Key findings: online survey

Respondent characteristics

A nationally representative sample of 2,921 undergraduate university students took part in the survey during February 2022. Quotas were set based on Higher Education Statistics Agency data, by gender, ethnicity, region and parental SEG.

- Age: 44% of the respondents were aged 17-19 years, 39% aged 20-22 years and 17% above 23 years old(footnote).
- Ethnic group or background: 70% of respondents identified as English, Welsh, Scottish, Northern Irish or British, 6% as Indian, 4% as Pakistani, 3% as Chinese, and 3% as African (footnote).
- Annual income: 45% reported an income of less that £13,000, 13% reported having £13,000-£18,999, 8% having £19,000-£25,999 per year and 23% stating to have an income greater that £26,000(footnote).
- Parental socio-economic group: 21% reported the chief income earner in their parental household was a professional/higher managerial (e.g. doctor, lawyer, chairman or managing director of medium or large firm), 34% reported a manager/ senior administrator as their chief income earner (e.g. senior manager, owner of small business, head teacher), 14% identified having a supervisor / clerical / skilled non-manual profession (e.g. teacher, secretary, junior manager, police constable), and 26% in the skilled manual worker, semi-skilled, unskilled manual worker, receiving state benefits for sickness or other category (footnote).
- Country: 80% lived in England, 13% lived in Scotland, 5% lived in Wales, and 2% in Northern Ireland(footnote).
- University type: 40% of respondents studied at Russel Group universities, 22% studied at pre-1992 universities, 34% studied at post-1992 universities and 5% studied at special institutions, UCAS FEs and non-UCAS FEs(footnote).
- Year of undergraduate study: 41% of respondents were 1st year students, 29% were 2nd year students , 20% were 3rd year students, 7% were 4th year students and 2% were 5th year students(footnote).
- Mode of study: 97% of respondents studied full-time and 3% studied part-time(footnote).
- Diet: 50% of respondents reported that were an omnivore, 18% reported that they were mainly vegetarian but occasionally eat meat (e.g., flexitarian), 10% reported that they were vegetarian, 7% reported that they were pescatarian, and 5% reported that they were mainly vegan(footnote).
- Term-time accommodation: 33% of respondents lived in privately rented accommodation, 31% live in hall of residence without catering, 15% live with parents or guardians and 17% live in halls with catering. First year students (52%) were more likely to live in halls of residence without catering compared to other year groups, with only 15% of 4th year students living in halls(footnote).
- Student kitchens: 17% were shared by 2 people, 37% of student kitchens were shared by 3-4 people, 27% were shared by 5-6 people, and 14% were shared by 7 or more people (footnote).

Food safety behaviours

Cleaning

Almost two thirds (61%) of respondents reported that they did not always wash their hands before eating and half (49%) reported not always washing their hands before preparing or cooking food.

A third of respondents (33%) reported that they do not always wash their hands immediately after handling raw meat, poultry or fish and 60% reported that they did not always wash their after handling frozen chicken products.

Respondents were asked what they typically use when washing dishes at their term-time accommodation. Most respondents reported that they used washing-up liquid (72%), a sponge or cloth (66%) and/or hot water (60%) when washing dishes. However, almost 1 in 10 used handwash or soap (9%) and 7% used their hands rather than sponge or cloth when washing dishes(footnote).

Around 1 in 10 respondents reported that they store (12%) or wash (11%) dirty cutlery, crockery, or pans in their bedroom or in a non-kitchen area(footnote).

Respondents were asked how often, if at all, they experienced a given number of issues with their kitchen sink. Most respondents reported that often (i.e., about once a week or more often): their kitchen sink was filled with dirty dishes, pots or pans (70%), was dirty, greasy or grimy (56%), had left over food in it (60%)(footnote).

When respondents were asked how often they replace their dish sponge or cloth, almost a third (32%) reported that they did this about once a week or more often, almost two-thirds (62%) did this two or three times a month or less often, and 2% reported that they never replace their dish sponge or cloth(footnote). Conversely, when respondents were asked how often they replace their tea towel with a clean one, around 6 in 10 (61%) respondents did this about once a week or more often and around 3 in 10 (29%) did this did this two or three times a month or less often, however 6% of respondents reported that they do not use a tea towel(footnote).

Chilling

Fridge access and space

The majority (88%) of respondents had access to a fridge in their shared kitchen, however 12% did not report that they had access to a fridge(footnote). A third (33%) reported that the type or quality of food they purchase is limited by the amount of fridge space available(footnote).

Of respondents who had access to a fridge:

- Almost a third (29%) reported that there was not enough space in the fridge to store their food(footnote).
- Most stored their food in an allocated area in their fridge, on either an allocated shelf (48%) or drawer (13%), however over a quarter (28%) stored food wherever there was space, and only 21% stored different types of food in specific areas
- of the fridge (for example, ready-to-eat foods on the top shelf)(footnote).
- Around two-thirds (65%) reported that their fridge had contained food past the use-by date, 64% reported leftovers which had been left for more than two days and 37% reported uncovered (cooked or raw) meats(footnote).
- Around 4 in 10 (42%) did not check the temperature of their fridge, 33% reported that someone in their accommodation checks the temperature of the fridge and 6% did not need to as the fridge contained a temperature alarm(footnote). Of those who check the temperature of their fridge, almost two-thirds (62%) reported doing this at least once a week(footnote). Though many use recommended methods to check the temperature of their

fridge (34% check the temperature display built into the fridge; 13% put a thermometer in the fridge) many use other methods (24% check the setting/gauge; 14% check for ice or condensation; 12% feel food inside to see if it is cold)(footnote).

All respondents were asked what temperature the inside of a fridge should be, 61% of respondents reported that it should be between 0-5 degrees Celsius, in line with FSA recommendations, however 22% reported that the temperature should be above 5 degrees Celsius(footnote).

Freezing and defrosting

The majority (85%) of respondents had access to a freezer in their shared kitchen(footnote). Of these, 59% agreed there was enough space to store their food in the freezer(footnote)**.** However, 38% of respondents reported that the type or quantity of food they purchase, prepare, or cook is limited by the amount of freezer space available(footnote).

Almost two-thirds (64%) of respondents reported that they had enough space in their kitchen to cool and defrost food(footnote)**.** However, almost 1 in 10 (9%) respondents reported that they defrost or cool food in their bedroom or in a non-kitchen area(footnote).

Respondents were asked which method they use to defrost meat and fish. Less than a third (29%) of respondents reported that they defrost meat or fish in the fridge and 11% reported that they use a microwave, as recommended by the FSA. Around a third (34%) of respondents reported that they leave the meat or fish at room temperature and 13% leave the meat or fish in water(footnote).

Cooking

Most respondents agreed that there was enough space in their kitchen for food preparation (71%) and food storage (68%). However, some respondents reported that the type or quantity of food which they purchase, prepare or cook is limited by the food preparation area (16%) or cooking area (14%) available(footnote). 1 in 10 respondents prepare food (10%) and 8% cook food in a bedroom or non-kitchen area(footnote).

Around 6 in 10 (61%) respondents reported that they always cook food until steaming hot and cooked all the way through, however 39% reported that they do not always do this(footnote). When respondents were asked to indicate how often they eat different meats when they are pink or have pink juices, the majority reported that they never eat chicken or turkey (80%), sausages (77%), pork (72%), or duck (60%) when it is pink or has pink juices. However, fewer respondents reported never eating beef burgers (55%) or red meat (45%) when it is pink(footnote).

Cross-contamination

Over half (54%) of respondents reported washing raw chicken at least occasionally(footnote).

Around 4 in 10 (38%) respondents reported that they store raw meat and poultry at the bottom of the fridge, as recommended by the FSA, however the majority (61%) do not do this (for example, 37% store meat wherever there is space)(footnote), with only 22% of respondents storing raw meat away from cooked foods(footnote).

Use-by dates and ‘eat within’ information

In accordance with FSA recommendations, 60% of respondents identified the use-by date as the information which shows that food is no longer safe to eat. However, 25% of respondents identified the best before date as the date which shows food is no longer safe to eat(footnote), and

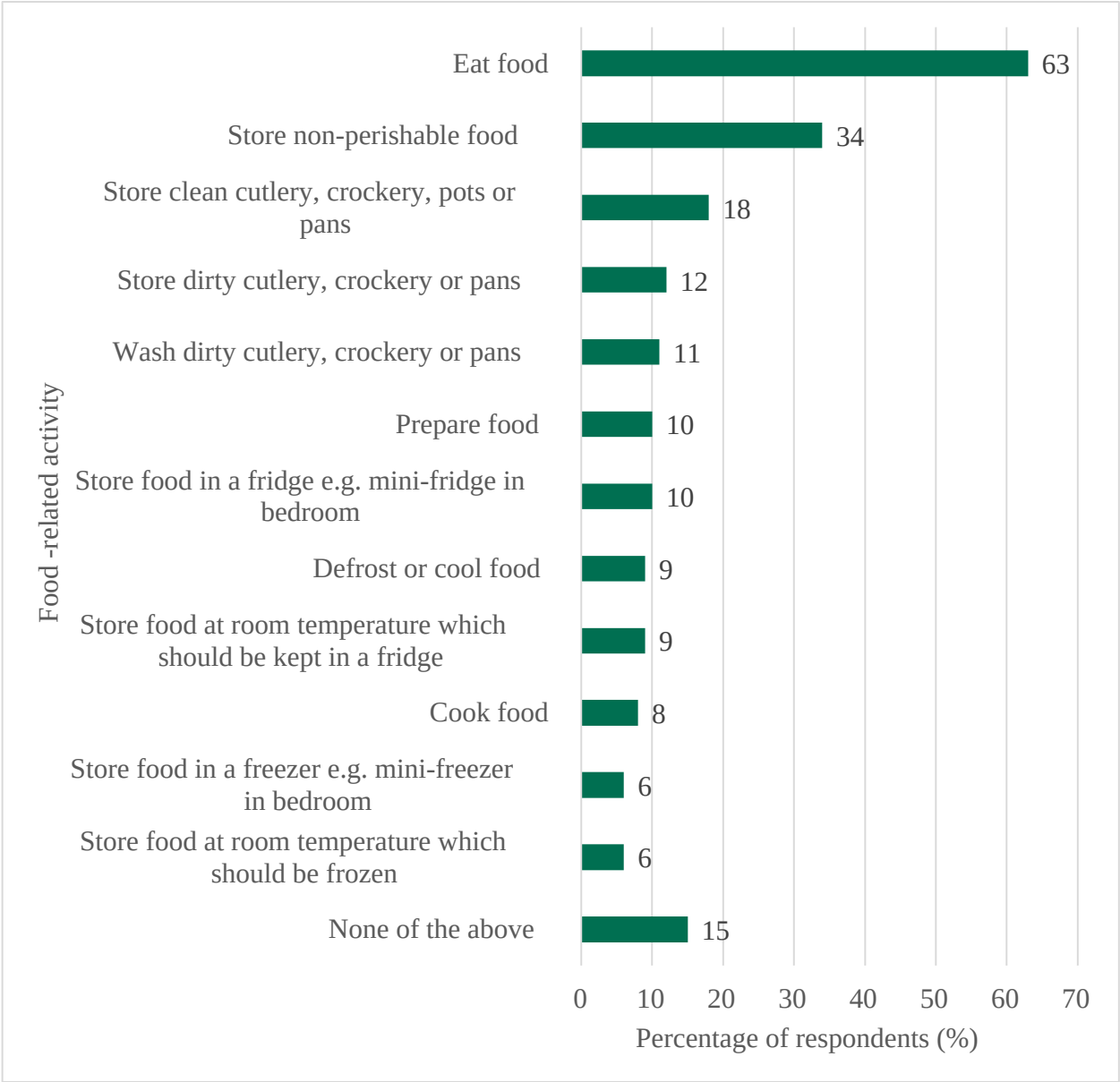
less than half (45%) of respondents reported that they always check use-by dates before they prepare or cook food(footnote).

Respondents were asked if they had eaten some types of food, from a given list, past the use-by date in the past month. Of those who had eaten each type of food in the past month, over half (51%) of respondents had eaten bagged salad past the use-by date, almost 4 in 10 had eaten cheese (38%), milk (37%) or plant-based milk (37%) past the use-by date. Almost a third of respondents had eaten cooked meats (32%), or tofu or meat substitutes (32%) past the use-by date(footnote).

Respondents were asked how often, if at all, they followed the ‘eat within’ (for example, ‘eat within 3 days of opening’) information for different types of food. Of those who eat each type of food, around three-quarters (77%) of respondents had eaten bagged salad or cheese (74%) after the ‘eat within’ period, approximately 7 in 10 respondents had plant-based milk (71%), tofu or meat substitutes (69%) or cooked meat (68%) after the ‘eat within’ period. Over 6 in 10 respondents had consumed milk (64%), or smoked fish (63%) after the ‘eat within’ period and around half (49%) had eaten raw meat after the ‘eat within’ period(footnote).

Food-related activities in non-kitchen areas

Figure 2. Percentage of respondents who do food-related activities in non-kitchen area



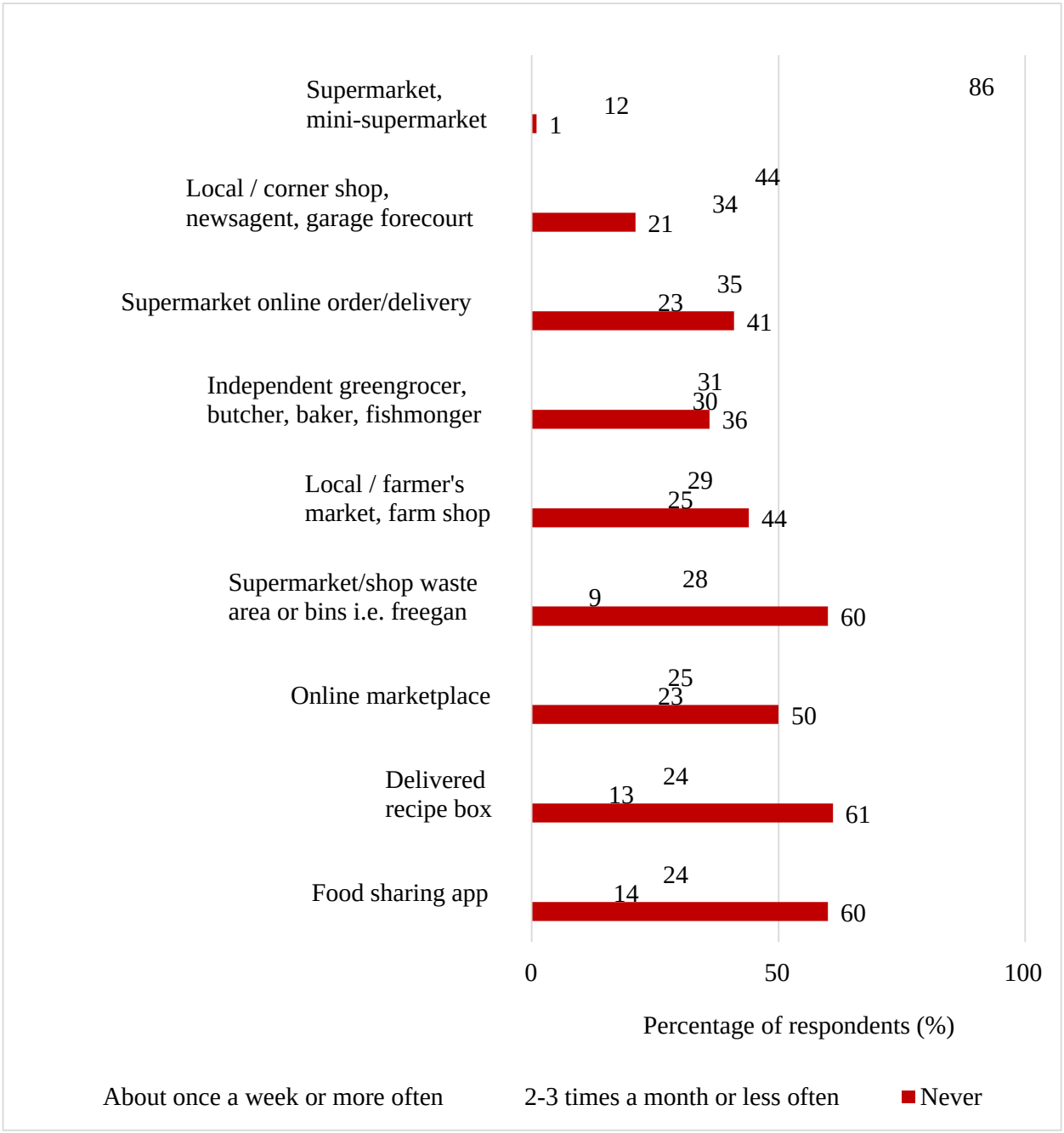
Source: University student kitchen survey 2022

Respondents were asked which, if any, food-related activities they ever do in non-kitchen areas at their term-time accommodation. Almost two-thirds (63%) of respondents reported that they ate food in their bedroom or non-kitchen area. Around 1 in 10 respondents reported that they prepare (10%), defrost or cool (9%) or cook (8%) food in their bedroom or non-kitchen area.

Bedroom or non-kitchen areas are also used to store different types of food. Around a third (34%) reported that they store non-perishable foods (for example, canned foods, pasta, rice) in their bedroom or non-kitchen area. However, a similar percentage of respondents reported that they store chilled food (9%) or frozen food (6%), at room temperature in a non-kitchen area. Many respondents reported that they have used a non-kitchen area for storing clean (18%), dirty (12%), and/or washing (11%) of crockery, cutlery, and pans (Figure 2)(footnote).

Accessing food

Figure 3: Means of accessing food



Source: University student kitchen survey 2022

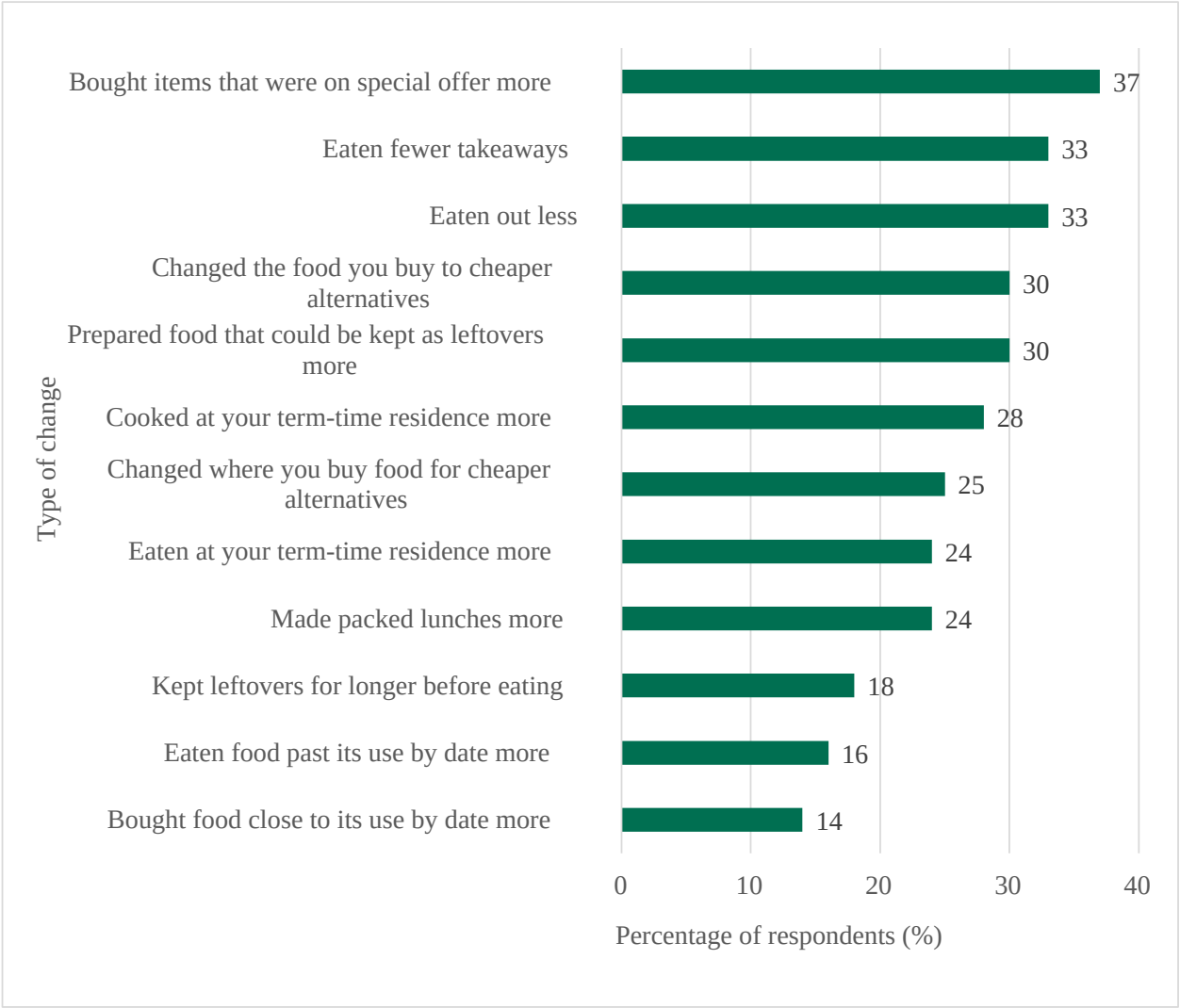
Respondents were asked to indicate where and how frequently they buy food. Most respondents reported that they bought food from a supermarket or mini supermarket about once a week or more often (86%). Over 4 in 10 (44%) respondents reported that they bought food from local/corner shops (for example, newsagent, garage forecourt) and 35% of respondents had food delivered from a supermarket. Many respondents reported that they buy food using online platforms - 25% have shopped for food using an online marketplace (for example, Amazon, Etsy, Gumtree, Facebook Marketplace), and 24% got food though a food sharing app (for example, Olio, Too Good To Go) (Figure 3)(footnote).

Almost 4 in 10 (37%) respondents reported that they have got food from the bins or waste area of a supermarket or shop, with almost 3 in 10 (28%) respondents doing this about once a week or more often, and around 1 in 10 (9%) respondents doing this 2-3 times a month or less often. The likelihood that respondents reported that they had got food from the bins or waste area of a supermarket or shop varied between different groups of people in the following ways:

- Age group: Older respondents were more likely to have got food from supermarket / shop waste areas or bins than younger respondents. For example, 56% of those aged 23-25 years had got food from supermarket / shop waste areas or bins, compared to 28% of those aged 17-19 years.
- Gender: Men (54%) were more likely to have got food from supermarket / shop waste areas or bins than women (26%).
- University group: respondents at a post-1992 university (43%) were more likely to have got food from supermarket / shop waste areas or bins than those at a Russell groups university (33%)(footnote) or pre-1992 university (30%).
- Course year: respondents in the second (43%), third (44%) or fourth (40%) year were more likely to have got food from supermarket / shop waste areas or bins than those in the first year (28%).
- Parental SEG: respondents with a parent/guardian in a professional or higher managerial occupation (55%) were more likely to have got food from supermarket / shop waste areas or bins than those who had a parent/guardian in other occupational groups (for example, 25% of those with a parent/guardian in
- a supervisor, clerical or skilled non-manual occupation).
- Diet: respondents who were vegan (64%), pescatarian (63%) or vegetarian (43%) were more likely to have got food from supermarket / shop waste areas or bins than those who were omnivore (26%).
- Country: respondents in England (39%) were more likely to have got food from supermarket / shop waste areas or bins than respondents in Wales (25%) or Scotland (21%)**(footnote).
- Region: respondents in London (60%) or the North West (48%) were more likely to have got food from supermarket / shop waste areas or bins than those in the South West (18%).
- Food security: respondents who were food insecure were more likely to have got food from supermarket / shop waste areas or bins (55%) than those who were food secure (22%).

Food-related behaviours and eating habits

Figure 4: Changes in eating habits in the previous 12 months



Source: University student kitchen survey 2022

Respondents were asked about changes to eating habits in the last 12 months. The majority (88%) reported change and those respondents were asked to indicate the reason for the change.

The most common changes related to what and where respondents ate (33% eaten fewer takeaways, 33% eaten out less, 28% cooked at term-time residence more, 24% eaten at term-time residence more), reducing food costs (37% bought items on special offer, 30% changed the food they buy for cheaper alternatives, 25% changed where they buy food for cheaper alternatives) and increased food management behaviours (30% prepared food that could be kept as leftovers more, 24% made packed lunches more). Eating habits had changed for most respondents with only 12% indicating that there had been no change in their eating habits in the last 12 months (Figure 4)(footnote). The main causes of reported changes in eating habits were financial reasons (45%), going/returning to university (41%), health reasons (30%) and COVID-19 and lockdown (24%)(footnote).

Food security

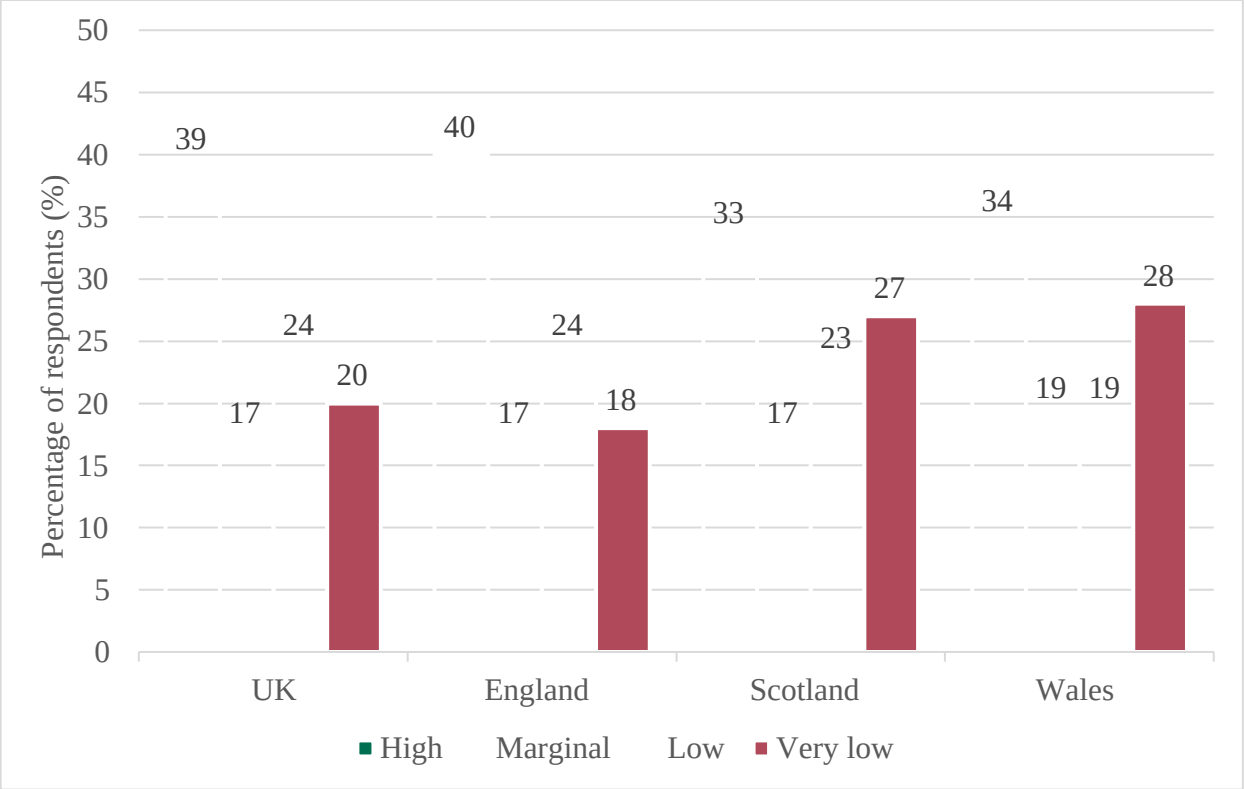
This chapter reports the level of food security and food bank use.

“Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.” World Food Summit, 1996.

A modified version of the U.S. Adult Food Security Survey Module (Opens in a new window), developed by the United States Department of Agriculture (USDA), was used to measure food security at the level of respondents. Those with high or marginal food security are referred to as food secure. Those with low or very low food security are referred to as food insecure. The following categories define ranges of food security:

- High: no reported indications of food-access problems or limitations.
- Marginal: one or two reported indications—typically of anxiety over food sufficiency or shortage of food in the house. Little or no indication of changes in diets or food intake.
- Low: reports of reduced quality, variety, or desirability of diet. Little or no indication of reduced food intake.
- Very low: reports of multiple indications of disrupted eating patterns and reduced food intake.

Figure 5: Food security classification by country



Source: University student kitchen survey 2022

Across the UK, over half (56%) of respondents were classified as food secure (39% high, 17% marginal) and 44% of respondents were classified as food insecure (24% low, 20% very low). Across England, Scotland and Wales respondents had comparable levels of high, marginal, and low food security. However, those in Scotland (27%)** and Wales (28%) were more likely to report very low food security that those in England (18%) (Figure 5)(footnote)(footnote)

Table 1: Food Security classifications by HEI region (England)

Region	Very low	Low	Food insecure	Marginal	High	Food secure

North West	17%	43%	60%	11%	29%	40%
Yorkshire & Humber	13%	34%	47%	15%	38%	53%
South East	20%	24%	44%	19%	37%	56%
North East	24%	20%	44%	15%	42%	57%
London	17%	25%	42%	18%	40%	578%
East	23%	19%	42%	15%	43%	58%
West Midlands	20%	19%	39%	15%	45%	60%
South West	22%	12%	34%	16%	49%	65%
East Midlands	17%	16%	33%	25%	42%	67%
England	18%	24%	42%	17%	40%	57%

Source: University student kitchen survey 2022

Table 1 shows that across England, respondents at universities in the North West (60%: 43% low, 17% very low) were more likely to report that they were food insecure compared to those in the East Midlands (33%: 16% low, 17% very low) and South West (35%: 12% low, 22% very low).

The reported level of food security varied between different groups of people in the following ways:

- Age group: older respondents were more likely to report that they were food secure compared to younger respondents. For example, 57% of those aged
- 32 years and over reported that they were food insecure compared to 40% of those aged 17-19 years.
- Gender: men (49%) were more likely to report that they were food insecure than women (40%)**.
- University group: respondents at a post-1992 university (53%) were more likely
- to report that they were food insecure compared to those at a Russell group university (35%)(footnote).
- Type of accommodation: respondents who lived in their parents' or guardians' home (28%) were less likely to report that they were food insecure compared
- to those who lived in other types of accommodation (for example, 51% of those who lived in halls of residence with catering provided were food insecure).
- Diet: those in many dietary groups (for example, 63% of vegans) were more likely to report that they were food insecure compared to omnivores (34%).

Respondents were asked if they or anyone else in their household had received a free parcel of food from a food bank or other emergency food provider in the last 12 months. Most respondents (90%) reported that they had not used a food bank or other emergency food provider in the last 12 months, however almost 1 in 10 (8%) respondents reported that they had(footnote).

The reported level of food bank use varied between different categories of people in the following ways:

- Age group: older respondents were more likely to report that they had used
- a food bank or other emergency food provider compared to younger respondents. For example, 27% of those aged 32 years or over had used a food bank or other emergency food provider compared to 5% of those aged 17-19 years.
- Course year: respondents who were in their fourth year of study (16%) were more likely to report that they had used a food bank or other emergency food provider compared to those who were in their first year (6%).
- Mode of study: respondents who studied part-time (20%) were more likely to report that they had used a food bank or other emergency food provider compared to those who studied full-time (7%).
- University region (England): respondents in the London (15%) were more likely
- to report that they had used a food bank or other emergency food provider compared to those in Yorkshire and Humberside (2%) and Eastern England (2%).
- Food security: food insecure respondents (16%) were more likely to report that they had used a food bank or other emergency food provider compared to those who were food secure (2%).

Respondents who had received a food parcel from a food bank or other provider were asked to indicate how often they had received this in the last 12 months. Of these respondents, almost a quarter (22%) had received a food parcel on only one occasion in the last 12 months, two-thirds (66%) had received a food parcel on more than one occasion but less often than every month, and 4% had received a food parcel every month or more often **55**.

Conclusion

This research explored the knowledge, attitudes and behaviours of university students relating to food safety, food security, diet and other food related behaviours, and identified experiences and challenges faced by this group. We have identified several key findings which relate to food safety and hygiene behaviours: students find it difficult to maintain cleanliness in shared kitchens, with many not following recommended food safety and hygiene behaviours; some students engage in food-related behaviours in non-kitchen areas including the storage and preparation of food; fridges present several food safety challenges with many lacking adequate fridge space, often allocating ‘one shelf per person’ and fridges containing old and expired food; and, some students are sourcing food from shop waste bins (i.e., ‘freeganism’), a behaviour which may be an emerging trend in the student community. In addition, we have evidenced that students have relatively high levels of food insecurity (44%), compared to the most recent national statistic from Food and You 2 (Wave 4, 18%, for adults in England, Wales and Northern Ireland), particularly amongst students at Universities based in the North West of England (60%). The current findings demonstrate that students are a unique group of consumers which would benefit from informed and targeted communications.

The use of co-creation sessions provided several novel insights are new areas of food safety concern including the use of bin diving to source food, tendency to allocate ‘one shelf per person’ in the fridge, and poor cleanliness relating to the kitchen sink, dish sponges, cloths, and kitchen bins. These insights demonstrate the power of engaging consumers as stakeholders to advance our understanding of consumer knowledge, attitudes, and behaviours, especially when exploring

the food safety risks of ‘overlooked’ groups.

The current findings reveal several areas which could benefit from further research, such as exploring the motivations of those who ‘bin dive’ (i.e., which may have many drivers, including sustainability concerns) and trialling interventions to improve to food safety behaviours in the student population (e.g., providing more fridge space, or colour coded areas in the fridge). This research has identified new areas of food safety concern which are not captured in FSA consumer surveys, inclusion of these topics in future research or existing surveys would provide an opportunity to develop understanding of the prevalence of the identified food safety risks of the wider population.