

# Proactively asking about allergens: Summary

## Background

Roughly 5% of the UK population report having a food hypersensitivity, which includes both food intolerances and allergic reactions (Turner et al., 2021), and 60% of those (3% of the UK population) have immunoglobulin E (IgE) mediated food allergy (Food Standards Agency, 2020b). People may be more likely to have allergic reactions when eating out of home: the majority of deaths due to food allergens between 1992 and 2012 occurred as a result of food being bought from food businesses (Turner et al., 2015). However, qualitative research suggests that customers with allergies may be reluctant to actively seek information about allergens (Barnett et al., 2017; Barnett, Vasileiou and Lucas, 2020). Confidence may be lower in younger age groups in particular: a survey of those aged 16-24 in the UK found 54% did not respond they were 'very' or 'quite' confident when asking for allergen information (Kovacs, 2018). Following on from a successful feasibility study, commissioned by the Food Standard Agency (FSA) and run by the Behavioural Practice, from 3rd-20th March 2020, the FSA commissioned the Behavioural Practice to run a full field trial, to test whether FBO staff proactively asking customers about allergens would make customers feel more confident that they could identify ingredients, feel more comfortable to ask about ingredients, and increase consumers' perceptions of food safety regarding food and drink sold at the given chain.

## Methods

We ran a clustered randomised trial with a matched pairs design, where the clusters were branches of a national FBO. Participants were customers who entered the FBO between 28th March 2022 and 30th June 2022, who placed a food order at the till, and who chose to complete a survey about their experience (all customers were given a leaflet with a QR code that would take them to the survey). Half of the branches implemented the intervention, where they asked customers whether they had any allergens on ordering, and half of the branches were a control who were not instructed to ask and carried on with usual practice. Staff in branches in the intervention arm were told to ask, "Do you have any food allergies or intolerances?" before customers placed their order. If a customer replied in the affirmative, the FBO's standard protocol in handling these cases were followed, which involved directing customers to scan a QR code to access allergen information.

The primary outcome measures were three questions on the survey, which were shown in a random order using 5-point Likert scales: confidence in ability to identify ingredients if need be (1 = "Not at all confident" to 5 = "Very confident"), comfort asking about ingredients (1 = "Not at all comfortable" to 5 = "Very comfortable"), and perception of food safety in the FBO (1 = "Very unconcerned" to 5 = "Very concerned"). Secondary outcomes were three questions on common customer satisfaction metrics (also shown in a random order with responses on 5-point Likert scales): customer satisfaction, customer trust in the business, and whether the customer would recommend the business to a friend or family member. We also asked whether customers declared an allergy and/or food intolerance on their visit. Fidelity had been poor in the feasibility study, so we pre-registered a per-protocol analysis in order to investigate the effect of the intervention, when it was delivered as intended. We measured fidelity using a question on the survey, which asked if an employee had asked whether they have a food allergy or intolerance.

Staff in the treatment arm knew that they were delivering an intervention, staff in the control arm knew that they were a business-as-usual arm that was being used to compare the effectiveness of changes that were being implemented in other branches. Customers did not know about the trial arms. Randomization was done using pair matching on footfall, location (London/ non-London) and whether or not the branch had seating, treating each pair as a strata for stratified randomisation.

## Results

We randomised 18 branches, 9 in each arm. We received  $n = 936$  survey completions across the two trial conditions ( $n = 395$  in the treatment arm, and  $n = 541$  in the control arm), which were all analysed. In addition, there were a number of incomplete surveys, which we did not analyse, ( $n = 427$  in the treatment arm,  $n = 289$  in the control arm), the majority of which (635 of 716) dropped out on the initial information and consent pages.

There were  $n = 198$  males who completed the survey and received the allocated intervention and the modal age group of participants was 16-25 ( $n = 239$  or 45.1%). There were  $n = 89$  (16.8%) who reported having an allergy or food intolerance ( $n = 30$  in the treatment arm,  $n = 59$  in the control arm); we were not powered for sub-group analysis.

Customers in the treatment arm who received the intervention were more confident in their ability to identify ingredients if need be than those in the control who did not receive the intervention. Among those in the treatment group, almost 83.2% were either 'very' or 'somewhat' confident they could identify ingredients, compared to 77.2% in the control group. Controlling for the influence of demographic covariates, those in the treatment group were, on average, 0.26 points more confident than those in the control group ( $\beta = 0.26$ ,  $p < 0.01$ ).

Those in the intervention arm expressed a greater level of comfort in asking a member of staff for information about product ingredients. For those in the treatment group, a majority (69.5%) would be 'very' comfortable, while in the control group, only half (50.8%) would be 'very' comfortable. Controlling for the influence of demographic covariates, those in the treatment group were, on average, 0.36 points more comfortable than those in the control group ( $\beta = 0.36$ ,  $p < 0.001$ ).

However, the intervention did not have an effect on customers' level of concern regarding the safety of the food that is sold in the FBO. Overall, a majority (65.3%) were 'very' or 'fairly' unconcerned about the quality of food that is sold in the FBO, compared to 68.1% in the control. The intervention did not have a significant impact on level of concern in the primary model ( $\beta = -0.02$ ,  $p = 0.920$ ), a result which was supported by the ordinal probit model in the sensitivity analysis (OR = 0.90,  $p = 0.351$ ).

Fidelity to the intervention was poor. In the treatment arm, 39.0% of participants (154 of 395) said they were asked whether they had a food allergy or intolerance (which was higher than the 30.0% who were asked as a part of business as usual in the control arm). Fidelity in the treatment arm varied between branches, ranging from 20.8% to 75.9%. None of the primary outcomes were effective in an intention to treat analysis.

There were improvements on all the secondary outcomes: customer satisfaction, customer trust in the business, and whether the customer would recommend the business to a friend or family member. Customers were also more likely to report having declared an allergy or intolerance in the treatment arm (OR = 8.58,  $p < 0.001$ ).

## Conclusion

Staff proactively asking customers about food allergies and intolerances increased customers' confidence in identifying ingredients and made them feel more comfortable to ask about ingredients. It also improved a variety of metrics relating to customer satisfaction and increased the number of self-reported declarations of an allergy or intolerance. However, fidelity to the intervention was low, so while the study found it to be efficacious, future work should investigate how it can be improved in order to make it more effective.

The study was preregistered on [Open Science Framework](#) before trial launch and any data collection. The study was funded by the Food Standards Agency.