

Supplement 4: Data quality and attention tasks - methods and results

Method

Comprehension check

Participants were asked to indicate what they thought their objective was. They could select multiple options, as follows: 1) 'How much of my available power to provide to the hospital', 2) 'How much available power the hospital has', 3) 'How many days the UK will be without power for' or 'I don't know'. Participants who did not include statement 1 or selected 'I don't know' were scored as a 'fail', as this indicated an unreliable response. All other combinations of responses were scored as a 'pass'.

Distractor Task

When administering more than one vignette there is a risk that participants may apply the contextual information from the just-read vignette to the next one. To minimise the risk of such carry-over effects we administered a simple counting task. The task began with a screen of yellow fish pointing either left or right. Participants were required to count the number of right-facing fish. The correct number was 14. Given that the purpose was to disengage from the previous vignette we took a lenient approach and accepted 13, 14 and 15 as 'correct'. All other responses were 'incorrect'.

Attention checks

Supplement 2 provides all attention checks administered.

Attention Check 1: Participants who selected 'ABC News' and 'USA Today website' were scored as 'pass', all other responses were scored as 'fail'.

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Attention Check 2: Participants who gave consistent responses for both parts e.g. 'no' and 'none' were scored as 'pass'. All inconsistent responses were scored as 'fail'.

Attention Check 3: Participants were scored as 'pass' if they answered with '10'. Any other response was scored as 'fail'.

An 'attention score' index was derived by adding up the number of 'pass' and 'fail' scores. The score range was 0-3, with '3' indicating a perfect score (3/3) and '0' indicating an overall fail (0/3).

Overall attention score

We created an overall attention score comprising the attention score index (0–3) plus distractor task (0–1). Scores ranged from 0 to 4 with a perfect score being '4/4' and an overall fail being '0/4'. The overall attention score was only applied to participants who passed the comprehension check. Data validation checks provides additional details.

Data validation checks

Varied attention levels can add noise to the data, obscuring the treatment's effect size [40]. We attempted to mitigate this by excluding participants who failed the comprehension check as this indicated a lack of understanding thereby providing potentially unreliable observations. Participants who passed the comprehension check but scored '0' on the overall attention score were also excluded because they would have failed every attention check and the lenient distractor task scoring suggesting very poor attention and therefore potentially unreliable responses.

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Results

Study 1

Validation checks

Our final sample comprised 447 participants (269 females) with a median age of 38 (IQR: 29-51); 58 participants failed the comprehension test and were excluded. The attentional scores for most participants were similar across groups, indicated by Pearson Chi Square (p 's $\geq .135$) and Bayesian (BFs ≤ 0.05) tests supported the null, with the majority (97%) scoring at least 2/3.

Statistical tests indicated that random allocation was successful for price (Table 1a, main text) and energy availability (Table 1b, main text). Regarding the latter, there was a significant difference for annual income as per the Pearson Chi Square test for independence ($\chi^2(10) 22.590, p = .0123$). Whilst it continued to show a trend to significance following the Bonferroni correction ($\alpha = 0.05/4 = .0125$), the BF indicated evidence for the null (BF = 0.01).

Study 2

Validation checks

Of 126 participants, 120 (58 females) individuals, median age: 42 (IQR: 34-53.8), passed the comprehension check and all passed at least 1 of 2 two attention checks.

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Study 3

Validation checks

Our final sample was 484 participants (242 females), median age = 39 (IQR: 32-50); 13 participants had been excluded because they failed the comprehension check and subsequent overall quality control test. Attentional scores were similar across groups ($p = .423$; $BF < .01$), with most (481/484) scoring at least 1/2.

Random allocation was successful for both factors. Table 3a presents statistical results for price (p 's $\geq .059$; BF 's ≤ 0.01), while Table 3b presents the likewise outcomes for available energy levels (p 's $\geq .153$; BF s ≤ 0.01). For perceived affordability in the price condition, the chi square test was statistically significant ($\chi^2(20) = 31.45$, $p = .049$; $BF < 0.01$) though not, following Bonferroni corrections ($\alpha = 0.05/4 = .0125$) thereby agreeing with the above BF 's evidence for the null.