Attached you will find the revised version of our manuscript: “Nudging healthier alternatives for take-away: A field experiment of the effects of (disclosing) three nudges on food choices” for publication consideration in BMC Public Health.

We are delighted to have been given the opportunity to revise this manuscript.

We found the reviews by the two reviewers to be positive and instructive. We feel that the comments and suggestions have helped us in clarifying several conceptual and methodological issues and enabled us to improve the readability and overall quality of the paper. Please find below per point indicated how we addressed the reviewer comments.

Reviewer 1:
This manuscript describes a 7 week implementation of experimental nudging within a take-away outlet related to a hospital in the Netherlands. While the manuscript is generally well written there are a few areas that need to be revised in order to strengthen the reporting.

General- at times very colloquial language is used. This needs to be revised to a scientific style particularly the first paragraph.

-We have revised the language throughout the manuscript in line with the reviewer’s suggestion, paying specific attention to the first paragraph.

Title- use of the term nudging multiple times in the title is not ideal as this is a lesser known approach that requires explanation. The use of social marketing approaches may be better.

-We do not agree that nudging is a lesser known approach, considering the overwhelming abundance of research, theory, and debate that has emerged over the past decade (e.g., Benartzi et al., 2017; Kroese, Marchiori, & De Ridder, 2015; Marteau, Ogilvie, Roland, Suhrcke, & Kelly, 2011; Sunstein, 2014; Thaler & Sunstein, 2008), including a number of meta-analyses and reviews (Arno & Thomas, 2016; Broers, De Breucker, Van den Broucke, & Luminet, 2017; Bucher et al., 2016; Wilson, Buckley, Buckley, & Bogomolova, 2016), not to mention the Nobel prize that has been awarded to Richard Thaler precisely for his work on this topic. Although nudging shares some characteristics with social marketing strategies, the term nudging more accurately describes the actual interventions used in the reported study. Yet, we decided to follow up on the reviewer’s suggestion to avoid the use of the term nudging multiple times in the title, and have now rephrased the title as “Cueing healthier alternatives for take-away: A field experiment on the effects of (disclosing) three nudges on food choices”. In addition, to resolve any confusion on the term nudging, we have moved the definition of nudging to earlier in the Introduction (now starting on page 1, line 21).

Introduction- is overly lengthy and detailed. It needs to be substantially revised to create a concise overview of the main concepts addressed and their significance.
- We have revised and shortened the Introduction.

Methods- Statistical analysis needs to be included. Daily sales data was noted and therefore statistical analysis can be conducted over the days of each week of the experiment. The present use of chi square does not provide the right outcomes for the conclusions being made.

- We have opted for weekly instead of daily sales data, for two reasons. First and foremost, we wanted to align the analysis intervals with the experimental procedure: the experimental phases (Baseline, Nudge, Washout, Nudge and Disclosure) were also scheduled in weeks rather than days. Second, daily data are subject to inflated idiosyncratic (non-systematic) variance, reducing the signal-to-noise-ratio of our analyses to pick up on the predicted effects. Moreover, daily sales data would be aggregated over the experimental weeks and averaged, which would be equally informative but would involve more data processing than using the weekly sales data for the analyses. Furthermore, we opted for chi-square tests as these explicitly allow for testing how the proportion of healthy items to similar unhealthy items changes as a result of the nudge being implemented. Whereas other statistical tests tend to isolate the focal category, using chi-square testing more closely examines how food choice changes in the context of other food choices. This is extremely important as in real life, food choices are never made in isolation. Moreover, other studies have shown the importance of taking adjacent choices into account when studying nudges, as more healthy choices do not always automatically mean fewer unhealthy ones (Kroese et al., 2015). Of course, conclusions that can be drawn from chi-square tests are limited, so we were cautious in appropriately phrasing results and conclusions throughout the manuscript (e.g., referring to changes in relative proportions rather than absolute numbers).

The context of the take away story and the various other factors affecting food choice need to be added to the discussion as does the link between food choice and food consumption. They are not equal.

- Both considerations are added to the Discussion in the last paragraph before the Conclusions (page 20, line 16-25).

Reviewer 2:
Overall, this is an interesting and easy-to-follow paper, but a bit lengthy, especially the Background section (7 full pages). The manuscript could be strengthened if the authors address the following issues.

In lieu of some paper space allocated to the Background section, as aforementioned, it would be better if the authors provide more essential information in the Methods section; for instance, some aspects of sample composition. At present, the readers are informed that the study samples were all customers who made purchases at the take-away food vendor during the seven-week study period at a large academic hospital in The Netherlands. Still, are the majority of the customers the elderly or adults? Hospital personnel or patients and their relatives? Those factors may have confounding effects on food choices of the samples. Another crucial information -- When (month and year) did the field experiment take place? I believe customers' food choices would be reasonably different between hot-summer and cold-winter days. In addition, the detailed study period information is indispensable, considering the issue of the history threat to internal validity.

The Background section has been revised and shortened. As for the sample, we do not have any further information on the sample composition other than them being adult customers at the take-away food vendor. They are mainly hospital personnel. We have added this information to the Methods section (page 10, line 9-10). Month and year of data collection have also been added to the Methods section (page 10, line 5).

It would be preferable, from readers' perspective, to present a table with all Chi-squared test results currently spanning over multiple pages (pp. 14-17).

A table presenting the Chi-square test results was added to the manuscript (page 29). The test results were removed from the text.

The authors declared that "[o]ur current research has demonstrated nudging to be a low-cost and easy-to-implement 12 strategy to promote healthy food choices." (p. 20, Conclusion. And, a similar statement as the concluding remark of Abstract). Although such a declaration seems reasonable based on the study findings, "low-cost" may be far-fetched as no cost analysis had been performed in this paper.
Indeed, no cost-analysis has been made in this study, but as the intervention merely included changing the position of certain products, adding a tablecloth, or a A4-sized sign, we do feel that it is justified to assume that this intervention would not be costly to implement. However, as the costs are not the main focus, we have removed this from the Abstract.

References:


