

# Key findings: co-creation sessions

## Food safety behaviours

Food safety refers to handling, preparing, and storing food in a way to best reduce the risk of individuals becoming unwell from foodborne illnesses. The principles of food safety aim to prevent foodborne illness and are based around the 4C's - Cleaning, Cooking, Chilling and Cross Contamination - which all limit bacterial spread. Findings from the co-creation sessions are structured around the 4Cs.

### Cleaning

Overall, most participants found it hard to maintain the cleanliness in their shared kitchens. Key areas of concern include the sink area; dish sponges and cloths; fridges; kitchen bins; appliances, and kitchen surfaces.

### Sink areas, sponges, and cloths

Participants discussed examples of poor cleanliness relating to the kitchen sink, dish sponges and cloths. Common issues include:

- the build-up of dirty dishes, pots, and pans in and next to the sink. This resulted
- in dirty dishes and cookware being left in other areas of the kitchen; prevented others washing their dishes; restricted the use of the sink for activities like handwashing, and for some this lead to washing dishes and cookware in their bathroom or bedroom basin (which may present a cross-contamination issues).
- the drain blocker not being emptied or cleaned for extended periods of time, subsequently remnants of food left in the sink would clog up the drain blocker.
- kitchen sponges and cloths were not replaced or cleaned frequently enough and were used for "...months on end..." without being washed/cleaned.
- financial limitations having a negative impact on the standards of cleanliness, such as not buying cleaning products or not washing tea towels to avoid
- laundry costs:

"...it comes down to finances. At my accommodation, it costs nine pounds to do a wash, so I can't afford to wash things as much as I would like to..."

### Kitchen bins

Kitchen bins were a notable discussion point. Common issues include:

- bins often being left until they were overflowing with food and smelled bad: "...some of them would be there for weeks on end, nobody would take them out, it was horrific".
- people not adhering to bin rotas or not feeling responsible for the hygiene
- of their kitchens.
- when bins were taken out of the kitchen, this was not done carefully or hygienically. Kitchen bins would often have to be taken out of the accommodation and put in commercial bins outside: "If you're leaving the bins to like stew kind of, and then you're dragging them down

four flights of stairs, you're going to get bin juice everywhere, that happened quite a lot.”.

## **Kitchen appliances and surfaces**

The cleanliness of kitchen appliances (for example, ovens, microwaves) was a common issue, particularly for fridges. Appliances were rarely, if ever, cleaned. It was felt that there was an issue in people not taking responsibility for cleaning.

“...it [extractor fan] gets so oily... stuff hangs off of it and can drip into your food...”

Participants discussed examples of poor cleanliness of the kitchen surfaces, such as:

- food being left on the kitchen table or dropped and left on the floor.
- food being left in pans on the hob/cooker, sometimes for days.
- the kitchen table being used for multiple purposes (for example, social hub in accommodation) other than eating but rarely, if ever, cleaned.

## **Chilling**

The lack of space in the fridge was a notable issue which was discussed in each co-creation session. Participants reported that a fridge might often be shared between four to six people, and many felt that there was not enough space. The lack of space in shared fridges often resulted in fridges being overfilled and different types of food (for example, meats and vegetables) not being separated:

“...fridge is shared with many people and food is squished wherever there's space...”

How and where food was stored in the fridge was also a notable issue. Typically, fridge space was divided with each housemate having an allocated shelf. As such it was often not possible to store different types of food (for example, meats and vegetables) separately. Participants also discussed foods being left uncovered and/or stored next to other food. One participant stated:

“Everybody chucks their food into the fridge covered or uncovered, mostly uncovered, so you have a mix of raw stuff and cooked stuff in each of your own areas that could be potentially nasty”.

Cross-contamination with meat products was highlighted as a particular issue for vegans and vegetarians who wanted to avoid “...meat juices dripping onto their food”. This concern influenced where food was stored in fridges, for example, one participant arranged with flat mates to use the top shelf on the fridge for items such as vegetables and other vegetarian/non-meat products. Another participant, who had two fridges in their household, arranged with housemates to allocate one fridge to non-meat products, and the other to meat products.

Out-of-date and/or decaying food being left in the fridge was also a common issue and was often linked to students returning home during holidays and not removing food from the fridge before they left. This behaviour was exacerbated through the COVID- pandemic as many students returned home to self-isolate at short notice. Participants reported being reluctant to throw out-of-date food to avoid upsetting housemates, consequently decaying food was often left in the fridge for prolonged periods of time.

## **Cross-contamination**

A small number of participants reported that their housemates washed raw chicken in the kitchen sink. Participants were aware that this behaviour presents a cross-contamination risk, especially as kitchen sinks were often full of crockery and cookware, and cleaned infrequently:

“There’s been times where I’ve just found a beheaded chicken in the sink... it’s not hygienic when there’s chicken blood everywhere. I don’t even eat chicken and I was going to get food poisoning.”.

A participant described how their family members typically washed raw chicken, but that they did not think it was correct to do so. This suggests that food hygiene behaviours learnt in the family home can be adapted to adhere to recommended hygiene practises.

“I have an argument with my family members whether I should wash the meat in the sink, but I said to them we didn’t wash meat in the sink because it may cause contamination and blood may spray everywhere, so I will try my best to prevent washing meat in the sink.”

## **Cooking**

The ability to cook in shared kitchens was not a common issue. However, some participants mentioned that broken appliances were not repaired quickly, and that a lack of experience with specific kitchen appliances acted as a barrier for a minority of students being able to cook in their kitchens

## **Food storage**

“...everyone gets one cupboard so there’s not enough space... I can’t fit stuff in the cupboard... anything non-perishable I have put on the floor. I don’t have anywhere else to put it...”.

Participants highlighted frustration with the lack of cupboard space in shared kitchens and were often allocated a single cupboard for ambient food (food which can be stored at room temperature) and kitchen items. Consequently, participants reported storing ambient food and cookware in alternative locations, including bedrooms, kitchen counters, and the floor limiting space for food preparation.

## **Kitchen heat maps**

Using an image of a kitchen, each participant was asked to indicate food safety ‘hotspots’ (i.e., areas that may pose a food safety risk) in their shared kitchens. The locations highlighted by each participant were combined to create a heat map identifying common areas of concern (Figure 1).

**Figure 1. Heat map of areas of the kitchen participants identified as a risk to food safety**



Common areas of concern were the fridge, sink, hob and table. The floor was identified as an issue by some participants: “the floor is overlooked a bit... things get dropped on the floor and just left.” Participants noted that the kitchen image did not depict a bin, which they felt could often be a food safety risk.

## Food security

Since the COVID-19 pandemic food insecurity has disproportionately affected students (Defeyter et al, 2020). Participants discussed their personal experiences of food insecurity, and the impact on food safety and food-related behaviours.

Key themes that arose were the reliance on student loans for food, alternative sources of food, and the impact of the COVID-19 lockdown restrictions. Some international students described that they had not experienced food insecurity themselves but were aware that others had.

Many participants discussed how they relied on student finance to pay for food and the ‘cycle’ in eating habits which this creates. Many participants reported struggling to afford food in the lead up to the next student finance payment. Often this meant a dependence on cheap food with reduced quality or nutrition, with some participants exclusively buying reduced foods. A small number of participants mentioned that they had used alternative methods to source food, these include getting food from the waste bins of shops or supermarkets (i.e., ‘freeganism’); food waste apps (for example, Olio) and/or food subscription services (for example, ‘wonky’ vegetable boxes).

“...bin skipping is a lot more trendy and is becoming more acceptable especially amongst student populations... but it can be quite high risk... there isn’t a single piece of food in my fridge that didn’t come out of a bin, and it is chock-full.”.

## **The impact of COVID-19 and lockdown(s)**

“When Covid started, some students were doing part time work and they couldn't do the part time work in the beginning... they couldn't get their daily wage so they restricted buying expensive food items.”

The COVID-19 lockdown resulted in many participants experiencing loss of employment and associated income. Many students rely on the income of casual work and were unable to work during the pandemic. Consequently, these students struggled financially and were not able to afford the types or quality of food which they would buy prior to the pandemic.

Many participants describe that they had limited access to larger supermarkets during lockdown, and local shops were sold out of certain foods - this was a notable issue for those with dietary requirements. Consequently many bought food online via supermarket deliveries. Whilst this enabled some students to bulk-buy certain items (for example, pasta, canned foods) to save money, for others this method of shopping resulted in spending more than they usually would to meet the 'minimum spend' level.

“...all I had was a Sainsbury's local near me, which is expensive enough as it is. It was an hour walk to my local Aldi... when the pandemic hit you weren't supposed to go far out and there were no buses so I was stuck with the Sainsbury's local”.

Participants' experiences of support from their university were variable and dependent on their place of study. Whilst the majority of participants stated that they weren't offered support, some mentioned that universities had given them food baskets containing essentials (for example, tinned foods, bread and pasta).

## **Conclusion**

The co-creation sessions explored the experiences and challenges, relating to food safety and food insecurity of university students in shared kitchens.

We identified that students found it hard to maintain the cleanliness in their shared kitchens particularly the sink area; dish sponges and cloths; fridges; kitchen bins; appliances, and kitchen surfaces. A common issue was the lack of space in the fridge, with the tendency to allocate 'one shelf per person' presenting cross-contamination issues. A particularly notable finding was that sourcing food from shop waste bins (i.e., 'freeganism') may be an emerging trend in the student community.

We used the findings of the co-creation sessions to inform the development of the subsequent online survey, exploring these experiences and challenges in a wider nationally representative sample.