This is comparable to traditional, ‘face-to-face’ nutritional interventions (Pomerleau et al., 2014).

Did psychological health improve?



Compared to the EMI and control, those in the FV Supplementation condition experienced:

- Improved daily vitality – feelings of energy and vigour
- Improved daily flourishing – feelings of purpose, meaning and engagement
- Improved daily eudaimonic behaviours – feelings of motivation, curiosity and creativity

Giving young adults fruits and vegetables to eat, but not reminding them to eat their fruits and vegetables, improved several aspects of positive well-being over a brief two week period.

CONSIDERATIONS

This is the first intervention study to:

- Demonstrate a causal benefit of FV on measures of positive well-being.
- Show that FV intake can rapidly translate to improved well-being

However, the lack of psychological improvement among the EMI participants is challenging to interpret. Both the EMI and FV groups reported increased daily FV, compared to control, but the EMI group did not show any corresponding psychological benefits. Potential explanations include:

- Differences in types and quality of FV eaten?
- Differences in motivation?
- Different influences of the EMI vs FV intervention conditions?

The intervention effects were prominent across measures of positive well-being but not measures of ill-being, including depression, anxiety, and negative affect - it could be the relationship between FV consumption and depression is an indirect one, with FV consumption contributing to factors known to protect against depression such as vitality, flourishing, and motivation thus buffering against mental illness over time.

THE CHALLENGE REMAINS



Despite intervention effort, less than 15% of our sample reached the national recommendation of 5+ servings a day. Substantial efforts are needed to develop effective strategies to improve FV consumption, especially in these ‘at risk’ groups.

Mujcic, R., & J. Oswald, A. (2016). Evolution of Well-Being and Happiness After Increases in Consumption of Fruit and Vegetables. *American Journal of Public Health, 106*(8), 1504-1510.

Pomerleau, J., Lock, K., Knai, C., & McKee, M. (2005). *Effectiveness of interventions and programmes promoting fruit and vegetable intake.* WHO.

Rooney, C., McKinley, M. C., & Woodside, J. V. (2013). The potential role of fruit and vegetables in aspects of psychological well-being: a review of the literature and future directions. *Proceedings of the Nutrition Society, 72*(04), 420-432.

CONCLUSIONS

Providing young adults with daily servings of high-quality FV, but not sending them reminders to eat more FV, was associated with psychological improvements over a two week period. This is the first study to show that combined FV consumption can result in short-term improvements in vitality, flourishing, and eudaimonic behaviours including curiosity, creativity, and especially motivation. This ‘light touch’ intervention provides initial proof of concept, from which more rigorous and controlled intervention strategies can build on to increase FV consumption in the general population.

