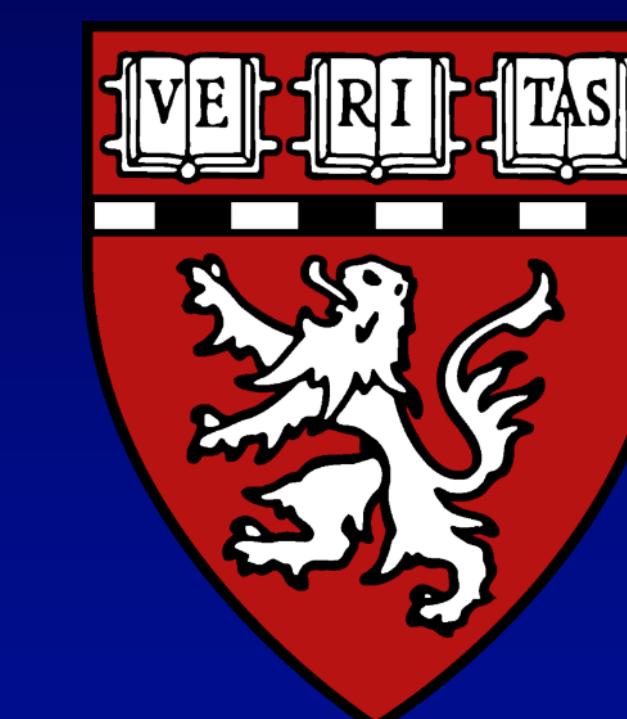




# The association of impulsivity with effects of the ChooseWell 365 workplace nudge intervention to improve diet and prevent weight gain



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## Background

- Impulsivity is associated with unhealthy food choices.
- Nudge interventions in the food environment may be particularly helpful for individuals with high impulsivity.

## Objective

- Examine if trait, choice, and action impulsivity were associated with change in food choices and BMI in a workplace-based nudge intervention.

## Method

- Study design:** planned secondary analysis of an RCT
- Participants:** 487 employees enrolled 2016-18
- Setting:** Massachusetts General Hospital, Boston, MA; with traffic light food labeling in all workplace cafeterias
- Intervention:** Personalized feedback on healthfulness of workplace food purchases, social norms information, and small financial incentives to increase healthy food choices over 12 months
- Measures: Impulsivity:**
  - Trait** (impulsive personality tendencies): 30-item Barratt Impulsiveness Scale; total score
  - Choice** (preference for immediate vs. later rewards): delay discounting task; delay discounting rate *k*
  - Action** (behavioral disinhibition): gradual-onset continuous performance test (gradCPT), a response inhibition task; commission error rate
- Healthy Purchasing Score (HPS):** healthfulness of all workplace purchases, 0-100, higher=healthier, tertiles
- Dietary intake:** Healthy Eating Index-2015 (HEI) scores and average daily calories from 24-hour diet recalls
- BMI:** measured at baseline visit
- Analysis:** multivariable models with interaction terms

## Results

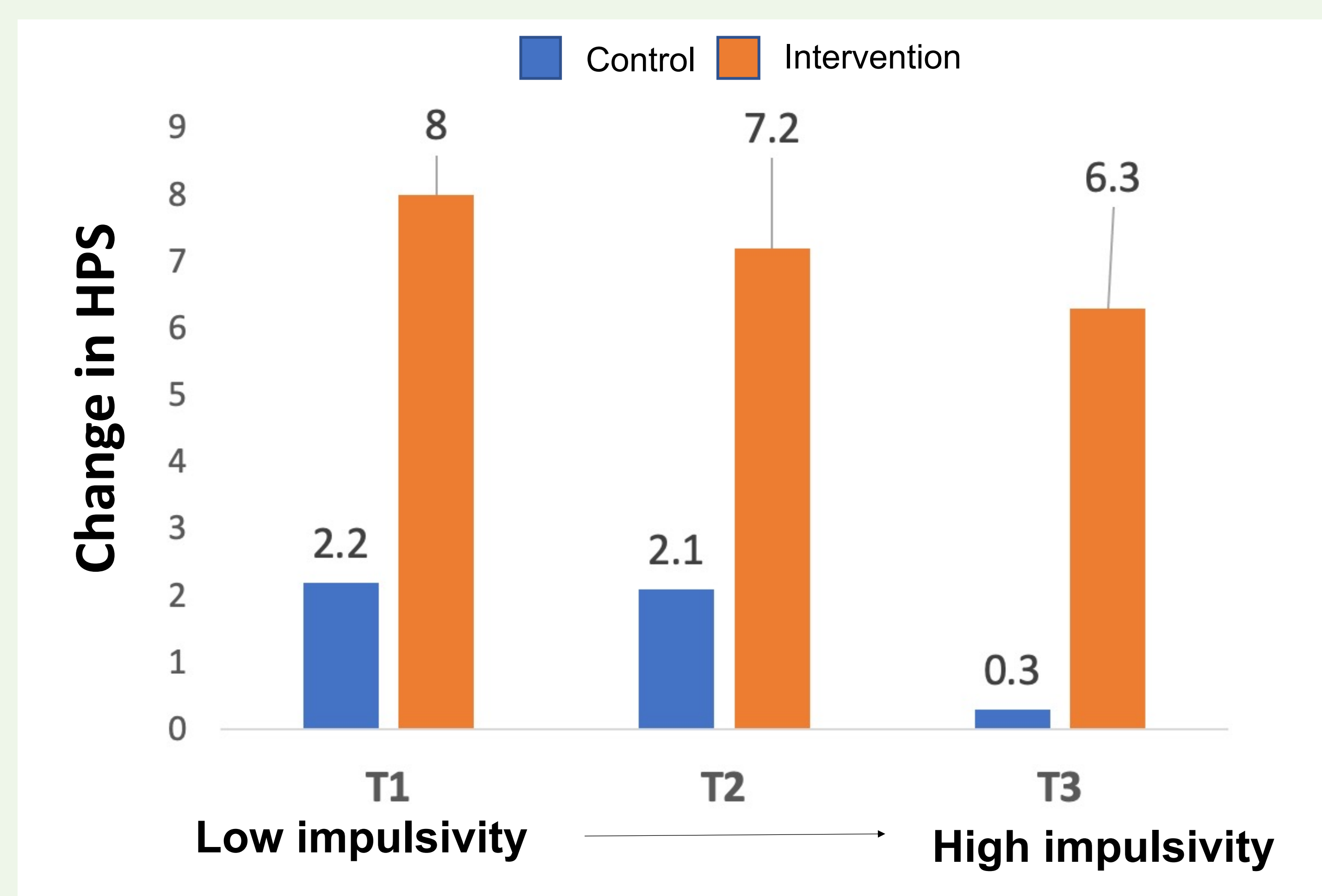
**Table 1. Baseline descriptive statistics for study participants (N = 487) by randomization group.**

	Control (N=239)	Intervention (N=248)
Age, mean (SD)	43.3 (12.3)	43.5 (12.3)
Female, N (%)	194 (81.2)	193 (77.8)
Black, N (%)	20 (8.4)	23 (9.3)
White, N (%)	196 (82.0)	206 (83.1)
Hispanic/Latinx ethnicity, N (%)	13 (5.4)	14 (5.6)
Job category, N (%)		
Administrative/service	37 (15.5)	31 (12.5)
Crafts/technicians	26 (10.9)	27 (10.9)
Management/professionals	145 (60.7)	163 (65.7)
Physicians/PhDs	31 (13.0)	27 (10.9)

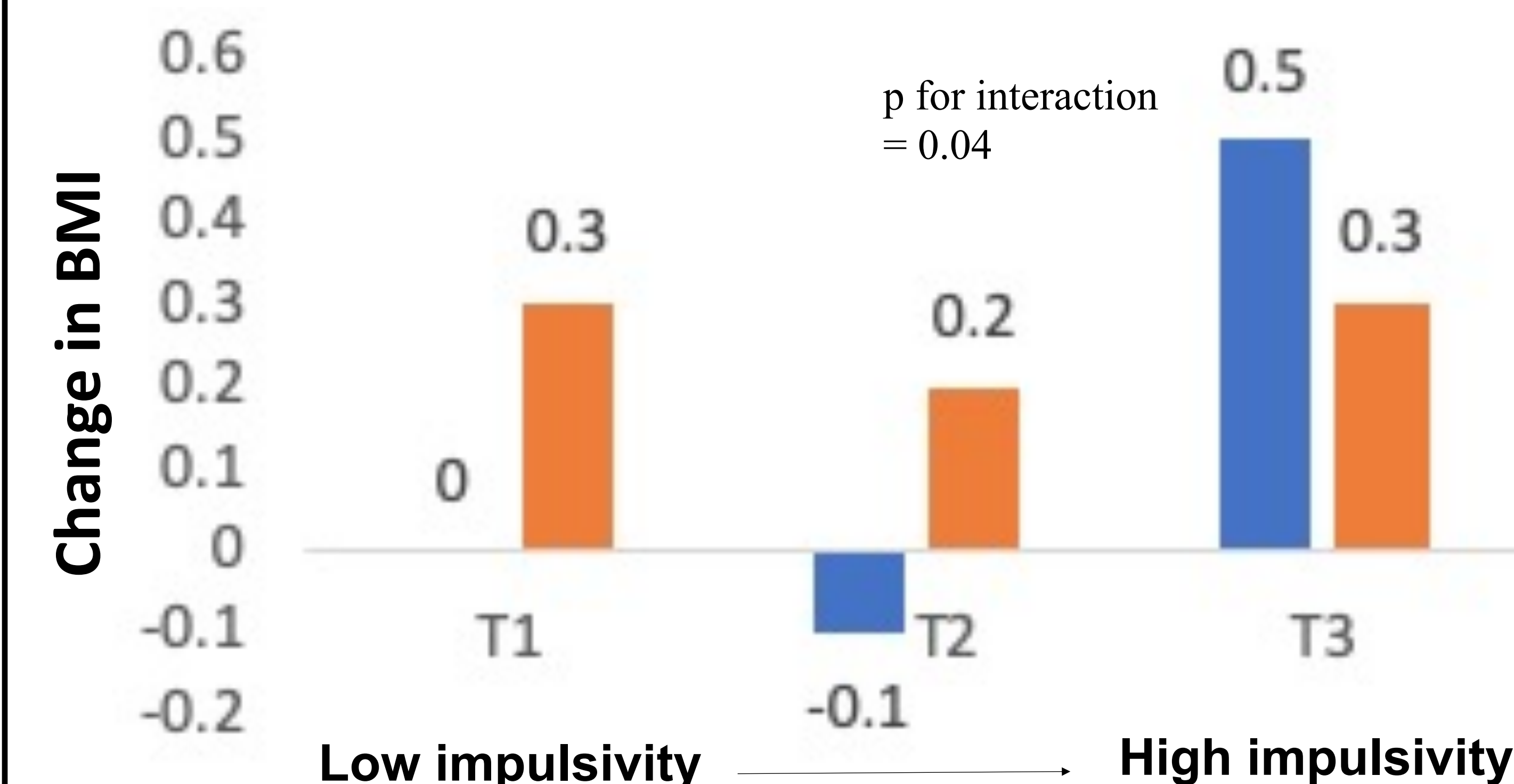
**Table 2. Higher trait and choice impulsivity associated with lower baseline Healthy Purchasing Score (range 0-100).**

	Trait impulsivity (M, SD) *p = 0.019		
	Tertile 1	Tertile 2	Tertile 3
	Low impulsivity		High impulsivity
HPS:	69.2 (12.3)	68.1 (12.4)	*65.9 (13.7)
	Choice impulsivity (M, SD) **p < 0.001		
	Tertile 1	Tertile 2	Tertile 3
	Low impulsivity		High impulsivity
HPS:	68.7 (13.1)	68.0 (13.5)	**66.6 (11.9)

**Figure 1. Higher trait impulsivity was associated with smaller increases in healthy cafeteria purchases (HPS) at 12 months; no detectable interaction effect by intervention group.**



**Figure 2. BMI increased less for intervention participants with highest action impulsivity.**



## Conclusions

- A workplace nudge intervention improved food choices among employees of all impulsivity levels.
- Action impulsivity may play a role in the impact of dietary interventions on weight.
- Findings support prior research indicating that impulsivity is relevant to food choices.



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