Table 4. Pre- and post-intervention means on TPB components where group differences occurred, tests for pre-intervention differences, and tests for intervention success

		Cell mean by condition		*F*	
	Scale and test	Experimental	Control	Pre-test difference ANOVA	Univariate ANCOVA
RDIFV	Pre	2.63	2.39	.75	6.83**
	Post	3.03	2.28		
RDIF	Pre	4.48	4.36	.16	5.04*
	Post	4.71	3.80		
RDIV	Pre	2.88	2.94	.05	9.36**
	Post	3.31	2.80		
Intention	Pre	4.64	4.54	.24	5.33*
	Post	4.95	4.63		
Anticipated regret	Pre	3.10	3.13	.03	4.55*
	Post	3.29	3.08		

**$p = .01$ (2-tailed) *$p = .05$ (2-tailed). $N = 146$ for T3 correlations, $N = 218$ for T2 correlations. RDIF, recommended daily intake of fruit; RDIV, recommended daily intake of vegetables; RDIFV, recommended daily intake of fruit and vegetables.

also increased the number of days on which they ate the recommended daily intake of one piece of fruit alone and four pieces of vegetables alone. Moreover, the intervention group ate the RDIFV on more days than the control group at follow-up ($M = 3.03$, and 2.28, respectively). This difference constitutes a small to moderate effect size ($d = .34$; Faul & Erdfelder, 1992). The intervention group also ate one piece of fruit ($M = 4.71$, and 3.80), and four pieces of vegetables ($M = 3.31$, and 2.80) on more days than the control group at 1 week follow-up.

Univariate ANOVAs showed that there were no significant pre-intervention differences on any of the behaviour measures (see Table 4 for means). Univariate ANCOVAs showed that three post-intervention behaviour differences were significant when controlling for pre-intervention scores, RDIFV $F(1, 143) = 6.83$, $p < .01$; RDIF (i.e. one piece) $F(1, 143) = 5.04$, $p < .05$; RDIV (i.e. four portions of vegetables) $F(1, 143) = 9.63$, $p < .01$. Thus, the intervention was found to have successfully promoted eating more fruit and vegetables, and the RDIFV, supporting Hypothesis 3.

Is behaviour change accounted for by cognition change?

A univariate ANCOVA showed that the post-intervention difference in RDIFV between the intervention and control groups remained significant when controlling for pre-intervention RDIFV scores, and for post-intervention intention and anticipated regret scores These two additional covariates reduced the F score from, $F(1, 143) = 6.83$, $p < .01$, to $F(1, 141) = 5.66$, $p < .05$. The remaining significant difference suggests that the observed change in self-reported behaviour cannot be fully understood in terms of the observed changes in cognitions (i.e. in intention and anticipated regret). Something other than these cognition changes must account for the effect of the intervention on behaviour. The most plausible interpretation is that the implementation intention aspect of the intervention had an affect on behaviour over and above the impact of the motivational component on cognitions. Thus Hypothesis 4 was not supported.

Table 1. Intercorrelations, means, and standard deviations

	1	2	3	4	5	6	7	8	*M*	*SD*
1. RDIF	\								4.28	2.31
2. RDIV	.41**	\							3.07	2.33
3. RDIFV	.63**	.83**	\						2.67	2.23
4. Intention	.52**	.50**	.55**	\					4.79	1.49
5. Attitude	.40**	.39**	.41**	.66**	\				5.69	1.11
6. Norms	.13	.15	.21*	.33**	.23**	\			4.38	1.19
7. PBC	.25**	.29**	.32**	.48**	.41**	.25**	\		5.41	1.28
8. Self-efficacy	.46**	.50**	.54**	.70**	.57**	.26**	.69**	\	4.87	1.52
9. Anticipated regret	.38**	.23**	.34**	.55**	.29**	.26**	.08	.25**	3.18	1.44

**$p = .01$ (2-tailed) *$p = .05$ (2-tailed). $N = 146$ for T3 correlations, $N = 218$ for T2 correlations. RDIF, recommended daily intake of fruit; RDIV, recommended daily intake of vegetables; RDIFV, recommended daily intake of fruit and vegetables.

and .32, respectively). Since self-efficacy and PBC were strongly correlated ($r = .69$), PBC was excluded from subsequent analyses.

To clarify relationships between post-intervention cognitions and follow-up RDIFV across the two experimental conditions, a four-step hierarchical regression was conducted. Table 2 illustrates the steps in which the variables were entered, beta weights at each step, and the proportion and the change in variance explained. Intention explained 30% of the variance in follow-up RDIFV. Self-efficacy explained an additional 3.4% variance, $F(\text{change}) = 7.25$, $p < .01$, and, unsurprisingly, from a theoretical perspective, attitude and norms did not have an independent effect on behaviour, controlling for intention. Anticipated regret did not add to the variance explained.

Table 2. Hierarchical regression of immediate post-intervention TPB variables onto follow-up recommended daily fruit and vegetable intake measure

Step	Variables entered	β	β	β	β
1	Intention	.55***	.33**	.36**	.32*
2	Self-efficacy		.29**	.30**	.31*
3	Attitudes			−.08	−.08
	Norms			.02	.02
4	Anticipated regret				.06
R^2		.30	.33	.34	.34
R^2 Change		.30***	.03**	.01	.00
Model *F*		61.66***	35.79***	18.02***	14.46***

**$p = .01$ (2-tailed) *$p = .05$ (2-tailed). $N = 146$ for T3 correlations, $N = 218$ for T2 correlations. RDIF, recommended daily intake of fruit; RDIV, recommended daily intake of vegetables; RDIFV, recommended daily intake of fruit and vegetables.

According to the TPB, intention is the most important antecedent of behaviour, and in this study it was the strongest correlate of follow-up RDIFV. It is interesting, therefore, to examine how other cognitive antecedents were associated with intention. Table 3 presents the results of a three-step hierarchical regression, in which intention was

Table 3. Hierarchical regression of immediate post-intervention specified TPB variables intention to consume recommended daily fruit and vegetable scale

Step	Variables entered	β	β	β
1	Self-efficacy	.70***	.46***	.43***
2	Attitudes		.37***	.31***
	Norms		.12**	.05
3	Anticipated regret			.34***
R^2		.49	.61	.71
R^2Change		.49***	.11***	.10***
Model *F*		210.11***	109.85***	128.49***

**$p = .01$ (2-tailed) *$p = .05$ (2-tailed). $N = 146$ for T3 correlations, $N = 218$ for T2 correlations. RDIF, recommended daily intake of fruit; RDIV, recommended daily intake of vegetables; RDIFV, recommended daily intake of fruit and vegetables.

regressed onto post-intervention self-efficacy, attitudes, norms, and anticipated regret. Self-efficacy, attitudes, and anticipated regret had significant beta weights in the final equation accounting for 71% of the variance in intention, $F(5, 212) = 128.49, p < .001$, $R^2 = .71$. Self-efficacy accounted for 49% of the variance in intention, and anticipated regret added 10% to the variance explained by attitude and self-efficacy, $F(\text{change}) = 73.22, p < .001, R^2(\text{change}) = .10$. These findings support Hypothesis 1. The TPB provides a good model of the cognitive antecedents of fruit and vegetable consumption 1 week later. Intention is the strongest predictor of RDIFV, and self-efficacy is the strongest correlate of intention endorsing the TPB as a useful source model on which to base a persuasive intervention designed to increase fruit and vegetable consumption among university students.

Cognitive differences between conditions

Univariate ANOVAs showed that there were no significant pre-intervention differences on intention, self-efficacy, attitudes, norms, or anticipated regret, between the intervention and control group (see Table 4 for means and *F*'s for intention and anticipated regret).

Intervention participants had higher post-intervention intentions to eat the RDIFV (pre-intervention $M = 4.64$, post-intervention $M = 4.95$). Post-intervention intentions were also higher in the intervention than the control group ($M = 4.95$ and 4.63, respectively). Univariate ANCOVAs were used to test the difference between post-intervention means between conditions, controlling for pre-intervention scores. Table 4 shows that the post-intervention difference for intention was significant, $F(1, 215) = 5.33, p < .05$. Participants in the intervention condition also showed a post-intervention increase in anticipated regret regarding failing to eat the RDIFV, and had higher regret scores than those in the control group. A univariate ANCOVA, controlling for pre-intervention anticipated regret, shows that the post-intervention difference was significant, $F(1, 215) = 4.55, p < .05$. No other significant differences in cognitions were observed. These findings provide partial support for Hypothesis 2. The intervention appears to have promoted intentions to eat the RDIFV and anticipated regret in relation to not eating the RDIFV, but did not have significant effects on self-efficacy.

Behaviour differences between conditions

The intervention group showed an increase in the mean number of days on which participants ate the RDIFV between pre-intervention and 1 week follow-up. Participants