The nature and extent of food poverty

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Disclaimer

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Abbreviations

APPHFP	All-Party Parliamentary Inquiry into Hunger and Food Poverty
CFHS	Community Food and Health (Scotland)
CFIs	Community Food Initiative Informants
DWP	Department of Work and Pension
EFA	Emergency Food Aid
F&V	Fruit and Vegetables
FHFS	Food High in Fat and/or Sugar
FRS	Family Resource Survey
HBAI	Household Below Average Income
HEISB	Healthy Eating Indicator Shopping Basket
HERU	Health Economics Research Unit
HFI	Household Food Insecurity
JSA	Jobseeker allowance
KWP	Kantar Worldpanel
LCFS	Living Cost and Food Survey
MIS	Minimum income standard
NDNS	National Diet and Nutrition Survey
NHSHS	NHS Health Scotland
NMES	Non-Milk Extrinsic Sugar
Non-HBAI	Household Not Below Average Income
ONS	Office for National Statistics
RESAS	Scottish Government's Rural and Environment Science and Analytical Services
RINH	Rowett Institute of Nutrition and Health
SACN	Scientific Advisory Committee on Nutrition
SD	Standard Deviation
SFA	Saturated Fatty Acids
SHeS	Scottish Health Survey
SIMD	Scottish Index of Multiple Deprivation
SP	Service Provider
SPIs	Service Provider Informants
UKDA	UK Data Archive
UoA	University of Aberdeen

Glossary

SIMD	Scottish Index of Multiple Deprivation	The SIMD provides a relative measure of deprivation ranking small areas from most deprived (ranked 1) to least deprived (ranked 5).
5-a-day	5-a-day intake of fruit and vegetables	Campaign to encourage increased daily intake of fruit and vegetables to at least 5 portions. It has been widely adopted north of the border despite no formal national campaign having taken place.
Older HBAI	Household below average income whose head is more or equal than 65 for men or more or equal 60 for women.	
Older Non-HBAI	Household above average income whose head is more or equal than 65 for men or more or equal 60 for women.	
Severe poverty	Individuals whose household income is below 50% of the UK median income are considered as living in severe poverty.	
Extreme poverty	Individuals whose household income is below 40% of the UK median income are considered as living in extreme poverty.	
Household food insecurity	Households below 60% average income where ‘average income’ is the median household equivalised income.	

Executive summary

Background

Food poverty/insecurity has become a subject of policy concern in Scotland and the UK in recent years. Emerging research evidence indicates that there are an increasing number of households in this country that are unable to sustain normal patterns of food shopping and eating, and are seeking charitable food aid to help them do so. Emergency food aid seeking is increasingly regarded as a sign of a larger food poverty/insecurity problem, and that those using so-called 'food banks' represent only a small proportion of the population who are food insecure. However, the picture in Scotland is not clear, as household level food insecurity data is not collected in this country or elsewhere in the UK. Furthermore, food bank data collection systems (such as they exist) do not monitor household conditions or practices. Consequently, there is growing concern that such stark increases in people seeking help from charities to feed themselves may be evidence of an emerging public health crisis, and evidence of acute need in the population.

In October 2014, Community Food and Health (Scotland), (a programme within NHS Health Scotland) commissioned a group of research scientists to consider questions of food insecurity / poverty in Scotland more broadly than has been explored in recent years. The primary policy focus of the majority of recent research on this issue has been emergency food aid provision that has been concerned with questions of use and its operations. The research institutions involved in the current study were: the Rowett Institute of Nutrition and Health: University of Aberdeen (UoA), the Health Economics Research Unit (UoA), and Universities of Glasgow and Warwick. This research also received additional funding support from the Scottish Government's Rural and Environment Science and Analytical Services (RESAS).

Aims and objectives

The main aim of the present research was to explore the wider context of household food poverty / insecurity (henceforth referred to as HFI) in Scotland and to develop an understanding of the current level and nature of HFI to inform policy and practice. The research examined HFI in relation to particular vulnerable groups and considered the implication of findings for the future work of community food initiatives.

The research questions addressed:

- The current prevalence and nature of food poverty/insecurity in Scotland.
- The current trends in relation to food poverty/insecurity in Scotland.
- How food insecurity/poverty was being experienced by particular vulnerable groups – i.e. older people, those facing destitution, those living in rural and remote rural areas.
- How community food initiatives were adapting and would need to adapt their practice to address the challenges created by this context.

This study was commissioned on the basis of the following definition of food poverty/food insecurity, i.e.:

> 'The inability to acquire or consume an adequate quality or sufficient quantity of food in socially acceptable ways, or the uncertainty that one will be able to do so.' (1).

Methods

The research was designed as a linked series of studies to address each of the four research questions. This included conducting:

- a rapid review of the food poverty/insecurity literature pertaining to the Scottish context;
- a secondary analysis of relevant routinely collected food and fuel expenditure, food purchasing and self-reported consumption data using the Living Costs and Food Survey (LCFS), the Scottish Health Survey (SHeS), and the Kantar Worldpanel (KWP) datasets; and
- an interview study with 25 key informants concerned with the care and support of vulnerable groups or with the operation or management of community food programmes throughout Scotland.

Summary of key results

Current prevalence of food poverty/insecurity

The rapid literature review did not reveal any studies that had specifically assessed or investigated the extent and nature of HFI in Scotland in recent times. However, cross sectional and cohort studies that have been conducted exploring patterns in dietary behaviours in the Scottish population indicate that those on low income (identified as such by their post code area of residence) tend to have poorer dietary intake than those living in less deprived areas, although the population as a whole is considered to have a generally poor diet in relation to the Scottish Dietary Goals (SDGs). Area-based research on the availability and accessibility of good quality food offerings focused on deprivation, has yielded mixed conclusions regarding and the relationship with dietary behaviours.

In the absence of a well-defined measure and appropriate HFI dataset, this research examined existing expenditure and consumption data sources to determine what could be collected from these data about HFI trends and patterns over the recent recession, and specifically between 2007 and 2012. Notwithstanding the caveats and limitations of this approach, the study revealed that poorer households spent less on food and non-alcoholic drink, and less per person than households with above average incomes**.** However, **poorer households spent a greater proportion of their household income on food and non-alcoholic drink** compared to those with above average incomes, **amounting to almost twice the proportion of income share spent on food and drink compared to wealthier households in Scotland.** Furthermore, poorer households spent proportionately more of their income on gas and electricity than their wealthier counterparts.

Neither poorer nor wealthier households met the Scottish Dietary Goals in terms of food expenditure, with both groups spending the greatest proportion on food high in fat and or sugar and meat and protein, and spending less on starchy food and fruit and vegetables. This trend was also observed among older people. Self-reported eating patterns were relatively similar between HBAI (poorer) and Non-HBAI (wealthier) households, with the exception of fruit and vegetable intakes: wealthier households are more likely to reach the ‘5-a-day’ fruit and vegetable target.

The qualitative findings provide more insight about current experience of HFI in Scotland. These findings suggest that there are more people struggling to feed themselves and their families in Scotland than current food bank figures suggest. Drawing on the perspectives of experienced professionals and volunteers concerned with working with vulnerable groups across Scotland, this study found that organisations were encountering an increasing number of people and groups in society that they had never observed to be affected by HFI in the past. Families with young children and mothers emerged as being of particular concern. But young adults, including those at risk of homelessness, were also noted as

giving cause for concern. Even groups known to be affected by HFI in the years prior to the recession (i.e. destitute, homeless, people with mental health problems) were reportedly increasing in number, seeking help more frequently, and for longer periods of time compared to the past. This is arguably a particular concern for people suffering from an underlying health condition; as such food provisioning does not appear to be able to meet any special dietary requirements arising from existing health conditions, or ill-health. International evidence from countries which have significantly longer histories of institutionalised systems of emergency food aid feeding people in HFI, suggests that this strategy is not effective in addressing HFI in the longer term, and risks exposing an already vulnerable population to an uncertain supply of food that is highly variable in terms of its social and nutritional quality. Questions about the quality and quantity of food distributed by food banks were not directly explored during this research, but there were suggestions in the qualitative interviews that there were questions about the usability and dietary quality of the food available for redistribution by food banks in Scotland, and this issue requires further investigation in the Scottish context given the emerging picture here.

Current trends in food poverty

Assessing current trends in food poverty in Scotland is challenging, the secondary quantitative analysis conducted in this study suggests food and fuel expenditure, food purchasing and consumption have been consistent across years 2007-2012. The qualitative interviews indicated a general concern about the future for people already affected by HFI, with a strong sense that this was likely to get worse going forward, particularly once the Universal Credit benefits system had been fully implemented over the course of 2015. People with mental health or substance misuse issues, and/or living in so-called 'chaotic life circumstances and lifestyles', were considered particularly vulnerable to this change as they were viewed as likely to find it more difficult to manage the new benefit conditions, or cope with a monthly rather than fortnightly income.

This view was underpinned by a common belief amongst informants that much of the problem of HFI in Scotland was due to people having insufficient and or unpredictable levels of income arising from either being in poorly paid, unpredictable employment, or, because of recent changes to the social security system i.e. associated with the changes to eligibility, perceptions about the local application of the eligibility rules, and of the levels of benefit available to recipients. This was thought to be further exacerbated by higher costs of living; lack of family support nearby; and the underlying problem of a perceived general de-skilling of people in relation to food, due to social and cultural norms surrounding food and eating in Scotland, e.g. the perceived collective tendency to eat ready-made, convenience food on a regular basis in this country.

People were also described as dealing with HFI in very different ways, ranging from outright denial and or refusing referrals to food banks by professional and volunteer carers, to being more willing to seek or accept help. Things study informants talked about as signs of HFI in their communities and amongst their clients were the presence or absence of food and or other essential household items in houses, and various aspects of their clients' or patients' physical appearance that troubled them.

There is also calls from the practitioner and volunteer communities for more research in this area, specifically in relation to monitoring the numbers of people in HFI in Scotland and the impact of HFI on the public's health, and due to concerns about potentially unrealistic expectations about community gardening and grow-your-own schemes having a measurable impact on HFI.

How food poverty/insecurity appears to be affecting particular vulnerable groups

The rapid review provided a very limited picture of the experience of specific vulnerable groups; although there was evidence that low-income families, particularly those with young children, and refugee families were identified as being at risk of HFI, the degree to which they were affected could not be ascertained from the review. The review was also unable to identify data specific to older people, homeless or destitute groups.

The secondary data analysis estimated that food expenditure share (by food group) of older people was relatively similar to the overall population, such that meat and protein, and foods high in fat and sugar, represent the largest expenditure (£) and share (%). Self-reported eating patterns were also relatively similar for older people, and for those living in rural or most deprived areas, with the exception of fruit and vegetable intakes. This analysis showed that wealthier households (among older people) were more likely to reach the 5-a-day fruit and vegetable target, whereas more rural households (HBAI and Non-HBAI alike) were reaching the 5-a-day target compared to their urban counterparts.

The qualitative research gave a more mixed picture regarding older people, with a perception in some quarters that they are not as badly affected by HFI as younger people. However, those who worked with older people in their homes reported that some of their clients had nothing to eat in the house, are more likely to deny they had a problem, and were refusing food bank referrals. In addition, older carers were highlighted as a group of potential concern.

Asylum seekers and refugees would appear to be at risk from extreme HFI from the little information collected, but the picture regarding minority ethnic groups and travelling people is not clear from this research. Concerns were expressed about rural dwelling communities and older people in particular. Furthermore, given the concerns which emerged about families with young children and the problems that people on benefits were experiencing in meeting conditions of entitlement, it is possible that young carers may well be an overlooked group with regard to HFI.

How community food initiatives are adapting and planning to adapt their practice to address the challenges created by this context

The qualitative findings reported insights of people who have a long history of working in areas of multiple deprivation on food-related matters. They revealed that some long-standing community food programmes had added food bank operations to their work in recent years. The impetus to include emergency or free food provision had arisen either in response to requests for help from local health or social care professionals for people believed to be in food crisis, or had been due to requests from members of the local community, who were aware of their existing presence as a local food hub.

These data also pointed towards other changes observed at the community level that were viewed as something people might be doing to mitigate the experience of HFI. For example, programmes which provide training in cooking skills had experienced a recent increased public uptake and interest. There were also reports of increased interest in low-cost food retailing services (especially for fruit and vegetables) and in food growing schemes. Notably, these were impressions which need further direct exploration with people seeking such services.

In terms of future community food programme plans, two themes were apparent. One theme was of considerable uncertainly and doubt among those operating a food bank about the viability of their service; some predicted they would have to close the service because it did not have enough food coming from public and/or corporate donations to meet local demands. The other theme was more positive about the

future role of their food bank services, predicting its expansion.

There were also mixed views among community food programme informants about the role and impact that food banks have in addressing ***HFI per se*** in Scotland. Some expressed more doubt and scepticism than others, who were again more positive about their role.

Almost all informants believed that it was only actions to increase the levels and predictability of people's income that would make the biggest impact on HFI in Scotland. Improved levels and predictability of income was also regarded as something that would enable people affected by HFI to benefit from the services and supports that the professionals or their programmes could offer. In other words, they felt their work was being undermined or likely to be ineffective, given the underlying causes of people's growing HFI.

Conclusions

This research was able to establish a partial view of HFI through literature review, qualitative interviews and secondary analysis of datasets which contained sufficient information on Scottish households about income levels, food and fuel expenditure and self-reported dietary intake of poor households (who themselves are not representative of the poorest in Scotland) **up until 2012.** These findings indicated that, at that time, poorer households were spending less (in absolute £) of their limited financial resources on food purchased for home consumption, compared to their wealthier counterparts, but were spending proportionately (%) more of their overall income on food. Lower income households were also spending a larger income share on fuel than their wealthier counterparts. Note that this analysis was not able to consider housing and other costs.

Against the backdrop of fluctuating food and fuel prices since 2007-8, and rising housing cost, it is likely that, increasing numbers of households are experiencing HFI in Scotland. Particular groups known to be vulnerable to food poverty, such as older people, were also reported to be in worsening food conditions, and experiencing extreme food poverty as an everyday feature of their lives. There was insufficient data to comment on the circumstances of other specified groups (such as refugees and asylum seekers, or travelling communities) but there is no reason to suppose they have not also been badly affected. In addition, the qualitative data indicate that a wider range of groups, not previously known to care service providers, were needing help to feed themselves and their families with support from food banks, and some are experiencing difficulty in surviving without subsequent visits to them. In other words, people are not just in one-off, emergency situations, but in circumstances which are worsening and becoming chronic.

The qualitative findings indicated that there were people living in communities in Scotland who were deemed in need of food aid assistance, but who were choosing not to use it: this research also suggests that food bank use data should no longer be accepted as a sufficiently robust and suitable means by which policy makers and health professionals can understand the nature HFI in Scotland. The research has not been able to characterise more precisely those at risk from HFI, including those at risk of severe HFI, because of a lack of appropriate data. There is an urgent need to be able to do this.

Given the apparent, but as yet undocumented, magnitude of the problem, and the predictions reported here that this situation was likely to worsen, it seems unlikely that community-based solutions, i.e. distributing free food or offering cooking or growing skills, or even low-cost food retailing, will be able to comprehensively deal with the problem alone.

Finally, the qualitative data indicates that being **food insecure** in Scotland means being unable to behave like normal consumers, i.e. experiencing uncertainty and lacking choice about what one can buy to eat, or,

when or where to shop and eat, due to being on very low income or facing destitution. Most concerning, this research found a prevalent view that HFI in Scotland was being in a situation where individuals are compelled to seek out very cheap, nutrient-poor food in order to eat. Therefore, there is an urgent need to develop better means of measurement and understanding of individuals' and families' lived experiences of food insecurity in Scotland, to help develop, and make the case for, effective policy solutions that can comprehensively address HFI and the plethora of dietary-related health conditions that affect so many of the Scottish population.

Main recommendations

Based on the research teams interpretation of the findings from the three arms of this research study, the following recommendations have been identified:

1. Means and measures by which the experience and impact of HFI, as it relates to household experiences of food quality, quantity, certainty of supply, meal frequency, safety and social acceptability can be captured and recorded for population health surveillance and monitoring purposes in Scotland are urgently required.

2. A means of monitoring HFI experienced by individuals considered to be at particular high risk and known to be difficult to reach through surveys (i.e. those who are destitute/homeless /transient / temporarily housed/Roma /travelling/asylum seekers), is also required.

3. Information from health and social care professionals who routinely deal with people whom this research has indicated are at risk of HFI, but who previously have been considered low risk, should be captured to contribute to our understanding of the drivers and indicators of prevalence of HFI in Scotland.

4. Given this research has indicated that there are an unknown number of people and households refusing referrals to food banks in Scotland, there should be less reliance on data from established food banks, (who emphasise their data are not exhaustive) to estimate prevalence of HFI,.

5. There is a need to disseminate the results of this research to policy makers and the wider health and social care community to raise awareness of the current HFI trends/situation.

6. Community food initiatives which support households in need, particularly in building confidence in food skills (including growing) should be sustained by government assistance and support. Many will also probably have to continue to operate as emergency food responders in the short term.

7. Medium to longer term, policy interventions that address the root/basic causes of poverty, e.g. to generate/increase income sufficiency and bring more certainty of income to more households in Scotland is fundamentally required to address HFI in this country.

8. The notion that community gardening and growing schemes enable all community members to become more food secure requires some investigation to provide the evidence to inform its use as part of a possible solution to this problem.

9. Government and the public health care system should establish a way of monitoring the appropriateness of the food offered through the charitable secondary feeding system, to ensure its dietary adequacy and safety, and to safeguard against it exacerbating existing chronic health conditions of people who are referred to, or are seeking help from it.

10. There needs to be better understanding of the impact of short and longer-term HFI on health, including the relationship with obesity and malnutrition (which can co-exist).

1. Introduction

This report presents the findings of a five month study commissioned in October 2014 by Community Food and Health Scotland (which is programme within NHS Health Scotland), the main aim of which was ***to explore the wider context of food poverty insecurity in Scotland to develop an understanding of the current level and nature of food poverty/insecurity to inform policy and practice***. The research was also concerned ***to examine food poverty/insecurity in relation to particular vulnerable groups and consider the implication of findings for the future work of community food initiatives.*** The research was conducted by a group of research scientists drawn from the Rowett Institute of Nutrition and Health: University of Aberdeen (UoA), the Health Economics Research Unit (UoA), and Universities of Glasgow and Warwick. This research also received additional funding support from the Scottish Government's Rural and Environment Science and Analytical Services (RESAS).

1.1 Background

Food poverty/insecurity has become a subject of policy concern in Scotland and the UK, with both Holyrood and Westminster Governments commissioning research concerned with so-called 'emergency food aid' provision, and household food insecurity in the last two years (2, 3, 4). Dowler and Lambie-Mumford (2014) have recently highlighted the rising numbers of households' that are apparently unable to sustain normal patterns of shopping and eating, who are seeking charitable food aid to help sustain household integrity and even, it seems, to avoid destitution and/or extreme hunger. And it seems clear that the numbers of people seeking help from charitable organisations giving out donated food (derived from general public and food industry giving), has increased over the last few years (5,6). For example, it was estimated that charitable organisations distributed over 20 million meals to people living in the UK during 2013/14 (7, 8).

Emergency food aid seeking itself is increasingly regarded as a sign of a larger food poverty/insecurity problem, and that those using so-called 'food banks' represent a small proportion of the population who are food insecure (9). In Canada for example, a country that has routinely recorded household level food insecurity status in annual community health surveys since 2005; 12-13% of the Canadian population experience some degree of food poverty/household food insecurity, ranging from marginal to severe, with prevalence trends indicating an upward movement since 2011. In addition, these data show considerable variation across the different provinces and territories and according to different household types (10). For example, the prevalence of food insecurity is most marked in Canadian households with children under the age of 18, with those food insecure households headed by a female lone parent most badly affected of all (ibid). Yet the same dataset shows that only 20-30% of people who are food insecure also report visiting a food bank for help.

However, the picture in Scotland is not clear, as household level food insecurity data is not collected in this country or elsewhere in the UK (11). Furthermore, food bank data collection systems (such as they exist) do not monitor household conditions or practices. Consequently, there is growing concern that such stark increases in those seeking help from charities to feed themselves is evidence of an emerging public health crisis (8,12,13), and evidence of acute need in the population (14).

1.2 Policy context

There are a number of policy drivers (historical and contemporary) underpinning this research. These include the long-standing recognition that food poverty is a public health issue in Scotland with the publication of the Scottish Diet Action Plan in 1996. Community Food and Health (Scotland), or CFHS,

now a part of NHS Health Scotland (NHSHS), has a 19 year history of working alongside low- income communities across Scotland on issues of food and health, both to address health issues in their local communities but also to influence policy. Current Scottish Government policy is also concerned with addressing food poverty for different income groups throughout Scotland, with older people and those living in rural areas of particular concern (15). Recent work by CFHS identified the need to understand the scale of the need for food assistance and the wider experience of food poverty in Scotland during a roundtable discussion hosted by CFHS in 2012. A CFHS learning exchange held in 2014 also identified the need to build understanding about the extent and experience of food poverty in Scotland. CFHS also provides administrative support to the recently formed rights based approaches to food poverty group, whose membership is drawn from policy makers, practitioners from the health, social care and voluntary sectors and academics concerned with food poverty in Scotland.

CFHS commissioned this research to add to the developing evidence in relation to the wider experience and impact of food poverty in Scotland.

1.2.1 Terms of reference

Definition of food poverty and food insecurity

Terminology and concepts in relation to food poverty/food insecurity can be contested, and various definitions exist. This study was commissioned on the basis of the following definition of food poverty/ food insecurity, i.e.:

> 'The inability to acquire or consume an adequate quality or sufficient quantity of food in socially acceptable ways, or the uncertainty that one will be able to do so.' Dowler (2003) (1)

And this definition of food insecurity has underpinned the research throughout. At the same time, this study has considered the converse situation, i.e. what it means to be **food secure**, as recent evidence submitted to the All-Party Parliamentary Inquiry into Hunger and Food Poverty (APPHFP), argued is essential to consider in debates about food insecurity. Food security can be defined as a situation where '*all people, at all times, have physical, economic and social access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life'* (16). In the UK context this means that people have enough money to purchase the foods they prefer to eat, that meet social as well as health and nutritional norms; and that their money is not absorbed in other essential expenditure (such as rent, fuel, debt repayment, etc.) that prevents them from doing so. It also implies that people are able to shop for food at affordable prices, or can grow or otherwise obtain food in a dignified manner that is in keeping with social norms.

1.3 Aims and objectives

The aims of this study were as follows:

- What is the current prevalence and nature of food poverty/insecurity in Scotland?
- What are the current trends in relation to food poverty/insecurity in Scotland?
- How are 1 and 2 above experienced by particular vulnerable groups – older people, those facing destitution, those living in rural and remote rural areas?
- How are community food initiatives adapting/will need to adapt their practice to address the challenges created by this context?

1.4 Report structure

The research was designed as a linked series of desk-based, quantitative, and qualitative studies to address each of the four questions. This included conducting:

- a rapid literature review;
- a secondary analysis of relevant routinely collected data; and
- an interview study with 25 key informants concerned with the care and support of vulnerable groups or with the operation or management of community food programmes throughout Scotland.

Therefore, each study's methods, findings, limitations and summary of conclusions are reported separately and consecutively in this report. The rapid review study is reported in **Section Two,** the secondary analysis study **Section Three**, and the qualitative study in **Section Four**. The report finishes by reflecting on the four research questions by drawing the conclusions from all three studies in **Sections Five and Six**. The recommendations are described in full in **Section Seven** at the very end of the report.

2. Rapid review of the food poverty literature

2.1 Overview

A rapid review of the literature was conducted to establish the extent to which the Scottish context features in existing food poverty literature, using peer-reviewed primary research and grey literature sources. The review set out to identify relevant studies and reports that had been published in the area of food poverty or household food insecurity as defined for this research, that had been conducted or written in the last 15 years, with a particular focus on research concerned with older people, those living in remote and rural areas, those facing destitution, asylum seekers, people with mental health problems and/or learning difficulties, living in Scotland. The review also aimed to establish how well the scope of the retrieved literature reflected the dimensions of food poverty/household food insecurity (henceforth referred to as HFI). It is important to note that the review was concerned with HFI in the widest sense, and did not focus on emergency food aid research literature, as this is currently available from work that has been recently conducted by others (5, 3).

2.1.1 Summary of key findings

When reflecting on this body of literature about how well it informs our understanding about HFI in Scotland ten issues emerged from the reviews.

1. At this point, the review has identified a relative dearth of published food poverty research concerned with the Scottish context. Most of the academic research identified for this review was published between 2007 and 2010, with one study published in 2014. As such, there is a lack of contemporaneous research covering the time period within which current concerns about food poverty have emerged. This could be said to reflect the fact that this has only recently become an issue of major public and policy concern, and it seems likely that research literature in this specific area may well start to emerge in the medium term.
2. None of the academic research to date has explored questions of economic ability to acquire food in the context of other necessary household expenditures.
3. Most of that research has focused on the geographic availability of retail outlets, and the nutritional quality and affordability of the food offerings available in such outlets in deprived areas. And considered as a whole, this research does not give a clear picture, or answers to food security questions for low-income communities.
4. Moreover, this research has focused mostly on the availability (17,18) accessibility and consumption of fruit and vegetables, which are currently regarded as the markers of a healthy diet for the Scottish context while data on availability and accessibility of the other food groups (and their associated nutritional value) that are necessary for a balanced, healthy diet, such as starchy carbohydrates, protein, milk and dairy products is less prominent because research suggests little variation in availability of those products essential for a healthy eating basket.
5. The review has not included an examination of an emerging literature on the apparent increased availability of unhealthy food offerings in deprived areas, which was not picked up with our agreed search terms during this review. The role of such outlets needs to be considered in questions about food purchasing decisions for very low-income groups when considering questions of food poverty, and the role those outlets may be playing (good or bad from a public health perspective) in questions of how those groups may be achieving food security.
6. Little research has been derived from the direct experiences or perspectives of individual households and/or population sub groups. For example, it seems that with the exception of the small study conducted in the east end of Glasgow, little research has considered how low-income households use or regard their local neighbourhood food retail outlets, associated with questions about their being either economically accessible, or culturally congruent. Furthermore, only one study has considered questions of certainty of being able to acquire food in the future, which again must be given further

attention given the secular trends in the nature of employment, i.e. flexible working and zero hours contracts.

7. Data associated with questions about particular sub-groups being able to acquire food in socially acceptable ways is also missing.
8. The little qualitative evidence that exists, that has specifically considered HFI, suggests that low-income families and their children are most at risk, with suggestions that child hunger existed in those families studied.
9. The grey literature review shows that there seem to be two different ideas currently emerging about what needs to be done to address food poverty in this country. One report has argued for Scottish Government intervention to maximise the available income and the spending power of low-income households. This argument has been made on the basis that, by enabling such households to get better and more cost-effective access to household goods and services, such as fuel, food and finances, would help mitigate the so-called Poverty Premium that is said to affect the lives of people living on low incomes in deprived areas of the country, and boost their ability to purchase such goods in the same manner as more affluent households. The other policy idea that has emerged from the UK Government APPI into Hunger and Food Poverty favours strengthening charitable organisations' ability to offer free food to those in food crisis, by enabling supermarkets to send their food surplus / waste in greater quantities than currently happens, through an enhanced 'food bank plus' UK network. However, there is counter evidence to suggest that this model would not necessarily provide food of sufficient quantity or quality suitable to meet the needs of the food banks and the people who are turning to them for help. Furthermore, the social acceptability of those turning to food banks for help in Scotland has not been explored, and this needs further exploration. This is particularly urgent given the findings that emerged in the qualitative study conducted for this research that indicates that some people who are being referred to a food bank in Scotland at the current time are refusing to accept the referral, stating a desire to use other ways to cope with food crisis.
10. Finally, none of the research identified has directly measured and assessed household food poverty/HFI in Scotland. Therefore, the precise nature and extent of food poverty in Scotland has not been explored up until this point.

The remainder of this section of the report sets out the methods used to review the primary research and grey literature that was identified and considered in this study. The results from analysis of both literature sources are presented separately, followed by a synthesis of those results and a discussion of the study limitations. Finally, conclusions are drawn on how well the existing literature informs our understanding of household food insecurity in Scotland, as it relates to the conceptual definition of food insecurity / poverty used in this research.

2.2 Methods

The review proceeded in three stages. Firstly, a short scoping exercise was undertaken to identify search terms, bibliographic databases and timeframes that would cover the primary research review. The results of this scoping work were discussed by all members of the research team, who then agreed the databases and search criteria that were used for the review. Studies of any type (quantitative or qualitative) that took place in Scotland between 2000 and Nov 2014, that were concerned with food poverty, household food insecurity, deprivation, diet, hunger or right to food were included in the study. Studies concerned with food aid or food banks, charities, third world contexts, first world food poverty or food insecurity outside of Scotland, environmental, ecological, agricultural or farming aspects of food insecurity or security were excluded.

The second stage of the review involved searching the selected databases for literature using the agreed inclusion criteria. The titles and abstracts of retrieved articles were screened by one researcher, through a

process of reading of titles and abstracts for relevance, and articles that met the criteria from this screening exercise were included in the review. This process was double checked by a second researcher. Included articles were then read and descriptive summaries generated.

The third stage involved a rapid review of the associated grey literature. This was identified through requests made for organisational reviews or reports on food poverty through wider community food and health networks, and from key informants who took part in the qualitative study and were asked to send us reports that they were aware of focused on food poverty in their local areas or elsewhere in Scotland. The same inclusion criteria described above were used for this review.

2.3 Results

2.3.1 Primary peer reviewed research review findings

The second stage of the review produced 3478 titles and abstracts, of which 76 potentially relevant papers were identified from the titles and abstracts. Sixty duplicates were removed, leaving 16 potentially relevant primary research papers for this review. Five of these papers were subsequently excluded because they reported results from studies conducted elsewhere in the UK. See Appendix 2 for the detailed flow diagram showing study identification.

This review process revealed that primary research focused on some aspect of food poverty in Scotland in the past 15 years has done so in the following ways. Five studies have explored the availability of healthy food options (using fruit and vegetables as markers for the same) in deprived areas, with two further studies exploring price, and, availability of healthy food options. Two studies had qualitatively explored the lived experiences of food poverty, one with refugees, where food poverty was the main focus of the study, the other with a small sample of urban dwelling families through an exploration of their experiences of living through the recession. Two further studies reported a multi-level analysis of patterns of dietary intake associated with socio-economic status conducted in 2009 respectively. Narrative summaries of each study's aims and findings are presented below. Appendix 3 provides short form details of all included studies presented.

Availability and accessibility of affordable food, and links with deprivation and poor diet and health in Scotland was first discussed in Acheson's et al's *Independent Enquiry into Inequalities in Health* (6). It appears that Macintyre et al's 2008 study (7), '*Do poorer people have poorer access to local resources and facilities? The distribution of local resources by area deprivation in Glasgow, Scotland'* was the first of its kind to explore this idea. This study aimed to determine the location of a variety of food resources and exposures by deprivation in Glasgow City (7). They examined 42 locations of resources throughout the city. Measures included number per 1000 population, network distance to the closest food resource, and, the percentage of data zones that contained at least one type of food resource. The study found that the location of supermarkets, fast food chains and cafes showed no clear pattern of deprivation and that deprived neighbourhoods do not necessarily lack good quality food retail outlets.

Cummins et al's 2009 study (19) ,*'Variations in fresh fruit and vegetable quality by store type, urban-rural setting and neighbourhood deprivation in Scotland'* examined the quality of fresh fruit and vegetables in stores throughout Scotland and whether it varied according to store type, rural-urban location and neighbourhood deprivation (19). Results of this cross-sectional survey showed that the quality of the 12 fruit and vegetable items surveyed was high. The highest-quality fresh fruit and vegetables were found in medium-sized stores, stores in small towns in rural areas, and those located in more affluent areas. The lowest-quality fresh fruit and vegetables tended to be found in shops where 'food was secondary', and in shops located in urban settings and more deprived areas. The authors concluded that the study provided evidence that variations in food quality may plausibly affect food purchase and consumption decisions, and may partially explain neighbourhood differences in food consumption patterns.

'Neighbourhood deprivation and the price and availability of fruit and vegetables in Scotland' study (20) examined the influence of neighbourhood deprivation and local retail structure on the price and availability of fruit and vegetables using secondary data sources. The study was conducted using a representative sample of areas that reflected the diversity of urban-rural environments across Scotland. Results showed that the highest prices were evident in the smallest shops in the most deprived areas. Fruit and vegetables were less readily available in small shops located within deprived neighbourhoods in comparison to similar shops in affluent areas. The authors concluded that fruit and vegetable availability varied significantly by neighbourhood deprivation in small stores. The study concluded that policies that promoted fruit and vegetables sales in these outlets could benefit residents living in deprived areas.

Dawson et al's 2008 study '*Accessing healthy food: availability and price of a healthy food basket in Scotland'*, explored the availability and affordability of a basket of healthy food in Scotland (17). The authors undertook a census of the Healthy Eating Indicator Shopping Basket (HEISB) availability in 466 stores in a sample of locations that varied according to urban-rural and affluent-deprived areas. The basket included fruit, vegetables, protein and carbohydrate-rich foods and diary. The writers concluded that consumers' basket price tended to increase with area deprivation. However, overall, the study concluded that access to a wide range of healthy food was more dependent on the availability of medium and large stores than being in a deprived or affluent area.

The '*Neighbourhood food environment and area deprivation: spatial accessibility to grocery stores selling fresh fruit and vegetables in urban and rural settings'* study aimed to quantify, via secondary analysis, access to grocery stores selling fresh fruit and vegetables in various settings in Scotland (21). Results showed that residents living in least deprived urban neighbourhoods had greater access to grocery stores, than their counterparts in island, rural and small town locations. But it also found that more deprived neighbourhoods had greater access to fresh produce compared with less deprived urban and small town neighbourhoods. It concluded that availability and access to fresh produce was worst in the most affluent island communities. The results were mixed for rural settings. The authors concluded that, overall, the most deprived neighbourhoods had the best access to grocery stores and grocery stores selling fresh produce, and depending on their geographic location, did not necessarily have poor access to affordable fruit and vegetables.

Coyle et al's 2011 study, '*Food deserts in Dundee'* explored access to food shops in the city using a mixed methods approach (22). A postal questionnaire was used to gather information on issues including: the most frequently used retail outlets for food shopping, the type and length of food shopping trips and whether shopping for healthy food was easy or difficult for respondents. These data about Dundee's retail structure was derived by comparing Yellow Pages entries for 'supermarkets' for different years. Eighty-one per cent of respondents said they did not eat the recommended five portions of fresh fruit and vegetables per day. Although this result confirms that a proxy of healthy dietary intake was problematic for Dundonians, the authors concluded this city could not be described as a food desert because it was too small, and the vast majority of respondents were within easy reach of at least one superstore.

'*The food retail environment and its use in a deprived, urban area of Scotland'* Sauveplane-Stirling et al's 2014 study sought to describe and map the food retail environment and its use in a deprived urban area in Scotland (18). This two stage cross-sectional study comprised of a mapping exercise and self-completed questionnaire. The study population was a small community located in the east end of Glasgow. This community is considered one of the most deprived areas in Scotland, and has high rates of premature mortality from heart disease and a high prevalence of childhood obesity. Results showed that there was both high availability of fruit and vegetables, but also very high availability of fast food outlets in the study area. Ninety-one% of consumers shopped at a large supermarket outside their community, while only 9% shopped at local food outlets within it. Survey responses indicated that food pricing issues drove most to shop outside their community, while those who stayed in their community to shop did so because of

convenience. The authors concluded that access to a car was the largest determining factor in the use of (or otherwise) of the local retail environment in this setting.

The qualitative longitudinal study, *'Financial trajectories: how parents and children discussed the impact of the recession'* explored processes of negotiation between parents and their primary school-aged children in dealing with problems raised by working parenthood (23). Specifically, the study looked at 14 Scottish families' (from various socio-economic backgrounds) lived experiences of changing conditions of economic uncertainty during the recession to see how they made sense of, and responded to, these changes with respect to their personal projects, aims and challenges. Six families were described as being 'no worse off and not cutting back' since the recession began. All of these families were in stable employment with fixed incomes. The remaining eight families reported feeling financially stretched prior to the recession. As such, they started managing their money carefully and made changes to everyday eating habits (such as buying cheaper food brands) before the recession and deemed any increased financial pressures since the recession began as minor. The authors concluded that families living on low incomes prior to the recession were most likely to be affected by the recession.

'The relationship between food insecurity and practical food issues amongst a sample of refugees in Edinburgh' study aimed to determine the prevalence of food insecurity amongst a sample group of refugees in the city (24). The study also sought to explore associations between levels of food insecurity and practical food issues. The study was conducted via a self-completing questionnaire (in nine languages) administered to a convenience sample of adult refugees. The questionnaire comprised of questions relating to socio-demographics, practical food information/access (including questions on social support and problems finding shops with appropriate foods) and statements adapted from the Radimer/Cornell food security and hunger scale. Results suggested that 56% of respondents were food insecure, of which 11% reported food insecurity with child hunger. The authors also concluded that inferences from the study are limited as it reflects a small convenience sample from only two groups: refugees who were literate in one of the nine community languages and most participants had been in the UK more than 2 years.

Gray et al's 2009 study, '*A multilevel analysis of diet and socio-economic status in Scotland: investigating the 'Glasgow effect''* (25) investigated the differences between dietary habits of people living in Glasgow compared to the rest of Scotland, and the role that socio-economic factors might have in explaining these. The so-called 'Glasgow Effect' is the observation that those living in the Glasgow (and the West of Scotland) have lower life expectancies (across all deprivation categories, least to most) compared to people living elsewhere in Scotland, and in turn elsewhere in the UK. The study used multilevel logistic regression from the 1995, 1998 and 2003 Scottish Health Surveys to test associations (25, 26). The authors concluded that associations between unhealthy eating and deprivation accounted for much of the tendency of people in Glasgow to have poor diets. They also concluded that Glasgow's poor diet will continue to be an issue until the underlying problems associated with poverty and social inequalities were addressed.

In the UK, low birth weight is more common in deprived areas and among the low social class. Haggarty et al. study (27) *'Diet and deprivation in pregnancy'* (2009) aimed to ascertain the relationship between nutrition and deprivation in pregnancy and how this affects pregnancy outcomes. To this end, the authors explored current nutrient intake and status in pregnancy via a prospective cohort study of 1461 pregnant women in Aberdeen, conducted between the years 2000-2006. Respondents' nutrient intake was evaluated at 19 weeks via a self-administered food frequency questionnaire, which was developed 'for use in Scottish populations designed to provide an estimate of habitual diet' (pg. 1488). The questionnaire was semi-quantitative and covered 20 food groups and 170 different food items. Respondents were asked to estimate weekly food intakes and respond to questions relating to dietary restrictions, the use of food supplements and habits were also included in the questionnaire. The authors concluded that deprivation

in pregnancy is associated with poor diets lacking in specific nutrients. More deprived women's diets were typically characterised by lower fruit, vegetable and oily fish intakes, and higher processed meat, crisps, snacks and soft drink intakes. Such poor diets, furthermore, are associated with inequalities in pregnancy outcomes.

2.3.2 Grey literature review findings

The third stage of the review involved a rapid review of associated grey literature. The body of literature considered in this review was drawn from organisational reviews or reports made available to us from informants from across various community food and health networks, and also those made available to the researchers by key informants from organisations who participated in the qualitative study. This produced a total of 30 documents. The same inclusion criteria as identified for the academic literature were used to review the grey literature. That is, studies or reports had to include and capture the key findings or arguments from reports which were concerned with aspects of HFI in Scotland which were generated between 2000 and 2014. According to the criteria, a total number of three studies were included in the review. Twenty-seven studies did not meet the inclusion criteria and were excluded. Narrative summaries of aims and main conclusions those studies or reports are presented below. Appendix 3 provides short form details of all included studies.

Excluded articles include studies that were not based in Scotland or that focused on poverty associated with welfare benefit reforms and sanctions (some of these studies are, however, referred to in the concluding section of the report). Other grey literature studies, including the Scottish Government's 'Overview of food aid provision in Scotland' (3), were excluded because they focused on emergency food aid provision in Scotland (or in other countries, including England and Canada), or other types of poverty (such as fuel poverty) and not on household food poverty per se. It was notable that when we asked if informants could send us any reports about food poverty they knew had been produced locally; we received a number of reports from organisations that reported food bank use statistics, which did not meet the review criteria. This phenomenon might (arguably) indicate that food bank use has become synonymous with the broader issue of food poverty in Scotland for many people. It was also interesting to note that the qualitative research identified in the peer-reviewed literature did not contain any references to food banks.

The Oxfam and Church Action on Child Poverty funded study '*Food, fuel, finance: tackling the poverty premium'* (December 2014) sought to explore solutions to the so-called 'Poverty Premium' using qualitative data derived from focus group discussions and roundtable events that had taken place throughout Scotland (28). The Poverty Premium is defined as '*the additional cost for essential goods and services accruing to people living in poverty as a result of their low incomes*'. Findings from the report estimated that low-income Scottish households paid an additional average sum £1,280 per annum for essential household goods and services. The report's authors concluded that this premium was largely accrued due to fuel costs, e.g. those using metered cards and living in temporary accommodation. The study also found that most participants knew that their diets were unhealthy and were willing to eat healthier foods, but their incomes were too low to allow them to buy sufficient amounts of fresh fruit, vegetables and fish. A lack of cooking facilities and/or refrigerated storage additionally impeded some participants' ability to cook healthier meals. The report recommended that the Scottish Government develop a plan for tackling the Poverty Premium in conjunction with local communities which are worst affected by poverty and, with 'Closing the Gap in Scotland' partners, should pilot a 'community hub' approach to delivering a range of affordable food, fuel and finance related goods and services.

Another Oxfam funded study (2014) '*The Scottish Doughnut: A safe and just operating space for Scotland*' (29) aimed to ascertain what people in Scotland considered to be acceptable standards of living. Data was collected from secondary analysis of existing research and literature (including The Minimum

Income Standard, The Equalities and Human Rights Commission's Equalities Measurement Framework and Oxfam's Humankind Index for Scotland). Most of the analyses were based on participatory methods, such as public dialogue and discussion, which aimed to reflect 'the reality of life' in Scotland. Results suggests that one in five people in this country live in relative income poverty, including an increasing number of people experiencing 'in-work' poverty. This increase is attributed to the decline in skilled and semi-skilled jobs, and increases in low-skilled, service-sector jobs, which are insecure and low income bearing. Lone parent families, single working-age households and couples with children are most at risk of being in relative poverty. The report concluded that '*too many people are going hungry, living in overcrowded housing, experiencing poor health, anxiety and depression, with little access to social support networks'.* The report does not, however, explore the reasons behind these failures, but serves to highlight patterns and trends in income and other inequalities experienced by citizens throughout Scotland (and the UK).

The All-Party Parliamentary Group Inquiry into Hunger and Food Poverty in the UK (established in April 2014) published its 'Feeding Britain' report in December 2014. As well as investigating the extent, geographical spread and underlying causes of hunger and food poverty in this country, the study's main aims and objectives were *'to consider the effectiveness of emergency food assistance in meeting immediate and long-term needs, and the possibility of these schemes becoming permanent features of the welfare state; to consider approaches to improving household food security in this country'.* The inquiry, via interviews and written submissions (taken from all parts of the UK including Scotland), concluded that the main reasons people fell into food poverty was due to: delays, errors and sanctions in benefit payments; a sudden loss of earnings; working on the minimum wage; having debts to pay; and having to pay disproportionate charges for utilities such as energy bills.

All food assistance providers interviewed expressed concerns about an overreliance on donations and the viability of future supplies of food that could be distributed to people in food crisis via food banks. As a result of these concerns, the inquiry's report suggested that greater *'redistribution of usable surplus food from supermarkets and their supply chains'* in the UK would ensure both a more '*reliable and varied source of food for individuals who are hungry'* and would reduce demand for their food assistance services. The inquiry believed that *'harvesting'* food from this source is essential to eliminate hunger in the UK and recommended that it become the first objective to be put into practice as a result of the enquiry. In doing so it recommended the creation of a national network of food banks and charitable organisations (to be called 'food banks plus') providing food assistance that would be linked with commercial organisations whose primary functions included gleaning and redistributing food that was not sold, or considered unsuitable for sale in supermarkets, i.e. having been withdrawn due to its sell by date. It was interesting to note that the terms of reference of the inquiry group changed during their evidence review from being concerned about food poverty and hunger to a narrower focus on hunger. This was explained by the authors of the report on the grounds that they found early in the inquiry that food poverty was a difficult, contested concept and concluded that it was not possible for the committee to address this during this review.

2.4 Discussion

Upon viewing the scope and conclusions of these two bodies of literature, some interesting patterns and issues emerged. The main lines of research enquiry reported in the primary, peer-reviewed research associated with HFI have largely focused on questions of geographic availability and affordability of what has been deemed to be healthy food offerings from retail outlets in deprived communities, or have explored questions of self-reported dietary intake amongst deprived populations through analysis of self-report questionnaire data. With the exception of the additional two qualitative studies ((23) (24)), at this time point, little attention seems to have been given to questions of the experience of HFI or (food security for that matter), in the context of available household income and other necessary household

expenditures, (e.g. fuel, housing, clothing, debt servicing payments) and the impact those costs make on food purchasing and consumption decisions - for deprived or affluent households. Other dimensions of HFI missing from this literature are questions or perceptions of the social acceptability of the means by which food has been acquired by households.

The concept of 'food deserts', which was central to (7) study, appears to have provided some direction regarding the focus on food availability, quality and to lesser extent, affordability. However, this body of research seems to have yielded a somewhat contradictory set of findings. Some studies concluded that the food desert model was not applicable to the areas studied (18), or that there was no clear pattern of deprivation and local retail food offerings (22, 7). These findings were arguably confirmed in (21) and (17) studies. Yet, while (21) study showed that, some of the most deprived neighbourhoods had the best access to grocery stores, (20) concluded that fruit and vegetables were less readily available and most expensive in the smallest shops in the most deprived areas. In addition, (17) study, in which the authors concluded that accessibility to a wide range of healthy food depends more on the availability and accessibility of medium and large stores than being resident in a deprived or affluent area. Indeed, (18) found that there was a high availability of fruit and vegetables available for the 91% of residents of Viewpark who shopped at a large supermarket just outside the community. These seemingly contradictory findings may be explained by the fact that studies employed different methods, and had variable sample sizes. However, overall this collective research evidence seems to suggest that the mere proximity of healthy food offerings in itself is not sufficient to ensure that those living deprived circumstances eat a healthy diet (defined by fruit and vegetable intake), and that other factors are playing a significant role particularly when considering the findings of (25) and (27), which highlight patterns in dietary intake for deprived individuals.

It is interesting to note that only three studies have qualitatively explored the lived experiences of three different groups of people (refugees, high and low-income resident families and pregnant women) in relation to the costs of living and food security, as mentioned above. The first two are small- scale studies, which the authors point out are limited in terms of their generalisability, but pointed to the challenges facing low- income families some six years ago. It is notable that both studies flag up concerns about food poverty and child hunger in low-income families in particular.

Furthermore, the third study on pregnant women flags up concerns about food poverty among pregnant women, especially in low income households, and the associated increased risk of low birth weight. This risk is linked to diets low in protein, fibre, and lacking in many essential vitamins and minerals.

When considering the very limited amount of grey literature identified for this review, it is notable that questions of food and other necessary costs of living are considered more obviously here compared to the academic literature. All three included reports concluded that it is that amount of available household income that ultimately determines what food people are able to acquire, and that those on very low income are the most constrained (of all groups) in what they are able to buy. However, it is only the APPI Food Poverty and Hunger (Feeding Britain) (2014) and the Poverty Premium reports that offer suggestions and ideas about what should be done to address this issue. The Feeding Britain report, while presenting 77 recommendations, including policies that might help poor families maximise their incomes, strongly favours an immediate strengthening of the role charitable organisations play in addressing the issue throughout the UK, by seeking to increase the supply of unsold supermarket food to emergency food aid giving charities via a 'food bank plus' network. This was suggested on the basis that submissions and testimony from all emergency food aid providers' interviewed during the inquiry described finding it difficult to meet current public demand for free food. It is interesting to note that the inquiry claimed that this 'food bank plus model' would help to ensure that supply of food available to charitable organisations providing emergency food aid, and therefore believed it would be an effective way of feeding hungry people, and dealing with food poverty. Yet it has recently been established in Canada (by no less than the

national food bank network, Foodbanks Canada) that after 20 years' experience operating a routinised food bank network in that country, based very much on the same the food banks plus model being recommended for the UK, including Scotland, has not managed to achieve this goal (30, 31). Indeed, US research suggests that this model is unlikely to deliver a predictable supply, in sufficient quantities, of safe, nutritious food to a system that is feeding an already highly vulnerable population group (32).

A different approach was set out in the Oxfam /Church Action on Child Poverty report, which recommended that the Scottish Government set up community hubs to help low-income families and households maximise their incomes, and enable them to get better access to goods and services (i.e. food, fuel and other necessary household utilities) and would make those more affordable, relative to their available incomes, including increasing access to good quality food they can afford to buy.

2.5 Review strengths and limitations

Due to the limited time available, the review was necessarily limited in its scope. Relevant material, particularly from the unpublished or non-peer reviewed literature, may well have been missed. Further useful insights are likely to be available in the general Scottish poverty literature, which was not directly explored in this review. Another useful line of enquiry in advancing understanding of food poverty in Scotland might be gained from research that has compared the food purchasing and consumption patterns and behaviours between more and less affluent groups, and it is possible that there may be some useful insights in that regard, from within the general food consumption literature. In addition, it was not possible to conduct a quality assessment of the included studies in the time available for the study, and all these things must be borne in mind when considering the results of the review. There may be value and learning to be gained from devoting more resources and time to a wider, more robust review of the literature.

The next section of the report presents the findings that emerged from an investigation that looked at existing expenditure and consumption data sources to determine what could be gleaned from these data about HFI trends and patterns over the recent recession, and specifically between 2007 and 2012, in the absence of a well-defined measure and appropriate dataset.

3. Exploratory quantitative analysis of food/insecurity poverty in Scotland

3.1 Overview

The quantitative analysis aimed to determine the extent to which existing data could be exploited to investigate three key research questions related to the current prevalence, trends, and nature of food

poverty in Scotland. Scotland, like the rest of the United Kingdom, and unlike countries such as Canada and the US, does not routinely collect data about food poverty/household food insecurity. This report looked at existing expenditure and consumption data sources to determine what could be gleaned from these data about HFI trends and patterns over the recent recession, and specifically between 2007 and 2012, in the absence of a well-defined measure and appropriate dataset.

Whilst there is no accepted definition of food poverty, the research used as an 'at risk' measure the widely accepted definition of UK poverty; household income below 60% of median equivalised household income referred to as HBAI. Additionally, the analysis explored the extent of food poverty among vulnerable groups, such as the elderly and those living in rural or most deprived areas (1st Scottish Multiple Index of Deprivation (SIMD)). Five potential datasets were identified, of which three appeared suitable for addressing one or more parts of the research question, and were readily available. Living Costs and Food Survey (LCFS), Scottish Health Survey (SHeS) and Kantar Worldpanel (KWP) were selected for the purpose of this study because they provide both food and income related information at the individual and/or household level. Appendix 4 gives the list of excluded datasets with rationales for their exclusion. No one dataset alone was able to fully address the research questions. The analysis was able to carry out its aim, although methodological issues and limitations of the existing datasets (with regards to the research question of the nature and extent of food poverty in Scotland) suggest that interpretation and relevance to the whole Scottish population must be treated with caution.

The quantitative analysis was able to:

- Give estimates of the numbers of households at risk of being in food poverty and how the prevalence has changed over recent years.
- Describe food-to-income shares and food expenditure between poor and rich households. Fuel-to-income shares (%) were also generated for both groups.
- Assess differences in overall diet quality between those considered at risk, and those not at risk, of being in food poverty.
- Compare the effects of being at risk of being in food poverty across different population groups, including potentially vulnerable groups.
- Identify limitations in existing data and make suggestions as to how these could be addressed in future surveys to allow a more complete consideration of the nature of food poverty, at least as far as diet quality and adequacy.

Our findings showed that on average, HBAI had a lower absolute (£) expenditure on food and drink, and a lower absolute expenditure per person than did households with above average incomes (Non-HBAI). However, the proportion of equivalised household income (%) spent on food by HBAI is twice the proportion spent by Non-HBAIs overall. Fuel-to-income share was larger for HBAI as compared to their Non-HBAI's counterparts. Food and drink expenditure by HBAI accounted for a greater proportion (income share) of household income. Food expenditure by food groups did not reflect the Eatwell Plate, a population-based dietary guideline of nutritional adequacy, such that both HBAI and Non-HBAI spend a large proportion of their expenditure on food high in fat and/or sugar, and meat and protein, while starchy food and fruit and vegetables have a lower expenditure share. This trend was also observed among older people. Eating patterns (starchy food, meat and protein, food high in fat and sugar) were relatively similar between HBAI and Non-HBAI, with the exception of fruit and vegetable intakes. Similar results were found among vulnerable groups (older people, individuals living in rural or most deprived areas). Results indicate that a larger share of Non-HBAI achieve the 5-a-day target. There is also evidence of a higher number of rural households (HBAI and Non-HBAI alike) reaching the 5-a-day target than their urban counterparts. Overall, these trends appeared to be consistent across years (2007-2012).

The remainder of this section of the report presents the methods, findings, conclusions and limitations of the secondary analysis. The next two sub-sections give brief details of the criteria that were used to identify the databases and the methods that were used to analyse the data. A more detailed account of this process is reported in Appendix 4. Section 3.4 presents the results, with key figures and tables presented in the body of the narrative, and supplementary information presented in Appendix 5. The section finishes with a summary and conclusions arising from the quantitative analysis, alongside the caveats that the reader must be aware of when interpreting its conclusions, followed by a series of questions arising from this analysis.

3.2 Identification of suitable dataset and terms of reference for the quantitative analysis of food poverty

The first stage involved a scoping exercise to identify suitable databases for the analysis. As the aim of the study was to explore food poverty and diet quality among Scottish households, suitable datasets needed to contain sufficient relevant information in a Scotland-only database, or contain a sufficient number of Scottish households that could be extracted separately from a geographically wider dataset. Candidate databases were scrutinised for household income, food and other necessary household expenditure and food consumption data. They were also assessed to ensure they contained sufficient demographic information to identify households with incomes above and below the poverty threshold, and which might enable analysis of sub groups, such as older individuals and those living in rural areas.

It is important to stress that the time scale and resources allowed for an exploratory investigation only. More detailed analysis may be possible. An indication of what might be achieved beyond this study is presented towards the end of this section of the report.

3.2.1 Food poverty threshold

A household income measure was identified and agreed as the threshold marker for identifying those at risk of food poverty. The widely accepted definition of poverty in the UK is a household income below 60% of median equivalised household income (33). Such households are often referred to as “households below average income” or HBAI. Therefore, datasets suitable for this analysis needed to contain information that would enable the identification and extraction of equivalised household income data. Equivalised income adjusts household income for household size and composition.

3.2.2 Trends and current prevalence of food poverty

Where data were available for multiple years for the same survey, trends in the prevalence and nature of food poverty were explored. The most recently available year for each dataset (2012) was also used to estimate the ‘current prevalence’ of food poverty, defined as the proportion of households below the ‘at risk’ threshold. Current prevalence was estimated for all Scottish households and for sub groups including older people, those living in rural areas, and areas of multiple deprivation, according to the Scottish Index of Multiple Deprivation (SIMD). Definitions for these sub groups can be found in Appendix 4.

3.2.3 Nature of food poverty

The investigation of the nature of food poverty involved an assessment of the dietary quality among those considered to be at risk of food poverty, reflecting, among other things, Scottish Dietary Goals, Eatwell plate and the “5-a-day” intake of fruit and vegetables. In addition, food income share (i.e. the proportion (%) of income devoted to food expenditure) was also measured. This process was reiterated such that food expenditure share for different food groups (based on the Eatwell plate) were also calculated.

3.3 Datasets

Three individual secondary datasets were identified from a number of potentially suitable sources for the purpose of this study. These were the Living Costs and Food Survey (LCFS), the Scottish Health Survey (SHeS), and the Kantar Worldpanel (KWP). Other potential datasets were excluded either because Scottish households could not be separately identified, or because permission was needed to access relevant variables from datasets and this could not be secured during the time frame of this study. Appendix 4 contains a full explanation of the datasets, variables and methodology used in this report.

3.4 Results

3.4.1 Prevalence of households being at risk of food poverty

Table 1 summarises the main information relating to the three respective datasets. The numbers and proportions of HBAI identified in the three datasets are also given in Table 1 along with figures from the Family Resources Survey (FRS) produced by Scottish Government Communities Analytical Services (34). Values from the LCFS and SHeS, although different from the Family Resource Survey (FRS) figure (Scottish Government analysis), show a decrease in the prevalence of HBAI between 2008 and 2012. Values from the KWP dataset appear to show the opposite trend, although methodological issues suggest this trend should be treated with caution.

Table 1: Prevalence of poverty in LCFS, SHeS, KWP and FRS (Scottish Government Analysis)

	LCFS		SHeS		KWP		FRS (Scottish Government analysis)	
Year of survey	2007	2012	2008	2012	2008	2012	2007/2008	2012/13
Scottish observations	501	483	8215	6602	2124	3796	NA	NA
Monthly equivalised median income (£)	2040.02	2033.96	1832.11	2006.17	NA	NA	1698.67	1906.67
Poverty threshold (60% of monthly equivalised median income)	1224.01	1220.37	1099.26	1203.70	NA	NA	1019.2	1144
Percentage of HBAI	23.15%	18.84%	13.07%	12.27%	34%	41%	17%	16%
(Number of HBAI)	(116)	(91)	(938)	(696)	(713)	(1565)		
Percentage of Non-HBAI	76.85%	81.16%	86.93%	87.73%	66%	59%	NA	NA
(Number of Non-HBAI)	(385)	(392)	(6237)	(4977)	(1411)	(2231)		

The numbers and proportion of each household type with total household incomes below and above the Minimum Income Standard within the KWP dataset for 2008 and 2012 are given in Table 2.

Table 2: Numbers and percentage of HBAI and Non-HBAI in KWP below Minimum Income Standard for each year

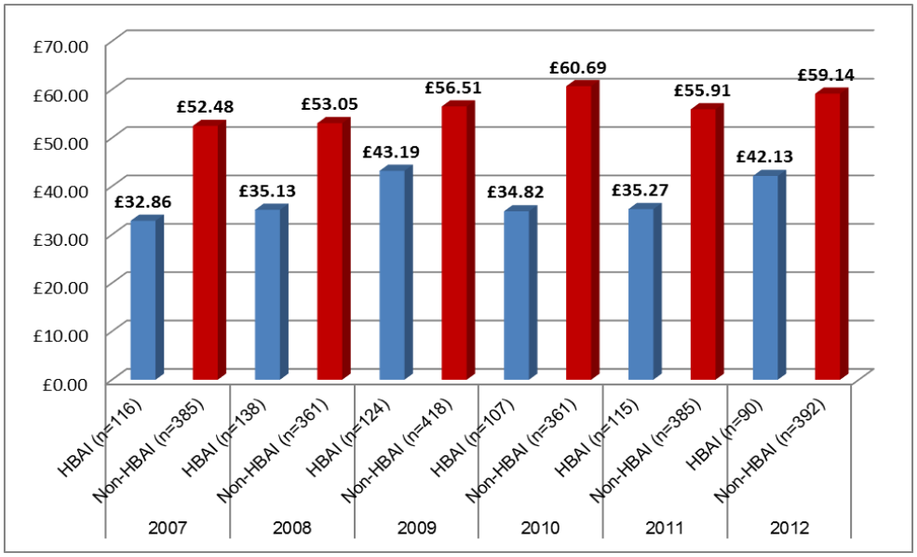
	Total household income					
	2008			2012		
	HBAI n (%)	Non-HBAI n (%)	MIS (£)	HBAI n (%)	Non-HBAI n (%)	MIS (£)
Single adult	63 (20%)	243 (79%)	13,434	131 (23%)	430 (77%)	16,383
Two adults with no children	161 (30%)	363 (69%)	21,048	269 (28%)	690 (72%)	25,668
Single adult + child(ren)	35 (31%)	75 (68%)	19,566	165 (75%)	55 (25%)	23,861
Adults + child(ren)	305 (45%)	362 (54%)	32,166	719 (56%)	562 (44%)	39,227
More than two adults with no children	52 (26%)	145 (73%)	24,601	175 (51%)	170 (49%)	30,001
One or more elderly people (>65 years)	97 (30%)	223 (69%)	13,708	106 (25%)	324 (75%)	16,716

There were slightly more HBAI in remote small town and remote rural areas than in urban areas (49% and 40% respectively, p = 0.003), although these values may not be representative because of the participant sampling methods of KWP. As expected, the prevalence of HBAI increased with increasing quintile of SIMD (23%, 33%, 42%, 49% and 52% from SIMD 5 (least deprived) to SIMD 1 (most deprived) respectively).

3.4.2 The nature of food poverty

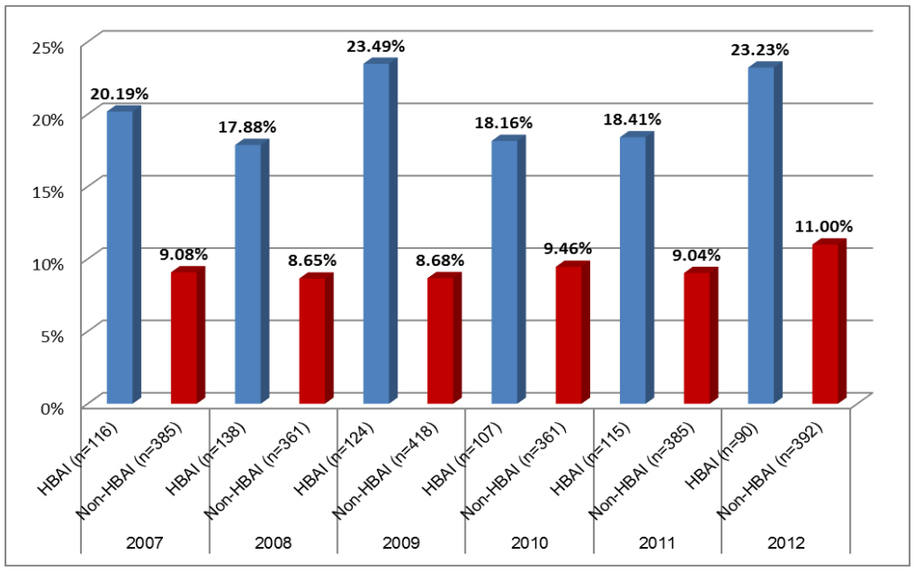
Weekly food expenditure (£) and food-to-income share (%) using LCFS
Weekly food expenditures for HBAI and Non-HBAI, for 2007 to 2012 inclusive, are shown below in Figure 1. The income share of food expenditure between HBAI and Non-HBAI is displayed in Figure 2.

Figure 1: Weekly food expenditure (absolute £) on food from the LCFS for HBAI and Non-HBAI



Results indicate that HBAI consistently spend less money per week on food (Figure 1), but that the proportion of equivalised household income spent on food by HBAI is twice the proportion spent by Non-HBAIs overall (Figure 2).

Figure 2: Proportion of equivalised income spend on food from the LCFS for HBAI and Non-HBAI



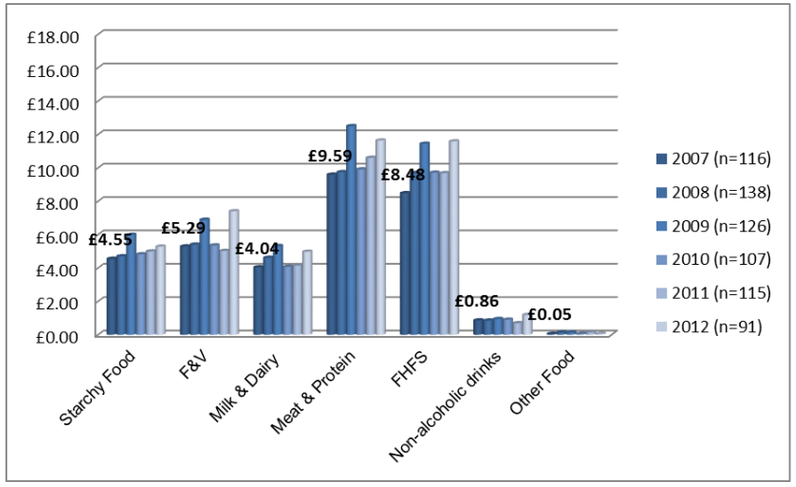
Weekly food expenditure (£) and food expenditure share (%) by food group using LCFS

Figure 3 shows the absolute (£) weekly expenditure of HBAI and Non-HBAI, by Eatwell Plate food group. As with the average weekly spending on food (as shown in Figure 1), Non-HBAI spent more money per week on all of the Eatwell Plate food groups than did HBAI.

The proportion (%) of income spent on foods of the five Eatwell Plate food groups is given in Figure 4. Meat and other sources of protein and foods high in fat and sugar (FHFS) represent the largest share of food expenditure in both HBAI (29% and 25% in 2008 respectively) and Non-HBAI alike (28% and 27% in 2008), followed by F&V. Non-HBAI appeared to spend a greater proportion of their income on fruit and vegetables (F&V) than did HBAI (18% vs 15% respectively in 2008).

Overall, results suggest that patterns of expenditure (£ per week) are similar to the trends in food to income ratios. Expenditure is greatest on the meat and protein and FHFS food groups, followed by F&V and starchy food. HBAI are generally spending less money in each of the five Eatwell food groups than Non-HBAI did. This expenditure constitutes a slightly greater proportion (%) of their income than it does for Non-HBAI. Noticeably, F&V expenditure share is much larger for Non-HBAI than it is for HBAI.

Figure 3: Weekly expenditure on food groups (£ per week) for HBAI and Non-HBAI using LCFS



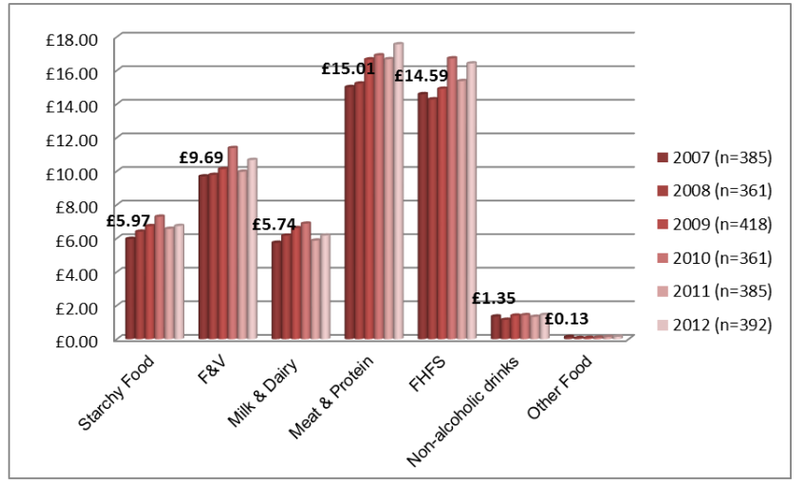
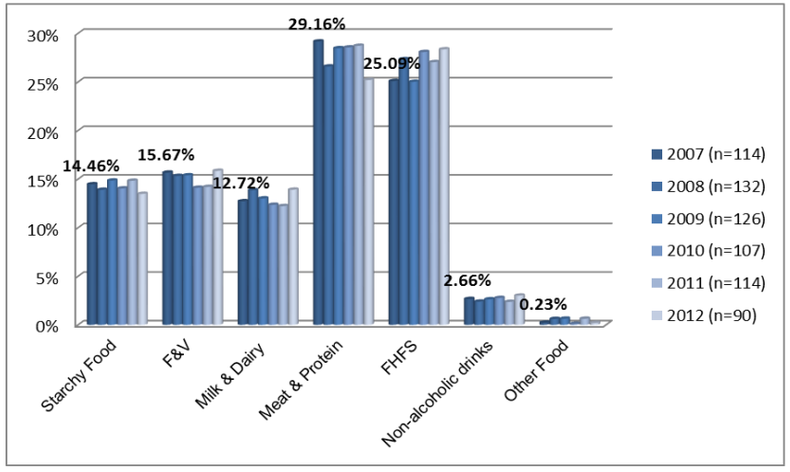
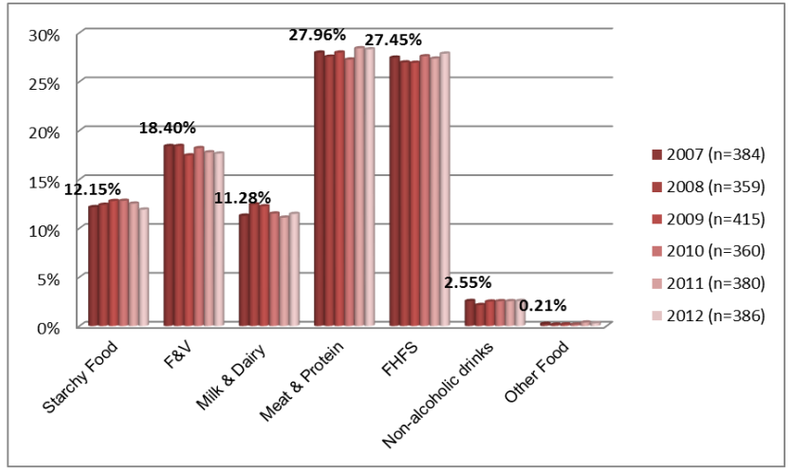


Figure 4: Expenditure on food groups as a percentage of equivalised household income (income share) for HBAI and Non-HBAI using LCFS





Weekly food expenditure (£) and food expenditure share (%) by food group of Older people using LCFS

Turning to the vulnerable sub groups, LCFS has only information for older individuals. When looking at older person households, the income share of food expenditure follows the same pattern as the overall LCFS sample (Figures 10 and 11 of Appendix 5).

Expenditure share on gas and electricity using LCFS

Expenditure share (%) on gas and electricity showed that HBAI spend proportionally more than Non-HBAI. The effects of rising fuel prices (and perhaps the severe winters of 2009 and 2010) can be seen in the general increases in the amount and proportion of fuel expenditure between 2007 and 2010 (Figures 7 and 8 of Appendix 5). Fuel income share (%) are also is larger for HBAI irrespective of the type of payment, as opposed to Non-HBAI (Figures 12-17 of Appendix 5).

Food income share and weekly expenditure using KWP

Weekly food and beverage expenditure, per household and per capita, for each household type and income group is given in Table 3. The values in Table 3 do not include expenditure on food or beverages consumed outside the home. As expected, households with higher incomes (Non-HBAI) spent more, and spent more per person, on food and beverages than did lower income households (HBAI). Overall, the HBAI group spend significantly less per person per week than did the Non-HBAI income group (£18.35 (10.30) and £24.92 (13.57) respectively, $p < 0.001$).

Table 3: Weekly food and beverage expenditure. Mean (SD)

Household	£/household/week Total household income		£/person/week Total household income	
	HBAI	Non- HBAI	HBAI	Non- HBAI
Single adult	28.05	33.92	28.05	33.92
	(15.87)	(18.11)	(15.87)	(18.11)
Two adults with no children	47.09	51.57	23.55	25.78
	(21.43)	(20.81)	(10.71)	(10.40)
Single adult + child(ren)	40.67	48.43	17.18	19.84
	(17.38)	(22.56)	(7.23)	(9.11)
Adults + child(ren)	56.76	60.17	13.81	15.98
	(24.66)	(24.81)	(5.83)	(6.25)
More than two adults with no children	56.21	62.44	17.31	18.67
	(26.40)	(28.39)	(8.60)	(8.45)
One or more elderly people (>65 years)	32.32	47.23	26.79	30.22
	(15.49)	(22.59)	(10.65)	(13.86)

3.4.3 Food consumption patterns using the SHeS

Analysis of SHeS food frequency data suggests few apparent differences in food consumption patterns between individuals in HBAI households compared to individuals in Non-HBAI households. These data were categorised and used as a proxy for healthy/less healthy diets. Secondly, the analysis focused on the food intake frequency responses in the dataset and assessed how they compared to the Scottish Dietary Goals (35). The food-related information covers the type of milk, bread and breakfast cereals purchased. There is also information on the consumption frequency of starchy food (number of slices of

bread/rolls eaten per day and potatoes), protein (poultry, meat and oily fish) and food high in fat and sugar (cakes, scones or pastries and biscuits).

Food consumption pattern: HBAI and Non-HBAI

Overall, results from the SHeS revealed fairly similar patterns of food consumption reported for HBAI and non HBAI. This trend appeared to be consistent across years (2008-2012). Results are displayed in Appendix 5. Similar to individuals in Non-HBAI, those living in HBAI households were more likely to:

- Report eating more frequently white bread than wholemeal or other (e.g. speciality) bread (Figure 18);
- Report eating bread and rolls more frequently than once a day (Figure 19);
- Consume more frequently whole milk than lower fat versions (Figure 20);
- Eat high fibre (with low or no sugar) breakfast cereals than other versions (Figure 21);
- Consume potatoes at least once a week (Figure 22);
- Report consuming poultry (Figure 23) and meat at least once a week (Figure 24);
- Report eating oily fish less frequently than the Scottish Dietary Goal of one portion of oily fish per week (Figure 25);
- Eat biscuits more frequently (3 times a day) than cakes, scones and pastries (Figure 26) (at least once a week or more frequently) (Figure 27).

Overall the limited information in the SHeS is consistent with what would generally be considered as less-healthy food choices being made by individuals in HBAI households.

Food consumption pattern: Scottish Index of Multiple Deprivation (SIMD) analysis

For the purpose of this study, the SIMD analysis includes the respondents living in the most deprived areas only (1st SIMD). It is important to capture the food frequency intake of those whose vulnerability is geographic as well as income-related. The results suggest little additional effect of area deprivation status over income on the types and frequencies of foods consumed by individuals in HBAI compared to individuals in Non-HBAI (Figures 28 to 37 inclusive of Appendix 5); differences for individuals in SIMD1 were broadly similar to those seen for the whole SHeS sample.

Food consumption pattern: Rural and urban analysis

Frequency of consumption, and types of foods reported, for individuals living in HBAI and Non-HBAI households, are presented for urban and rural locations separately in Figures 38 to 57 (Appendix 5).There were no immediately apparent differences in the frequency of consumption, or types of foods reported between HBAI living in urban or rural locations, or between Non-HBAI living in urban or rural locations. Differences between HBAI and Non-HBAI living in similar locations appeared to be consistent with differences seen for the whole SHeS sample. There were, however, relatively few participants from rural areas.

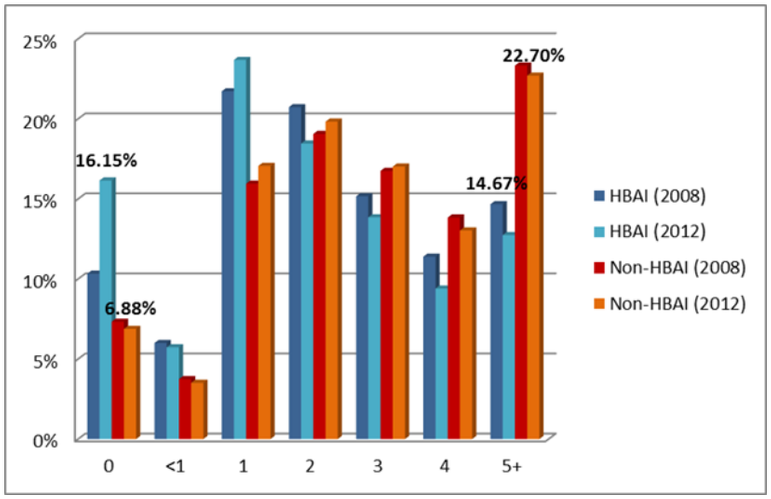
Food consumption pattern: Older people

Only data from 2008, 2010 and 2012 were available for comparing frequency of consumption and types of foods reported between older individuals living in HBAI households and individuals living in Non-HBAI households. When HBAI and Non-HBAI were compared, there were no immediately apparent differences in the frequency of consumption, or types of foods reported between older individuals from HBAI households and older individuals from Non-HBAI households (Figures 58 to 67 inclusive of Appendix 5).

Fruit and vegetables consumption: HBAI and Non-HBAI

Figure 5 shows the percentage of HBAI and Non-HBAI individuals according to the portions of fruit and vegetable (F&V) eaten the day prior the interview. For the purpose of this study, comparisons involve only two years of the SHeS (2008 and 2012). There is a noticeable difference in the consumption of F&V between HBAI and Non-HBAI groups, with HBAI reporting that they consumed fewer portions of F&V than did Non-HBAI. The gap appears to have widened between 2008 and 2012, such that in 2008, fewer HBAI individuals (10%) reported that had eaten no F&V the day prior the interview, compared to 2012 (16%). The percentage of Non-HBAI individuals eating 5+ portions of F&V remains fairly constant in both years (23% and 22% respectively). Only 14% of HBAI reported they had eaten 5+ portions of F&V in 2008, reducing to 12% in 2012.

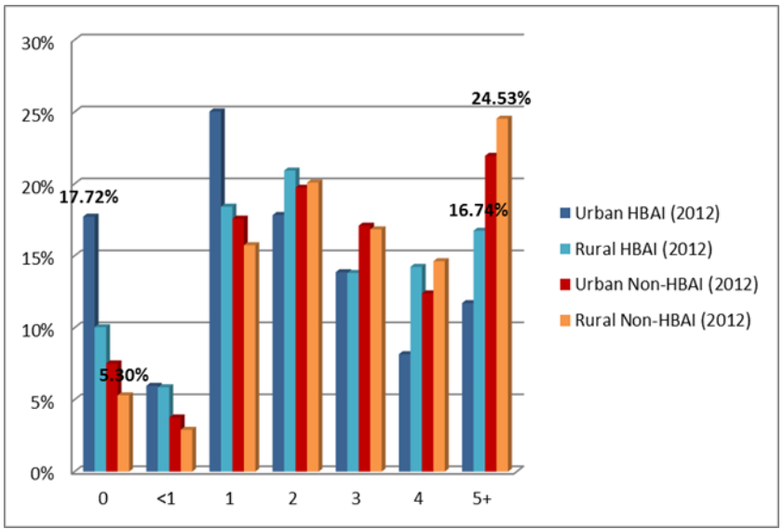
Figure 5: Percentage of HBAI and Non-HBAI by daily (i.e. day prior the interview) F&V consumption using SHeS (2008 and 2012



Fruit and vegetable consumption: rural and urban analysis

Figure 68 (Appendix 5) displays the results of F&V consumption between HBAI and Non-HBAI, according to their geographic location (i.e. rural or urban). There are no clear differences in reported F&V consumption between urban HBAI and rural HBAI in 2008 (Figure 68 of Appendix 5). There does appear to be a difference in the 2012 survey, however (Figure 6). For both HBAI and Non-HBAI groups, those living in urban locations reported lower F&V intakes than did those living in rural locations.

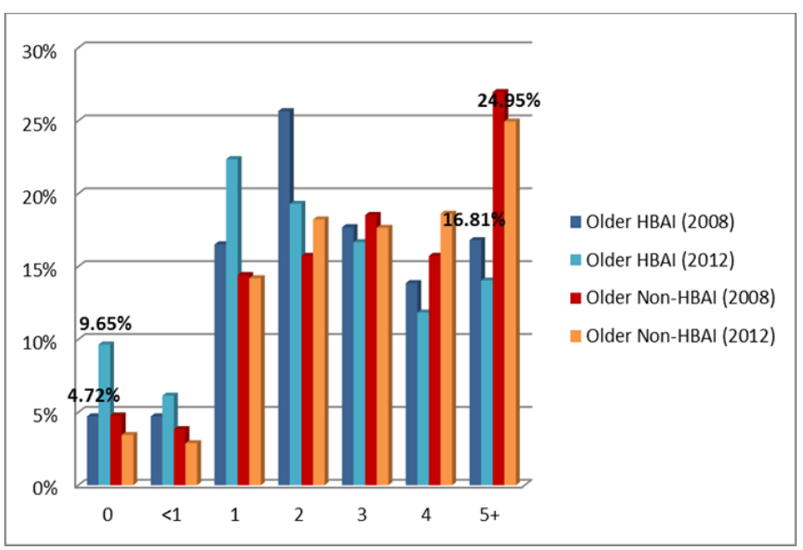
Figure 6: Percentage of Urban/Rural HBAI and Urban/Rural Non-HBAI by daily (i.e. day prior the interview) consumption of fruit and vegetables using SHeS (2012)



Fruit and vegetables consumption: Older and Non-Older people

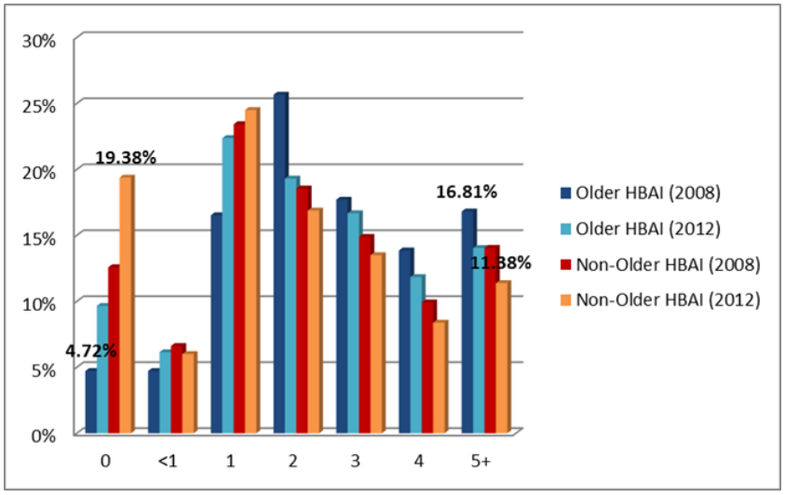
Figure 7 shows there is a substantial gap between Older HBAI (16% and 14% in 2008 and 2012 respectively) and Older Non-HBAI (27% and 25% in 2008 and 2012 respectively) reporting they had eaten 5+ portions of F&V. Among those who reported they had eaten no fruit or veg, the share of Older HBAI reaches 9% in 2012 (as compared to 5% in 2008).

Figure 7: Percentage of Older HBAI and Older Non-HBAI by daily F&V consumption using SHeS (2008 and 2012)



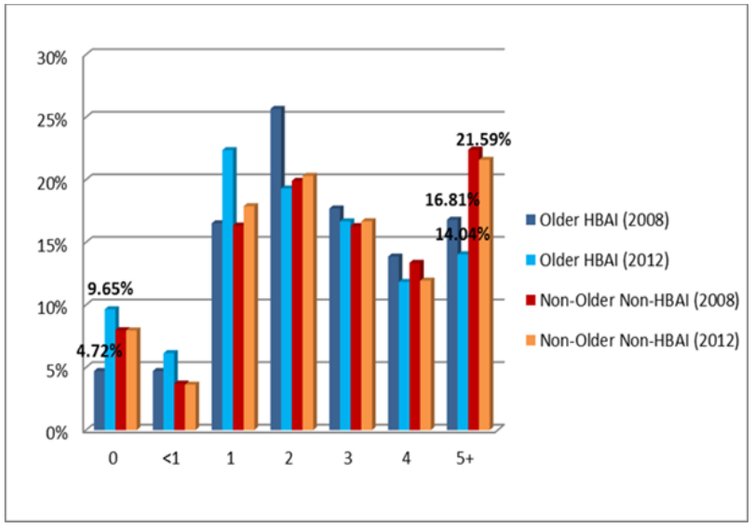
Turning to the Older HBAI and Non-Older HBAI analysis (Figure 8), there are some noticeable differences; 11% of Non-Older HBAI reported they had eaten 5+ portions of F&V in 2008 compared with 17% of Older HBAI. Nineteen percent of Non-Older HBAI consumed no F&V the previous day in 2012 (rising from 12% in 2008), while 9% of Older HBAI were identified in this group in 2012 (rising from 4% in 2008).

Figure 8: Percentage of Older HBAI and Non-Older HBAI by daily F&V consumption using SHeS (2008 and 2012)



Looking at Older HBAI and Non-Older Non-HBAI (Figure 9), the largest difference occurs in the 5+ portions of F&V group; 21% of Non-Older Non-HBAI were in this category in 2012 as opposed to only 14% of Older HBAI in that same year. The trend is relatively similar in 2008. There is also a larger percentage of Older HBAI (10%) who reported they had eaten no F&V the previous day in 2012 (rising from 4% in 2008) as opposed to Non-Older Non-HBAI (7% in both years).

Figure 9: Percentage of Older HBAI and Non-Older Non-HBAI by daily F&V consumption using SHeS (2008 and 2012)



3.4.4 Diet quality using the KWP

Mean daily amounts of the food groups that contribute to the Scottish Dietary Goals, and nutrient intakes, are given in Table 4. The proportions of each household type achieving each of the Scottish Dietary Goals are shown in Table 5. Overall, HBAI bought less oily fish, fruit and vegetables, and red and processed meat. These differences in foods and beverages purchased were reflected in the energy density of the overall diet, which was slightly, but statistically significantly, more energy dense in HBAI than the Non-HBAI. Very few households met the Scottish Dietary Goals for oily fish consumption or dietary energy density. Non-HBAI appeared to be more likely to meet the individual Scottish Dietary Goals than did the HBAI, although the differences were not great.

When differences in food groups were compared for HBAI and Non-HBAI and for each household type separately, some statistically significant differences were seen and are identified in bold in Table 6. These were all within the single and two adult households, and households of two or more adults with children.

Table 4: Dietary intakes per standardised person per day, except oily fish which is per week, for different household types and total household income band.

		Red & Proc. meat (g/d)	Oily fish (g/week)	F&V (g/d)	Food salt (g/d)	Total fat (g/d)	SFA (g/d)	Fibre (g/d)	% energy NMES	% energy total fat	% energy SFA	ED (kJ/g)
Total	HBAI	63.6* (48.0)	20.6* (32.0)	254* (171)	7.4 (5.8)	89.5* (49.8)	34.3* (20.1)	16.8* (9.2)	12.1* (5.5)	35.6* (5.3)	13.6 (2.4)	7.8* (1.3)
	Non-HBAI	68.9* (48.8)	33.8* (50.0)	332* (196)	7.7 (4.6)	94.1* (46.8)	36.4* (18.9)	19.2* (8.9)	11.1* (5.6)	35.0* (5.4)	13.5 (2.6)	7.5* (1.2)
	P	0.007	<0.001	<0.001	0.158	0.017	0.007	<0.001	<0.001	0.010	0.373	<0.001
LCFS 2012		61.5[A]	27.5[A]	269				11.8[A]	14.4	39.4	15.5	7.1
Single adult	HBAI	85.3 (69.9)	41.4 (48.5)	379 (243)	**12.4* (12.7)**	**131.7* (81.1)**	**51.7* (34.1)**	26.1 (14.5)	12.1 (5.4)	35.4 (6.2)	13.8 (3.3)	**7.8* (1.5)**
	Non-HBAI	80.8 (66.9)	42.2 (64.8)	406 (251)	**9.2* (6.4)**	**114.0* (60.7)**	**44.3* (24.4)**	24.1 (11.4)	11.4 (6.3)	34.3 (6.4)	13.3 (3.2)	**7.4* (1.4)**
Two adults with no children	HBAI	75.4 (47.9)	**22.1* (28.0)**	**283* (152)**	8.4 (4.0)	**102.8 (43.1)**	39.4 (16.1)	19.1 (7.3)	**12.0 (5.5)**	35.9 (5.1)	13.8 (2.2)	7.6 (1.2)
	Non-HBAI	69.5 (42.8)	**32.4* (40.1)**	**327* (164)**	7.8 (4.3)	**93.8 (40.9)**	36.0 (16.4)	18.9 (7.4)	**10.5 (5.5)**	35.5 (5.3)	13.5 (2.6)	7.5 (1.2)
Single adult + child(ren)	HBAI	57.2 (34.3)	13.1 (25.0)	259 (150)	7.3 (3.9)	89.6 (43.2)	34.8 (16.5)	16.5 (7.6)	12.0 (6.5)	34.7 (5.0)	13.6 (2.4)	7.9 (1.3)
	Non-HBAI	54.4 (24.6)	21.0 (34.5)	313 (162)	7.2 (4.6)	87.0 (39.2)	33.9 (14.7)	17.0 (6.8)	13.2 (4.8)	34.8 (4.3)	13.6 (1.8)	7.7 (1.2)
Adults + child(ren)	HBAI	53.1 (33.6)	**13.0* (16.8)**	**206* (117)**	6.1 (4.1)	74.2 (32.9)	27.9 (12.8)	**13.9* (6.5)**	**12.0* (5.5)**	**35.6* (4.9)**	13.3 (2.1)	**8.0* (1.2)**
	Non-HBAI	53.0 (29.1)	**19.6* (24.4)**	**255* (131)**	5.8 (2.6)	71.2 (27.8)	27.6 (11.4)	**14.8* (5.9)**	**11.1* (5.2)**	**34.1* (4.6)**	13.2 (2.0)	**7.6* (1.0)**
More than two adults with no children	HBAI	55.0 (31.6)	24.8 (41.6)	212 (153)	6.1 (2.9)	74.0 (34.6)	28.3 (13.0)	13.7 (6.1)	12.2 (5.4)	35.8 (5.7)	13.8 (2.3)	7.6 (1.0)
	Non-HBAI	53.9 (32.2)	20.3 (28.8)	219 (122)	5.8 (3.1)	72.0 (34.7)	27.7 (14.0)	13.7 (6.1)	10.9 (5.3)	35.8 (4.7)	13.8 (2.3)	7.6 (1.2)
One or more elderly people (>65 years)	HBAI	106.3 (92.9)	47.7 (53.4)	432 (271)	9.7 (6.1)	135.6 (73.2)	54.1 (32.1)	25.7 (13.0)	12.6 (5.3)	36.1 (6.2)	14.4 (3.5)	7.4 (1.4)
	Non-HBAI	89.2 (57.7)	59.3 (74.0)	434 (221)	9.5 (4.3)	119.8 (46.2)	46.9 (19.3)	24.0 (8.2)	12.1 (5.2)	36.1 (5.7)	14.2 (3.0)	7.3 (1.3)

* HBAI significantly different from Non-HBAI ($P < 0.05$, Student's t-test). [A] LCFS not directly comparable to KWP because of differences in methodology.

Table 5: Proportion of households meeting individual Scottish Dietary Goals										
		Red & Processed meat	Oily fish	F&V	Food salt	Fibre	% energy NMES	% energy total fat	% energy SFA	Energy Density
Single adult	HBAI	53	3	36	27	74	46	38	20	3
	Non-HBAI	54	6	44	30	69	52	55	23	6
Two adults with no children	HBAI	49	1	23	30	51	40	46	9	1
	Non-HBAI	58	3	29	38	50	54	49	17	2
Single adult + child(ren)	HBAI	72	2	15	43	34	39	51	11	3
	Non-HBAI	68	3	24	49	35	32	43	8	3
Adults + child(ren)	HBAI	77	0	7	58	21	38	46	11	1
	Non-HBAI	75	1	14	58	29	48	62	14	1
More than two adults with no children	HBAI	73	2	9	59	26	39	44	11	2
	Non-HBAI	72	1	7	60	22	48	43	10	1
One or more elderly people (>65 years)	HBAI	42	7	47	20	78	38	40	15	7
	Non-HBAI	41	9	46	20	76	43	37	11	5

3.5 Discussion

3.5.1 Prevalence

Prevalence of being at risk of food poverty varied greatly across the three datasets and from the figures derived from the Family Resources Survey (FRS) (Scottish Government analysis).These differences are probably an effect of different methodologies and participant sampling. The HBAI threshold was measured separately within each dataset, rather than using a single HBAI income marker. One reason for this approach was that each survey collects household income in a different way. The LCFS estimate household income using a very detailed set of interview questions asking about all sources of household income, whereas the SHeS and KWP income values are based on a single question asking respondents to identify their annual gross household income. While the prevalence of HBAI in the SHeS was similar (although lower) than the FRS (Scottish Government analysis), prevalence in both the LCFS and the KWP dataset were considerably higher.

Existing datasets that were considered in these analyses only provide a partial picture of the prevalence of being at risk of being in food poverty in Scotland, for a number of reasons:

- The poverty threshold used in this study (<60% of the UK median equivalised income) may be too insensitive in that households either well below that figure (i.e. with considerably lower incomes) may be underrepresented; and those just above or below this threshold may be quite similar. This suggests the need to use additional parameters to identify poor households; for example the recent definition of severe and extreme poverty thresholds from the Scottish Government (36), where individuals whose household income below 50% or 40% of the UK median income are considered as living in severe or extreme poverty respectively.
- Household income values were particularly crude in the KWP data, and only recorded in broad bands of £10,000 p.a. making an estimate of the equivalised household income impossible. The Minimum Income Standard used to identify households with lower incomes in the KWP tends to be higher than 60% of the median income used in the LCFS and SHeS analysis. It tends to be around 77% of median income (37). This, and other limitations given below, would appear to explain the higher apparent prevalence of HBAI in the KWP dataset than in the other datasets or Scottish Government figures.
- KWP are a commercial organisation, and the characteristics of their panel are not representative of the Scottish population. In particular, multi-person households are over represented, while there are fewer very young or very old households than would be expected (38). Household incomes appear to be lower in KWP than LCFS, and this is because households with higher incomes are under sampled rather than households with lower incomes being over sampled (38). However, it is also likely that very few households with very low incomes are included in the KWP sample, and the KWP samples are more likely to report average income levels. Broadening the coverage of KWP participants to include a greater number of low and very low-income households would appear to be difficult to achieve as this would be outside the commercial interests of KWP. Increasing the coverage of the SHeS and

LCFS may be possible to circumvent the problem of low-income under sampling in Scotland.

- Households living on remote Scottish islands are not included in the LCFS. Those living in more rural areas need to spend “10-20% more on everyday requirements than those in urban areas” (39). In addition, incomes are lower in rural areas. Thus, it is likely that HBAI are under-represented in the LCFS also. It has not been possible in the current analysis to examine the combined impact of location and food poverty on diet.
- The sample survey of LCFS, SHeS and KWP had insufficient observations on minority individuals and households facing destitution, preventing their inclusion in our analysis. Although there is no agreed definition for the latter, our report would have identified them as (i) household whose head income earner is unemployed, (ii) household whose head income earner is paying off loan to repay debt, (iii) both of these situations. Such individuals are less likely to be included in surveys and yet may still be facing food insecurity. This highlights the need for census and/or surveys that would gather enough information on this population.

The secondary analysis of existing datasets has given some information on the prevalence of food poverty in Scotland. The aims of the original surveys mean that few of the households of interest stipulated for this research were represented. Existing Scottish Government surveys and reports provide a more thorough and complete view of the prevalence of poverty *per se* (40, 36).

3.5.2 Nature of food poverty

Analysis of LCFS and KWP, which contained information on food and drink expenditure, indicated that lower income households in Scotland spend less per household, and spend less per person than higher income households, but that this represents a greater proportion of their household income, which is consistent with the Family Food 2012 survey for the whole of the UK (9). The analysis also indicates that the proportion of income devoted to fuel (gas and electricity) is larger for HBAI than Non-HBAI. Expenditure on food and drink per person was around 12% less for HBAI in the KWP data. These findings support the evidence that food and drink (and fuel) are less affordable for HBAI compared to their Non-HBAI counterparts (9).

These findings partially align with the food poverty definition used in this report (1). That is, poor households cannot consume a ‘sufficient quantity of food in socially acceptable ways’ (1) simply because they have less disposable income to spend. However, the LCFS data refers to expenditure only and therefore the quantities of foods purchased cannot be identified. People with low incomes need enough money to buy appropriate and sufficient food for healthy living. These data indicate that poorer households are spending less (in absolute £) of their limited financial resources on food purchased for home consumption, compared to their wealthier counterparts, and but spending proportionately (%) more of their overall income on food. In addition, when we consider that this analysis found that lower income households are also spending a larger income share on fuel, and that we were not able to consider housing and other costs in this analysis, it seems more likely that people on low-incomes would be financially stretched to purchase healthy food items, in sufficient quantity, to achieve that goal.

The extent of poverty is also aggravated once housing costs are taken into consideration, as found in the Department for Work and Pension DWP report (33). The analysis reported in this study is based on household income values before housing costs. In Scotland, it was estimated that approximately 15% of the population was below the poverty threshold, rising to 18% once housing costs are accounted for (33). The risk of food poverty is exacerbated by other factors HBAI do not have control of, such as risk of unemployment and rising prices (food and fuel), and where there are few resources (savings) to buffer such events. Low-income households are also at risk since many rely on benefit income (or other form of social support) for their living expenditure (Tables 3 and 6 in Appendix 4). These same people have been facing increasing sanctions or delay in benefit payment in recent years (41), resulting in unpredictable and fluctuating incomes, making it more difficult to purchase healthy food in sufficient quantity on a regular basis.

3.5.3 Diet quality

There appeared to be very few differences in the diets of HBAI and non-HBAI when the frequencies of consumption of key food groups were compared in the SHeS data. The main exception to this was for fruit and vegetable consumption. The lack of divergence in eating pattern between HBAI and Non-HBAI may require further scrutiny since it gives only limited information on some aspects of diet quality. The geographic location (most deprived areas, rural and urban areas) or age (elderly) of the respondents did not seem to noticeably alter eating patterns between HBAI and Non-HBAI; suggesting that the extent to which such people are affected by food poverty is not obvious from the findings of this quantitative analysis. Further analysis would be required to fully understand the extent of food poverty in such groups. In contrast, the KWP analysis suggested differences in indicators of diet quality and in distances from the Scottish Dietary Goals between the two groups. The SHeS eating habits module was designed to estimate frequency of consumption and is unable to provide estimates of the amounts of foods consumed, whereas the Scottish Dietary Goals are based on amounts of food groups consumed. Some similarities across the two KWP and SHeS datasets were evident, however, and these suggest the effects that low income has on diet quality.

A commonly used proxy of healthy diet and therefore quality is that of fruit and vegetable consumption (42). Lower income households report consuming fruit and vegetables less often, purchase fewer fruit and vegetables (by weight) and spend less money doing so than do higher income households. Unlike the overall relationship between absolute and relative expenditure, lower income households appear to spend a lower proportion of their income on fruit and vegetables than do higher income households. Likewise, poorer elderly households are less likely to report achieving the 5-a-day target, as compared to the rest of the population. Similar findings were reported in the Older People's Health report (43). The fluctuations in percentage share between the survey years may also indicate that external events may have influenced the extent to which individuals reached this target. Results suggest that geographic location may be related to the intake of fruit and vegetables; such that there was no difference in the percentage of HBAI in rural or urban areas reaching the 5-a-day target. However, among those living in rural areas findings indicate that the percentage of both HBAI and Non-HBAI reaching the 5-a-day target is higher than their urban counterparts. This was observed in both years (2008 and 2012). These findings tally with (44), which found that the

consumption of vegetables was higher in remote rural areas as compared to urban areas, although the focus was the adolescent population. Underlying factors explaining F&V intake disparities between urban and rural settings are worth exploring further.

The grouping of foods into broad categories such as “fruit and vegetables” as used by the Scottish Dietary Goals (SHeS and KWP) or the Eatwell Plate proportions (LCFS analysis) are estimates for guidance at population level and lack important detail that may reflect differences in diet quality between HBAI and non-HBAI. “Fruit” can be fresh fruit or fruit juice, which although contributing equally to “5-a-day” recommendations (45) are not universally considered being equal (46). Similarly, the Eatwell Plate proportions “meat, fish, eggs, beans and other non-dairy sources of protein” and the Scottish Dietary Goals “red and processed meat” both include foods that would be considered as higher and lower quality (fresh meat and mass produced meat based products). Dietary variety, an important factor in diet quality (47), also becomes lost in the food groupings. This highlights the need to obtain information using other approaches, such as NDNS methodology (48).

Recent increases in food prices also suggest how food affordability influences diet quality. One response to rising food prices has been to “trade down” within product groups (49), i.e. changing from branded to own brand products, or more generally from higher priced to lower priced versions of the same product group. Similarly, it is likely that HBAI are choosing more “lower” priced products than are non-HBAI. This may have some effect on diet quality that has been hidden in the food groupings used in the current analysis, although trading down may not necessarily result in a lower quality diet. Apart from rising prices, the perishable factor of fruit and vegetables may make such food items relatively unattractive to purchase compared to other less perishable items for poorer households. Further research would be beneficial in understanding the underlying factors explaining the lower share of poor households reaching the 5-a-day target, and to understand why they are more likely to buy energy dense foods compared to their wealthier counterparts.

Frequency and estimated consumption of oily fish were both lower in HBAI than non-HBAI. Very few individuals reported eating oily fish as frequently as once a week, and very few households achieved the Scottish Dietary Goal for oily fish consumption. This is an ongoing public health challenge, i.e. to encourage more people from both more affluent and low income households to consume more oily fish.

Generally, the differences in the number of lower and higher income groups achieving each of the Scottish Dietary Goals are as might be expected (50). That so few households appeared to meet many of the Scottish Dietary Goals, that the intakes of foods and nutrients contributing to the Scottish Dietary Goals were similar (although statistically different) and that there were few differences in frequency of consumption between HBAI and non-HBAI, suggests that achieving a diet that meets dietary targets is not just about having sufficient money to spend on food. Clearly, other factors are important. Indeed, it might be argued that given that poorer households are spending twice as much of their income share on food, and are spending less on food overall compared to their more affluent counterparts, that both group's diets are so similar in composition, is an interesting observation in itself.

3.6 Limitations of the quantitative analysis

There are several limitations that need to be highlighted for further work on this topic:

- It is important to reiterate that the poverty threshold used in this study was based on the median income of each sample survey, and not the UK or Scottish median income; this partially explain disparities in the percentage of HBAI in the surveys from the figures provided by the Scottish Government (data based on the FRS). This means that caution should be exercised when interpreting the results in this study.
- The quantitative analysis did not account for the presence (or not) of cooking facilities and the cost of cooking. This parameter is important considering the need to have access to or possess the necessary furniture and equipment for food storage, meal preparation and consumption in the home.
- Meeting dietary recommendations is an essential physiological requirement, however the information available in the surveys used in this analysis provides little insight on how specific recommendations were met in this data set. In particular, relevant aspects of diet adequacy such as essential micronutrient supply, which are likely to suffer when dietary diversity is absent, remain completely out with our understanding. In addition, there are other aspects of the working definition of food poverty in this study that cannot be addressed here. Different diet quality measures were applied in different surveys owing to the types of food/dietary data available in each dataset.
- Different dietary assessment tools were used in different surveys which makes the comparison among data sets difficult.
- 2012 was the most recently available year due to the time lag between data collection and availability for access (by researchers); this was true for all three datasets at the time of this study.

3.7 Recommendation from the quantitative analysis

Secondary analysis of existing datasets has given some information on the nature of food poverty in Scotland and how it impacts diet quality. It has been shown that the noticeable gap in food income share (%) between poor and rich people has persisted for years and that fewer HBAI are reaching the 5-a-day target as compared to Non-HBAI.

Scottish households tend to represent small numbers in UK wide datasets and also tend to relate to Scotland as one region. More detailed data for local areas of Scotland would be useful to look at regional differences within the country. The main limitation of the quantitative part of this work was under-sampling of households at risk of being in food poverty, especially those at greatest risk, i.e. those who are living in extreme poverty, are homeless or living in temporary accommodation. Furthermore, existing studies linking data sets such as FRS to dietary data incorporating only those in low income groups are out of date. Therefore repeating surveys similar to the Food Standards Agency Low Income Diet and Nutrition Survey (2007) could potentially address some of the key questions.

There is great potential in using the available information on where people shop for their food, since this would describe the differences (if any) in prices paid between

rich and poor and give more insight on the type of food products both groups purchase.

This analysis and its findings suggest that in order for policy makers to understand better who is most at risk of extreme food poverty, and who would benefit from policy interventions designed to address HFI in Scotland, a specific measure of household experience of food poverty is required to map and monitor the problem more directly. For example, the Low Income Diet and Nutrition Survey (2007), the FAO Food Insecurity Experience Scale, and the US Household Food Security Survey Modules all contain questions that ask households about their experiences of food poverty in relation to the food quantity, quality, (un)certainty of access, social acceptability, safety and meal pattern frequency, that are available to them (51). Obviously, the challenges of capturing the HFI experiences of those aforementioned groups remain, but international experience suggests that means can be found to engage with these groups about these questions (51).

Section 4 of the report presents the findings that emerged from the qualitative investigation that was undertaken to explore the nature and extent of food poverty/ food insecurity in Scotland.

4. Qualitative interview study

4.1 Overview

This section of the report presents an account of the qualitative study that was undertaken for this research commission that took place between the end of December 2014 and end of March 2015. This consisted of 25 semi-structured telephone interviews with key informants drawn from across Scotland that represented organisations and services supporting various vulnerable groups throughout the country and with informants representing a wide range of community food initiatives. By definition, this qualitative component provides insights into the direct, day-to-day experiences of those who took part in this study based on their different spheres of work, but it also contained their perceptions and impressions of the wider issue for food poverty in Scotland.

4.1.1 Findings overview

The following key findings emerged from this study

- Informants believed that more people were struggling with food poverty in Scotland than food bank figures suggested and that in recent years more people from groups and sections of society that had never previously experienced severe food poverty were affected by it.
- Study informants reported noticing different behaviours amongst people they believed were dealing with HFI. These ranged from denial and actions intended to keep up appearances that they were managing to do so, and/or refusing referrals to food banks.
- Conversely, they also reported finding some people were more willing and able to ask for help, or were accepting referrals from agencies to food banks for help to acquire food when offered such a referral by a recognised referral agent (in this case social workers, welfare support officers, family support workers, nurses, homeless and housing services support staff).
- Families with young children and mothers emerged as being of particular concern in this study.
- Groups normally in contact with services dealing with homeless or destitute people were reported to have increased in size, and young people supported by such services were viewed to be particularly badly affected by HFI.
- Older people were perceived by some informants as less badly affected by HFI on the basis of their not using food banks in great numbers. From this perspective they were believed to be less vulnerable to fluctuations in their income, and better able to cope with HFI. However, those working directly with older people in their homes reported finding some older people had nothing to eat in the house, denied they had a problem, and were refusing food bank referrals. Older carers were also highlighted as a group of concern.
- This research also suggested that emergency food aid was being sought by more people, more frequently and for longer periods of time. Some people were being supported by referring agents and food banks for extended periods of time. This is arguably a particular concern for those suffering from an underlying health condition as neither those offering food parcels or those

referring to food banks were unable to confirm (or refute) that such food provisioning could meet any special dietary requirements arising from existing ill-health.

- Asylum seekers and refugees, from the little evidence it was possible to gather about this groups during this study, appeared to be at risk from extreme food poverty. The picture regarding ethnic minority groups and travelling people was not clear from this research.
- Signs of being in food poverty, from the informants' perspectives, included: noticing or being concerned about a client's appearance; noticing that some of their clients did not have food in the house; or that basic household furniture and fittings were also missing from some clients' houses.
- Trends in HFI were viewed as being caused by people having insufficient and/ or unpredictable levels of income arising from either being in poorly paid, unpredictable employment, or because of recent changes to the social security system, i.e. associated with the changes to eligibility, perceptions about the local application of the eligibility rules, and of the levels of benefit available to recipients. These structural factors was thought to be further exacerbated by higher costs of living; lack of family support nearby; and the underlying problem of a perceived general de-skilling of people in relation to food, due to social and cultural norms surrounding food and eating in Scotland, e.g. the perceived collective tendency to eat ready-made, convenience food on a regular basis in this country.
- Participants expressed pessimistic views that this picture and these trends in HFI were about to change any time soon. Most believed it was likely to become worse rather than better, and particularly when the so-called Universal Credit (being introduced 2015) started to operate. People with mental health issues, substance misuse issues and living so-called chaotic lifestyles were thought to be most vulnerable to this benefit change, and unlikely to manage the requirements of keeping their benefits, or to cope with a monthly rather than fortnightly income.
- Community food programmes, some of which had been operating in areas of multiple deprivation for over 19 years reported adding a food bank operation to their range of programmes or services in recent months due to requests from local health or social care professionals to support people who they knew to be in food crisis, or due to requests for help from members of the local community.
- Those programmes providing training and cooking skills development courses had noticed increased public uptake and interest in those in recent times. They also noticed increased interest in their low-cost food retailing services (fruit and vegetables) and in people growing their own food in community gardens and allotments.
- In terms of future plans, two themes were apparent,
    - Doubt that some would able to continue operating their food bank service, and predictions of having to close it due to being unable to meet public demand and public sector referrals with the supplies of food available to them, received from public and/or corporate donations.
    - Predictions about future expansion of the food bank service and thoughts about continuing to operate for some time in the future.
- There were also mixed views amongst community food programme informants about the role of and impact that food banks played in addressing

HFI in Scotland. Some expressed more doubt and skepticism than others who were more positive about their role.

- Overall, informants believed that actions to increase the levels and predictably of people's income would make the biggest impact on HFI in Scotland.
- Locally grown food was viewed as something that some informants wished could be part of the solution to HFI, but was considered to be out of reach (cost wise) for people they were working with.
- There were calls for more research and monitoring of the impact of HFI on the public's health; to monitor the numbers of people who were in food poverty in Scotland over time; and from one community gardening informant, research to see what impact community gardens actually had on HFI.
- The findings suggested that to be **food secure** in the Scottish context means that people have to have sufficient income to cover all necessary costs associated with: **a**. having some means of transport to get themselves and their food purchases to and from the shops; **b.** having the means to purchase the nutritious food items necessary to make into healthy meals and snacks; **c.** having the necessary facilities, (i.e. kitchen), equipment and cooking utensils needed to store, prepare and cook food; and **d.** having an energy supply available to run a fridge, cooker, and the means of heating the water.
- On the other hand, being **food insecure**, was synonymous with people being unable to behave like normal consumers, i.e. lacking choice and experiencing uncertainty about what to buy to eat, or when or where they were able to shop and eat, due to being on very low income or facing destitution.
- Most concerning, these findings revealed a prevalent view that HFI in Scotland was something that was also synonymous with people being compelled to seek out nutrient poor, very cheap food in order to balance the household budget and pay for other essential household costs, such as housing and energy/fuel.

In the remainder of this section of the report, readers will find a brief description of the specific aims of this research, the methods used to generate and analyse the data, followed by the main results. These results section presents the main characteristics of those who took part in the study first, followed by the themes and subthemes that emerged during the interviews. This findings section concludes with a reflection about what it means to be food secure in the Scottish context according to the HFI conceptual definition used in this research.

4.2 Qualitative study aims

The qualitative research was concerned with questions of:

- Informants' perceptions of the nature and prevalence of HFI, as it was being experienced by particular vulnerable groups – i.e. older people, those facing destitution, those living in rural and remote rural areas, asylum seekers and refugees.

- How community food initiatives had been adapting/were planning to adapt their practice to address the challenges created by this current context.

4.3 Methods

Semi-structured telephone interviews were conducted with 15 informants representing different organisations identified as being concerned with providing caring and other services for vulnerable groups, and 10 with key informants representing different community food programmes from across Scotland. Telephone interviews were selected for this purpose in line with the budget available for this commission. A combination of purposive and snowball sampling approaches were used to recruit participants to the study. The study was promoted at the 2014 Community Food and Health (Scotland) or CFHS Networking Conference, and subsequently promoted through CFHS networks. Those participants who came forward took part from this initial recruiting work, and agreed to promote the study through their own local and professional networks, and some participants were recruited this way. Main project workers or managers or managerial level representatives from relevant organisations were targeted as key informants, with participants identified and interviewed according to the target groups or area of the country they worked within, with care taken during the study to ensure a good geographic as well as target group representation.

Two topic guides were developed to help guide the interviews. The so-called Service Provider Informants (SPI) topic guide asked informants about:

- Their perceptions and views about food poverty as a general issue within Scotland.
- The extent which they believed food poverty was a problem for their target group (or otherwise).
- Their views about nature of that problem (if they believe there to be one) i.e. views about the underlying causes and its manifestations of the problem for their target group.
- What if anything their organisation was doing to mitigate the effects of the problem.

Community food initiative informants (CFI) were asked to consider roughly the same set of topics, i.e.:

- The extent to which they believed their organisation was dealing with food poverty amongst their client group at the present time.
- Their views about nature of that problem (if they believe there to be one), i.e. views about the underlying causes and its manifestations of the problem for their target group.
- Views about the role of their organisation in alleviating food poverty at the current time.
- The organisation's intentions regarding alleviating food poverty in the future.
- Ideas or views about alternative models or means required to address food poverty.

All participants were given the opportunity to find out about the study in more depth through discussion with the researcher before signing up to take part in the study. They were then provided with a study information sheet and signed a consent form

before taking part in the research. Some returned this form by post; others signed it with an electronic signature and emailed it to the researchers. All interviews were audio-recorded (with participant's permission) and lasted between 25 and 75 minutes. Two members of the research team conducted the interviews, and compared experiences and findings throughout the data generation process. The interview audio recordings were fully transcribed.

The interview transcripts was analysed using a Thematic Framework approach (52) using NVivo version 10 to support data management and retrieval. The transcripts were read and re-read several times to identify key concepts, categories of themes, and a draft framework and coding index drawn up. The researchers discussed their initial analysis, and areas of difference were identified and areas of disagreement resolved. All transcripts were indexed and charted using the agreed index. Annotated summaries were systematically generated according to their content, linked to the original section of interview narrative, and charted in the research Framework in the relevant theme and category cells. Constant comparison method and searching for disconfirming cases within the data set was used test the dependability and validity of the emergent themes (52). Anonymised, illustrative quotes are used below to illustrate dominant and exceptional themes found.

4.4 Research ethics

Ethics approval was granted by the Rowett Ethics Review Board. All study documentation, i.e. topic guides information sheets, consent forms and additional promotional material documentation can be found in Appendix 6

4.5 Results

4.5.1 Study informant characteristics

Ten informants representing community food initiatives and 15 informants from organisations concerned with the care and support of vulnerable groups were recruited to the study. The combined sample of informants was drawn from across Scotland, and represented organisations and services that were being delivered in diverse urban, rural and remote locations. (See Tables 1 and 2 in Appendix 7 for a detailed breakdown of the study participants' characteristics). The community food initiative informants (henceforth referred to as CFIs) were people who worked in programmes that were offering multiple services, including low-cost food retailing, and/or training and development programmes and/or community growing and gardening schemes. Six programmes had also begun offering a take-home free food parcel (i.e. similar to a food bank service). One informant representing a recently opened food bank only also took part. The reason why that was the case is explained below. This group also contained three NHS employed community food development staff.

Those we have called 'service provider informants' (henceforth referred to as SPIs), came from a range of voluntary organisations and statutory service providers such as health and social care organisations. Those recruited included professionals concerned with the needs of older people, homeless people, families with developmental or other needs, and asylum seekers and refugees.

Half of those who took part in the study (from both study groups) had worked in their respective organisations or in their chosen field of work for a least a decade. Many thus drew on considerable past experience in discussing current experiences and perspectives.

While the study was underway the research team were also approached by many people working in or managing food banks, who also wished to take part in the study. Mindful of the research brief, i.e. concerned to examine the nature and extent of HFI in Scotland as a broad issue, and in particular its impact on existing community food programmes, and keen not to replicate work already going on (4), the team purposively filled the CFI quota with organisations whose remit was broader than solely that of emergency food aid provision. The one 'food bank only' informant included in the sample was selected because it had proved difficult to engage with any informants in this particular geographic location. It is important to note that views and experiences in this case were not exceptionally different from other CFIs with a food bank component.

4.5.2 How HFI is understood to exist in the Scottish context

Overall, study informants collectively perceived HFI in the Scottish context as a multidimensional concept that meant something more than people being hungry or using food banks. Interestingly, hunger was not mentioned per se, although using food banks was mentioned by a few. Most commonly, respondents talked about HFI as something associated with a person (or a family) being in a position there they had little or no choice over what they could buy to eat, and/or when or where they were able to shop for food. People were regarded as having no choice but to buy cheap, processed food to feed themselves or their families, and the reported practice of parents (mainly women) skipping meals in order to feed their children was also consistently described as meaning someone was in HFI. Thus typical responses would be:

> 'I suppose the general idea is that you don't have enough food to eat but my thinking is, it's not the right food, not nutritious food that people can't afford. Or they're making choices out of necessity as to what's available rather than what they would probably like to eat. As you know, a lot of people -- you see it in the supermarkets when they're reducing the food there are people queuing up just waiting for the food to be reduced.' (Community Food Initiative informant)

And:

> '...think it means is that you actually don't have the financial means to be able to produce and, you know, to buy a diet for your child that's going to make them healthy. So you're going to end up with malnourished children, possibly eating the cheapest of food stuffs, which are full of sugar. I mean, I've got families that the parents do without, so that the child has got what they need to have, and it means that society is becoming even more uneven than it used to be before.' (Volunteer Pre School Educational Home Visitor)

HFI and poverty were also regarded as one and the same thing by many; with some rejecting the idea that it was possible to separate those issues from one another, highlighted here:

> ‘I think some of the client groups we’re working with are definitely dealing with poverty, as a whole, not just specifically food poverty, as such. Definitely, patients that I’ve spoken to, in particular those who are dealing with homelessness, those affected by substance misuse and those from an offending background, seem to be the ones who I’m finding are more dealing with poverty. I know people have been sanctioned, and also patients who have to put mobile phones into Cash Converters, to get money. It’s those client groups who seem to be, from my job’s point of view, dealing more with poverty.’ (Outreach community nurse)

Having to prioritise housing and other household costs such as energy for heating and cooking, and children’s school activities, and the constant need to choose between these things, and eating, was a common feature of the HFI definitions cited by our informants, illustrated thus:

> ‘You’ve got people making choices about the kids clothing and shoes or a meal, you’ve got adults, women in particular I suspect, not eating properly so the kids are fed. I mean, the bottom line is their income isn’t sufficient so, for me, HFI is about insufficient income, to be able to pay for all the, in this case, essentials in life.’ (Manager community food programme)

Having to rely on food banks to survive was mentioned as an indication that someone was in in HFI, but less commonly so compared to the issues highlighted above.

4.5.3 Perceptions about the extent of HFI in Scotland

A key finding was that almost all those interviewed said they either had to deal with hugely increased workloads because so many of their client groups were presenting with HFI, or that colleagues who provided support and services for other client groups were having to deal with many people and families *‘who had nothing to eat in the evening’*. A common theme to emerge here was a picture that, across Scotland many health, social care and third sector staff were dealing with a very obvious increase in the numbers of people struggling to feed themselves properly, which they would not normally expect to see doing so, as described here:

> ‘It’s such a widespread issue these days and, to me, it used to be more an issue with people who were on benefits and, you know, didn’t have any job prospects or any training, or a good job, but it’s not like that anymore.’ (Family worker supporting vulnerable families)

Some SFIs talked about a three or four fold increase in the numbers of people they are referring for help to pay bills or to food banks for help over the past few years compared to their past experiences of doing so, illustrated by this example from a development worker based in the North East of Scotland talking about seeing an increase in the numbers of people who had previously managed to stay out of food poverty, but were struggling to do so now:

> ‘Definitely an increase in people who are long-term sick who’d sort of settled down to a lifestyle where they understood their income so you may have had somebody who for 15 years had been in receipt of a benefit that was related to their ill-health who found themselves unchallenged around that, their rent

was being paid, their council tax was being paid and they understood how much they had to live on every week. That apple cart has been severely overturned and now a lot of these people are finding themselves having to comply with Jobcentre Plus regulations and not being able to, leaving it too late and finding themselves with what you'd call for them a significant benefit reduction and having to adjust so we have got a lot of people like that who are phoning us up and telling us, "My money's just been reduced to half of what it was last month" sort of thing and this has been because (again I'm back to this thing) a lot of these people had received, if you like, information about the action they should take and hadn't taken the action. … so you're getting people who are suddenly seeing a drop in benefits that they have just simply not had to deal with and very often it's because of their inability to understand letters, to understand importance of things and take self-action as required.' (Development officer supporting vulnerable adults)

One informant talked about finding that more and more of her clients were asking for or needing assistance to pay for their fuel bills, which was an indication to her that her clients were also in food poverty. She said the numbers of people she was helping to apply for grants or benefits to assist with this cost had increased markedly in very recent years, compared to her past experience. Her comments were typical of many SPIs who spoke of the co-existence of fuel poverty and HFI: if one existed, the other would most likely be there too.

CFI informants also spoke of experiencing significantly increased demand for food parcels from professional referrals, as well as from people who self-referred;

'We've delivered 2,532 packs and we had enough money to do 1,500, so what we've seen there isn't three times the number of packs, we're seeing a lot more individuals than we expected and less families, but we're getting about three times more than we expected, in terms of the number of referrals coming through. So the sort of three to four times the level of demand we've seen historically does feel about right to us. I just don't have any data, I'm afraid…' (Manager Community Food Programme)

Other things mentioned as signs of HFI in the community included informants noticing an increase in demand from people seeking and using the community classes on budgeting and low-budget cooking. There seems to a particular interest in so-called "one pot cooking", which was apparently seen as a means of reducing fuel costs necessary for cooking and for heating water necessary for washing up. CFI informants also noted an increased demand for cheap fruit and vegetables from their local communities, and that more and more people were growing their own food in allotments, swapping surpluses and/or low cost recipes, compared to previous years.

It was notable that respondents frequently talked about HFI as something that had affected people in Scotland in the past, but that this had tended to affect an unfortunate minority who had been affected by some life crisis, like divorce and redundancy or people affected by chronically affected substance and alcohol misuse and/or illicit substances; or had served time in prison, etc. However, some also reported dealing with an increased number of people and groups they would not normally expect to see struggling with HFI, and doing so for much longer periods

than the in past. Furthermore, some of those affected were reported as coming back for help, or needing to be referred for emergency food aid on a more frequent basis.

4.5.4 Groups believed to be affected by HFI

A key finding relation to questions about who informants believed were most affected by HFI in Scotland, was that all believed that it was being experienced by a wide range of people throughout the country, and not just those who might previously have been thought vulnerable as highlighted above. Among those commonly mentioned were working people, unemployed people and those unable to work because of illness and disability, and families with young children:

> 'There could be any, they're working age people, and I would say that it's more typical for the younger end of working age, but it could be older people, in the working age group, who've had some other life crisis, like their family has broken up. They've had to move away from their family and from the way that they used to do things, and they're not equipped to deal with it.' (District nurse working in remote location)

And:

> 'I've actually had people coming in with the best cars, the best fancy phones and whatever - not a lot, but I have had, coming in with all the flashiest of stuff saying that they've got a problem. The problem is they can't pay their bills. It doesn't matter that their bills are ten times higher than maybe somebody else's bills, they still come to the end of the month and they can't pay, you know? So it's maybe not just the poorest of people that have that problem, you know, because those people perhaps have lost their job and they've got a great big house and then they've got no money and people come in and they look really flashy with all their gadgets and everything and they're struggling as well… So it's kind of like hidden, I suppose. It's not what you expect.' (Support worker for charity working with vulnerable adults)

For some informants, women (particularly pregnant women) were of particular concern, as a consequence, they argued, of their tendency to feed their children before themselves. Fears about those women becoming malnourished over time, and the impact that it would have on future generations was expressed by a few too. Others talked about the increased numbers of men aged 30-50 years, the traditional group of users of soup kitchens, being noticeably more in need of help, and featuring heavily in stories of referrals to and users of food banks.

The picture of older people being affected by HFI was more nuanced. For example, some CFIs said they did not see older people using their food banks in great numbers, and found they were more likely to give to food banks than to take from them. Some CFIs and a few SPIs also believed that older people were not experiencing HFI in the same way as younger people, and informants regularly described young people's income levels and experiences when talking about older people's experiences. From this perspective, older people were viewed as having more stable incomes, even if low, which were not subject to big changes or weekly fluctuations in the way this was perceived to affect young people. Young people reliant on benefits were described as being vulnerable to sudden sanctions or, if in

paid employment, struggling to cope with highly variable low levels of income, emanating in turn from zero hours contracts, something older people, not in the workplace, had not experienced. Older people were also thought more likely to have established households with food and cooking resources available to them compared to younger people. They were also thought of as being more likely to have the planning, budgeting and cooking skills necessary to prevent them becoming food insecure, and more likely to be willing and able 'to do without' compared to young people, and this example was typical of this perspective:

> '...we very seldom have to help them [older people] out with money or with food. Younger people, who are of working age, have a much more variable source of income. If they're in employment that's fine; they might be in low employment and things are difficult. If they're moving in and out of employment, and in and out of the benefits system, it seems to me that it's very precarious. It can take a very long time to get your benefits sorted out, there appear to be more and more sanctions available that if you don't meet certain standards, you don't do things to the letter, you don't make enough job applications, then they're likely to have less money than you would expect.' (Community nurse working with older people)

On the other hand, a few CFIs described being surprised by the higher than expected numbers of older people that were using their food banks, albeit still in relatively small numbers compared to other groups. Some SPIs, talking from their direct experience and knowledge of older people in their homes, found that many older people they were dealing with were affected by HFI. They explained that some of their clients had very little or no food in their houses, yet were very resistant or unwilling to admit they were struggling to feed themselves, described here:

> 'I think for people that are too proud to come forward … you know, older people who worked all their lives, who don't expect to find themselves in the kind of poverty that they find themselves in.' (Manager Counselling Charity City)

And:

> 'There's not an awful lot of food in the houses sometimes that I go into, but yet, when you ask them about anything, "Oh, everything is fine," but you can kind of know that things maybe aren't just quite so fine, but the XXX people are very proud people. And I think, you know, not all of them would like to say anything about the fact that they were struggling.' (Worker for adult befriending service)

Surreptitious 'cupboard checking' was mentioned as the means by which a few informants from older peoples services kept tabs on clients the believed were unwilling to admit they had a problem. The team spoke to several health and social care workers in a remote island area who provided a picture of older, often widowed or single, people living in various sparsely populated islands, who were perceived to be food insecure to varying degrees. This was described in terms of their lacking access to affordable, nutritious food in the places where they lived, who had the added challenge of needing their food shopping to be transported by boat to their homes from the mainland or a neighbouring island.

The team spoke to a family support worker who worked with families with children with development needs, who drew our attention to the plight of older and (and not so old) parents or carers who she found were struggling with HFI. She described in detail the process by which parents of children with developmental problems, who needed round the clock care, gradually descended into poverty through the process of having one or both parents eventually having to give up paid employment in order to care for their child. She explained that many in this position struggled to juggle the numerous hospital and doctor appointments associated with their child's condition, the demands and time required to complete the many nursing and feeding tasks their child required 24 hours a day, alongside caring for their other dependent children, and meeting the requirements and appointments required to maintain their benefits in order to keep a roof over their heads. She said this was affecting more and more older people, (speaking from over 10 years of experience in this area) including the increasing numbers of older foster parents she was seeing due to their being unable to give up their caring responsibilities because of the dearth of foster carers in Scotland.

In respect of asylums seekers and refugees, the team spoke to one integration network development worker based in one of the large urban centre, which provided grants for projects aimed at supporting asylum seekers and refugees. She stressed that she did not work directly with asylum seekers herself, but throughout her interview she drew on detailed knowledge of their situation based upon what she had learnt from those workers that she interacted with, who did. She explained that she could not see how asylum seekers could not be in HFI due to the very low income they lived on which was provided by the Home Office. She believed that it was in the region of £55.00 per week. She asserted this sum was expected to cover all their daily living expenses, (including accommodation) and therefore had next to no choice about what they could buy to eat accordingly. She was also aware that some of that money was provided from the Home Office through a pre-loaded so-called Azura card. She explained that this card was not accepted in many stores, and certainly not in the ethnic foods stores that they would likely find the food stuffs which would be cheaper than their equivalents in the supermarkets where they could shop with these cards. She also highlighted the fact that the ethnic stores sold the range of foods that were staples of the culinary traditions of their birthplace, that they were used to cooking with, which supermarkets did not offer. Moreover, she believed many of the hostels where asylum seekers were accommodated did not have kitchens to store and cook food. She also explained that it was also not uncommon for asylum seekers to have to lodge many applications over many years (up to 15 years in once case she was aware of) before their case was assessed, and therefore many had been living in chronic poverty for a long time – during which they couldn't work. In addition, for those who are granted permission to stay, she reported that those individuals concerned would often find themselves becoming destitute (just at the point when they thought life would start to improve) as they had their previous asylum status benefit withdrawn by the Home Office in anticipation of their moving onto the new benefit accorded to their changed status – presumably administered by the Department of Work and Pensions - receiving no income in some cases for many weeks.

4.5.5 Perceived causes of HFI

All informants were asked what they believed were the factors that were causing HFI

in Scotland. Almost all talked about it being due to a complex range of factors, but two themes dominated their responses, i.e. insufficient income for those in work, and, recent changes to the terms and conditions of entitlement to welfare payments.

Precarious, low wage work

Zero hours contracts were regularly mentioned as the reason many people had unpredictable hours of employment, and very low income, which resulted in them not being able to afford to buy food to eat. The precarious and unpredictable nature of this work was highlighted by a few informants as a particular challenge, and one that made it difficult to plan, and easy to get into, or hard to get out of, debt. Here a welfare support officer talks about his/her observations of those she saw struggling with HFI and very low incomes, but working:

> 'For example, one of the bigger employers in this area is a market gardener, who employs people through agencies, very often on short-term contracts. They'll be zero hour contracts and certainly, because it's off season at the moment, a lot of people get signed off or maybe only get one shift a week, so they may be in employment, however, their income is so low that they actually can't pay their bills.' (Welfare support worker)

A few SPIs had observed from their experience of working with their clients that work didn't always pay, even when compared to the low levels of income that welfare benefits provided. People were regularly described as working very hard, and for very long hours, but yet still unable to afford to feed themselves and their families.

> 'We have families … I have a lot of experience with people who work very hard and work long hours, to support their families, and still at the end of the week don't have enough money, for basic food.' (District nurse working in rural area)

Another welfare support respondent talked about people being keen to work, but finding that they just couldn't survive on the hourly rates and hours on offer from local employers, once they emerged from their employability programme. A lot of paying work was considered insufficient to enable clients to live. Some clients were described as cycling back into debt and poverty as they have made themselves (or have deemed to have made themselves unemployed) because they decided to or had to give up the low paying work, in order to get enough money to live on from unemployment benefits (albeit these benefits were thought to be low). Another described the challenge faced by those forced to take jobs they were not qualified or suitable for as a condition of continuing to receive their benefits. She described how it was not uncommon to find that people affected would give up that unsuitable work a short time later, because they were unable to do the work, and would then become destitute for a time as they were deemed by the DWP, to have made themselves unemployed, and therefore failed to qualify for unemployment benefits for a period of time.

Some informants based in rural and remote localities talked about local people having to rely on seasonal, often low-paid work, and also being unwilling to move away from the area to possibly find more lucrative, permanent work elsewhere. As

highlighted above, one rurally based SPI described how they were supporting people in their food bank who were employed on zero hours contracts by one of the biggest local employers, which was cited to be a large market gardener. Poor public transport services options that were constraining employment 'choices', especially for parents with caring responsibilities (mothers), was also linked to be causing people to be in HFI.

Changes to benefits conditions and entitlements

The other issue that dominated here was the common observation amongst both sets of informants that there were increasing numbers of people, who were reliant on some form of income support or unemployment benefit, struggling to deal with wild fluctuations in their benefit levels week to week. Informants described this happening as a consequence of 'confusing', 'unjustified' and 'unfair' reductions or benefits sanctions, that they observed had been happening more frequently, and for longer periods of time compared to the past.

One CFI believe that their clients were not necessarily affected by a reduction in their total income overall, but it was the increased time between payments, due to sanctions, that was causing many people problems with HFI. The existence of chronic indebtedness was also commonly mentioned during the interviews at this point, and the impending introduction of the single Universal Credit was viewed by many with great concern, and thought likely to make a bad situation worse. People with mental health problems, substance misuse issues and those with chaotic living conditions and lifestyles were mentioned most often as those that would have the most difficulty meeting the DWP conditions required to keep or maintain their benefits, and were most obviously struggling with HFI as it was. The following quotes are typical of the sorts of examples we were given to illustrate this argument:

> 'He said that his benefits had changed, and he'd had to make a new claim or something, and there was a delay in getting his benefits. And this is often what we're told; that people have a delay, they've got to make a new claim, they get less money than they think they would get, they've got to wait an extra week or a fortnight to get the money. And in the meantime they often don't have anything, and they don't have any fall back. I think that the level of benefits are such, and people's expectations are such that they expect to have things that everybody else does, which is Sky or mobile phones or whatever, and they don't have a stock of food to fall back on, because they're paying for bills that I guess the benefits system was never meant to pay for.' (Social worker for vulnerable groups)

And:

> 'A number of the people that have been referred to myself are experiencing issue through the welfare reform. A number of people have been sanctioned and their benefits put on hold or they've lost their benefits altogether and because of that they can't afford to buy food.' (Community links practitioner)

Caring responsibilities were also highlighted as something that made it difficult for people to hold down paid employment or meet their benefit conditions. (See the narrative below for a detailed account of how this was experienced by families with

children with developmental needs as a good example of this issue).

Essential household costs and other factors

Other commonly mentioned factors causing HFI included the increased costs of housing, fuel and food.

> '... I think that a lot of our families just really, physically, aren't getting in enough money to cover just their basic living expenses. And for a lot of our families they're quite isolated; they don't have extended family support, and some of them that do have extended family they're in the same position, so they can't really help financially. So I think the family thing is quite a big factor, because a lot of them don't have parents or other family support that they can go to, when they're a wee bit short or, you know, for help with food or money, or whatever.' (Family worker supporting vulnerable families)

Lacking money to pay for the energy bills for heating and cooking food was also strongly linked with HFI. To a lesser extent, not having the storage, cooking equipment and cooking utensils to prepare and cook food was thought to be part of the problem.

Lacking cooking and budgeting skills was mentioned as a contributory factor to HFI at a societal/cultural level by many. But it was much less frequently mentioned as the main cause of HFI, and was described more in terms of it adding insult to the injury of not having sufficient money to buy food and fuel, or pay for transport costs (for shopping), cooking equipment, and other household expenditures that were considered more instrumental to the HFI issue. It is important to point out though that there was a spectrum of views about the perceived lack of cooking skills, with most expressing views as just described. However, a minority of informants did place more weight on the 'lack of cooking skills' factor.

One final factor highlighted as a determinant of HFI, illustrated by the quote above, was the assertion that part of the problem could be attributed to the fact that many more people did not live close to their families these days compared to the past. As a consequence, people were thought to lack the support close by that might have previously bolstered them against HFI in times of crisis, or offered practical support in the form of meals or food items that would have prevented them from having to seek help from food banks and other services.

4.5.6 Manifestations of HFI

Both study groups were asked what things told them that people were in HFI, and what might prompt them to refer someone to a food bank. SPIs talked about this from their direct experience of working with people in their own homes or in organisations' premises, or when engaging with them in the community during other types of routine work with them. Consequently, the SPIs seemed more able to talk in more detail about the lived, day-to-day experience of people they were coming into contact that they believed were in HFI. For example, one Keep Well nurse, who did outreach work with traveler communities, homeless people and ethnic minority groups, talked about her clients disclosing (sometimes very reluctantly) they were having difficulty buying food when asked about dietary practices in relation to

questions about healthy eating. SPIs who were working with young homeless people also talked about learning through their daily dealings with them in their training kitchens, that their young clients did not have enough money to eat. One recounted that it was not uncommon for himself or his colleagues to have to take their young clients to their local food bank in their own cars to get food, as they found that they didn't have the money for the bus to get them there.

In particular, SPIs made more reference to the demeanor and mind set of their clients, which had obviously emanated from discussions and observations made in the privacy of their homes, or relative privacy of hostel/training environments, illustrated here

> 'The good thing about my appointments is my first appointments are usually around an hour, an hour and a half, and it gives me plenty of time to allow that individual to tell their story. Based on some of the information they give me I would be able to read between the lines but I'm also evil because I have the time to ask open-ended questions where it will allow them to expand on their current situation and their experiences and I will ask how they are paying for it, how they're managing their bills and are they being able to buy food.' (Community nurse)

SPI clients regularly described that their clients were often privately struggling with HFI, resistant to the idea that they were in HFI, would be actively trying to hide it, or overtly refusing to acknowledge it. These themes are illustrated here:

> '..., a lot of people are struggling privately. They don't know where to go or they're not sure of what to do, you know, or they've been sanctioned and they don't always know where to go and what to do. Can you appeal this, can you, you know, do different things about that, and they're struggling day to day. "Oh today I've got some money, tomorrow I don't have anything." They'll not worry about tomorrow, because they're managing with today; that kind of idea I think more.' (Outreach community nurse)

Many talked about their clients being too proud to admit they had a problem, and mention was often made of the fact that there still a lot stigma and shame associated with knowing that others knew they were unable to feed themselves or, worse, unable to feed your children. One social worker talked about how in the past, admitting you couldn't feed your family meant risking having your children taken into care. Some SPIs notably highlighted that some of their clients refused their referrals to a food bank, and their insistence that other ways would be found to manage the situation, illustrated here:

> 'The number of people that have been referred to myself that have been working and they have described financial hardship for a number of reasons and I've offered to make these referrals to the food banks, whichever one is more accessible for them, and they really just become very embarrassed. And then when I probe just that wee bit further about how they're going to provide for their families and themselves they kind of say that they're going to rely on their families and friends to do that. I've tried to find a way that I can access the food banks out with the normal workshop hours if you like to address some of these issues. It's worked for some people, it hasn't worked

for others.' (Community links worker)

Yet other clients were described as being more willing to admit they had a problem with HFI, and more were able to ask for help compared to previous years. This was remarked upon by a few informants as something that might be explained by there (perhaps) being less stigma attached to admitting you couldn't feed yourself (or your family) compared to previous times, which contrasted with most other SPIs views (highlighted above) that there was still a great deal of stigma attached to this issue.

It was also evident that SPIs were using a variety of other information in their 'HFI assessments', and were not solely relying on their client's views of themselves as impoverished or not. This included noting changes in their client's physical appearance. Some informants SPI (and some CFIs), talked about noticing their patients or clients appearing to look thin (and losing weight), or looking ill or malnourished, and that had triggered concerns about HFI, which was often described like this:

> '…you know on a couple of occasions we have seen people come in who clearly, you know, look unwell and you know are struggling, but again that could be for a number of reasons, but they're coming to us and saying that they haven't had food.' (Housing regeneration manager)

Others talked about 'telltale' signs of HFI from their observations of their clients' homes. Many talked about seeing that some of their clients very obviously had little or no food in the house. It was not uncommon to hear about informants quietly checking their clients' kitchen cupboards to see what they had in the house, if they thought a person was struggling with HFI. Not being offered 'milk with your tea in a person's home' was mentioned by a few as a sign that people were in severe food difficulties. Noticing that their clients were obviously missing basic items of household furnishing in their homes, such as carpets and curtains, was also highlighted as a signal that their clients were in HFI. Some CFI informants confirmed the SPI experiences of some people not having any food in the house, from the interactions they were having with the local health and social care professionals who were referring clients to their services.

One informant from a community food gardening project talked about the recent signs of HFI she noticed in her community that told her that people living close by were affected by it. She lived in an affluent community where she stressed you would not normally expect to find people living in HFI. However, she thought that people in her community must be suffering from it these days, because just that previous year she had noticed, for the first time, that food that had been grown in the community garden was not there in the morning. She said that it had always been the case that people were allowed to take produce if they wanted to, but that it had never happened before.

Moreover, she was noticing that many more people were eating at the local 'greasy spoon' café at lunchtimes, where it was possible to get big portions of fatty, filling food very cheaply, which she believed would help keep people from being hungry for a long time. Many CFIs talked about noticing that more people were growing their own food in gardens and allotments than in the past.

4.5.7 Organisational actions to mitigate HFI: Current work

Not surprisingly, when most CFIs were asked what they believed their organisations were doing to mitigate HFI, most mentioned the work they were doing either through offering a food bank service, or providing the cooking and budgeting skills training that they had previously and were currently offering as part of the overall programme. It was striking that, with one exception, those CFIs indicated that their food bank service had only been added to their existing operations in the last few years, and had only been added because people from the local community, who were using their other services, were asking if they could give them free food, or that local health and social care professionals had approached them directly to see if they could offer this service to their patients or clients they knew to be struggling to feed themselves. All those CFIs we spoke to appeared to have been working in areas of multiple deprivation for some years, and their client base was largely people who were on low incomes. It was notable that a few CFIs asserted that they did not perceive that their offering a food bank service meant that they were addressing HFI. Indeed, a few expressed explicit concern that their existence was enabling the state to rely or come to depend on charity to feed hungry people.

> 'Well, I think it's one of the few areas that I'm aware of that the only response is, "Go to the voluntary sector." I can't think of very many other services that are related to similar sorts of outcomes, where the response is, "Go to a food bank, go to the voluntary sector," especially food banks, who get very little money from anywhere. I think part of the problem is that it's a free service that's been offered that we may have to challenge, in the future. I can't think of anything else, in a similar situation, where people say, "Go to your local church, they'll help you out," which is what people are, in effect, saying about food banks, you know, mainstream services, mainstream agencies, Local Authorities and whoever else. I find that very, very worrying so I don't know.' (Community food development worker for community food and health project)

Other strategies listed by the CFIs as things they were doing to alleviate HFI included linking food bank clients with agencies that can help to maximize their income and deal with debt. Setting up and managing local food growing schemes also featured here, along with reports of strategies that were intended to enable very low-income clients get easier access to low-cost fruit and vegetables A few others talked about using food bank use data for advocacy work, and the role it could play in feeding into policy making.

SPIs accounts of theirs and their organisations' actions to alleviate HFI were most commonly cited as trying to maximise their clients' income by helping them to claim all their benefit entitlements or to increase their individual capabilities to participate in the workplace (e.g. increasing their employability), and referring their clients to food banks. Providing training to help plan and cook healthy meals were also discussed as activities that were contributing to efforts to alleviate HFI.

But as mentioned above, there was notable frustration expressed by some SPIs about their skills training activities with their clients not being able to be realized, because of the lack of well-paid, regular hours jobs that their clients were able to apply for, that would let them earn a wage they could live on, or get access to the healthy food items necessary to make healthy meals from scratch as they had been

taught to do. One SPI recounted his frustration at finding that after painstakingly taking his young client through cooking skills training, the food bank parcel his client received to take back to his accommodation did not contain ingredients he could use to cook a healthy meal.

4.5.8 Emergency food aid and health conditions

Early on in the field work, it became obvious, from both study groups, that more and more people were relying on food banks more often, and for longer periods of time. SPIs in particular talked about the various strategies they were using to help their clients manage their food crisis by repeatedly referring them to a different food banks once the client's 'food bank allowance' with any single provider was exhausted. It seems many food banks allow their clients to use their service no more than three times a year, a benchmark rule applied by the best known food bank operator the Trussell Trust (5). However, some CFIs in this research described their policies of not turning anyone who turned up hungry away, and indicated that they were feeding a few of their clients on a regular basis. It was also obvious that people affected by ill-health were regularly featuring in respondents' narratives about food bank use. Therefore, we started to ask informants about their perspectives or experiences of food banks being able to supply food that would meet any special dietary requirements associated with a chronic or underlying health condition.

Some CFIs talked about their food packs being designed specifically to cater for households of different sizes, one had a nutritionist design their meal packs to enable people to have appropriately sized food parcels which they endeavoured to make as nutritionally balanced as was possible with the food they were able to purchase and store at the food bank warehouse. This particular food bank did not rely on donated food, but bulk purchased to order from funds raised. While it tried to accommodate preferences for vegetarian food and such like, the informant indicated that there was little scope to accommodate other types of dietary requirements beyond this. No other CFI offering a food bank service said they offered or were able to offer food to meet special dietary requirements for those who might be affected by chronic conditions. The majority of SPIs said they did not know if the food banks they were referring their clients too offered specially tailored food parcels or not, but most speculated that they didn't think they would be able to.

4.5.9 Future plans aimed at alleviating HFI

The CFIs were asked about future plans regarding addressing HFI, and a mixed picture emerged. Across all interviews there was general pessimism regarding trends in HFI in Scotland. The phrase 'the problem is not going away anytime soon' kept appearing. In addition, there was some skepticism about food banks being able to cope with and continue to meet local needs.

One informant thought the food bank operation of their programme would probably have to close by the summer because it did not have a secure funding stream. The informant did not think the food bank could function using only donated food from the local community, suggesting that the deprived status of the local community would make this difficult to achieve. Although the food bank had recently signed up to Fareshare the national surplus food redistribution scheme, the informant expressed disappointment that it had not provided nearly enough food that his operation could use, and that some of the food was of very poor nutritional value.

The informant explained that most of the donated food arrives in a form that needs to be bulk-cooked for meals straight away, and the vast majority of food received was not useable as the food bank did not have the capacity to store and portion out the food into individual food parcels. Fareshare was therefore viewed by this informant as something that was more geared towards charity operations that could bulk cook the food straight away, or very soon after it was delivered, but that it was not really suitable for food bank redistribution. He also explained that some of the food received from this source also contained, from time to time, large quantities of food items that were of poor nutritional value, (such as sugary soft drinks and salt and vinegar crisps) or were foods that were unfamiliar to those we would normally expect to eat in Scotland, (such as Korean pickled cabbage in this case) that couldn't be passed on to their clients. He also explained that he had already made some paid staff redundant, and was not optimistic that the operation could survive beyond the summer. He thought the future focus would be on the community cooperative/retail food outlet they currently operated that would provide people on low incomes with the opportunity to shop for food at low cost in the normal way. But he expressed great concern about what would happen to at least half the food bank's current clients who were reliant on food parcels to survive, as he could not see where else they would get help with food from.

> 'And I don't know what would happen to the other half; I'm really frightened, and because, as I say, we have designed and promoted ourselves as a place of last resort for funders, you know, it's the only option available; the last option available. I don't know what would happen.' (Manager of community food and health initiative)

In addition, local authority/health board community food development professional CFIs whose role seemed to be concerned with supporting community food programmes and their training activities, were conscious of and concerned about future public sector budget cuts to their own jobs that were threatening community-based food work like theirs.

Other CFIs described continuing to work on what they were currently doing, and were more inclined to talk about expanding their food bank operations, and/or strengthening or developing their community food coops and food growing programmes, with the aim of alleviating HFI. This example shows the view of food banks as a longer term solution:

> 'I think food poverty in Scotland isn't something that's going to be resolved overnight. I think it's going to be a long…there's going to need to be looking at like longer term more sustainable solutions but I feel that until these things are achieved, food banks are now kind of part of the dialogue and will be for, maybe longer term, until adaptions are made to the welfare system and especially with regard to sanctions. But as a result of that, food banks will be…will have a kind of longer-term role to play.' (Community foodbank development worker)

Some informants talked about their role as advocates for those in HFI in the future, and believed they would play a role in keeping governments informed about the scale of the problem through the return of their food bank's statistics. A few

informants also thought that food banks were part of the problem, for as they saw it, they were encouraging the voluntary sector to take the strain for something that should be dealt with by statutory agencies. Charitable giving and food banks were not considered to be the answer to HFI by most CFIs in long term, but most couldn't see what other options were open to feed hungry people, at this point.

A few CFIs believed that food banks would remain, and very importantly, differed from those expressing doubts about the future role of food banks in addressing HFI (above), by claiming that they should be part of the answer. One informant talked about food banks being more compassionate places, that could support people through linking and signposting them to other agencies as well as providing access to free food. From this perspective, one CFI talked about the need for a Government food voucher scheme as opposed to giving people more money to buy food.

4.5.10 Other actions need to address HFI

Our final question to all informants was concerned with their views about what other actions, outside of their organisation's role, did they think were needed to alleviate HFI in Scotland. Most talked, first and foremost, about the need for reform of the welfare systems. Sanction conditions were considered confusing, perniciously unachievable and unfair by most who talked about this issue. This informant talked about her:

> '…outrage that people have to go through this kind of terrible suffering, food poverty, in this age! And, you know, I'm sure there are many people kind of saying the same thing. You know, I'm very satisfied that I've got this kind of work, where I feel I can make a difference now and again, but I'm also overwhelmed by the fact that I know that's just almost a drop in the ocean. There are many, many people that need help and support, and I think we need more help set up yet, to try and meet that need….. we do see quite a few people affected by sanctions and, you know, it's always very surprising that when you see the general guidelines, from DWP, the sanctions aren't to be imposed if it's likely to cause hardship. And yet people, you know, they have a sanction placed on them and then, at the same time, have a form put in their hand to apply for a hardship loan, and it just absolutely doesn't make sense to me whatsoever, and the reasons for sanctions often don't really make sense.' (Welfare support assistant)

Some informants believed more help would be needed to help benefit claimants manage their budgets when Universal Credit was introduced to prevent more people suffering the same fate highlighted thus:

> 'I think when the new welfare system comes in where people are going to be paid monthly, I can see the number of people going to be reliant on hand outs and food parcels and stuff escalating. People aren't going to be able to manage their money if they can't manage on their benefits for two weeks and they're going to be expected to manage it monthly. That's going to create huge problems.' (Welfare support officer)

Actions to address low wages and fuel poverty was the next most commonly cited set of factors believed necessary to address HFI. Enabling people to use their

cookers or put their ovens on was considered a measure that would help many deal with HFI. Support for young people to get into employment and get access to decent housing were also high on the list of things informants mentioned here too.

A few described their aspirations that locally grown food would be part of the answer, but they expressed disbelief that it ever would be for those on very low income, as it was considered well out of reach, cost wise.

In finishing this section of the report, it is important to highlight the fact that some informants expressed a desire for more research this area, to get a clearer picture of the scale and nature of HFI in Scotland. In addition, some CFIs expressed concern about the health impacts of HFI on people and their children, and thought there should be some sort of monitoring to find out what was going on here too. Another thought there should be research exploring the reasons why people were returning to food banks again and again. Notably, one CFI also asked for research to be done to find out if community gardens and growing schemes made a difference to HFI or not. She talked about wondering if they would do that, because she was surprised to have that responsibility fall into their lap – as she saw it. She explained that as far as she was concerned, their first community garden was set up as a place where people could meet and enjoy the experience of working in the garden, as a place to de-stress from their work and the like, and as a place where people could just sit in the sun and enjoy each other's company. Addressing HFI was not something that she imagined her community gardening project would be doing when it was set up.

4.6 Study strengths and limitations

There are some important limitations and practical issues to be aware of when interpreting the results of this work. As already highlighted, this study was conducted over a relatively short period and with limited resources. The team conducted 25 in-depth interviews during a short, two and a half month period. More time, money and data may have yielded more and different insights than are reported here. However, this is unlikely for two reasons. It was clear that around about the 18th or 19th interview the team were starting to detect data saturation in the emergent concepts and sub themes, and by the time all 25 interviews had concluded, only a few additional specific insights that related to particular groups from the interviews that were conducted after this point were gained. Furthermore, the lead researcher participated in a HFI seminar in a north east city that had been set by the local authority to examine the challenge of HFI in the city, during the time when the qualitative data was being analysed. The seminar was attended by over 60 delegates that represented many similar types of organisations and service providers that took part in this study. The researchers helped facilitate two workshops that were set up to enable delegates explore their understandings of HFI in this context. During those workshops, many of the themes that emerged and reported here also figured in the conversations of those taking part in those workshops.

That said, we sought interviews with some local and national organisations that we had hoped would take part this study, but were unable to do so due to lack of time and capacity. In particular, we wished to have had captured more insights from ethnic minority groups and travelling people communities in particular.

Nevertheless, this study has yielded some useful (and disturbing) insights of the 'HFI landscape' in Scotland. It has done so by contributing a better understanding of the lived experiences - through the eyes of the professionals and volunteers concerned with the welfare and quality of lives of an increasing number of people who are struggling with food insecurity in Scotland at the current time, and helps to see beyond food bank use statistics.

4.7 Discussion and conclusions

4.7.1 What it means to be in HFI in the Scottish context

Our study respondents collectively perceived HFI in the Scottish context as a multidimensional concept that meant something more than people being hungry or using food banks. Interestingly, hunger was not mentioned per se, although using food banks was mentioned by a few. The dominant themes associated with being food insecure or in HFI were largely associated with being unable to behave like normal consumers, i.e. lacking choice and experiencing uncertainty about what people could buy to eat, or when or where they were able to shop and eat, due to being on very low income or facing destitution Most concerning, this research found a prevalent view that HFI in Scotland was something that was also synonymous with people being compelled to seek out nutrient-poor, very cheap food in order to balance the household budget and pay for other essential household costs, such as housing and energy/fuel.

4.7.2 The perceived determinants of HFI in Scotland

Both in-work poverty and welfare reforms were cited as the primary reasons why more people were living in HFI compared to the past. The increased frequency and length of benefits sanctions was cited as a particular problem with those changes. That living unsettled and chaotic lifestyles, often linked to having mental health problems and substance misuse issues, were viewed as making those groups particularly vulnerable to sanctions, as they were viewed as finding it difficult to navigate the current welfare system and meet the conditions required to keep their benefits. These groups were also believed to be those most likely to be badly affected by the introduction of the Universal Credit this year, and considered to be even more badly affected by HFI than at present.

Fuel poverty was cited as another major determinant of HFI. This was perceived as causing people not only to have to either choose to heat their house, or, buy food, but affected their capacity to cook that food into meals. Living in rural and remote areas affected by poorly paid, seasonal work or limited hours job opportunities, and bad public transport connections, was highlighted as causing many people living in rural areas to be in HFI, and considered by participants to affect women with young families in particular due to the fact that they are limited in the hours they can work that can be fitted around family caring duties.
Other contributory factors mentioned, *but not as the primary cause,* included a view that people in general were ill-prepared, due to perceptions of the so-called Scottish food culture and social norms; i.e. a perceived tendency to eat ready prepared meals, rather than cooking from scratch, and therefore lacking the cooking skills and/or facilities that might have enabled them to make more of limited resources. In

addition, not having practical family support nearby was also considered a factor in both tipping more people into HFI, and making it more visible in our communities.

4.7.3 How people are experiencing HFI in Scotland

The qualitative insights gained through probing the experiences of those professionals and volunteers who have direct experience and day-to-day dialogue with some of the most vulnerable groups in our society from across Scotland in this research, revealed significant, past and present collective experience of dealing with people living in HFI. That expert knowledge suggests that there are many more groups of people experiencing food insecurity to varying degrees in Scotland, beyond those they would normally be expected to see, or, who are being referred to or turning up at food banks for help. This research suggests that HFI is affecting people of all ages and household types in Scotland, and confirms findings from the UK emergency food aid use literature (4) (3) (5) that those working in low wage, zero hours contract type forms of employment, and/or reliant of government welfare payments seem particularly badly affected by HFI. This study's qualitative findings suggest that there is concern that pregnant women and families with young children in particular, are affected by HFI. Even those groups of people normally affected by HFI (mainly men in their 30-50s affected by mental health problems and homelessness) were observed to be affected in greater numbers than in the past. Yet, there is also evidence that people in local communities across Scotland may be acting to mitigate their experience of HFI by seeking to develop their food budgeting and cooking skills through participating in community education programmes, and by growing some of their own food, although this requires further investigation.

4.7.4 Older people's experiences

It seems there may be significant misconceptions and misunderstanding about the food security status of older people in Scotland. There seems to be a risk, viewed from the perspective of agencies providing emergency food aid, that older people are infrequent users of food banks. Some of our informants (but not all) deemed older people less likely to be in HFI compared to younger people. Again, from this perspective, older people were regarded as having more stable incomes, being more resilient, and better able to cope with and manage very tight budgets compared to young people. Young people were considered more likely to be in HFI due to having irregular and unpredictable levels of income, and being less well-resourced (materially) and skilled (in budgeting and cooking) than the older generation.

On the other hand, from the perspective of some of other study informants, a number of older people were very obviously living in HFI, albeit that many were very resistant to the HFI label. Some older people were observed to have no food in their homes, yet would not accept that they were struggling with HFI. Older people living in very remote island communities were found to be particularly vulnerable by virtue of the additional burden of their geographic isolation. Older carers were highlighted as a group that was badly affected by HFI as a consequence of years of care giving and the chronically low income they existed on as a consequence, and the difficulties they experienced in maintaining the conditions of their benefits due to the busy nature of their lives, i.e. caring, nursing, feeding and attending hospital appointments with their child in need of care. It seems there are increasing numbers of people

living in this position. The situation of older carers also raises questions about the food security status of young carers (of which there are many in Scotland) but which was not sought out to explore with this research.

4.7.5 Asylum seekers experiences

From the little data gathered about the food security status of asylum seekers, it seems that this group is likely to be experiencing extreme food insecurity. In addition, asylum seekers can spend many years on this chronically low income, and in this situation, as they wait for their applications for asylum to be processed. And once granted permission to stay (if that happens) can also find themselves destitute for a long period of time as they wait to receive their new benefit entitlements.

4.7.6 Manifestations of HFI

Informants to this study indicated that they were using a variety of information when making judgements about their client's food security position when asked what precipitated them to make a referral to a food bank, and were not solely relying on their client's ability or willingness to disclose they had a problem. It also seems clear that while some individuals were more willing and able to say they were having difficulties feeding themselves, it was notable that, just as often, others (and not only older people) were described as being extremely unwilling or refusing to acknowledge they had a problem, and were refusing referrals to food banks This suggests that significant numbers of people in Scotland who are deemed sufficiently food insecure by health or social care professionals to need help from food banks, are not showing up in food bank numbers, and that shame and a fear of stigma may be preventing them from doing so, but there may well other reasons why this is the case. It seems likely that there are significant numbers of people living our communities who are existing in conditions of severe or extreme HFI to the possible detriment of their health that are refusing to accept referrals to food banks, or do not perceive themselves to be living in HFI, despite the judgments of care providers that they may be. It seems that older people living in more rural and remote areas may be at particular risk of this.

4.7.7 Observations of current CFI responses

This research has already shown that communities up and down the country have been spontaneously responding to something that had obviously troubled them, with many communities setting up new food bank facilities because of expressed/felt/expert needs, enabling people who are in crisis and hungry to get access to free food, where no such facility previously existed. It appears, talking to both CFIs and SPIs, that pre-existing community food programmes had become early focal points for local health and social care professionals, and local people, who had turned to them for help, and had been meeting the needs of increasing numbers of people who were presenting to them in food/poverty crisis about two years ago. 'Opening a food bank' was a common first response to the questions about what was being done by their organisation to alleviate HFI. It was noted that a few CFI informants stressed that they did not think that food banks were actually alleviating HFI, and volunteered that they believed they might be part of the problem, rather than part of the solution. Other CFIs were more positive about the role and

impact of their food bank making a difference to HFI in their communities.

As MacLeod (2015) (4) has shown, food banks are operating in lots of different ways, offering a range of services and other benefits to their clients, not just free food, which was consistent with the findings of this study. Helping people maximize their income by linking with other social and care services, providing training and skills development activities (which seem to be in high demand from local communities, suggesting that people themselves are actively seeking to mitigate their experience of HFI), enabling people on low incomes to get access to low-cost, high quality local food, and fruit and vegetables, and supporting people to grow their own food, are all activities that were cited as efforts they were making to alleviate HFI in their communities.

The emerging picture seems to be that a sizeable proportion of food bank clients and those referred to food banks from SPIs were in some form of ill health. This, coupled with the reports of people returning or needing help more often, and for longer periods from food banks, i.e., not experiencing an acute short term, or temporary food crisis, but in a chronic HFI situation, it was important as the research proceeded to start to think about food banks' ability to respond to specific dietary needs of people affected by chromic health conditions. It was not terribly surprising to find that although food banks were making efforts (some considerably so) to ensure that each household was being given enough food to meet the needs of different sizes of households, none reported they were able to tailor their food parcels much beyond making sure they contained basic food items that are aimed at feeding hungry people as a stop gap measure.

4.7.8 Community food initiatives: future plans

It was very apparent throughout most interviews that the future, as far as HFI trends were concerned, was viewed very pessimistically – from the perspective of both study groups. We detected genuine concern (and some tempered alarm) during the interviews, about the scale and nature of the problem, and the dominant view was that the problem was going to get worse, from an already desperate situation, rather than better. Consequently, a contrasting picture emerged as far as the future plans of community food initiatives were concerned. A few CFIs talked about the challenges they had been having, operating in the current context, and were reporting finding it difficult to meet the ever-increasing needs and demands for food aid from their local communities. A few CFIs believed they would have to scale back or close the food bank operation of their local work, which was causing concern about the fate of those who have come to rely on their help. At the same time, all CFIs talked about continuing to offer, and in some places expand, their existing services (including food bank work) such as their training programmes, low-cost retail and growing programmes as efforts they believed would help alleviate HFI in the future. It was notable that the public sector-employed food development workers were fearful of their jobs due to government cutbacks, and were uncertain if they would be able to continue to offer the support work for the types of activities mentioned above in the future. There is evidence that some food banks intend to use the data they collect that records demographics of their client base for advocacy work and to inform public policy.

It is important to conclude this discussion by drawing attention to the fact that almost all informants believed that their current and planned actions in tackling HFI could only become more effective, if the bigger problems of welfare levels, entitlements and sanctions, and in-work poverty were addressed. We were also interested to note the requests that were made during the interviews, for the need for a more detailed picture and research in this area, including a request for research into the health impacts of HFI on people, and the impact that community gardens schemes are making on HFI. This last request was made on the grounds that those running community gardening schemes were feeling some pressure that these schemes might be something that would address HFI; yet those initiatives may have been set up for entirely different reasons, e.g. to improve mental well-being and building social capital.

4.7.9 What does it mean to be 'food secure' in Scotland

Finally, we present our understanding about what it means to be food secure in Scotland according to the definition we were asked to consider during this research. When we applied Dowling's *et al* conceptual food insecurity frame to these data, collectively, informants were broadly referred to the constraints they could see were inhibiting people's *ability to acquire or consume an adequate quality or sufficient quantity of food* that were **due to all the normative costs necessary to procure, prepare and produce meals from individual food items, compared to other essential household expenditures.**

Therefore, this research suggests that to be food secure in Scotland, people have to have sufficient income to cover all necessary costs associated with:

- having some means of transport to get themselves and their food purchases to and from the shops;
- having the means to purchase the nutritious food items necessary to make into healthy meals and snacks;
- having the necessary facilities, (i.e. kitchen), equipment and cooking utensils needed to store, prepare and cook food; and
- having an energy supply available to run a fridge, cooker, and the means of heating the water necessary for cleaning up.

Interestingly, the interviews did not surface any particular issues or views about the social and communal aspects of food, with the exception of the observation of the one informant that asylum seekers were known to actively seek each other out to prepare, cook and eat together, and were caused great distress, in the case of one group, when they were separately rehoused across the city, preventing them pooling their scarce resources to buy and cook food, but which also prevented them from enjoying the daily social event. And while food banks obviously figured in these interviews, there was no discussion of their social acceptability, or otherwise, in the interviews either.

The next and final section of this report that follows presents the overall conclusions and recommendations arising from all three studies.

5. Discussion

This final section of the report draws together the main conclusions that have emerged from all three sets of findings, and presents what they collectively reveal about the questions set for this research commission. The report then concludes with a list of recommendations emanating from this research and its conclusions.

5.1 Current prevalence of food poverty/insecurity

The rapid literature review did not reveal any studies that had specifically assessed or investigated the extent and nature of HFI in Scotland in recent times. However, the cross sectional and cohort studies that have been conducted exploring patterns in dietary behaviours in the Scottish population indicates that those on low income (identified as such by their post code area of residence) tend to have poorer dietary intake than those living in less deprived areas, although the population as a whole is considered to have a generally poor diet in relation to the Scottish Dietary Goals (SDGs). Poor quality diet during pregnancy and low income is associated with poorer pregnancy outcomes (27). Two small descriptive studies indicated that families on very low income and refugees living in urban settings are likely to be very badly affected by HFI, and an indication that hunger exists in families with children. There has also been a research focus on geographic availability of retail outlets, and nutritional quality and affordability of the food offerings available in in deprived areas. The area-based research has yielded mixed conclusions regarding the availability and accessibility of good quality food offerings and the relationship with dietary behaviours.

In the absence of a well-defined measure and appropriate HFI dataset, this research examined existing expenditure and consumption data sources to determine what could be gleaned from these data about HFI trends and patterns over the recent recession, and specifically between 2007 and 2012. Notwithstanding the caveats and limitations of this approach, the study revealed that poorer households spent less on food and non-alcoholic drink, and less per person than households with above average incomes. However, poorer households spent a greater proportion of their household income on food and drink compared to those with above average incomes, amounting to almost twice the proportion of income share spent on food and drink compared to wealthier households in Scotland. Poorer households also spent proportionately more of their income on gas and electricity than their wealthier counterparts.

Both poor and wealthier households were notably not meeting the SDGs in terms of food expenditure with both groups spending the greatest proportion on food high in fat and/or sugar and meat and protein, and spending less on starchy food and fruit and vegetables. This trend was also observed among older people. Self-reported eating patterns were relatively similar between HBAI and Non-HBAI, with the exception of fruit and vegetable intakes, which indicate that wealthier households are more likely to reach the five-a-day fruit and vegetable target.

The tendency of poorer households to buy more energy dense foods was interesting to note. This merits further investigation in the Scottish context, given international evidence that has indicated that those groups who are food insecure have very different meal and snacking behaviours. This has been associated with their

impoverished and stressful life circumstances, i.e. money worries, and working multiple jobs to earn a living, making meal skipping and irregular food consumption patterns the norm for insecure individuals (53). Furthermore, that so few households appeared to meet many of the SDGs and that the intakes of foods and nutrients contributing to the SDGs were similar (between HBAI and non-HBAI), suggests that achieving a diet that meets dietary targets is not just about having sufficient money to spend on food. Indeed, bearing in mind that dietary quality could not be dis-entangled from these data, that both groups' diets are similar in overall composition is also an interesting to note.

The datasets considered in these analyses only provided a partial picture of the prevalence of being at risk of being in food poverty in Scotland. For example, it has not been possible to examine the combined impact of location and food poverty on diet. Households living on remote Scottish islands are not included in the LCFS, and it is known that people living in more rural areas spend up to 20% more on everyday living expenses and earn lower incomes compared to their urban counterparts. Furthermore, all datasets used here contained none or very little information about minority groups or households facing destitution. Although there is no agreed definition for the latter, this research defined this as those households whose head is unemployed, whose head was paying off a loan to repay debt, or both.

In addition, there were other aspects of the conceptual definition of HFI used in this study that could not be addressed here. Different diet quantity and quality measures were applied in different surveys owing to the types of food / dietary data available in each dataset. However the information available in the surveys used provides little insight on how specific these recommendations were met in this data set. In particular, relevant aspects of diet adequacy such as essential micronutrient supply, which are likely to suffer when dietary diversity is absent, could not be determined from this analysis. Furthermore, the analysis was unable to gauge the presence (or not) of cooking facilities and / or the cost of cooking; resources that are instrumental for food storage, meal preparation and consumption in the home.

Furthermore, the latest accessible survey point was 2012, and there are indications that more people would be affected by HFI at the current time point than this analysis suggests, i.e. reported trends in the numbers of food banks that are opening (54), and the observed increase in the numbers of households in Scotland that affected by severe or extreme poverty (36).

Consequently, the qualitative study provides more up-to-date insight about people's experience of HFI in Scotland at the present time. The findings indicate that there are more people and different groups of people struggling with HFI in Scotland than might be thought. From the perspectives and observations of people who have worked with vulnerable groups, in many cases for over a decade, it seems that far more people from groups in society that had never previously experienced severe HFI are affected by it. Families with young children, mothers and pregnant women emerged as being of particular concern in this study. But young people, including those at risk of homelessness, also featured as giving great cause for concern. Even groups known to be affected by HFI in the past (i.e. destitute, homeless, those with mental health problems) are reportedly increasing in size and seeking help more frequently and for longer periods of time.

This research has also found that, across Scotland, people are dealing with HFI in very different ways, with some people more willing to seek or accept help from a food bank, while others deemed by professional and volunteer carers to be in some degree of HFI that requires assistance, are refusing to do so. Assessments about HFI status are being made on the basis of the presence or absence of food, and other essential household items in the house, and on observations of clients' or patients' physical appearance. Therefore, this study indicates that food bank statistics are not capturing the experience of everybody who is in HFI in Scotland. As it stands, food bank data is patchy and incomplete, as recent Scottish government research has identified (3). Other UK studies have found these data are solely concerned with generating data for operational purposes, and for managing and understanding their claimants' needs, is not a nationally representative system, and is incomplete as far as the individual experience of HFI is concerned (55). This finding is also consistent with international evidence which has established that food bank use data significantly underestimates the total numbers of people affected by HFI in a country (10). Therefore, these findings indicate that food bank data should no longer be accepted as a sufficiently robust and suitable means by which policy makers and health professionals understand the nature of food insecurity in Scotland.

This research also indicated that emergency food aid was being sought by more people, more frequently and for longer periods of time, and that some people were being supported by referring agents and food banks with food parcels for extended periods of time. This is arguably a particular concern for those suffering from an underlying health condition (perhaps the heaviest users of food banks) or who have special dietary requirements, as neither those offering food parcels or those referring to food banks were able to confirm (or refute) that such food provisioning could meet any special dietary requirements arising from existing ill-health. Questions about the quality and quantity of food distributed by food banks were not directly explored during this research, but there were suggestions in the qualitative interviews that there were concerns and questions about the usability and dietary quality of the food available for redistribution by food banks in Scotland, and this issue requires further investigation in the Scottish context given the emerging picture here. For it is well documented in the North American literature that the nutritional quality of donated food (both public and commercial) that food banks receive to re-distribute, is commonly of very poor nutritional value (32); (56) (57). This is not only bad news as a general population health issue, but is particularly bad news to those in existing poor health relying on food banks to survive. That it seems to have become the norm for health and social professionals to be acting as referral agents to a food system that may or may not be suited to supporting those with specific dietary requirements, is an important development and issue to consider by policymakers and the health and social care system going forward.

5.2 Current trends in food poverty

When considering trends in HFI such that could be ascertained from these data, the secondary analysis suggested that trends in food and fuel expenditure, food purchasing and consumption have been consistent across years (2007-2012). When considering the current context from the qualitative evidence, there is a strong

pessimistic sense that the current HFI prevalence picture in Scotland described above was unlikely to change soon, and considered by most be to be more likely to become worse than better, and particularly when the Universal Credit system of payment started to operate in 2015. People with mental health problems, substance misuse issues and those living in so-called chaotic life circumstances and lifestyles were thought to be most vulnerable to this change, and unlikely to manage the requirements of keeping their benefits, or to cope with a monthly rather than fortnightly income.

This view was underpinned by informant's beliefs about the causes of HFI, which were largely attributed to people having insufficient and / or predictable levels of income arising from either: (i) poorly paid, unpredictable employment, or, (ii) recent changes to the social security system that had resulted in more people finding it difficult to maintain their benefits to cover their living expenses week to week. This was viewed as being further exacerbated by higher costs of living; lack of family support nearby; and a perceived culinary de-skilling of people in Scotland due to the way we eat, i.e. relying on convenience food more often.

It was notable that study informants (unprompted) had requested more research in this area, specifically asking for measures to monitor the impact of HFI on the public's health, to monitor the numbers of people who were in food poverty in Scotland and what was happening in that regard over time; and for evidence about the impact the community gardens on HFI due to concerns that community gardening schemes were being looked upon as a solution to HFI. This rapid review did not set out to explore the role that locally grown, grow-your-own schemes and community shops may have played in peoples' experience of food poverty. It was notable however, that no such literature was identified from the search strategies used in this review. Given the question that arose from the role of community gardening in addressing HFI, and the fact locally grown and grow-your-own schemes appear to be increasingly viewed by policy makers as something that could and should play a part in addressing HFI in Scotland, this is an area that requires further investigation.

5.3 How food /insecurity appears to be affecting particular vulnerable groups

When looking at the experience of specific vulnerable groups, the rapid review provided *a* very limited picture. It did show some evidence that low-income families, particularly those with young children, and refugee families, were identified as being at risk of HFI, the degree to which they were found to be food insecure, however, is not clear. Furthermore, the review did not identify data that was specific to older people, homeless or destitute groups.

From the quantitative analysis, when looking at the experience of specific vulnerable groups, such as was possible, food expenditure share (by food group) of older people was found to be relatively similar to the overall population; such that meat and protein, and foods high in fat and sugar represent the largest expenditure (£) and share (%). Self-reported eating patterns were also relatively similar for older people, and those living in rural or most deprived areas, with the exception of fruit and vegetable intakes. This analysis showed that wealthier households (associated with these named groups) were more likely to reach the 5-a-day fruit and vegetable

target. There is also evidence that more rural households (HBAI and Non-HBAI alike) were reaching the 5-a-day target compared to their urban counterparts.

Yet the qualitative research indicated that the picture regarding older people is not entirely clear, with a perception in some quarters that they are not as badly affected by HFI as younger people are. However, those working directly with older people in their homes reported that some of their clients had nothing to eat in the house, are finding they are denying they have a problem, and are refusing food bank referrals too. Older carers were highlighted as a group of concern too. Asylum seekers and refugees would appear to be at risk from extreme food poverty from the little we were able to glean, but the picture regarding ethnic minority groups and travelling people is not clear from this research. Concerns were expressed about rural dwelling communities, and older people in particular in this setting, are observed to be in food poverty according to an external assessment. Furthermore, given the picture that emerged about the degree to which there were concerns about families with young children and the problems people on benefits were meeting the conditions of entitlement, it is possible that young carers may well be an overlooked group with regard to HFI.

5.4 Community food initiatives: Adaptions, future plans and perspectives

This study was purposively designed to engage individuals in this research who were or had been involved with long-standing community food initiatives, or which offered a range of food-orientated programmes, and were not only offering an food bank service. Some of those who participated in the research had been working in CFIs or in community food development work for over a decade. Therefore, we were able to tap into the insights of people who had a long history of working within areas of multiple deprivation on food-related matters. Consequently, the study was able to provide a good picture about how community food initiatives had responded to and were adapting to the current context. The findings indicated that the motivation to add food bank operations to pre-existing work had been in response to locally expressed need; both from members of the public directly or health and social care professionals.

In addition, it seems there have been other changes taking place at the community level, which suggested that local people may have been taking action to mitigate their experiences of HFI in other ways. For example increased public uptake and interest in recent times in CFIs providing training and cooking skills development courses and increased interest in low-cost food retailing services (fruit and vegetables), growing schemes, community gardens and allotments. Clearly, without asking those engaged in these activities themselves, this is merely speculation, and further direct exploration is needed verify if this is the case or not, and, to establish the extent to which those actions may or may not be mitigating the experience of HFI.

In terms of future community food programme plans, two themes were apparent. One indicated that there was considerable uncertainly and doubt in the minds of some who were operating a food bank service, and predications of having to close that service because it did not have enough food coming from public and/or corporate donations, to meet the demand for free food coming from local people.

The other was more positive about the future role of their food bank operation, and predicting expansion of their service, not contraction. It was interesting to note the mixed views present amongst community food programme informants about the role of and impact that food banks played in addressing ***HFI per se*** in Scotland. Some expressed more doubt and skepticism than others; who were again more positive about their role.

It was also interesting to note that almost all informants believed that it was actions or interventions that would increase the levels and predictably of people's income that would make the biggest impact to HFI in Scotland. This was described as something that would enable those affected by HFI to benefit more from the services and supports they or their programmes could offer them. And that some expressed a wish to see locally grown food as part of the solution to HFI in Scotland, but viewed it as being out of reach (cost wise) for people they were dealing with, is at odds with the ideas promoted within the Becoming a Good Food Nation Scottish Government's food policy (58).

In terms of ideas about what was needed to address HFI in Scotland, the rapid review highlighted two recently emerging ideas from the grey literature about how HFI should be addressed in Scotland. One idea favours Scottish Government support for community hubs to make it easier for low-income households to get access to lower priced household goods and services (including food) that would maximise their spending power (28). Evidence from the quantitative research reported here suggests this policy idea may indeed go some way to addressing the primary causes of HFI identified here.

The other idea favours a strengthening of charitable food aid provision bolstered by a system that would increase the supply of supermarkets' surplus / waste food to emergency food aid centres, as a means by which food poverty would addressed (59).Yet evidence from overseas, where food banks have a much longer history, suggests that this strategy is not effective in addressing HFI, and risks exposing an already vulnerable population to an uncertain supply of food that is highly variable in terms of its nutritional quality (31).

6. Overall conclusions

This research has determined that up until this study, the precise nature and extent of HFI in Scotland, according to the definition used during this research, has not clearly been established. This research indicated that there are currently more people affected by HFI in communities throughout the country than food bank use statistics suggest. The research also indicated that there is good reason to believe that there are an unspecified number of people trying to manage and cope with varying degrees of HFI in our communities at the present time. Consequently, there is an urgent need to gain a much more detailed and better understanding of this public health issue. The team concluded this for the following reasons.

This research was only able to establish a partial view of HFI through a secondary analysis of datasets containing sufficient Scottish information about income levels, food and fuel expenditure and self-reported dietary intake of poor households (who themselves are not representative of the poorest in Scotland) up until 2012. These findings indicated that at that time, poorer households were spending less (in absolute £) of their limited financial resources on food purchased for home consumption, compared to their wealthier counterparts, but were spending proportionately (%) more of their overall income on food. In addition, lower income households in this study were spending a larger income share on fuel than their wealthier counterparts. This analysis was not able to consider housing and other costs, and taking all of this picture into account, it is seems highly likely that people on low-incomes would be financially stretched to purchase healthy food items, in sufficient quantity to be food secure. Furthermore, the qualitative accounts of the range of groups, previously not known to care service providers, who are reported as being in need of emergency food aid, with some finding it difficult to manage to survive without subsequent visits to food banks, fits with a picture of a situation that is getting worse.

This research has also highlighted that there is a large knowledge gap about what it means to be able to acquire food in a socially acceptable manner. This gap in the evidence base requires investigation given the fact that there are an unknown number of people who are deemed food insecure by health and social care professionals, but are refusing to go to food banks in Scotland for help. Therefore, there is an urgent need to develop better indicators and means of understanding individuals' and families' lived experiences of food insecurity in Scotland, to help develop, and make the case for, effective policy interventions that can fundamentally address HFI.

Given the apparent magnitude of the problem, and the predictions of worse to come expressed by those how took part in this study, it seems unlikely that community-based solutions, such as food banks and programmes, will be able to deal with this problem without some additional support for local or national government.

To be **food secure** in the Scottish context means that people have to have sufficient income to cover all necessary costs associated with: **a**. having some means of transport to get themselves and their food purchases to and from the shops; **b.** having the means to purchase the nutritious food items necessary to make into healthy meals and snacks; **c.** having the necessary facilities, (i.e. kitchen),

equipment and cooking utensils needed to store, prepare and cook food; and **d.** having an energy supply available to run a fridge, cooker, and the means of heating the water to clear up afterwards. As one informant put it, but others echoed a similar view: ‘there is only so much we [they] can do’.

Finally, from the qualitative data; it seems that to be **food insecure** in Scotland means that people are unable to behave like normal consumers, i.e. lack choice and experience uncertainty about what they can buy to eat, or when or where they were able to shop and eat, due to very low income or facing destitution. Most concerning, this research found a prevalent view that HFI in Scotland means that people are compelled to seek out very cheap, nutrient-poor food in order to eat. Given the picture presented from this research and the current dietary-related public health challenges facing Scotland, this is also something that requires urgent attention.

7. Recommendations

This research has identified nine key recommendations that require policy, practitioner and research attention.

1. Given the partial but worrying picture of the prevalence of HFI revealed by this research, **the means and measures by which the experience of household food insecurity as it relates to household experiences of food quality, quantity, certainty of supply, meal frequency, safety and social acceptability can be captured and recorded for population health surveillance and monitoring purposes in Scotland is urgently required.** This would not only match the requests for more research and information about HFI coming from the care sector itself and others identified from this research, but would enable policy makers to monitor current and future trends in terms of the predicted increases in the types and numbers of people affected by HFI indicated by this research, the frequency and duration of extreme HFI requiring food assistance, and to be able to evaluate any policy responses developed.

2. Related to the above, is **the need to find a way of monitoring HFI experienced by individuals considered to be at particular high risk and known to be difficult to reach through surveys (i.e. those who are destitute, homeless, transient, temporarily housed, Roma, travelling, and or asylum seekers).**

3. **Information from health and social care professionals who routinely deal with people whom this research has indicated are at risk of HFI, but who previously have been considered low risk, should be captured to contribute understanding of drivers and indicators of prevalence of HFI in Scotland**. For example, health visitors, community nurses and social care professionals who are dealing with families or carers or parents of young children and older people, as well as those concerned with groups traditionally considered to be at higher risk, e.g. homeless youth, asylum seekers. Clearly any information and data would need to be collected in such a way as not to compromise client confidentiality. One possibility suggested by the authors is to involve clients themselves in research devising appropriate rapid response indicators.

4. **There should be less reliance on data from established food banks, such as statistics collected from The Trussell Trust Foodbank Network (who emphasise their data are not exhaustive) to estimate prevalence of household level food insecurity,** for three main reasons. Firstly, household food insecurity can be experienced as both a sudden, possibly temporary, event and as a longer-term, continual process; emergency food aid providers (aka food banks) by definition and structure deal only with the first. Secondly, as is apparent from this research, not all those who are deemed to be experiencing HFI by such referring agents (as various groups of professionals appear to have become), are accepting a referral to a food bank; other evidence from the literature also makes clear that food banks do not encounter all those experiencing HFI. Thirdly, it is known that statistics on

food bank usage are variously collected by a range of charitable organisations (including the Trussell Trust Foodbank Network), who are largely reliant on volunteer labour and which employ different systems of recording and capture. These organisations are not set up to monitor population-wide experiences; their statistical systems (which are evolving rapidly) were largely created to monitor process and performance of food bank operations. They are inappropriate as a source of data on need.

5. **There is a need to disseminate the results of this research to policy makers and the wider health and social care community to raise awareness of the current HFI trends/situation.** In particular, awareness needs to be raised amongst these groups that HFI is manifesting itself in very different ways amongst people in our communities - from outright denial and deliberate attempts to hide what is recognised as a shaming and demeaning situation, to individuals who are prepared to ask for help, and who might be presenting at food banks. Older people may well be one of those groups that are widely (mis)understood as being at low risk of HFI, when a significant number may well be at much greater risk than is currently obvious to the general population or those who rely on food bank usage statistics (fewer older people use food banks), amidst justifiable concerns about in-work poverty and benefits sanctions affecting the younger population. This awareness raising should include messages that highlight the varied nature of HFI, and which challenge the notion that charitable emergency food aid providers are able or should be expected to shoulder responsibility for dealing with highly vulnerable people who are in food crisis. An increasing but unknown number of those in HFI are not managing to escape from the circumstances which are driving their experiences.

6. Community food initiatives are clearly playing (have played) a significant role in responding to and supporting members of their local communities deal with varying degrees of HFI in recent times. They clearly see themselves playing a key role in continuing so to do. However, even those engaged in providing such programmes believe that their efforts can only contribute in a relatively small way in the face of large numbers of people who lack the basic income needed to be food secure in Scotland. In addition, there is already evidence that some initiatives which provide emergency food assistance are struggling to meet demand coming from in their communities because they cannot source enough food. There is international evidence from countries where food banks have become a highly operationalised business that they are not making any significant inroads to levels of HFI. There is no reason to suppose this experience would not be repeated in Scotland if charitable food aid remained the only response to HFI. There needs instead to be significant challenge to the social and economic factors that are driving current HFI trends. **Community food initiatives which support households in need, particularly in building confidence in food skills (including growing) should be sustained by government assistance and support. They will also probably have to continue to operate as emergency food responders in the short term.** However emergency food aid should not be seen as the solely/main source of support in the long term. Other solutions should be sought.

7. **Medium to longer term, policy interventions that address the root/basic causes of poverty e.g. to generate/increase income sufficiency and bring more certainty of income to more households in Scotland is fundamentally required to address HFI in this country.**

8. Community food initiatives are currently witnessing and actively supporting a public upsurge in interest in community gardening and grow-your-own schemes. However, we glimpsed a degree of anxiety, from a representative from community gardening initiatives, that unrealistic expectations were being placed on those schemes as things that would make a difference to HFI trends. Indeed, it seems there is currently some policy maker interest in this area. Furthermore, this research did not retrieve any literature that suggested that these schemes could (or could not) meet expectations about addressing HFI, with the search terms used for the rapid review. **Therefore, the hypothesis that such schemes enable all community members to become more food secure requires some investigation to provide the evidence to inform its use as a possible solution to this problem.**

9. Due to the fact that so little is known about the health consequences or impacts on nutritional status on people (including those affected by chronic health conditions and those who have specific dietary needs) who have come to rely on emergency food aid for long periods of time, **government and the public health care system should establish a way of monitoring the dietary adequacy and appropriateness of the food offered through the charitable secondary feeding system, to ensure its dietary adequacy and safety, and to safeguard against it exacerbating existing chronic health conditions and or dietary requirements.** There may be possible health care cost implications otherwise.

10. There needs to be better understanding of the impact of short and longer-term HFI on health, including the relationship with obesity and malnutrition (which can co-exist).

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Appendices

Appendix 1: Exclusion and Inclusion criteria and search terms and databases uses for primary literature review

In November and December 2014 six electronic bibliographic databases were searched, including; Scopus, Primo Central, Pubmed (ProQuest), Ingenta Connect (ScienceDirect (Elsevier), Web of Science (Thomson Reuters) and Social Science Index. The search was restricted by date from January 2000 up to November 2014 and to the English language.

Studies of any type (quantitative or qualitative) that took place in Scotland between 2000 and Nov 2014, that were concerned with food poverty, household food insecurity, deprivation, diet, hunger or right to food were included in the study.

Studies concerned with food aid or food banks, charities, third world contexts, first world food poverty or food insecurity outside of Scotland, environmental, ecological, agricultural or farming aspects of food insecurity or security were excluded.

Inclusion Criteria

For this review of the nature and extent of food poverty/insecurity in Scotland, the following terms were used to search the titles and key words of manuscripts:

- food poverty
- food insecurity
- food security
- food poverty and Scotland
- food insecurity and Scotland
- food security and Scotland
- household food poverty
- household food insecurity
- hunger and food poverty
- hunger and food insecurity
- household food poverty and Scotland
- household food insecurity and Scotland
- hunger and food poverty and Scotland
- hunger and food insecurity and Scotland
- right to food
- first world hunger
- diet and Scotland
- deprivation and Scotland

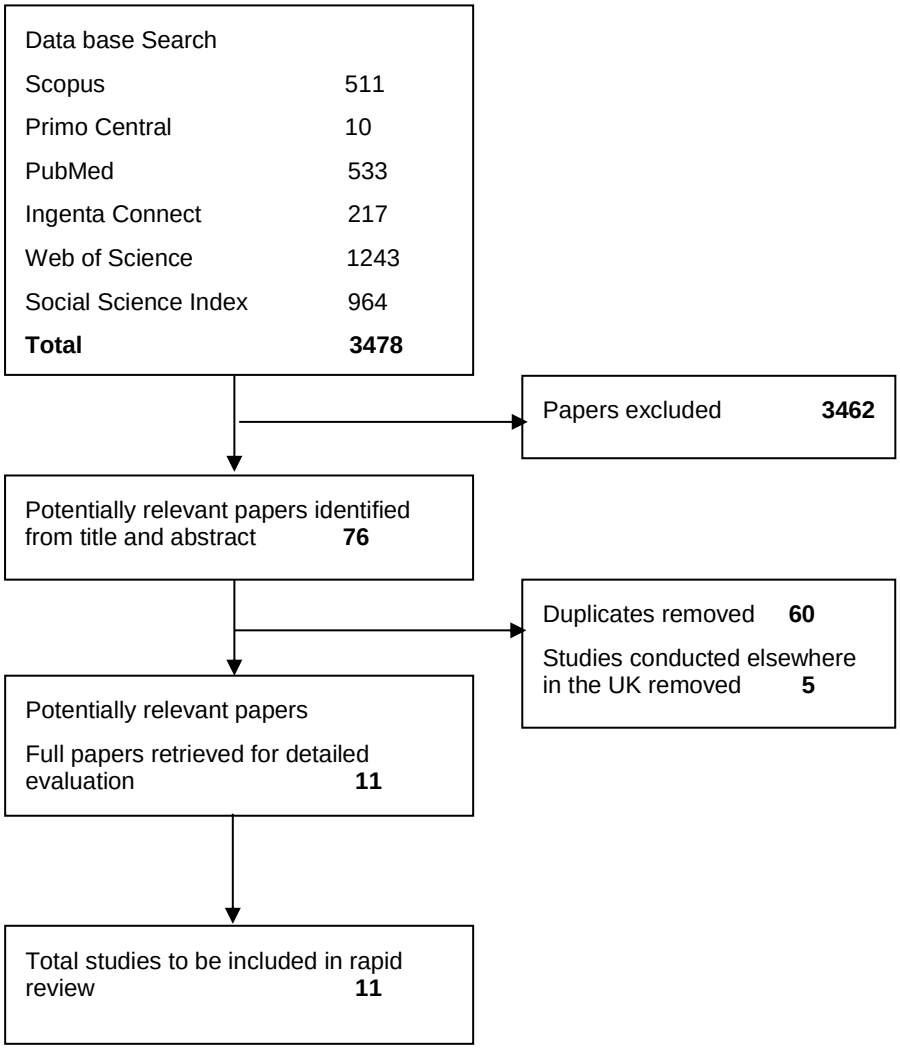
Exclusion Criteria

For this report, studies relating to the agricultural or farming aspect of food insecurity or security were excluded.

The following terms were also excluded in our search of the titles of manuscripts:

- third world
- food charity
- food aid
- food banks

Appendix 2: Flow diagram of the literature search to identify studies that fulfilled the inclusion criteria for the rapid review



Appendix 3: Details of included studies

Peer reviewed studies

Study title, authors and date study was published	Study objectives	Study type	Setting: Urban, rural or mixed	Study group of interest	Outcomes/Main results	Conclusions
Study title: Do poorer people have poorer access to local resources and facilities? The distribution of local resources by area deprivation in Glasgow, Scotland. **Authors:** Macintyre, S., Macdonald, L., and Ellaway, A. **Date published:** 1st July 2008.	To determine the location of a variety of resources and exposures by deprivation in Glasgow City.	Secondary analysis of routinely collected data.	Urban	Deprived post code area of residence.	Supermarkets, fast food chains and cafes showed no clear pattern of deprivation.	Access to resources does not always disadvantage poorer neighbourhoods.
Study title: A multilevel analysis of diet and socio-economic status in Scotland: investigating the 'Glasgow effect'. **Authors:** Gray, L. and Leyland, A. H. **Date published:** 25th November 2008.	Investigated differences between dietary habits in Glasgow with those in the rest of Scotland and the role that socio-economic factors have in explaining these.	Secondary analysis of routinely collected data (Data from 1995, 1998, and 2003 Scottish Health Surveys).	Urban	Individuals living in deprived post code area of residence.	Associations between unhealthy eating and deprivation accounted for much of the tendency of people in Glasgow to have poor diets.	Glasgow's poor diet will continue to be an issue until the underlying problems associated with poverty and social inequalities are tackled.
Study title: The relationship between food insecurity and practical food issues amongst a sample of refugees in Edinburgh. **Authors:** Gillam, L., and Clapham, M. **Date published:** 2009.	To determine the prevalence of food insecurity amongst a sample group of refugees in Edinburgh.	Self-completing questionnaire (in nine languages) administered to a convenience sample of adult refugees.	Urban	Refugees living in Edinburgh.	56% of respondents were food insecure, of which 11% reported food insecurity with child hunger.	Inferences from study limited as it reflects a small convenience sample from only two groups: refugees who were literate in one of the nine community languages and most participants had been in the UK more than 2 years.
Study title:	To investigate the quality	Cross-sectional	Urban, rural,	Individuals living in	The highest-quality fresh fruit	'Variations in food quality may

Variations in fresh fruit and vegetable quality by store type, urban-rural setting and neighbourhood deprivation in Scotland. **Authors:** Cummins et al. **Date published:** 2009.	of fresh fruit and vegetables in stores throughout Scotland and whether it varies according to food store type, rural-urban location and neighbourhood deprivation.	survey.	small town, island.	affluent and deprived parts of urban, rural, small town and island communities in Scotland.	and vegetables were found in 'medium-sized stores, stores in small town and rural areas, and stores in more affluent areas'. The lowest-quality fresh fruit and vegetables tended to be located in shops where 'food is secondary, stores in urban settings and stores in more deprived areas'.	plausibly be a micro-environmental mediating variable in food purchase and consumption and help partially explain neighbourhood differences in food consumption patterns'.
Study title: Diet and deprivation in pregnancy. **Authors:** Haggarty et al. **Date published:** 2009	To ascertain the relationship between nutrition and deprivation in pregnancy and how this affects pregnancy outcomes.	Self-administered semi-quantitative questionnaire	Urban	Women with singleton pregnancies in Aberdeen.	Deprivation in pregnancy is associated with poor diets lacking in specific nutrients. More deprived women's diets were typically characterised by lower fruit, vegetables and oily fish intakes and higher processed meat, crisps, snacks and soft drink intakes.	Poor diet in pregnancy appears to contribute to inequalities in pregnancy outcomes.
Study title: Financial trajectories: how parents and children discussed the impact of the recession. **Authors:** MacLean, A., Harden, J., and Backett-Milburn, K. **Date published:** 2010.	Explored 14 families' lived experiences of changing conditions of economic uncertainty during the recession to see how they made sense of and responded to these changes regarding their personal projects, aims and challenges.	Qualitative longitudinal study.	Scotland (Precise locations not specified in study)	Working families with primary school-aged children (or child).	Six families in stable employment with fixed incomes were 'no worse off and not cutting back' since the recession. The other eight families felt financially stretched prior to the recession and had made changes to everyday eating habits (such as buying cheaper food brands) before the recession.	Families living on low incomes prior to the recession were most likely to be affected by the recession.
Study title: Neighbourhood deprivation and the price and availability of fruit and vegetables in Scotland. **Authors:**	To investigate whether the price and availability of a basket of fruit and vegetables varies by store type and	Secondary analysis of routinely collected data.	Urban and rural areas of Scotland	Individuals from a range of socio-economic backgrounds living in urban and rural	The highest prices were evident in the smallest shops in the most deprived areas. Fruit and vegetables were less readily available in small	Availability of fruit and vegetables varies significantly by neighbourhood deprivation in small stores.

Cummins et al. **Date published:** 2010.	neighbourhood deprivation in Scotland.			locations in Scotland.	shops located within deprived neighbourhoods in comparison to similar shops in affluent areas.	
Study title: Neighbourhood food environment and area deprivation: spatial accessibility to grocery stores selling fresh fruit and vegetables in urban and rural settings. **Authors:** Smith et al. **Date published:** 2010.	To investigate whether the price and availability of a basket of fruit and vegetables varies by store type and neighbourhood deprivation in Scotland.	Secondary analysis of routinely collected data.	Urban, rural, small town, island.	Individuals living in urban, rural, small town and island communities in Scotland.	The least deprived urban neighbourhoods had greater accessibility to grocery stores than their counterparts in island, rural and small town locations. There was greater access to fresh produce in more deprived compared with less deprived urban and small town neighbourhoods. Availability of and access to fresh produce was worst in the most affluent island communities. Results were mixed for rural settings.	Overall, the most deprived neighbourhoods had the best access to grocery stores and grocery stores selling fresh produce. Associations between neighbourhood deprivation and grocery store accessibility vary by environmental setting.
Study title: Accessing healthy food: availability and price of a healthy food basket in Scotland. **Authors:** Dawson et al. **Date published:** 2010.	Explored the availability and affordability of a basket of healthy food in Scotland.	Secondary analysis of routinely collected data (data from the Healthy Eating Indicator Shopping Basket (HEISB)).	Urban, rural, small town, island.	Individuals living in affluent and deprived parts of urban, rural, small town and island communities in Scotland.	Consumers' 'basket price tended to rise with deprivation with a caveat of the lowest prices in the most deprived areas'.	Overall, accessibility to a wide range of healthy food is more dependent on the availability of medium and large stores than being in a deprived or affluent area.
Study title: Food Deserts in Dundee. **Authors:** Coyle, L. and Flowerdew, R. **Date published:** 1st June 2011.	To evaluate the applicability of the food desert concept to Dundee.	Postal survey.	Urban	Individuals living in 3 deprived and 3 less deprived post code areas of residence.	81% of respondents did not eat the recommended five portions of fresh fruit and vegetables per day.	Although dietary choices are problematic for Dundonians, Dundee not a food desert as city is too small and the vast majority of respondents were within easy reach of at least one superstore.

Study title: The food retail environment and its use in a deprived, urban area of Scotland. **Authors:** Sauveplane-Stirling et al. **Date published:** 13th April 2014.	To describe the food retail environment and map its use in a deprived urban area in Scotland.	Cross-sectional study comprised of two stages: A mapping exercise and self-completing questionnaire.	Urban	Low income in deprived post code area of residence.	There was a high availability of fruit and vegetables and a very high availability of fast food outlets. 91% of consumers shopped at a large supermarket outside Viewpark. 9% only shopped at local food outlets within Viewpark.	The predominant use of the local retail environment in a deprived community is influenced by car accessibility.

Grey literature reports

Study title, authors and date study was published	Study/Report objectives	Study type	Setting: Urban or rural or mixed	Study group of interest	Outcomes/Main results	Conclusions
Study title: The Scottish Doughnut: A safe and just operating space for Scotland. **Authors:** Sayers, M., Trebeck, K. and Stuart, F. **Publishers:** Oxfam. **Date published:** July 2014.	To ascertain what people in Scotland believed should be deemed acceptable standards of living.	Secondary analysis of routinely collected data	Urban, rural, small town, island.	Low income individuals living in urban, rural, small town and island communities in Scotland	1 in 5 people in Scotland live in relative income poverty, including the increasing numbers of people experiencing in-work poverty. This increase is due to the decline in skilled and semi-skilled jobs and an increase in low-skilled, service-sector jobs, which are insecure and low paid work. Lone parent families, single working-age households and couples with children are most at risk of being in relative poverty.	The report concluded that 'too many people are going hungry, living in overcrowded housing, experiencing poor health, anxiety and depression, with little access to social support networks'. The report does not, however, explore the reasons behind these failures, but serves to highlight the vast social inequalities experienced by citizens throughout Scotland (and the UK).
Study title: Food, fuel, finance: tackling the poverty premium. **Authors:** McBride, K. and Purcell, S. **Publishers:** Church Action on Poverty and partner organisations (Iona Community, Faith in Community Scotland, The Scottish Episcopal Church, The Church of Scotland). **Date Published:** December 2014	To explore solutions to the 'Poverty Premium' in Scotland.	Qualitative: Focus group discussions and roundtable events	Urban, rural, small town, island.	Low income individuals living in urban, rural, small town and island communities in Scotland.	The Poverty Premium on food particularly affects people living in rural areas due to a shortage of supermarkets selling cheaper and healthier foods. Participants knew their diets were unhealthy, but their incomes were too low to buy sufficient amounts of fresh fruit, vegetables and fish. A lack of cooking facilities and/or refrigerated storage additionally impeded some participants' ability to cook healthier meals.	The report recommended that the Scottish Government should develop a plan for tackling the Poverty Premium in conjunction with local communities which are worst affected by poverty. Businesses which provide food, fuel or finance are also encouraged, as part of their wider corporate social responsibility objectives, to commit to reducing the Poverty Premium. The 'Closing the Gap in Scotland' partners should pilot a 'community hub' approach to delivering a range of affordable food, fuel and finance related goods and services within one or more of the local communities in Glasgow.

Study title: Feeding Britain: A strategy for zero hunger in England, Wales, Scotland and Northern Ireland. **Authors:** All-Party Parliamentary Inquiry. **Publishers:** The Archbishop of Canterbury's Charitable Trust. **Date published:** 2014.	To understand the extent and geographical spread of hunger and food poverty in the UK and to investigate their underlying causes. To consider the effectiveness of emergency food assistance in meeting immediate and long-term needs, and the possibility of these schemes becoming permanent features of the welfare state.	Qualitative interviews/discussions	Urban, rural, small town, island.	Low income individuals living in urban, rural, small town and island communities in England, Wales, Scotland and Northern Ireland.	People fell into food poverty as a result of: delays, errors and sanctions in benefit payments; a sudden loss of earnings either through being made unemployed or having work hours reduced; families working on the minimum wage for whom earnings do not cover essential everyday utility, food and housing bills; having debts to pay; having to pay disproportionate charges for utilities such as energy and/or mobile phone bills. All food assistance providers interviewed wanted their service to evolve to tackle 'both the symptoms and causes of hunger'.	The report recommended that greater 'redistribution of usable surplus food from supermarkets and their supply chains' in the UK would ensure both a more 'reliable and varied source of food for individuals who are hungry' and reduce demand for their food assistance services. The inquiry also recommends the creation of 'Feeding Britain', a national network comprised of 'the food bank movement and other providers of food assistance, the voluntary organisations redistributing fresh surplus food, and representatives from each of the eight government departments whose policy affects the number of people at risk of hunger'.

Appendix 4: Methodology of the quantitative analysis of food poverty in Scotland

Appendix 4 will summarise the relevant methodological information for a) LCFS, b) SHeS, and c) KWP datasets and analyses. Table 1 provides a summary of key information and data which was available for use in the quantitative analysis.

Table 1: Summary of key information for LCFS, SHeS and Kantar Worldpanel

Relevant Data	**Living Costs and Food Survey**	**Scottish Health Survey**	**Kantar WorldPanel**
Latest available dataset year for estimation of current prevalence	2012	2012	2012
Datasets available for exploring trends	2007-2012	2008 and 2012	-
Number of Scottish households/observations in each annual dataset	Approximately 500 per year	8215 and 6602	2844
Household Income	McClement equivalised gross monthly household income Main source of household income	McClement equivalised gross annual household income	Gross household income in bands
Expenditure	Food and drink taken home and eaten out Electricity and gas Total consumption expenditure	Not available	Food and drink taken home
Demographics available in each dataset	Household demographics: Age Household size / composition Household type (e.g.: single parent, retired / pensioner household) Social Class (NS-SEC 8)	Individual and household demographics: Age Gender Marital Status Number of adults and children in household Education Level Occupation SIMD Urban/rural	Household demographics: Age (all household members and head of household) Household size and composition Lifestage SIMD Urban/rural
Demographics used for the analysis of food poverty/insecurity in Scotland	Age of respondent	SIMD Urban/rural	Age Household size and composition
Information on food consumption/expenditure/ affordability	All food & food group (meat and protein, starchy food, non-alcoholic drinks, food high in fat and sugar, fruit and vegetables)	Frequency of food consumption Fruit and vegetable consumption	Daily purchases of food / drink – taken home

A. Methodology Section for LCFS (2007-2012)

The LCFS is a stratified random sample survey of approximately 6,000 UK households (among which around 500 are Scottish). It is conducted annually by the Office for National Statistics (ONS), providing data for each survey year from 2007 – 2012 (with 2012 as the latest year available at the time of this analysis).The survey collects information on spending patterns and the cost of living from diaries of daily expenditure over a 2 week period. This includes food and drink taken home, takeaway meals and snacks eaten at home, meals, snacks and drinks consumed away from home. Details of household income are collected via a household interview. Demographic data includes the age and gender of each household member. However, high data collection costs related to travel mean the survey does not include any of the Scottish islands.

Variables extracted and included in this analysis constitute household expenditure on food and drink, both that purchased to take home (i.e. groceries), and that eaten away from home, but excluding alcoholic drinks.

It is important to note that the analysis used expenditure data. Further analysis including the extraction of diary data, which contains quantities of foods thus enabling the calculation of food prices, would require additional time and resources beyond the scope of the current study (60).

Food Poverty Threshold

Using the derived household level dataset of the Living Cost and Food Survey (LCFS), the equivalised incomes were identified. LCFS provides weekly gross equivalised income using the McClement index (61). This index assigns a coefficient (or weight) to every individual in a household according to his or her age. The weights are subsequently added to give a final coefficient for that particular household. The household income is then divided by the McClement index to provide the equivalised household income. Thus, it accounts not only for the size of the household but also for its composition.

For every year of the LCFS, the weekly equivalised income was multiplied by the ratio (52/12) (i.e. 52 calendar weeks/12 calendar month) to obtain the monthly equivalised income. Once the median equivalised income of the sample population was identified, the following step consisted in identifying the population who earned less than 60% of that median equivalised income. Such households were later identified as households below average income (HBAI). The process was reiterated for each survey year of the LCFS (2007-2012). Table 2 displays the number of Scottish observations, median income, number and frequency of HBAI and Non-HBAI from the LCFS (2007-2012).

Table 2: Income and poverty threshold-related information using LCFS (2007-2012)

Scottish observations	501	500	544	468	500	483
Monthly median equivalised income (£)	2040.02	2152.44	2273.55	2298.26	2097.85	2033.96
Poverty threshold (<60% of monthly equivalised income) (£)	1224.01	1291.46	1364.13	1378.95	1258.72	1220.37
Frequency of HBAI (Percentage)	116 (23.15%)	139 (27.80%)	126 (23.16%)	107 (22.86%)	115 (23.00%)	91 (18.84%)
Frequency of non-HBAI (Percentage)	385 (76.85%)	361 (72.20%)	418 (76.84%)	361 (77.14%)	385 (77.00%)	392 (81.16%)

A basic descriptive of the HBAI survey population for the LCFS Scottish sample (Table 3) is also provided. The descriptive contains information related to the household size, the number of children per household, type of tenure, gender of household head, social occupation, and main source of income. All demographics were directly obtained by the ONS from the LCFS respondents. The descriptive is presented for each survey year used in this study.

Table 3: Descriptive statistics of HBAI in the LCFS (2007-2012)

	2007		**2008**		**2009**		**2010**		**2011**		**2012**	
Household size	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**
1	54	46.55	74	53.24	53	42.06	53	49.53	51	44.35	45	49.45
2	44	37.93	41	29.5	39	30.95	32	29.91	34	29.57	23	25.27
3	12	10.34	14	10.07	15	11.9	14	13.08	14	12.17	7	7.69
4 and more	6	5.17	10	7.2	19	15.08	8	7.47	16	13.92	16	17.58
Total	*116*	*100*	*139*	*100*	*126*	*100*	*107*	*100*	*115*	*100*	*91*	*100*
Number of children												
0	86	74.14	112	80.58	88	69.84	76	71.03	81	70.43	65	71.43
1	19	16.38	13	9.35	17	13.49	21	19.63	13	11.3	10	10.99
2	9	7.76	9	6.47	13	10.32	8	7.48	13	11.3	7	7.69
3 and more	2	1.72	5	3.6	8	6.35	2	1.86	8	6.96	9	9.89
Total	*116*	*100*	*139*	*100*	*126*	*100*	*107*	*100*	*115*	*100*	*91*	*100*
Type of tenure												
Owner	31	26.73	53	38.13	34	26.98	34	31.78	32	27.82	40	43.96
Rent	80	68.97	82	59	88	69.84	71	66.35	79	68.7	48	52.76
Rent free	5	4.31	4	2.88	4	3.17	2	1.87	4	3.48	3	3.3
Total	*116*	*100*	*139*	*100*	*126*	*100*	*107*	*100*	*115*	*100*	*91*	*100*
Gender												
Male	51	43.97	64	46.04	56	44.44	43	40.19	55	47.83	49	53.85
Female	65	56.03	75	53.96	70	55.56	64	59.81	60	52.17	42	46.15
Total	*116*	*100*	*139*	*100*	*126*	*100*	*107*	*100*	*115*	*100*	*91*	*100*
Social class												
Higher managerial	2	1.72	2	1.44	5	3.96	1	0.93	2	1.74	8	8.79
Intermediate	5	4.31	12	8.63	7	5.55	7	6.54	7	6.09	11	12.09
Routine & manual	16	13.79	15	10.8	18	14.28	12	11.22	15	13.05	21	23.07
Other*	93	80.18	110	79.15	96	76.19	87	81.31	91	79.13	51	56.05
Total	*116*	*100*	*139*	*100*	*126*	*100*	*107*	*100*	*115*	*100*	*91*	*100*
Main source of income												
Wages salaries	14	12.07	18	12.95	11	8.87	18	16.82	11	9.57	19	21.11
Self-employment	1	0.86	4	2.88	2	1.61	2	1.87	2	1.74	4	4.44
Investment income	3	2.59	2	1.44	1	0.81	1	0.93	2	1.74	1	1.11
Annuities pensions	3	2.59	4	2.88	2	1.61	6	5.61	3	2.61	3	3.33
Social sec. benefits	90	77.59	108	77.7	102	82.26	77	71.96	95	82.61	62	68.89
Income-other sources	5	4.31	3	2.16	6	4.84	3	2.8	2	1.74	1	1.11
Total	*116*	*100*	*139*	*100*	*124*	*100*	*107*	*100*	*115*	*100*	*90*	*100*

** Other includes= never worked and long-term unemployment, student, occupation not stated, not classifiable for other reasons*

Food income share and food expenditure ratios by food group

LCFS provides information on weekly food expenditure and weekly equivalised income. Food income share (%) was obtained by dividing weekly household food expenditure by weekly equivalised household income and multiplying the ratio by 100. The operation was reiterated for every survey year. A variable for 'total weekly food' expenditure was available in the LCFS dataset.

Information derived from the LCFS also enabled the calculation of food income ratios by food group. Five food groups matching the Scottish Eatwell Plate (Table 4) were created. LCFS provided information on weekly food expenditure by type of food. In addition, 2 food groups (Other food and Non-alcoholic drinks) were added to balance the sum of food ratios (such that they sum up to 100%). The main food groups are as follows:

- Starchy food
- Fruit and vegetables (F&V)
- Milk and dairy products
- Meat, fish, eggs, beans and other non-dairy sources of protein (meat & protein)
- Food and drinks high in fat and/or sugar (FHFS)
- Other food
- Non-alcohol drinks

Food income ratios were calculated using variables directly derived from the LCFS, such that each food group were individually divided by the 'total sum of weekly food expenditure'. The ratios were multiplied by 100 to obtain the percentage share. More formally:

$$food\ income\ share = \frac{\sum Xit}{\sum Yit} * 100;$$

where *X* corresponds to a food group of individual *i* at time *t* and *Y* is the sum of weekly food expenditure of individual *i* at time t (where t: 2007, … , 2012). Weekly food expenditure for each food groups was provided directly by the LCFS. Similar analyses were done for older households. The LCFS does not include a variable that can be used to identify rural households.

Table 4: Scottish Eatwell Plate (2014) and their food variables equivalent available in the LCFS

Eatwell Plate (2014) food categories	Food variables available in LCFS
Bread, rice, potatoes, pasta and other starchy foods (Starchy Food)	Rice; bread; pasta products; potatoes; other bread and cereals
Fruit and vegetables (F&V)	Citrus fruits; bananas; apples; pear; stone fruits; berries; other fresh ; chilled or frozen fruits; preserved fruit and fruit-based products; leaf and stem vegetables; cabbages; vegetables grown for their fruits; root crops; non-starchy bulbs and mushroom; dried vegetables; other preserved or processed vegetables
Milk and dairy products	Whole milk; low fat milk; preserved milk; yoghurt; cheese and curd; other milk products
Meat, fish, eggs, beans and other non-dairy sources of protein (meat & protein)	Beef; pork; lamb; poultry; sausages; bacon and ham; offal, pâté, etc.; other preserved or processed meat and meat preparations; other fresh, chilled or frozen edible meat; fish; seafood, dried, smoked or salted fish and seafood, other preserved or processed fish and seafood and preparations; eggs ; dried fruits and nuts
Foods and drinks high in fat and/or sugar (FHFS)	Cakes and puddings; pastry (savoury); butter; margarine and other vegetable fats; peanut butter; olive oil; edible oils; other edible animal fats; sugar; jams, marmalades; chocolates; confectionary products; edible ices and ice cream; other sugar products; sauces, condiments; salt, spices and culinary herbs; baker yeast, dessert preparation, soups
Other food	Other foods
Non-alcoholic drinks	Tea; coffee; cocoa and powdered chocolates; mineral or spring waters; soft drinks; fruit juices; vegetable juices

Fuel income ratios and gas and electricity method of payment

The LCFS includes data on household spending on fuel and lighting. Therefore, variables to account for the share of income spent on fuel, light and power between HBAI and Non-HBAI were generated; as well as their equivalent for gas and electricity type of payment. Fuel income ratios were simply obtained by dividing the sum of weekly fuel expenditure by the weekly equivalised income, and multiplied by 100 to obtain the percentage share. More formally:

$$fuel\ income\ share = \frac{\sum \gamma it}{\sum \tau it} * 100;$$

Here γ corresponds to the sum of weekly fuel expenditure of individual *i* at time *t* and τ is the weekly equivalised income of individual *i* at time t (where t: 2007, … , 2012). The types of gas (and electricity) payments were also provided by the LCFS. Considering fuel income ratios were calculated first, it was not necessary to calculate them for each type of payment. Instead, the Stata command 'tabulation' was used and listed the fuel income ratios for each type of gas (and electricity) payment.

Vulnerable group – Older people

Using the age of the respondent, households which included men age 65 and above and women aged 60 and above were identified.

B. Methodology Section for SHeS (2008-2012)

The Scottish Health Survey (SHeS) is commissioned by the Scottish Government Health Directorate and the continuous survey has been conducted on an annual basis since 2008 (the survey was conducted at intervals in 1995, 1998 and 2003). The SHeS was designed to provide estimates at the national level using a multi-stage stratified probability sampling design. It seeks to gather information on the prevalence of different health conditions and health-related behaviours, including dietary intake information. It also provides information about foods that respondents reported usually eating, and in more detail for fruit and vegetable consumption on the day prior the interview.

Five years (2008 to 2012) of the SHeS were included in this study. Table 5 shows the sample sizes and selected participant characteristics for each survey year. Further details of survey and survey design can be found at http://www.gov.scot/Publications/2012/09/7854/3 (62).

Food Poverty Threshold

SHeS provides the annual household equivalised (using McClement index) income of the survey population. Firstly, positive values of those incomes were identified since some respondents refused to give the value of their income, resulting in less available observations (see Table 5 for more details). Once the median income of the population survey was identified, the poverty threshold was created, such that those household earning less than 60% of that equivalised median income were considered as HBAI.

Table 5: Income and poverty threshold-related information using SHeS (2008-2012)

SHeS	2008	2009	2010	2011	2012
Scottish observations	8215	10,138	9038	9531	6602
N^{o} of negative values of equivalised income**	1040	1264	1270	1427	929
N^{o} of positive observations of equivalised income	7175	8874	7768	8104	5673
Annual median equivalised income (£)	21,985.29	22,569.44	22,100	23,135.59	24,074.07
Poverty threshold (<60% of annual equivalised income) (£)	13,191.174	13,541.664	13,260	13,881.354	14,444.44
Frequency of HBAI *(Percentage)*	938 (13.07%)	1049 (11.82%)	1026 (13.21%)	1030 (12.71%)	696 (12.27%)
Frequency of Non-HBAI *(Percentage)*	6237 (86.93%)	7825 (88.18%)	6742 (86.79%)	7074 (87.29%)	4977 (87.73%)

Descriptive statistics using demographics directly obtained from the SHeS head of household is provided. The main demographics (household size, gender of household head, age, marital status, ethnicity, tenure, Scottish Index of Multiple Deprivation (SIMD), rural/urban indicator, social occupations and educational level) provide a greater insight of the HBAI in the SHeS (Table 6).

*** Those values correspond to households who refused to give their income or did not know their income. These values cannot be identified with other income variables, since the other income variables don't have a corresponding income.*

Table 6: Descriptive statistics of HBAI in the SHeS (2008-2012)

	2008		2009		2010		2011		2012	
Household size	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**
1	375	39.98	400	38.13	402	39.18	393	38.16	256	36.78
2	327	34.86	353	33.65	313	30.51	317	30.78	243	34.91
3	120	12.79	130	12.39	145	14.13	145	14.08	97	13.94
4 and more	116	12.37	166	15.83	166	16.18	175	16.99	100	14.37
Total	*938*	*100*	*1,049*	*100*	*1,026*	*100*	*1,030*	*100*	*696*	*100*
Gender										
Male	357	38.06	389	37.08	397	38.69	398	38.64	274	39.37
Female	581	61.94	660	62.92	629	61.31	632	61.36	422	60.63
Total	938	100	*1,049*	*100*	*1,026*	*100*	*1,030*	*100*	*696*	*100*
Age										
17-30	92	9.81	122	11.63	154	15.01	132	12.82	103	14.8
30-40	131	13.97	148	14.11	137	13.35	140	13.59	99	14.22
40-50	159	16.95	198	18.88	184	17.93	177	17.18	116	16.67
50-60	131	13.97	129	12.3	176	17.15	191	18.54	97	13.94
60 and more	425	45.31	452	43.09	375	36.55	390	37.86	281	40.37
Total	*938*	*100*	*1049*	*100*	*1,026*	*100*	*1,030*	*100*	*696*	*100*
Marital status										
Single	232	24.73	295	28.12	364	35.48	327	31.78	259	37.21
Married or civil partner	307	32.73	324	30.88	285	27.78	300	29.16	223	32.04
Divorced, separated or widow	399	42.54	430	41	377	36.74	402	39.06	214	30.74
Total	*938*	*100*	*1,049*	*100*	*1,026*	*100*	*1,029*	*100*	*696*	*100*
Ethnic group										
White	904	96.69	1025	97.81	977	95.79	992	96.58	673	96.7
Non-White	31	3.31	23	2.22	43	4.22	35	3.4	23	3.3
Total	*935*	*100*	*1,048*	*100*	*100*	*0.49*	*1,027*	*100*	*696*	*100*
Household tenure										
Buying (mortgage or loan)	102	10.87	132	12.61	133	12.98	97	9.42	75	10.78
Own outright	259	27.61	255	24.36	188	18.34	228	22.14	184	26.44
Rent	577	61.52	660	63.03	704	68.68	705	68.45	437	62.78
Total	*938*	*100*	*1,047*	*100*	1,025	100	*1,030*	*100*	*696*	*100*
SIMD 2006 quintiles										
1st - most deprived	306	32.62	384	36.61	404	39.38	402	39.03	234	33.62
2nd	230	24.52	240	22.88	271	26.41	223	21.65	171	24.57
3rd	192	20.47	227	21.64	163	15.89	209	20.29	142	20.4
4th	166	17.7	134	12.77	130	12.67	143	13.88	106	15.23
5th - least deprived	44	4.69	64	6.1	58	5.65	53	5.15	43	6.18
Total	*938*	*100*	*1,049*	*100*	1,026	100	*1,030*	*100*	*696*	*100*
Urban/Rural Indicator (Scotland)										
Urban	748	79.76	862	82.18	895	87.24	825	80.09	551	79.16
Rural	190	20.25	187	17.83	131	12.77	205	19.91	145	20.83
Total	*938*	*100*	*1,049*	*100*	1,026	100	1,030	100	696	100.0
Occupations										
Managerial and professional	105	11.73	118	11.91	100	10.55	115	11.94	82	11.78
Intermediate	161	17.99	174	17.56	173	18.25	189	19.63	131	18.82
Routine and manual	629	70.28	699	70.53	675	71.2	659	68.43	454	65.23
Total	*895*	*100*	*991*	*100*	*948*	*100*	*963*	*100*	*696*	*100*
Highest educational qualification										
Degree or higher	95	10.19	91	8.69	98	9.61	99	9.68	70	10.09
HNC/D or equivalent	50	5.36	65	6.21	67	6.57	82	8.02	63	9.08
Higher grade or equivalent	78	8.37	114	10.89	104	10.2	109	10.65	89	12.82
Standard grade or equivalent	184	19.74	215	20.53	224	21.96	243	23.75	156	22.48
Other school level	129	13.84	110	10.51	116	11.37	113	11.05	55	7.93
No qualifications	396	42.49	452	43.17	411	40.29	377	36.85	261	37.61
Total	*932*	*100*	*1,047*	*100*	*1,020*	*100*	*1,023*	*100*	*694*	*100*

Food intake frequency

For the purpose of the study, the type of food purchased and the food intake frequency of individuals living in HBAI and Non-HBAI was analysed. It was possible to obtain individual-level information since every member of a household was interviewed. Respondents were asked about the type of food they purchase (type of bread, milk and breakfast cereals). More formally:

- Type of bread: white, wholemeal, other type (i.e. brown, granary, wheatmeal, wholemeal/white mixture, other bread that does not fit this coding). Alternatively, respondents could also state they do not eat bread.

- Type of milk: whole milk, semi-skimmed/skimmed, other (soya, rice, oat-based milk, goat's milk, no usual type, other kind of milk). Alternatively, respondents could declare they do not drink milk.

- Type of breakfast cereals: Respondents are given specific examples of breakfast cereals which are high fibre and high sugar, high fibre and low or no sugar, low fibre & high sugar, low fibre and low or no sugar, other (no type, not on coding list). Alternatively, respondents could simply state they do not eat breakfast cereals.

Moreover, respondents were asked about their food intake frequency regarding certain types of food. The food groups selected for the study were chosen such that they would indicate whether or not individuals reach certain targets of the Scottish Dietary goals. For the purpose of our analysis, the number of frequency groups were reduced as explained below (Table 7). For instance, respondents could choose between several frequency intake when ask about their 'potatoes' frequency intake.

Table 7: List of food frequency categories in SHeS

Original frequency values (as provided in SHeS)	**Modified frequency values (for the Food Poverty report)**	
6 or more times a day 4 or 5 times a day 2 to 3 times a day	At least twice a day	At least once a day***
Once a day	Once a day	
5 or 6 times a week 2 to 4 times a week Once a week	At least once a week	
1 to 3 time per month Less often or never	At most thrice a month or less often	

This study specifically focuses on the food frequency intake of starchy food (number of slices of bread/rolls eaten per day; potatoes), protein (poultry; meat; oily fish) and food high in fat and/or sugar (cakes, scones or pastries; biscuits). Although SHeS contains information on the food intake of other products (chips, meat products, tinned tuna fish, white fish, cheese, sweets or chocolates, ice-cream, milk, and soft drinks), the food items selected are sufficiently representative of the Scottish Dietary Goals.

****When the values in the 'daily' frequency were low or nil, such frequencies were merged into one, such that: once a day; 2 to 3 time a day; 4 to 5 times a day and 6 or more times a day would give a new frequency value : at least once a day*

SHeS also included a specific question on fruit and vegetables, with individuals asked to state how many and of what type of fruit and vegetables they had eaten the day before the interview. The SHeS use this information to derive a variable describing the number of portions of fruit and vegetables consumed. This variable was used to estimate the percentages of HBAI (and Non-HBAI) individuals who achieved a 5-a-day intake of fruit and vegetables.

Vulnerable groups

SIMD (Scottish Index of Multiple Deprivations)

The SHeS provides information on respondents' SIMD. The SIMD identifies geographic areas according to their level of deprivation, ranging from the most deprived (1^{st}) to the least deprived (5^{th}). The SIMD combines 38 indicators across 7 domains: income, employment, health, education, skills and training, housing, geographic access and crime. More information regarding the methodology and use of the SIMD can be obtained on the SIMD Scottish Government web page ((63).

Rural/urban classification

SHeS classifies respondent into 6 urban/rural classifications. They are as follows:

- Large urban areas: settlements of 125,000 or more people.
- Other urban areas: settlements of 10,000 to 124,999 people.
- Accessible small towns: settlements of 3,000 to 9,999 people and within 30 minutes' drive of a settlement of 10,000 or more.
- Remote small towns: settlements of 3,000 to 9,999 people and with a drive time of over 30 minutes to a settlement of 10,000 or more.
- Accessible rural: areas with a population of less than 3,000 people, and within a 30 minute drive time of a settlement of 10,000 or more.
- Remote rural: areas with a population of less than 3,000 people, and with a drive time of over 30 minutes to a settlement of 10,000 or more.

For the purpose of the study, urban and rural were regrouped into 2 categories following the Scottish Government definition (64). They are as follows: (i) urban areas: settlements of 3,000 or more people; (ii) rural areas: settlements of less than 3,000 people.

Older households

Using the respondents' age, women aged 60 and above and men aged 65 and above were identified.

C. Methodology Section for Kantar Worldpanel data (2012)

Kantar Worldpanel (KWP) is a commercial, market research company that collects information on all grocery, including food and drink, purchases that are brought into the home. KWP participants (panel members) scan all shopping till receipts and bar codes of items purchased using electronic scanners. Data are returned automatically to KWP each week. Purchase information includes what the item was, weight, price paid, any price discount and where (shop and location) the item was bought. KWP collect continuous data and participants remain in the KWP panel for periods ranging from month to many years. Members of the public are invited to become panel members, and recruitment is not randomised as KWPs commercial customers are more interested in some types of households than others. Over the five years there has been increasing interest in the KWP data from academia. The University of Aberdeen obtained access to the KWP data collected between 2006 and 2012. Demographic data from 2008 and 2012, and diet related data from 2012 were available for the current analysis.

Participants

Scottish households (n=4129 in 2012) recorded all of the food and drink purchases that were brought back into the home (therefore excluding food consumed outside the home) during 2012. KWP collect only limited information on household income (total household income in £10,000 p.a. bands) and it was not possible to separate households into those who were above or below 60% of median income, as has been done with the LCFS and SHeS datasets. It was also not possible to calculate equivalised household incomes. Being at risk of being in food poverty was estimated by comparing income band with the minimum income standard for each household type, based on composition (37). Households with incomes in the bands below the band in which the minimum income standard fell were defined as being at risk of being in food poverty (identified here as “HBAI” for consistency with the LCFS and SHeS data). Each household was classified for income in 2008 and 2012 using the appropriate minimum income standard value for the year. Households were grouped according to the following compositions (i) single adult households, (ii) two adults with no children, (iii) single adult and one or more children (iv) two or more adults and one or more children, (v) households of two or more adults with no children and (vi) one or more elderly people (aged over 65).

Data preparation

Weights of foods and drinks recorded by KWP are those as purchased, and several factors need to be accounted for to convert as purchased weight to as eaten weight. Firstly, a factor to adjust for food preparation weight changes (e.g. the weight increase when dry pasta is cooked) and for unavoidable waste (e.g. banana skins) was estimated for each of the 2092 product groups used by KWP, using information from food composition tables (65). Secondly an avoidable waste factor was estimated for each food group by mapping food products for which WRAP have published waste information (66) onto the KWP product groups.

Composite foods and dishes (such as “ready meals”) were disaggregated to include an estimate of the proportions of meat, red meat, processed meat, oily fish, fruit and vegetables, to enable the contribution of these foods to the individual Scottish Dietary Goals to be included. Food group proportions were estimated using

representative recipes from food composition tables (65), from similar foods and dishes, or from internet sources.

Calculation of Scottish Dietary Goals

Diet quality

Diet quality was estimated by comparison to the Scottish Dietary Goals (35). As data collected by KWP are total household purchase data, adjustments to the weights and volumes purchased were needed to estimate the amounts of foods that were available for consumption per person to make values comparable to the Scottish Dietary Goals. The proportions of people meeting each of the Scottish Dietary Goals were calculated for each of the household and income groups.

Energy Density
The Scottish Dietary Goal for dietary energy density is for “average energy density of the diet to be lowered to 125 kcal/100g by reducing intake of high fat and/or sugary products and by replacing with starchy carbohydrates (e.g. bread, pasta, rice and potatoes), fruit and vegetables”. Energy density was calculated following the method of (67). Energy density was calculated from the contribution of all food and all milks, and excluding all drinks (tea, coffee, water, fruit juices, squashes, sugar-containing drinks, and artificially-sweetened drinks).

Oily Fish
An oily fish factor, representing the proportion, was estimated for each of the individual food items. Canned tuna were not included as oily fish because omega 3 oil levels are reduced when tuna is canned. Fish oil based supplements were also not included.

Sugar
Food labels, from which Kantar obtain the nutritional information, give a sugar value for total sugar only, whereas the Scottish Dietary Goal for sugar relates to Non-Milk Extrinsic Sugar (NMES). An NMES factor representing the estimated proportion of total sugar that was NMES was estimated for each of the Kantar food groups using an adaption of the methods used in the National Diet and Nutrition Survey (68). For some processed foods it was either not possible to estimate the proportion of total sugar that was NMES using the method of (68) because the Kantar data do not have values for the individual sugars (i.e. naturally occurring sugars, added sugars and milk sugars) or the ingredients. For these foods an average value was taken from the NDNS nutrient database (69) and applied to all foods within a group.

Salt
Total dietary salt was estimated from the sodium content of foods in the nutritional database. Salt content was calculated as 2.54 * sodium. Table salt was not included as purchases increased significantly during winter, presumably for use on icy paths.

Standardizing households

Households in KWP vary in the number of adults and children, and range from a single elderly female to a household of five adults and four children. Simply dividing the total household food intake by the number of people would give and average per person value, but would not account for the differing food requirements of the

household members. This would introduce a bias in the numbers of people meeting some of the Scottish Dietary Goals – those that are based on absolute amounts. Energy requirements for each household member were estimated from the Dietary Reference Values for Energy (SACN 2012) using sex and age and Tables 15 and 16 of the report (70). An average value for children under one year was taken (Table 5 of SACN 2012). The total estimated energy requirement for the household was calculated, and scaled to a multiple of the requirements of an 18 year old male (being 13.2MJ/day).

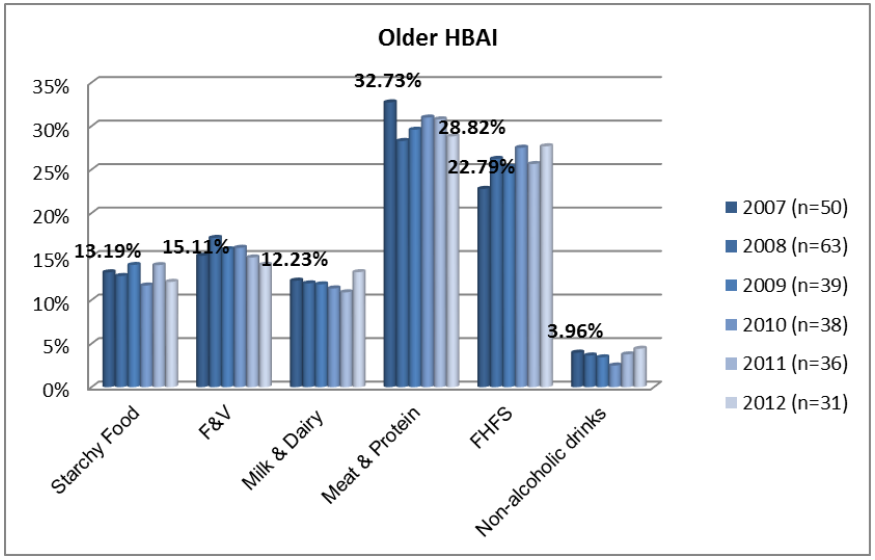
D. Excluded datasets

Other potential datasets were excluded either (i) because Scottish households could not be separately identified, (ii) or because permission to access relevant variables from datasets could not be secured during the time frame of this study, or (iii) because of a lack of one or more key variables. Three datasets excluded are as follows:

- General Lifestyle Survey – delayed access due to requisite data access permission process
- European Union Statistics on Income and Living Conditions (EU-SILC) – Scotland not identified as a separate UK region
- Family Resources Survey (FRS) – contains very detailed information on household income but almost no information on food purchases dietary intake (except for question about childrens' daily intake of fruit and vegetables).

Appendix 5: Supplementary graphs from the secondary exploratory quantitative analysis of food poverty/insecurity in Scotland

Figure 10: Expenditure of food group as a percentage of equivalised household income (income share %) for Older HBAI and Older Non-HBAI using LCFS (2007-2012)



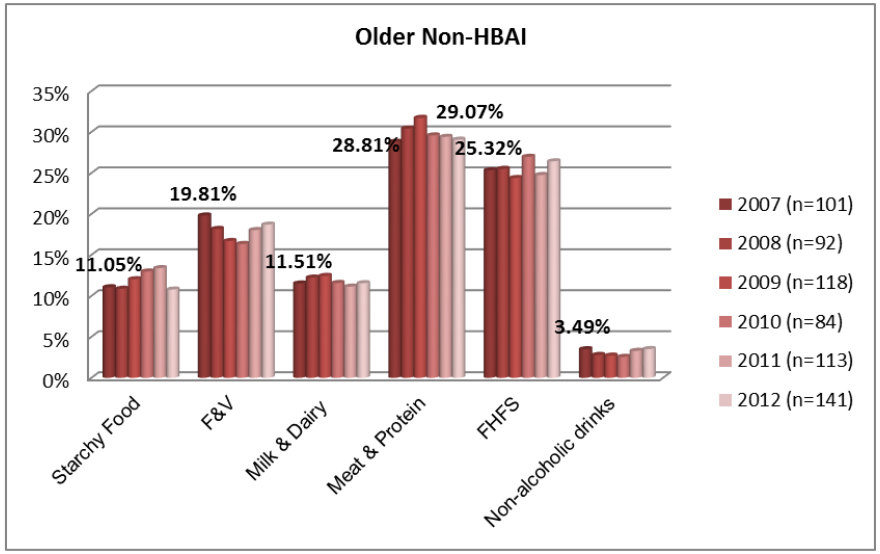
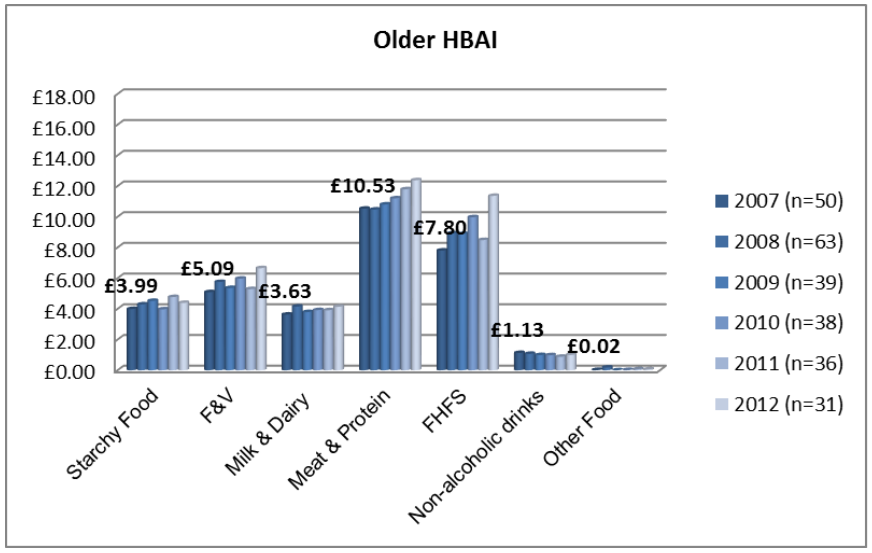


Figure 11: Weekly food expenditure (£ per week) by food group for Older HBAI and Older Non-HBAI using LCFS (2007-2012)



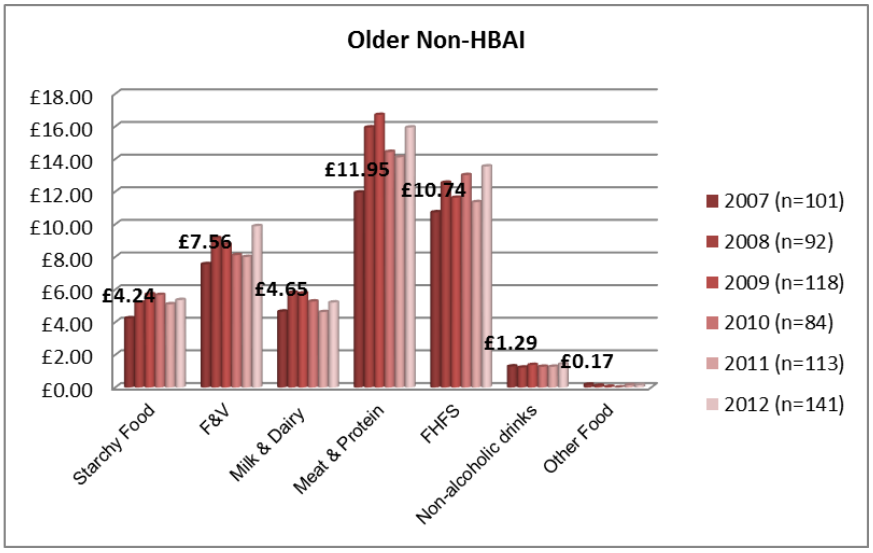


Figure 12: Expenditure of fuel (gas and electricity) as a percentage of equivalised household income (income share %) for HBAI and Non-HBAI using LCFS (2007-2012)

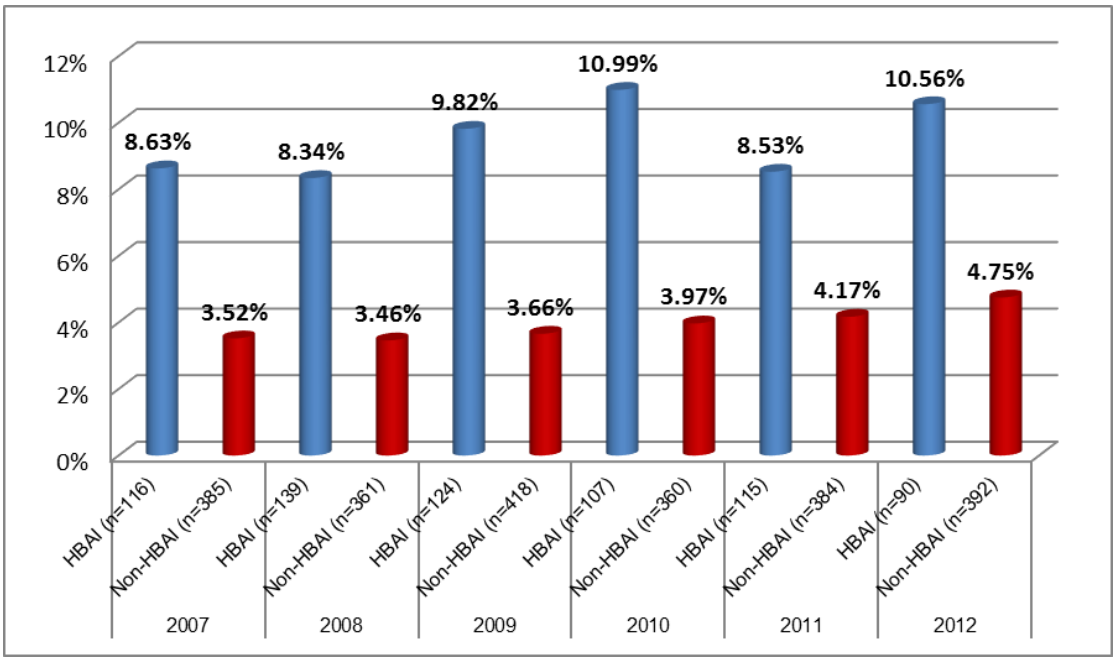


Figure 13: Weekly fuel (gas and electricity) expenditure (£ per week) for HBAI and Non-HBAI using LCFS (2007-2012)

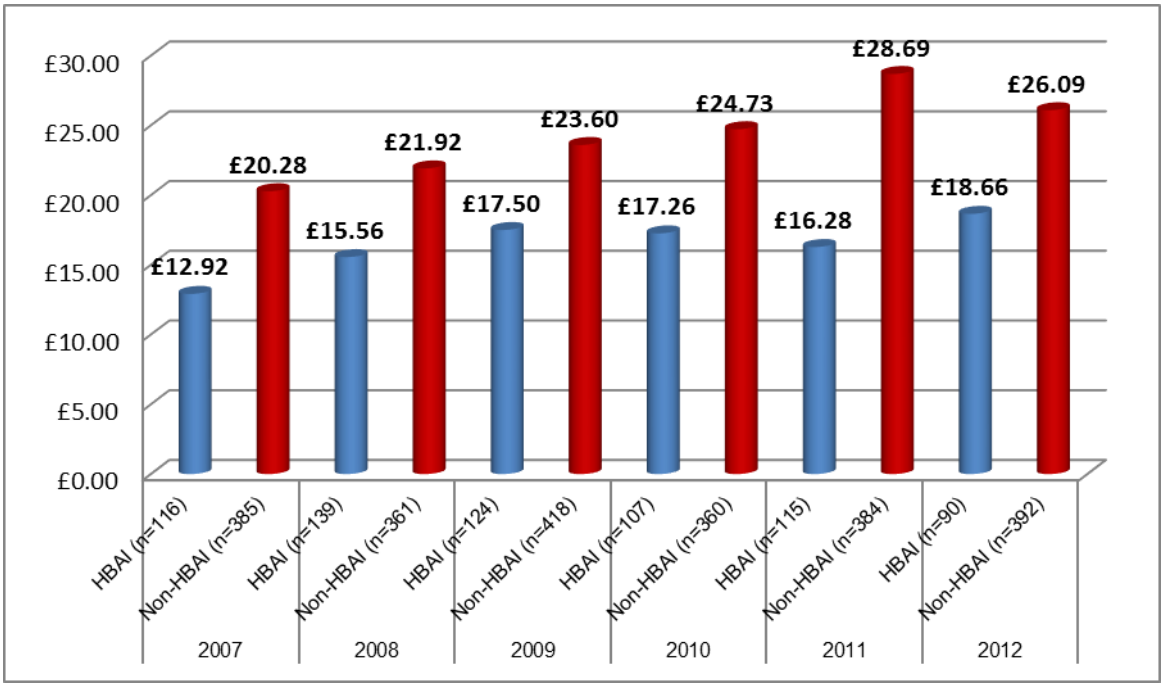


Figure 14: Fuel income share (%) by gas payment method for HBAI and Non-HBAI using LCFS (2007-2008)

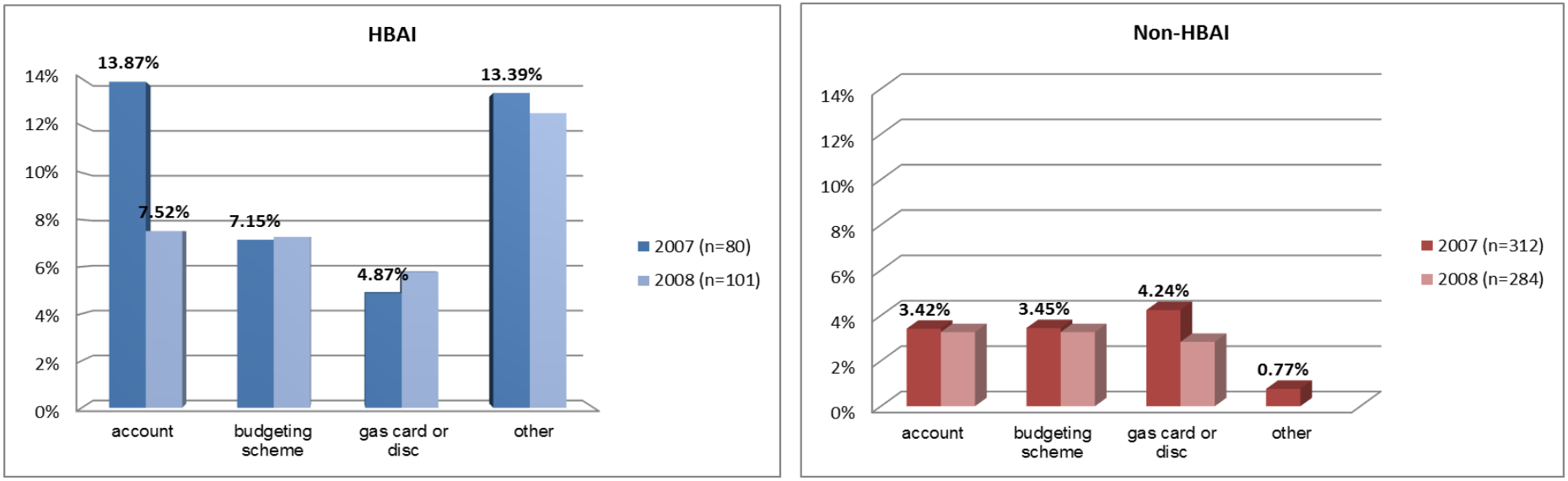


Figure 15: Fuel income share (%) by gas payment method for HBAI and Non-HBAI using LCFS (2009-2012)

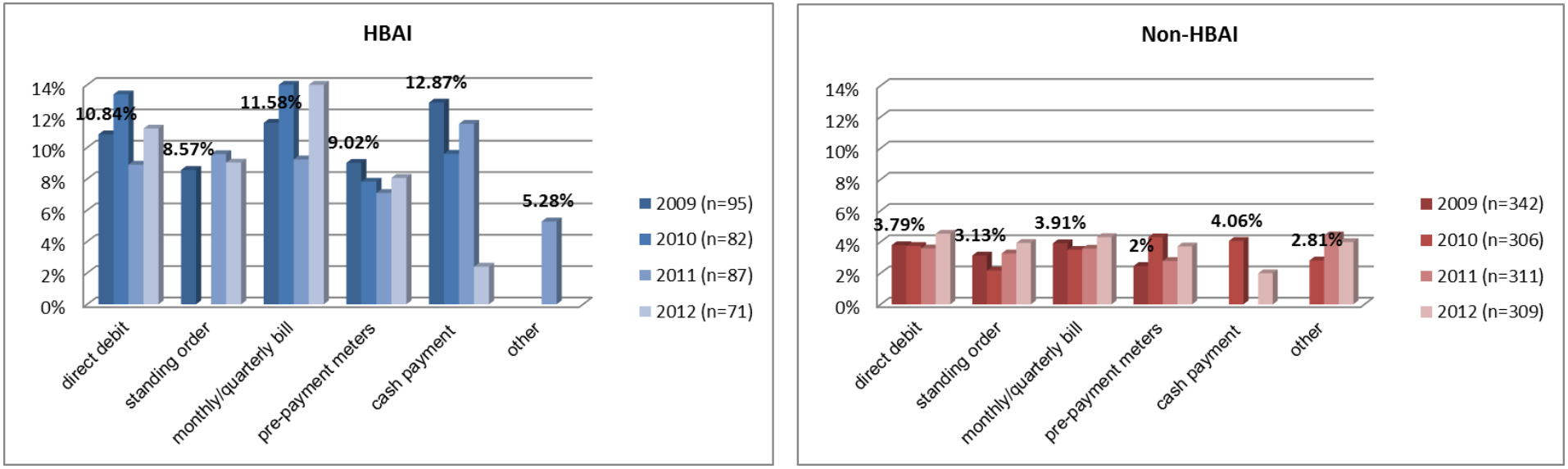
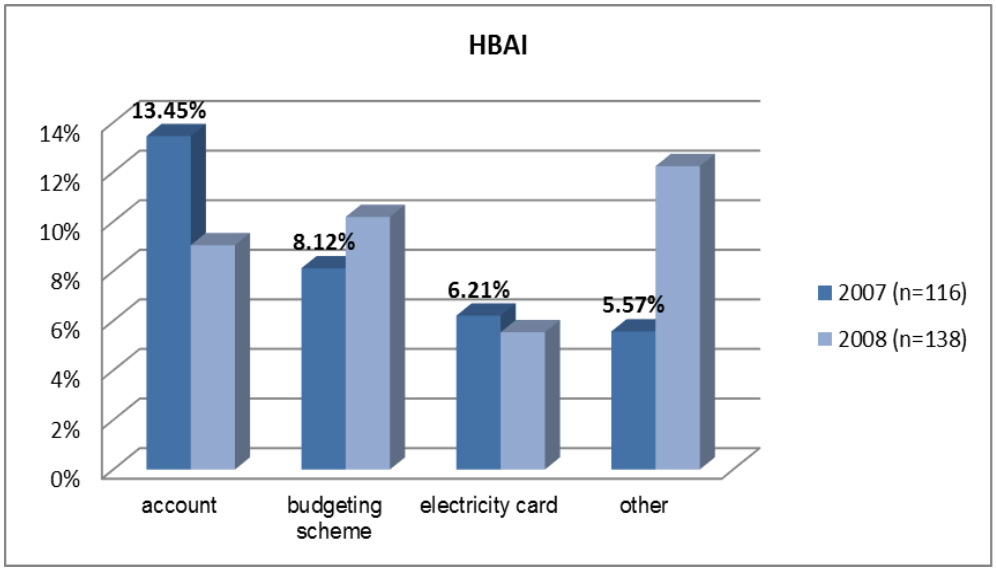


Figure 16: Fuel income share (%) by electricity payment method for HBAI and Non-HBAI using LCFS (2007-2008)



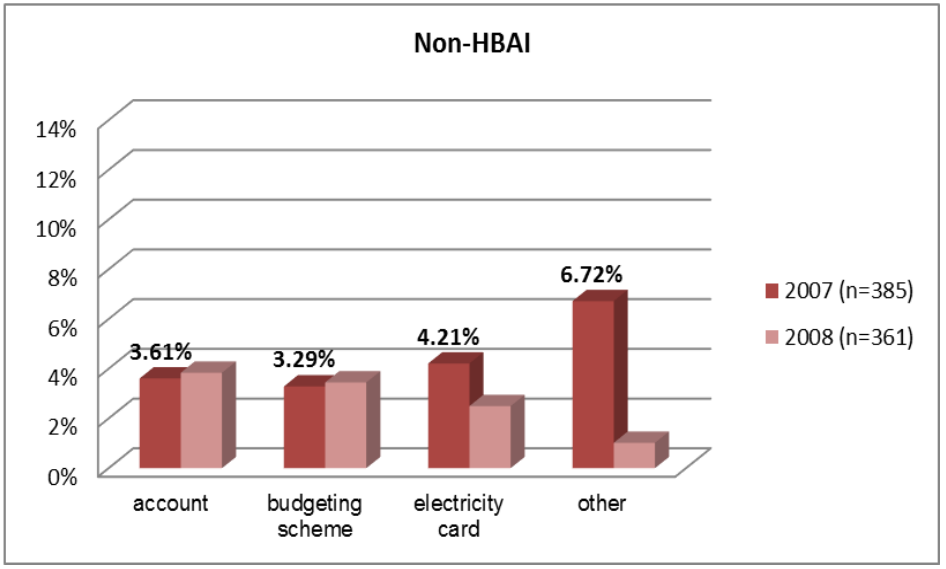
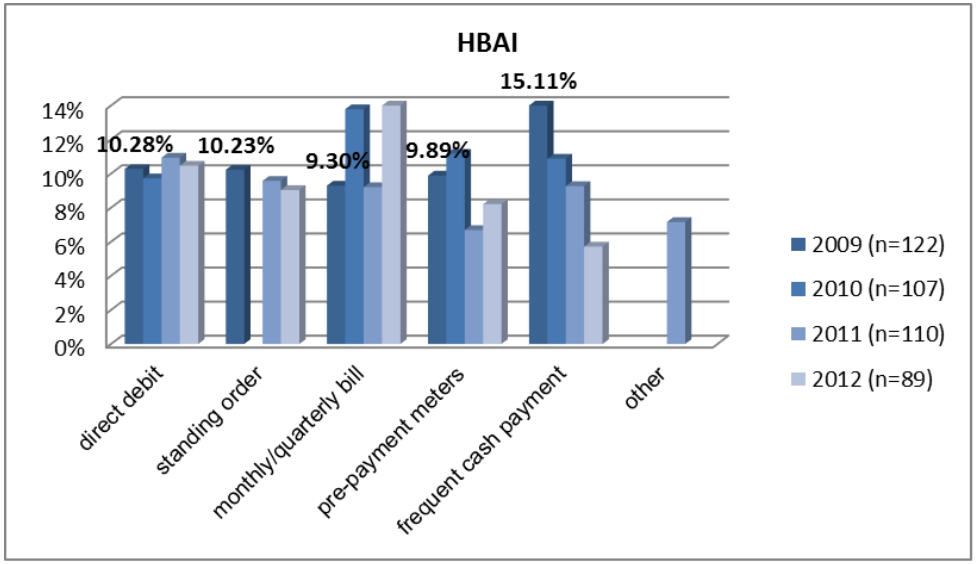


Figure 17: Fuel income share (%) by electricity payment method for HBAI and Non-HBAI using LCFS (2009-2012)



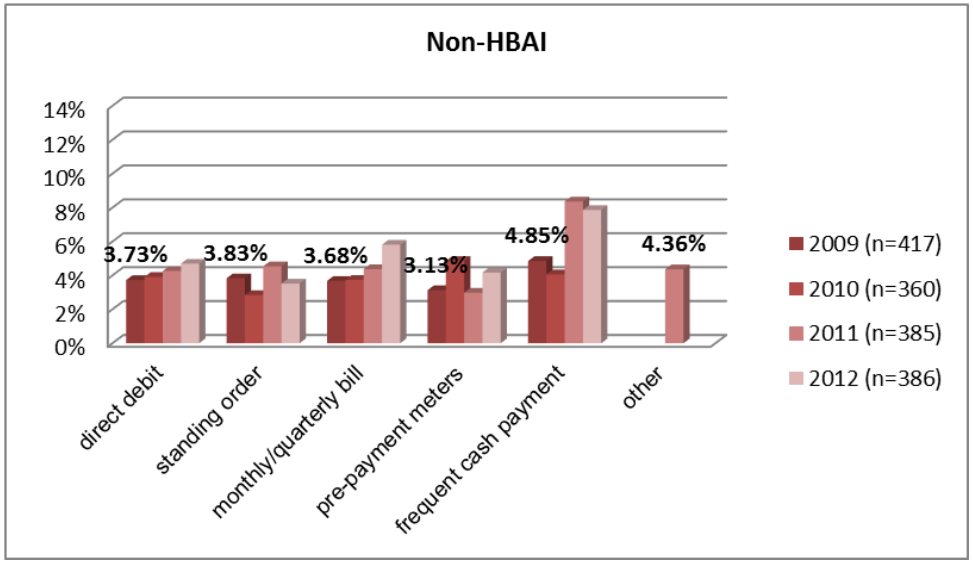
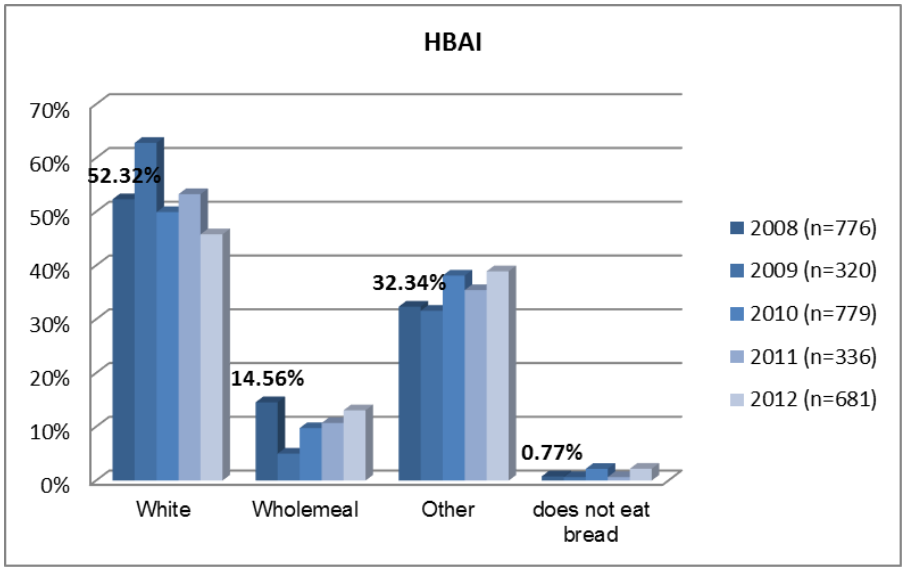


Figure 18: Percentage of HBAI and Non-HBAI by type of bread purchased using SHeS (2008-2012)



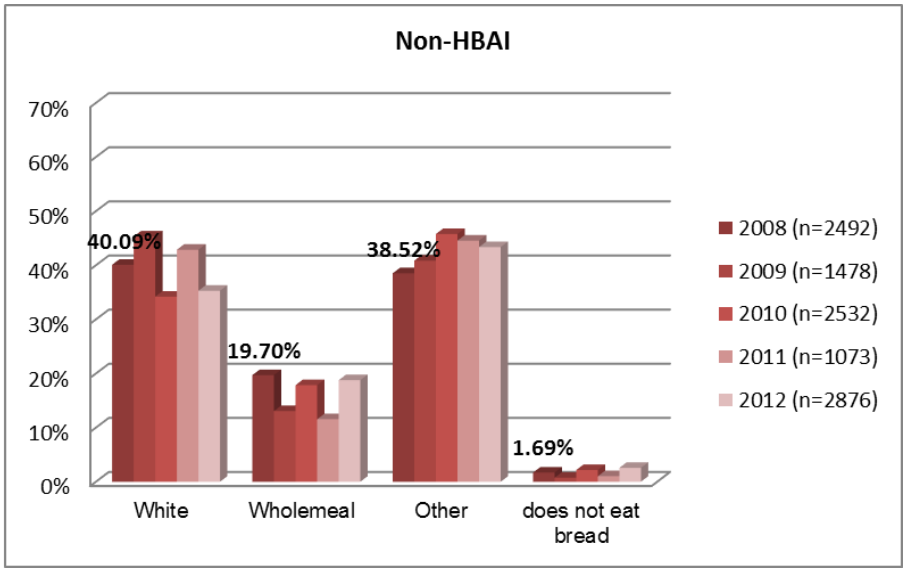
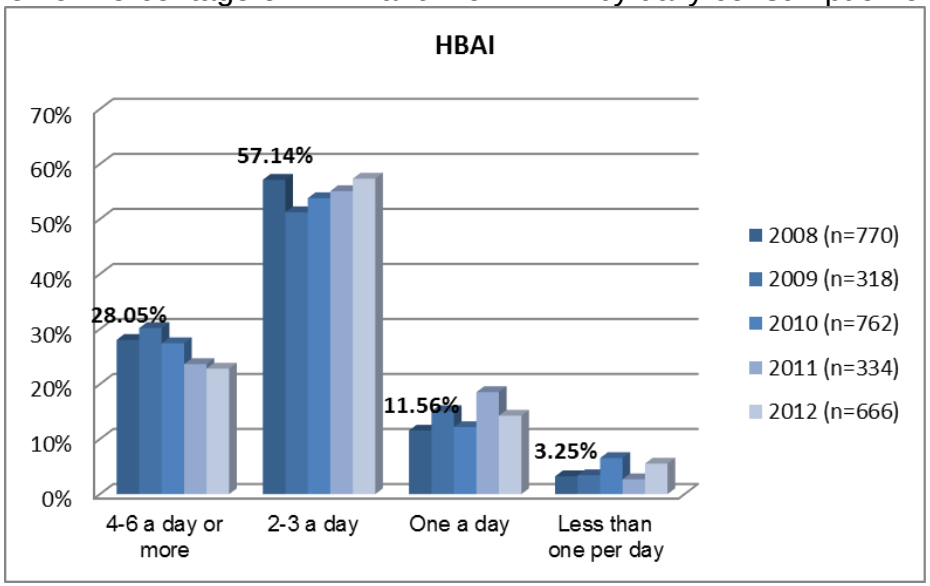


Figure 19: Percentage of HBAI and Non-HBAI by daily consumption of slices/rolls of bread using SHeS (2008-2012)



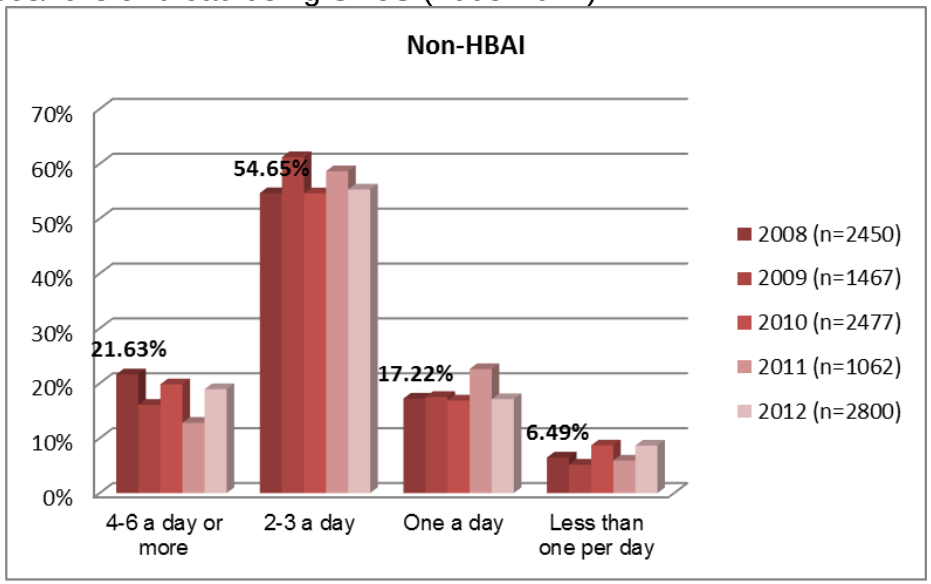
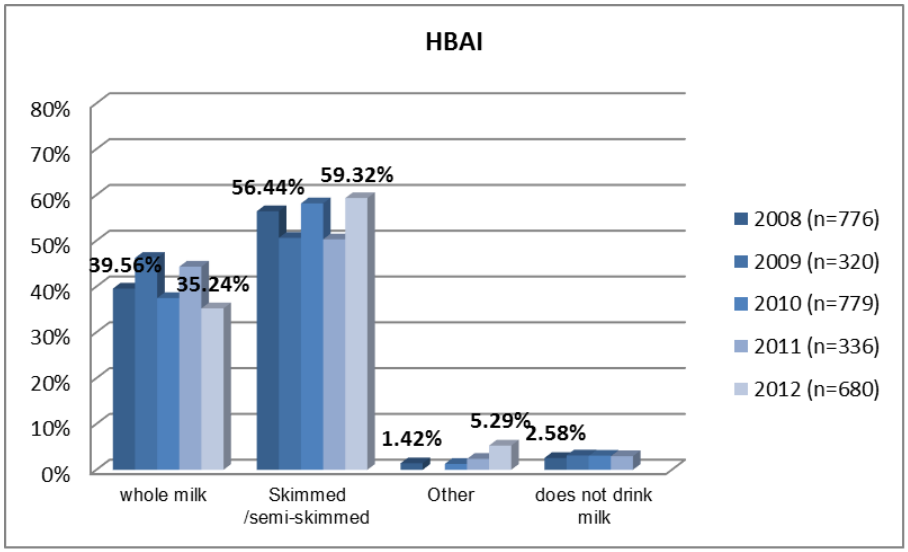


Figure 20: Percentage of HBAI and Non-HBAI by type of milk purchased using SHeS (2008-2012)



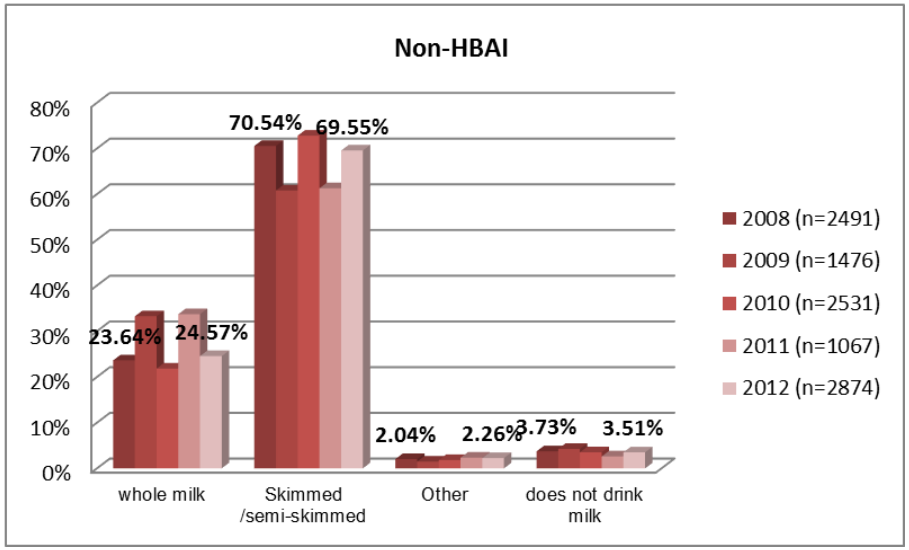
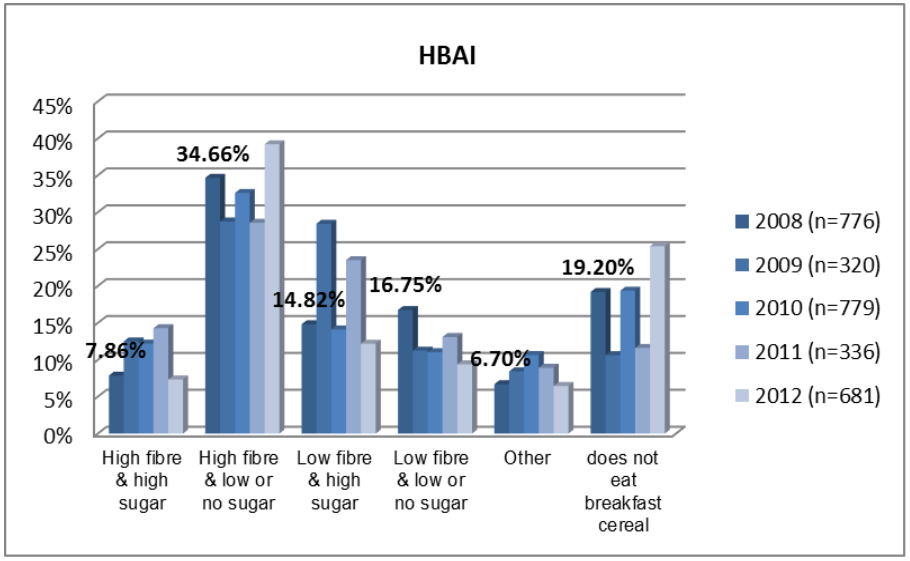


Figure 21: Percentage of HBAI and Non-HBAI by type of breakfast cereal usually eaten using SHeS (2008-2012)



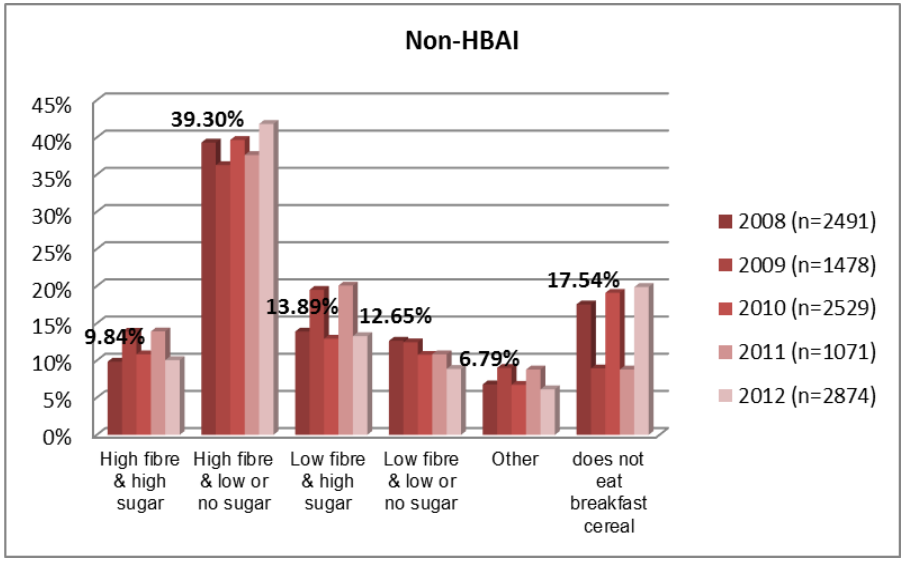
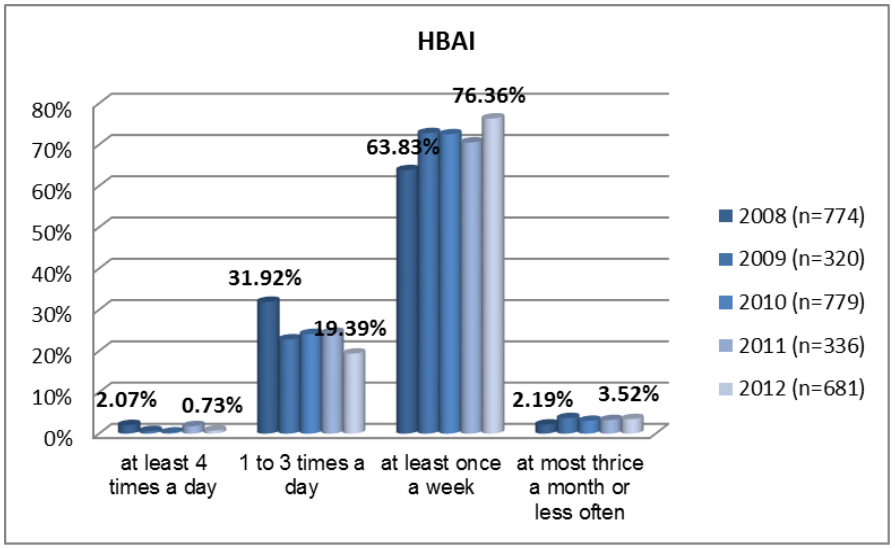


Figure 22: Percentage of HBAI and Non-HBAI by potatoes intake frequency using SHeS (2008-2012)



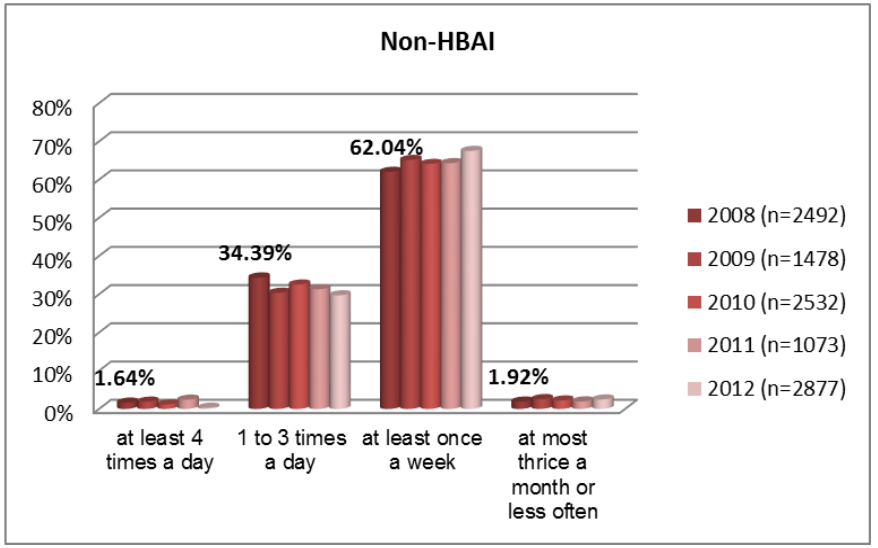
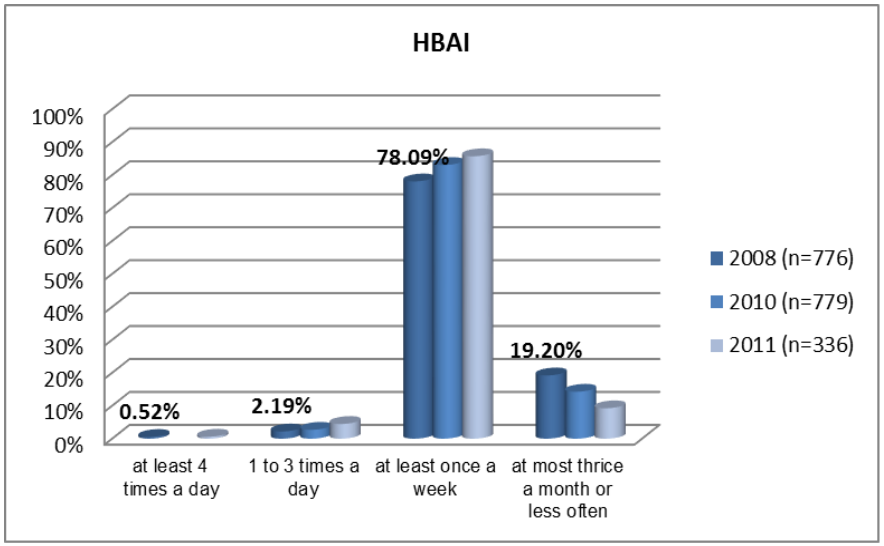


Figure 23: Percentage of HBAI and Non-HBAI by poultry intake frequency using SHeS (2008-2012)



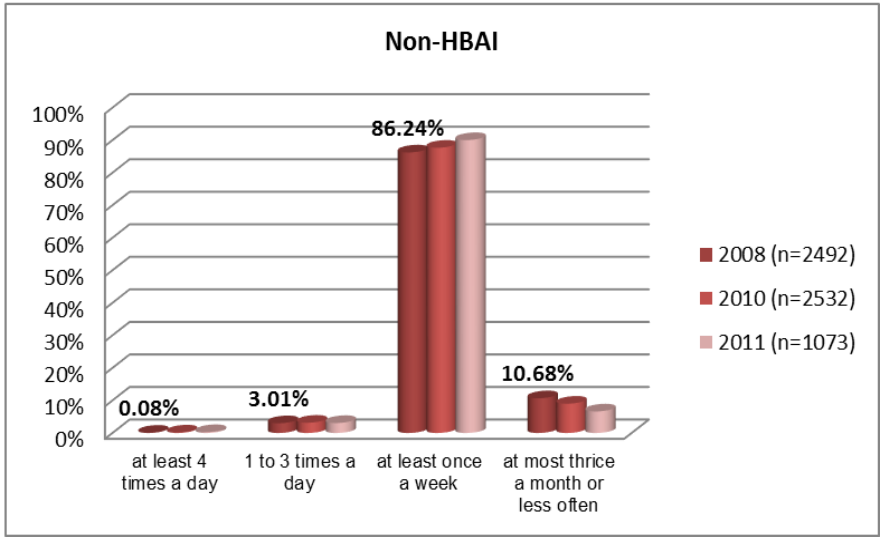


Figure 24: Percentage of HBAI and Non-HBAI by meat intake frequency using SHeS (2008-2012)

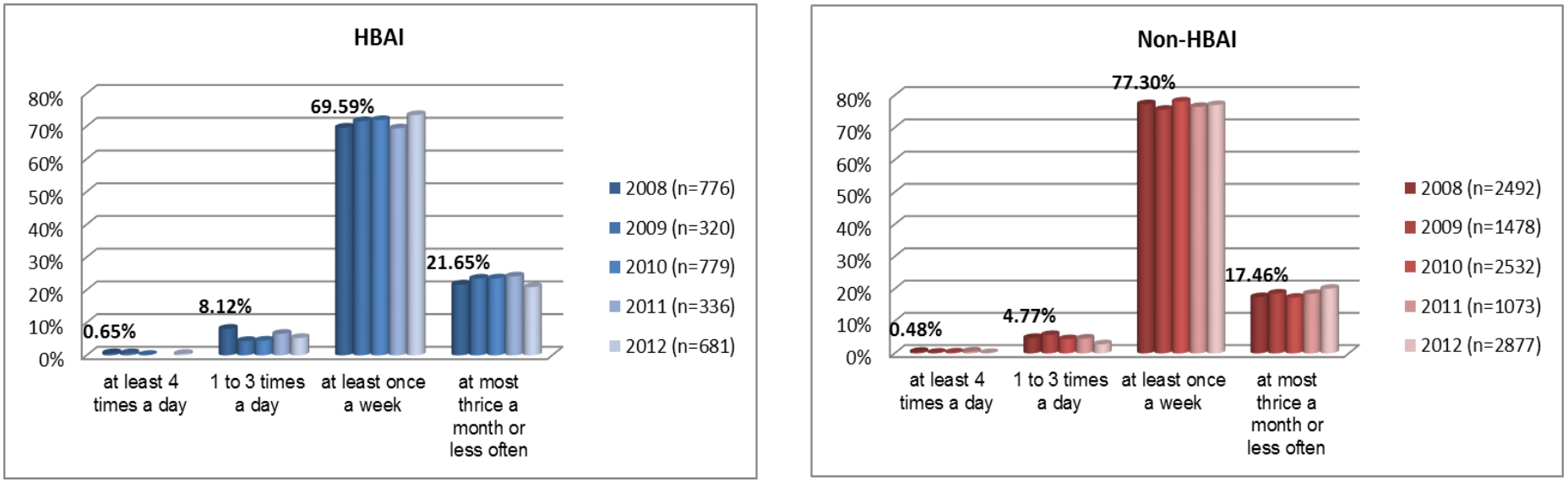


Figure 25: Percentage of HBAI and Non-HBAI by oily fish intake frequency using SHeS (2008-2012)

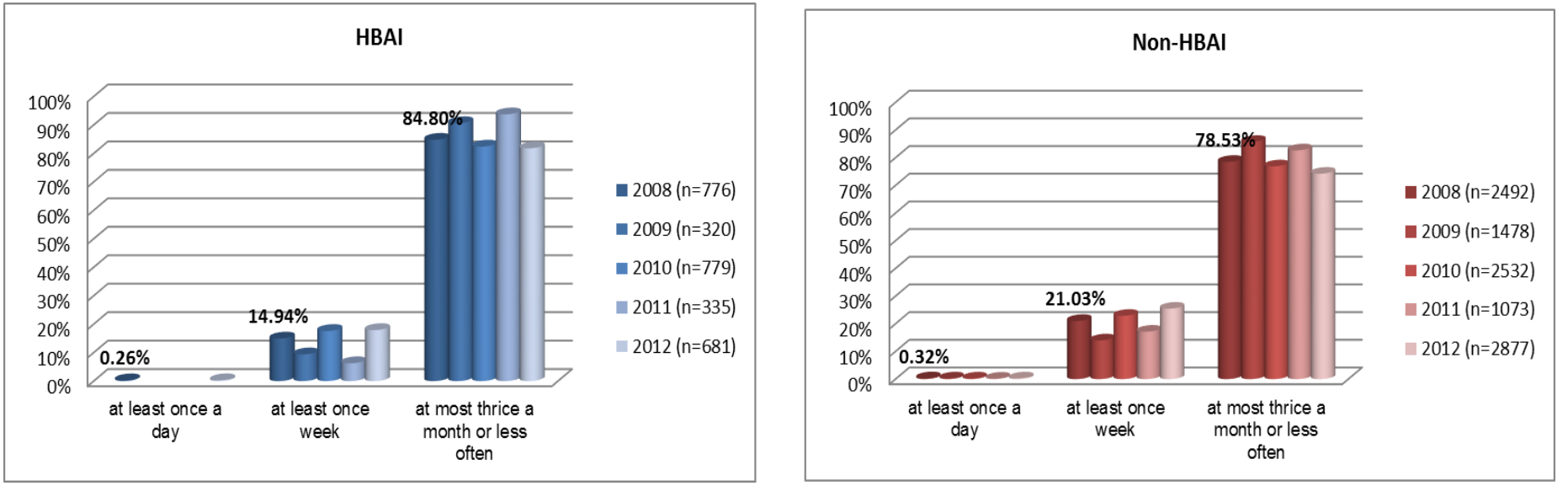
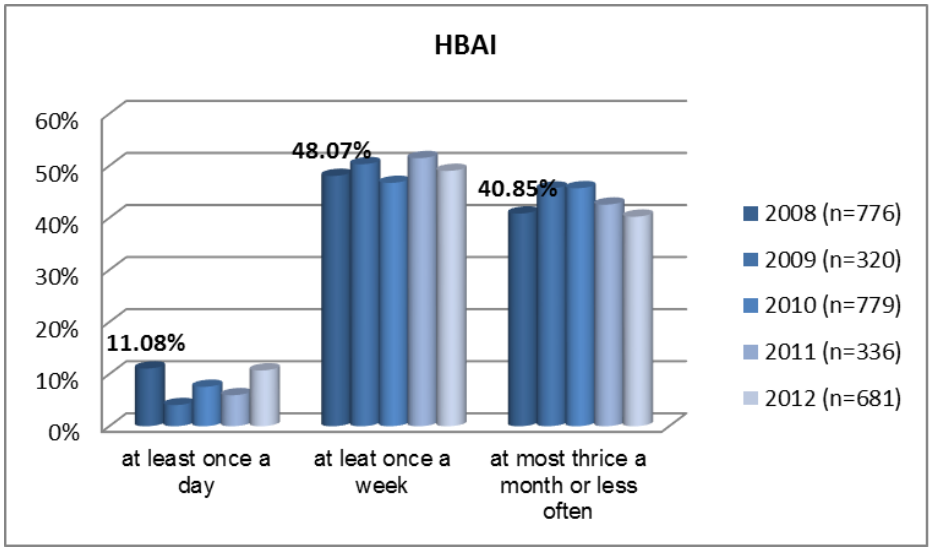


Figure 26: Percentage of HBAI and Non-HBAI by cakes, scones or pastries intake frequency using SHeS (2008-2012)



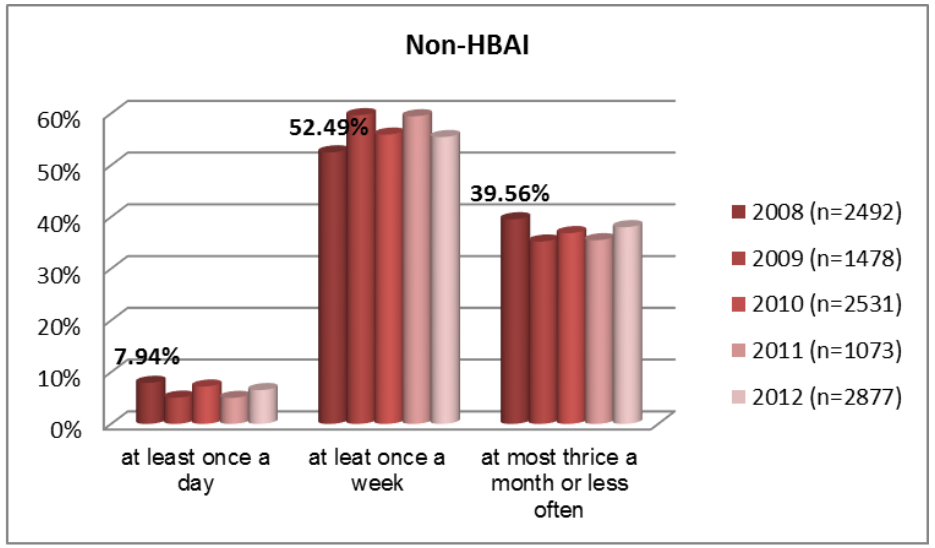
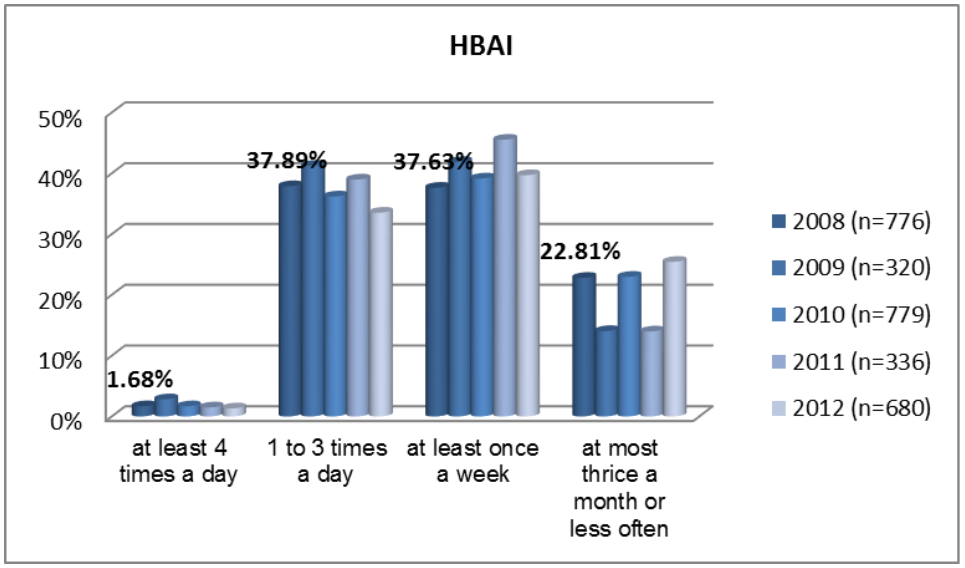


Figure 27: Percentage of HBAI and Non-HBAI by biscuits intake frequency using SHeS (2008-2012)



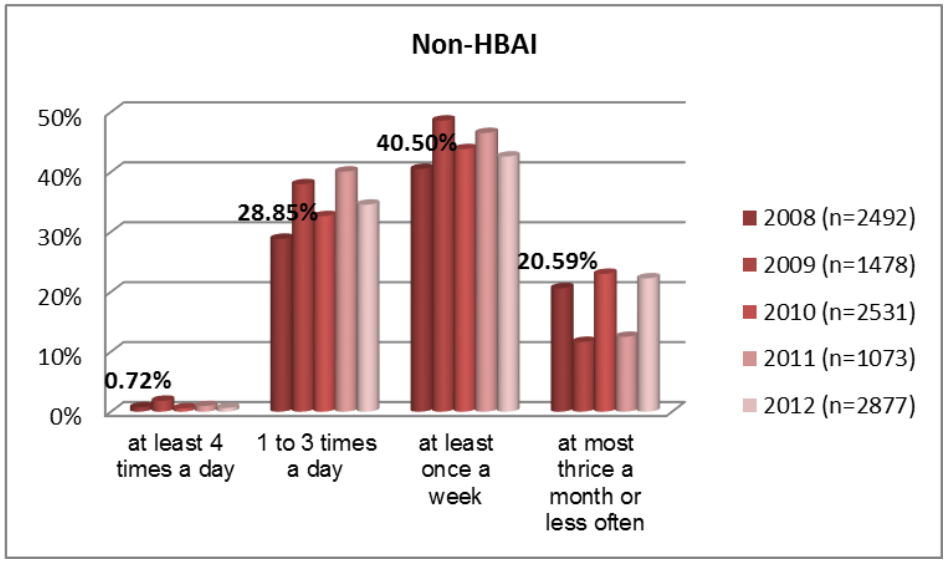
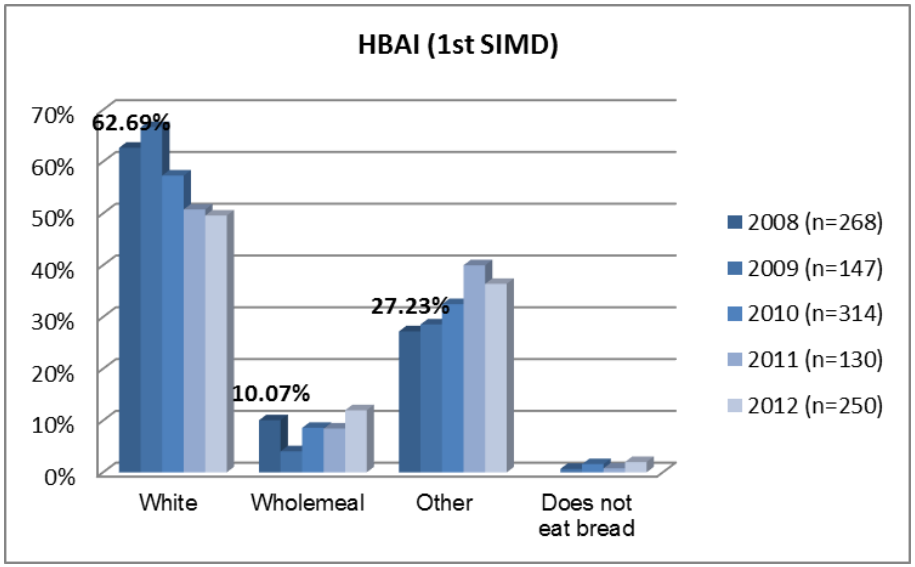


Figure 28: Percentage of HBAI and Non-HBAI living in 1st SIMD by type of bread purchased using SHeS (2008-2012)



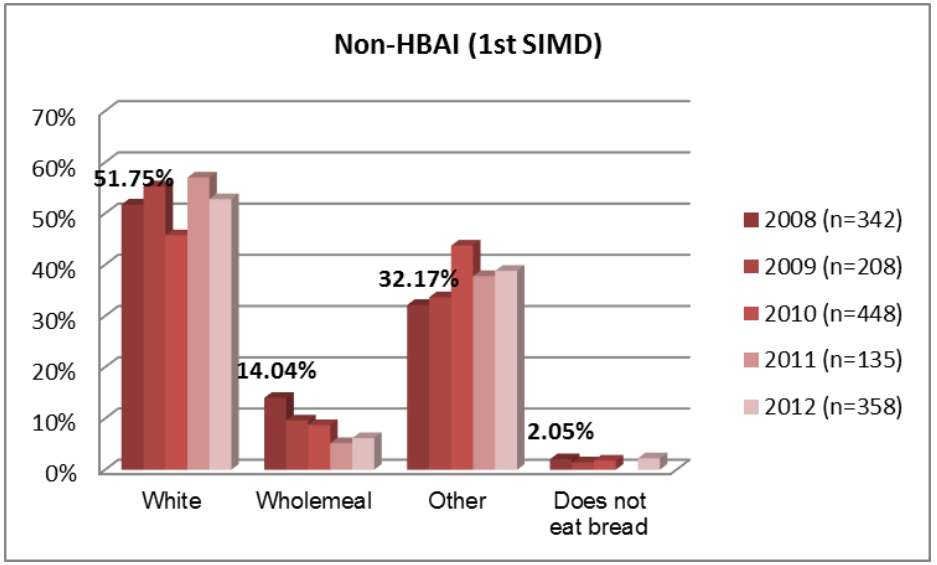
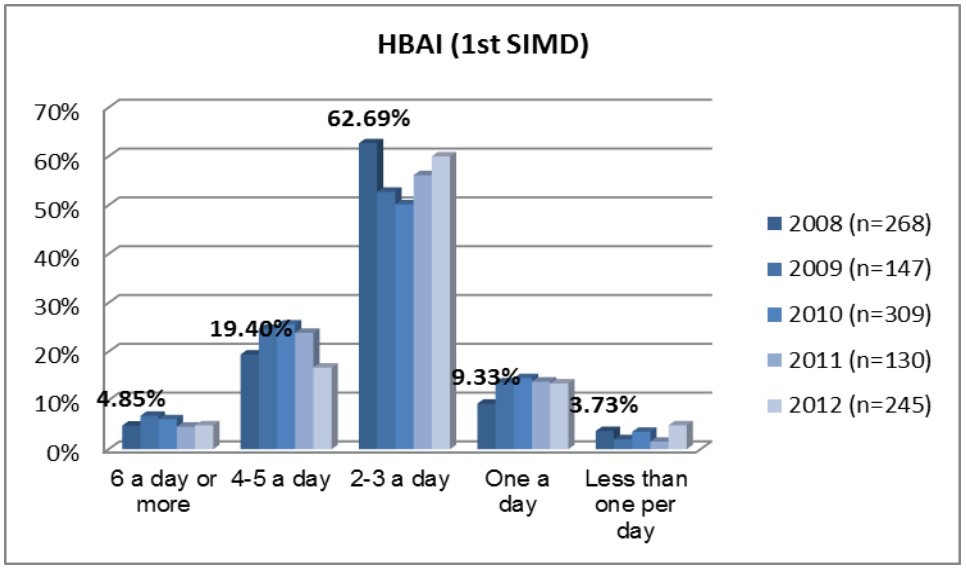


Figure 29: Percentage of HBAI and Non-HBAI living in 1st SIMD by daily consumption of slices/rolls of bread using SHeS (2008-2012)



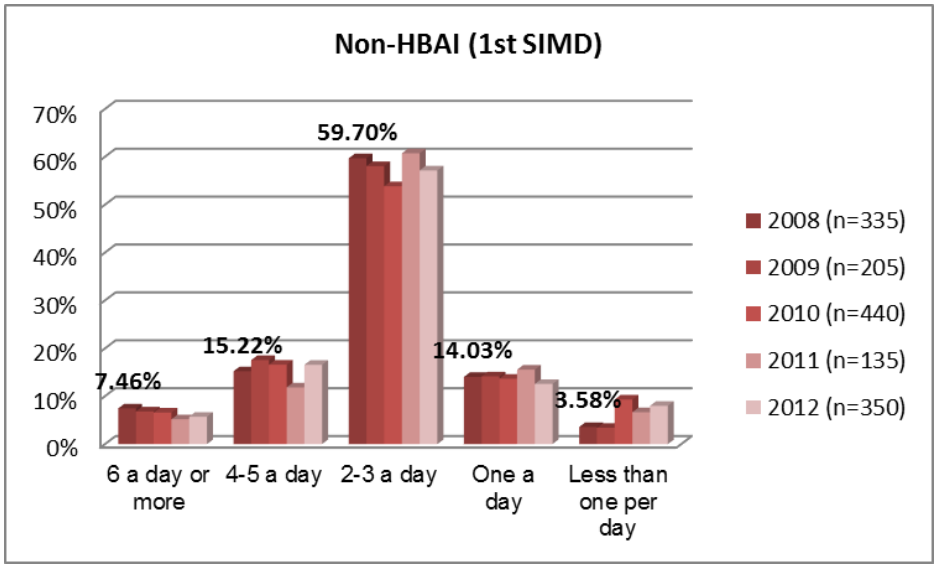
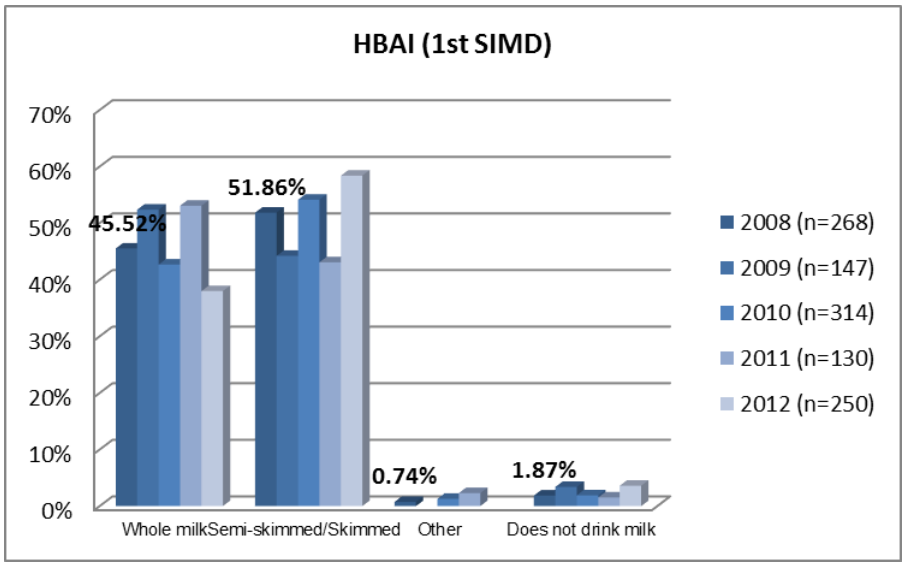


Figure 30: Percentage of HBAI and Non-HBAI living in 1st SIMD by type of milk purchased using SHeS (2008-2012)



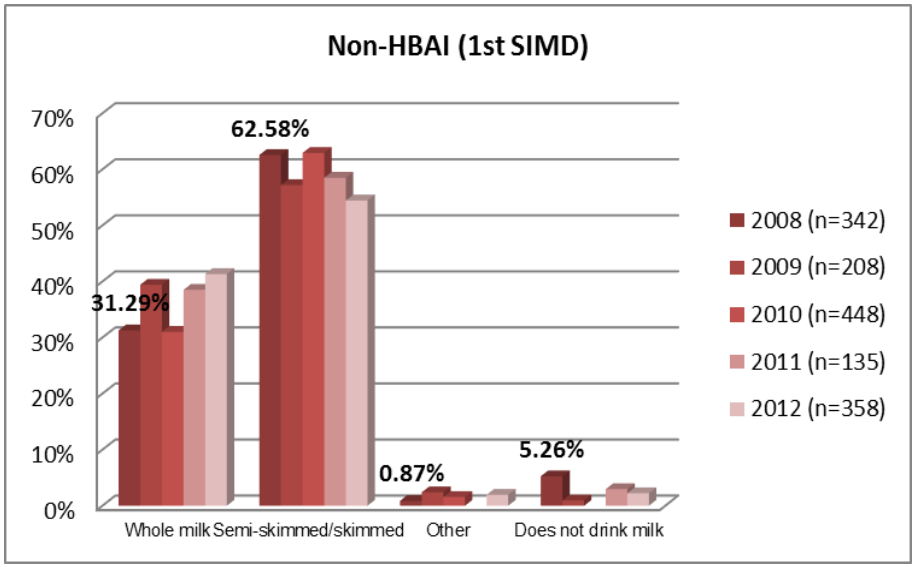
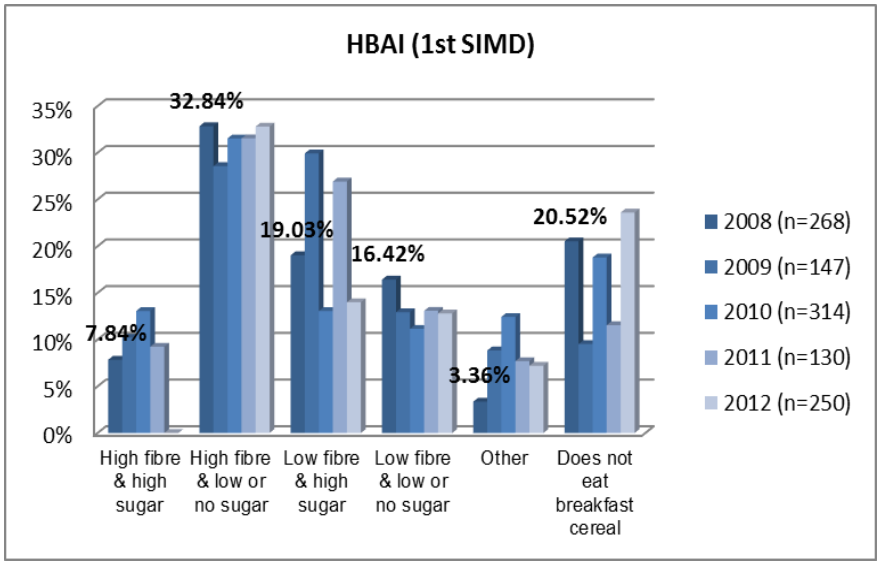


Figure 31: Percentage of HBAI and Non-HBAI living in 1st SIMD by type of breakfast cereal purchased using SHeS (2008-2012)



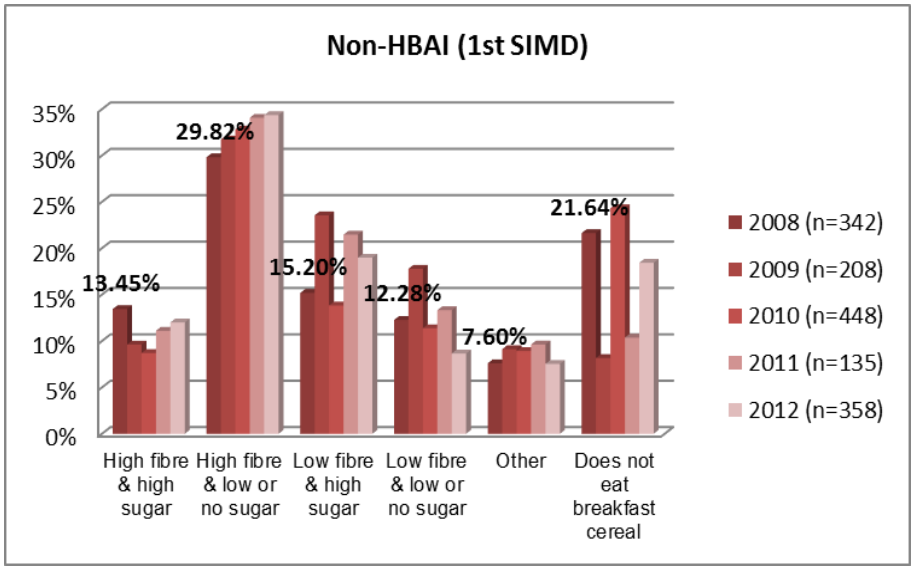


Figure 32: Percentage of HBAI and Non-HBAI living in 1st SIMD by potatoes intake frequency using SHeS (2008-2012)

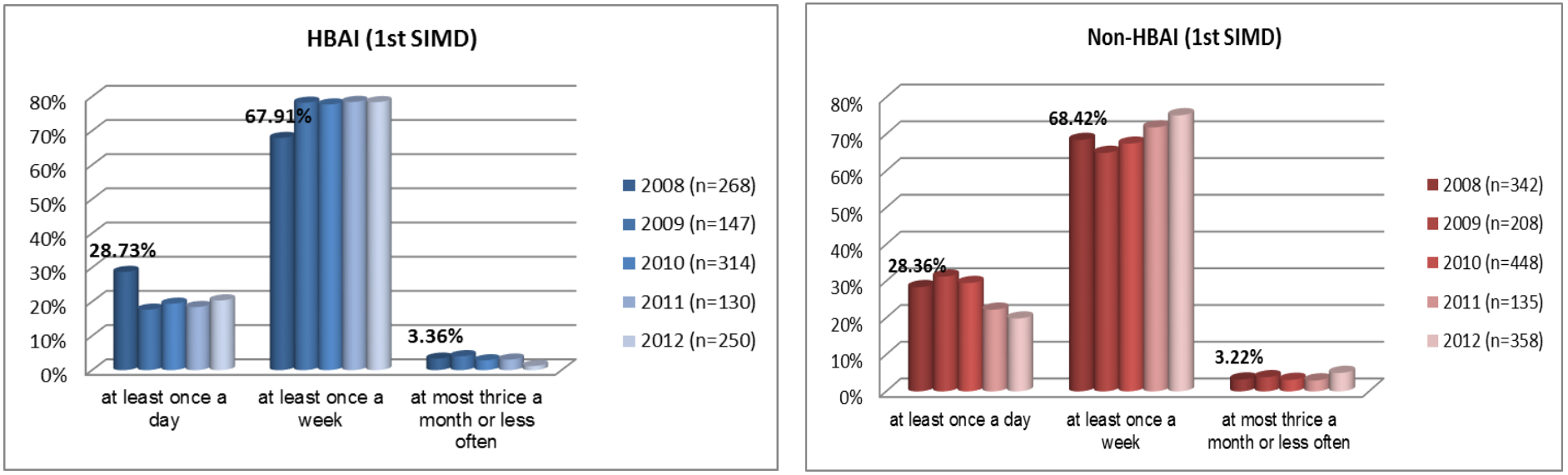


Figure 33: Percentage of HBAI and Non-HBAI living in 1st SIMD by poultry intake frequency using SHeS (2008-2012)

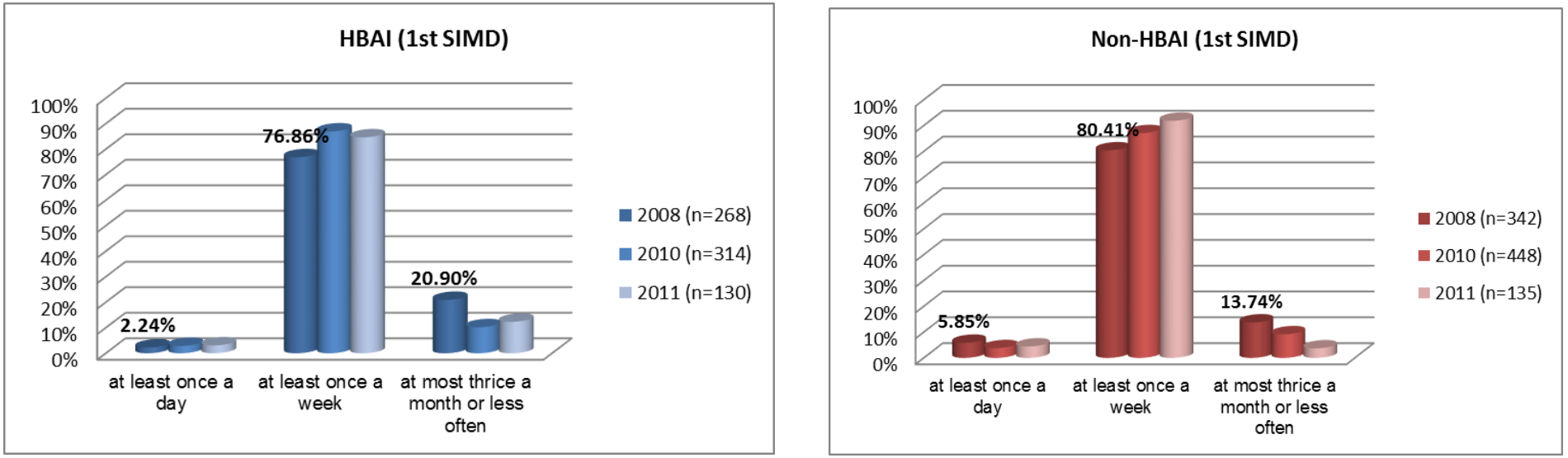
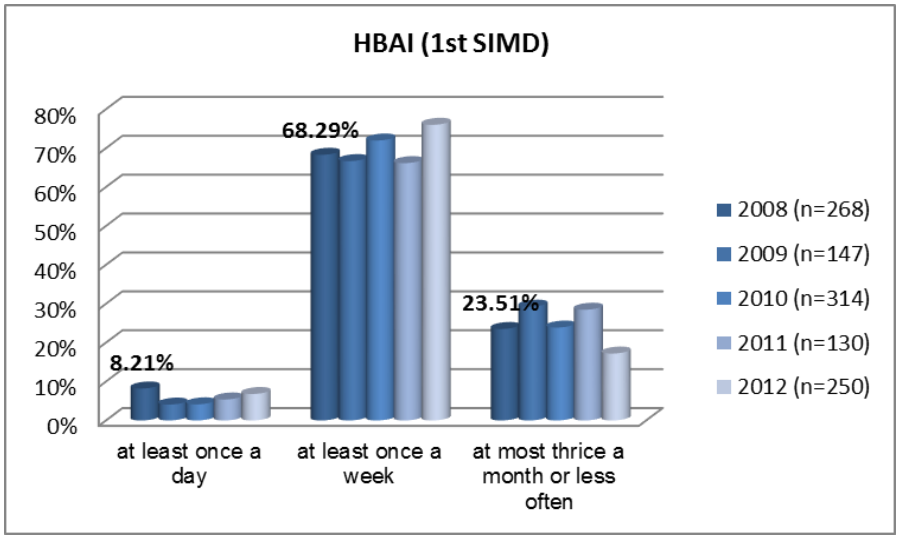


Figure 34: Percentage of HBAI and Non-HBAI living in 1st SIMD by meat intake frequency using SHeS (2008-2012)



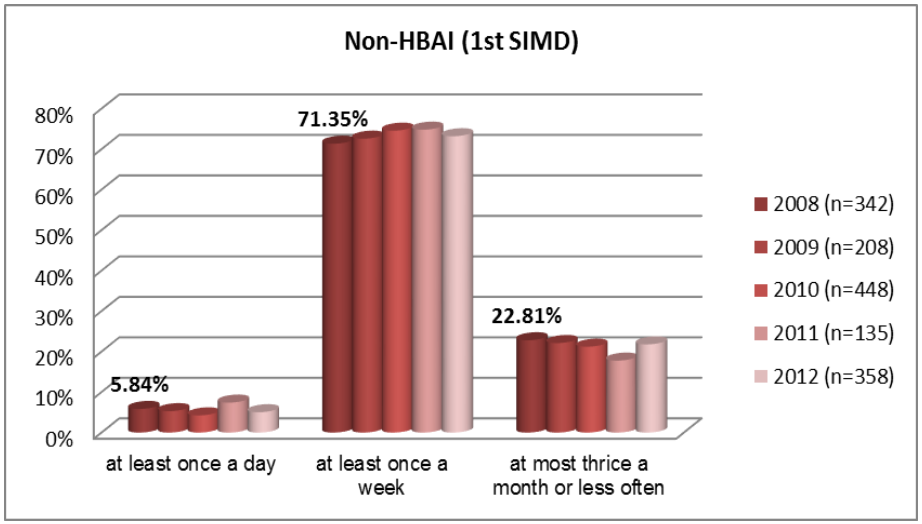
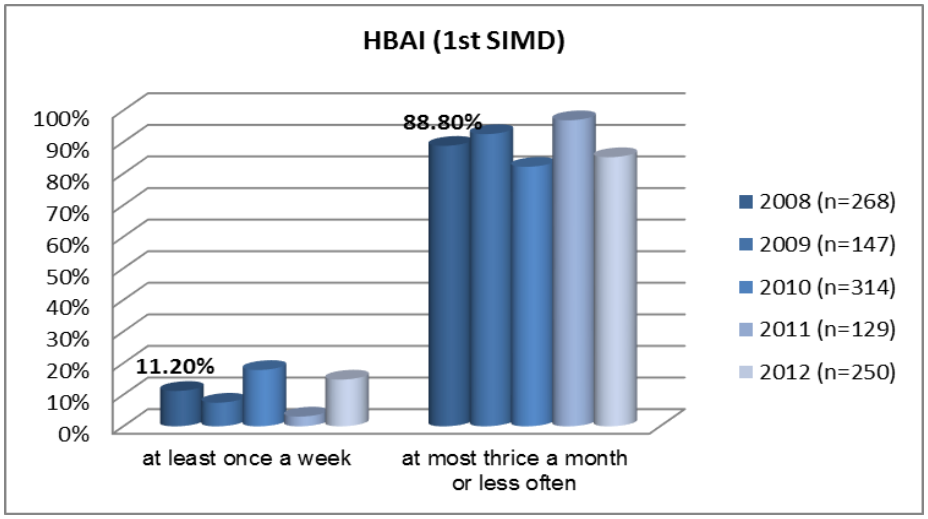


Figure 35: Percentage of HBAI and Non-HBAI living in 1st SIMD by oily fish intake frequency using SHeS (2008-2012)



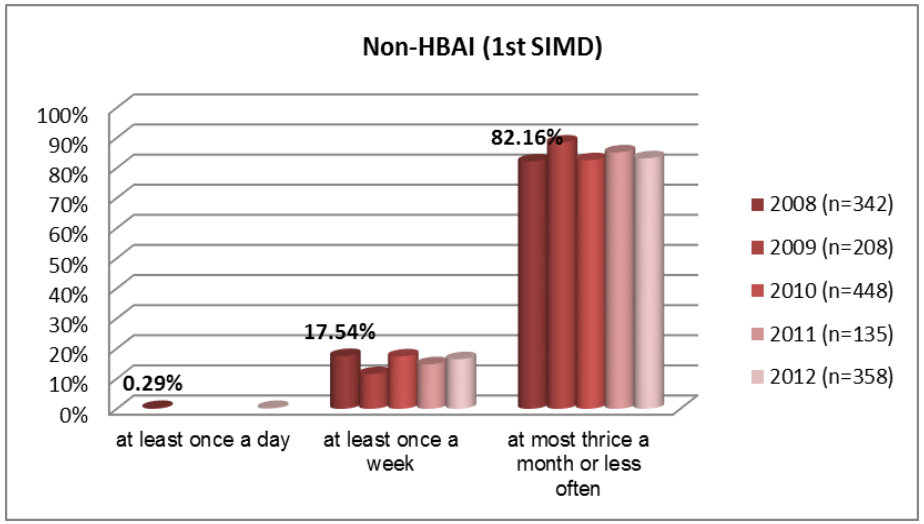
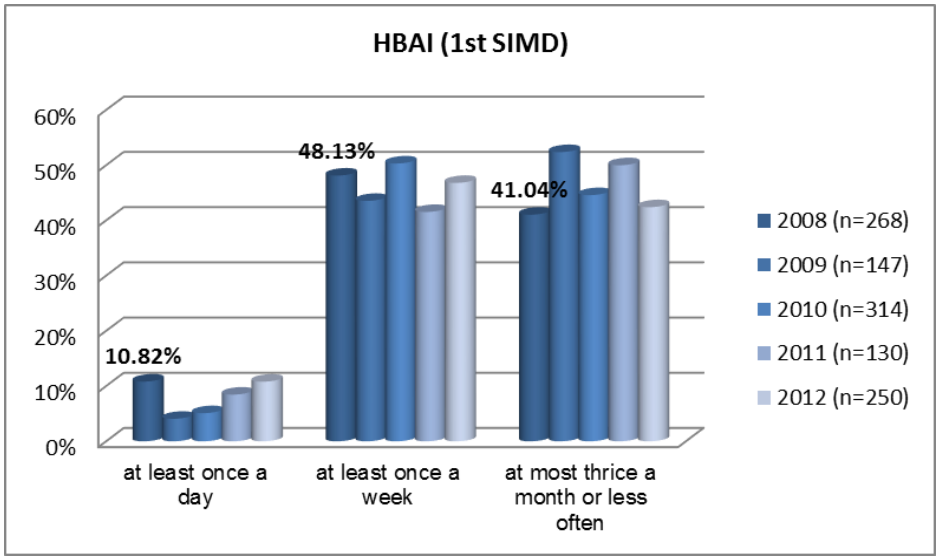


Figure 36: Percentage of HBAI and Non-HBAI living in 1st SIMD by cakes, scones or pastries intake frequency using SHeS (2008-2012)



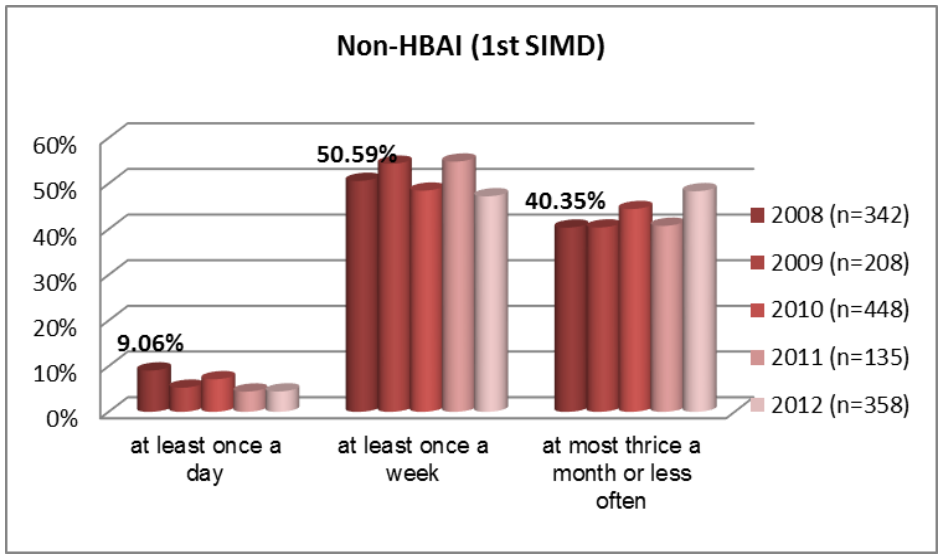
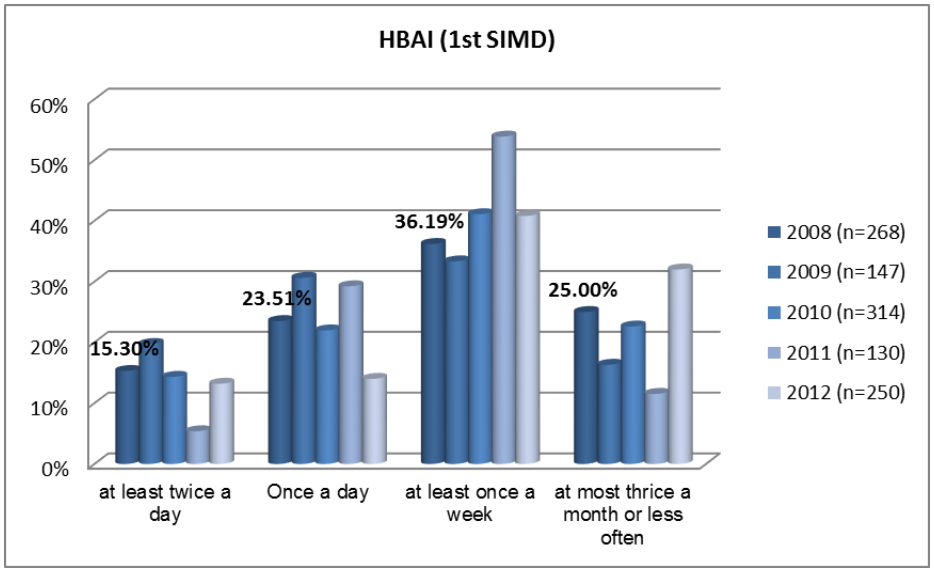


Figure 37: Percentage of HBAI and Non-HBAI living in 1st SIMD by biscuits intake frequency using SHeS (2008-2012)



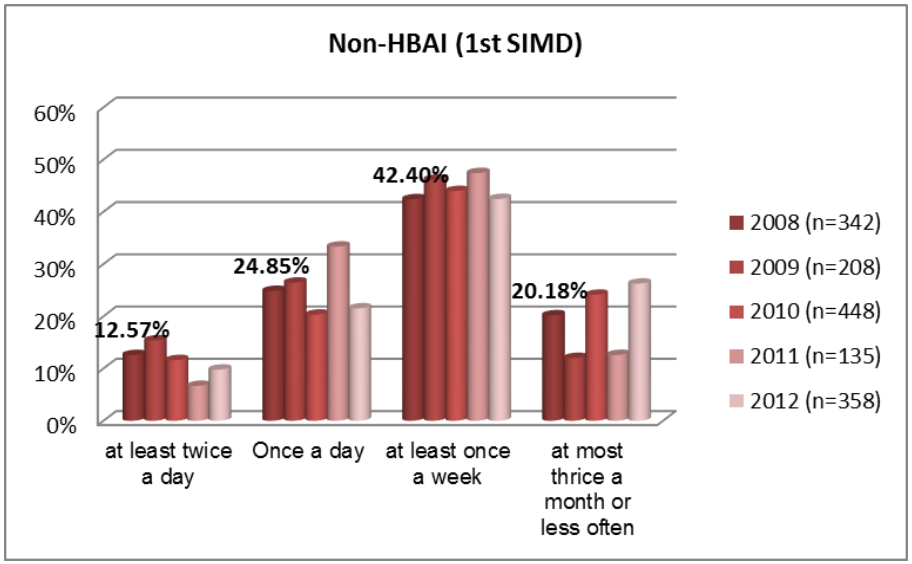
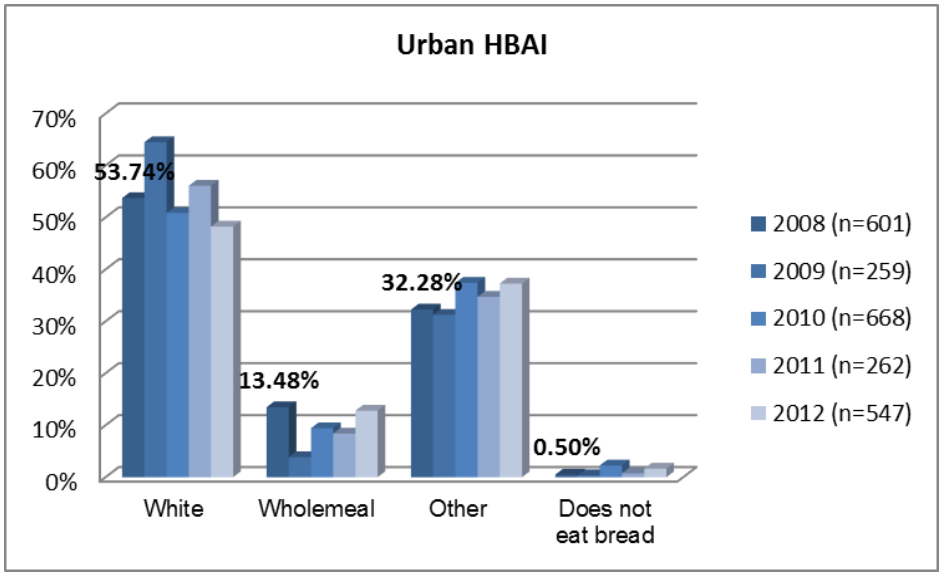


Figure 38: Percentage of Urban HBAI and Urban Non-HBAI by type of bread purchased using SHeS (2008-2012)



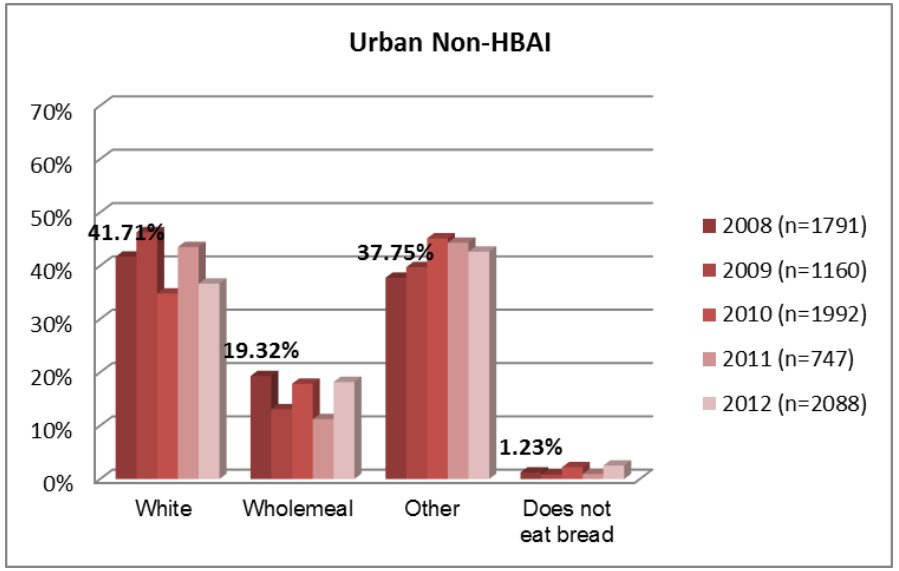
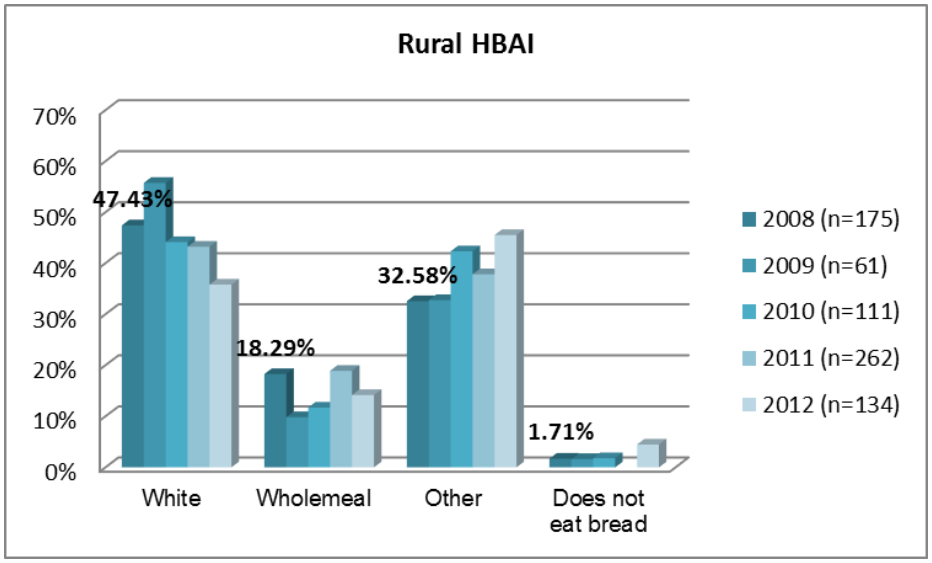


Figure 39: Percentage of Rural HBAI and Rural Non-HBAI by type of bread purchased using SHeS (2008-2012)



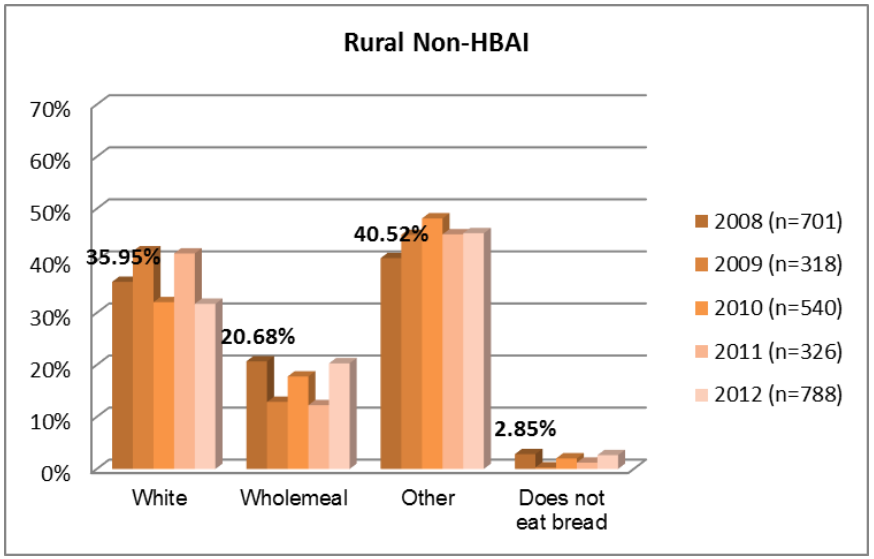
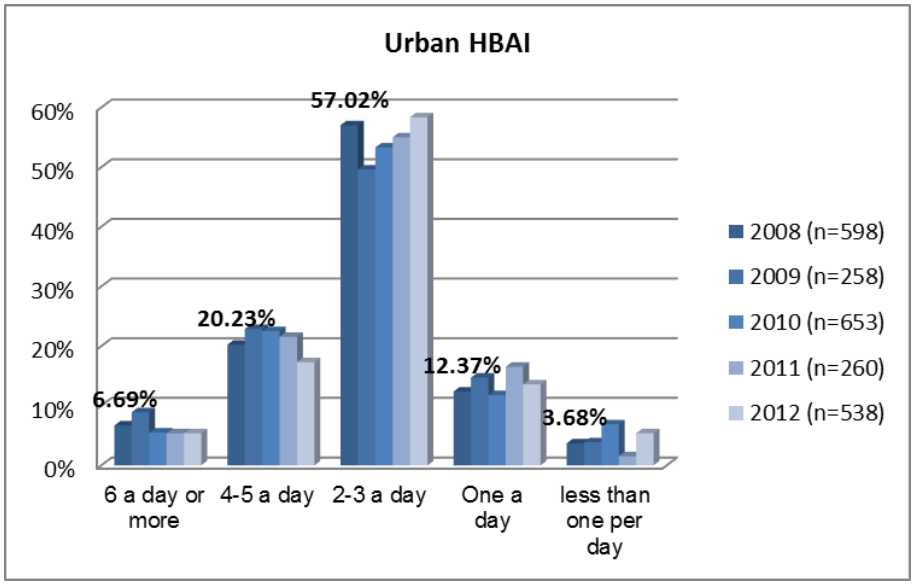


Figure 40: Percentage of Urban HBAI and Urban Non-HBAI by daily consumption of slices/rolls of bread using SHeS (2008-2012)



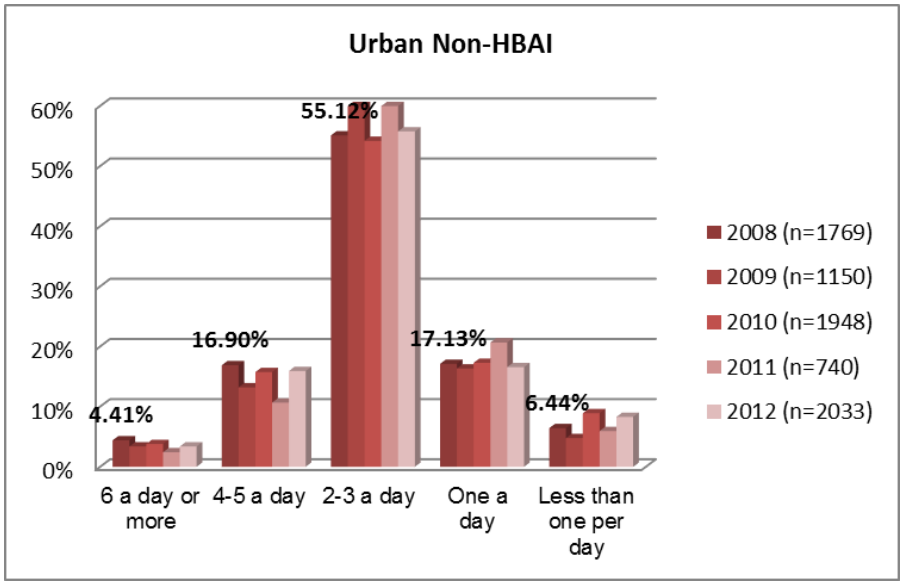
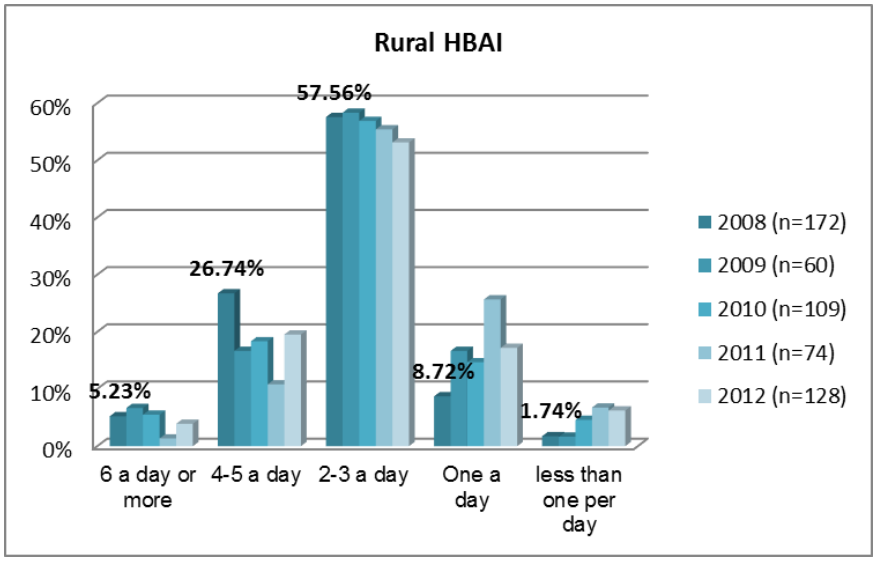


Figure 41: Percentage of Rural HBAI and Rural Non-HBAI by daily consumption of slices/rolls of bread using SHeS (2008-2012)



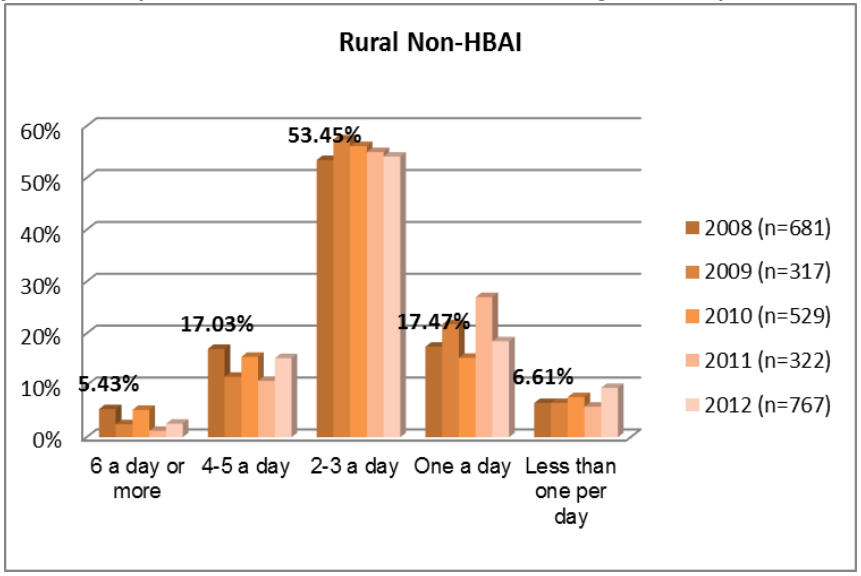
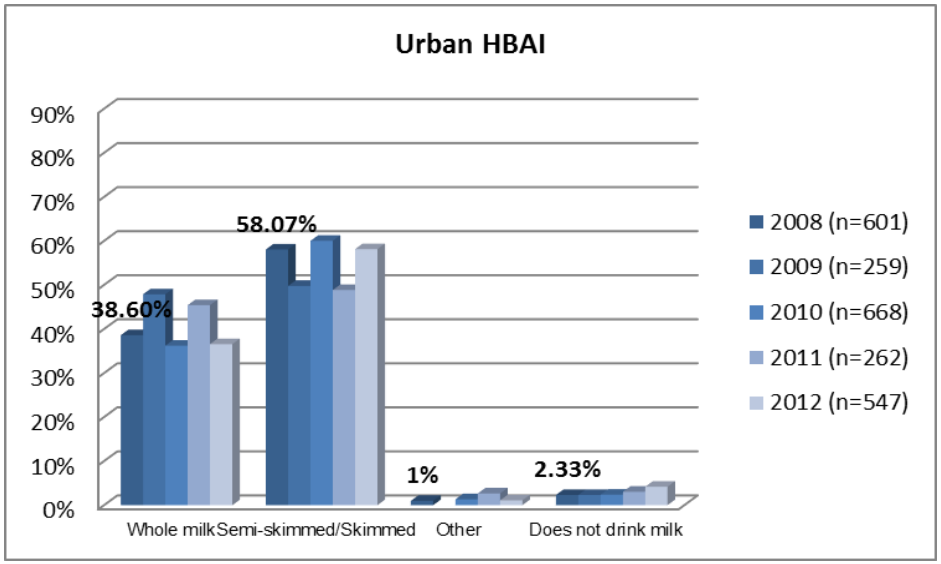


Figure 42: Percentage of Urban HBAI and Urban Non-HBAI by type of milk purchased using SHeS (2008-2012)



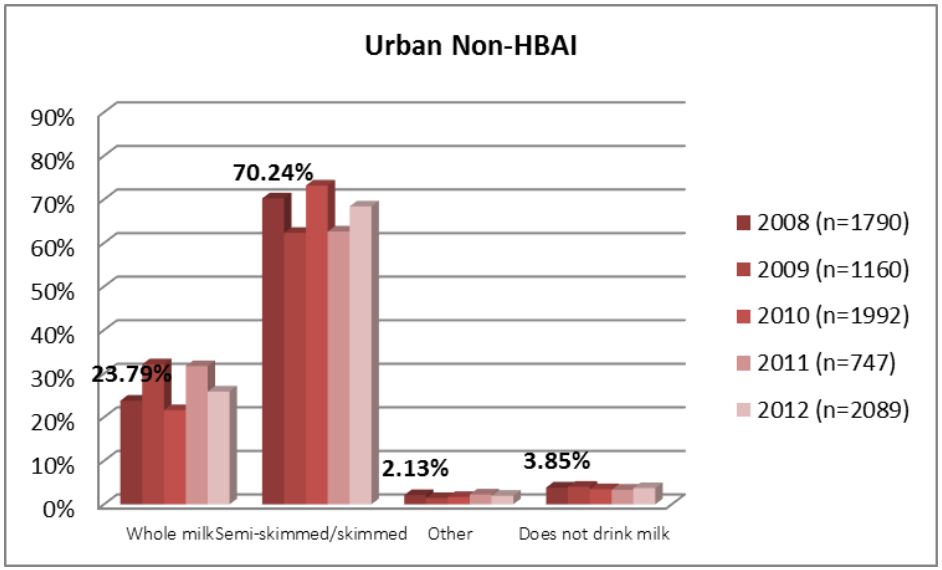
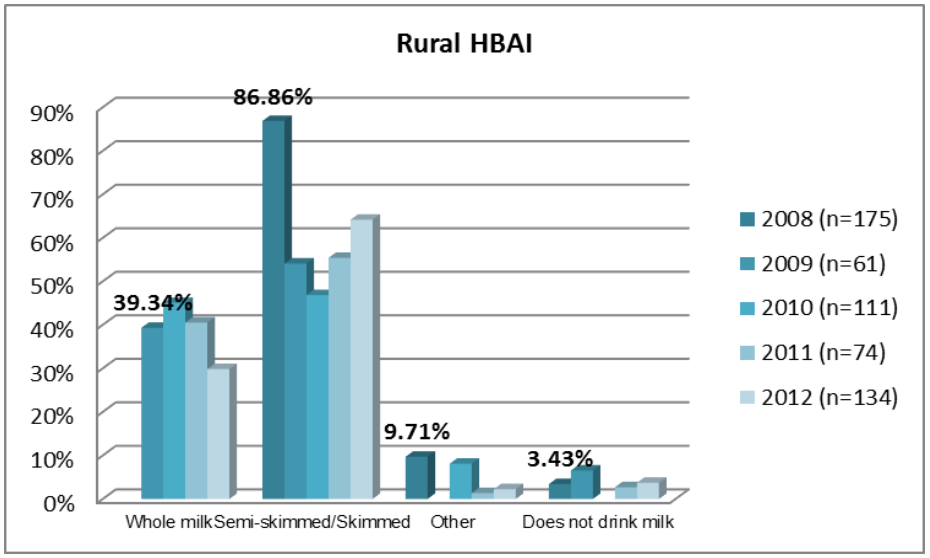


Figure 43: Percentage of Rural HBAI and Rural Non-HBAI by type of milk purchased using SHeS (2008-2012)



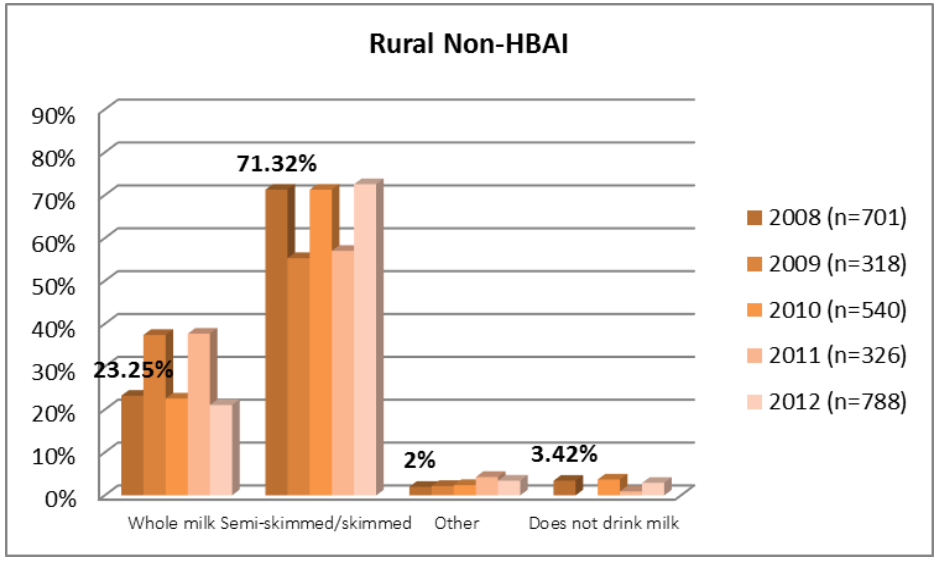
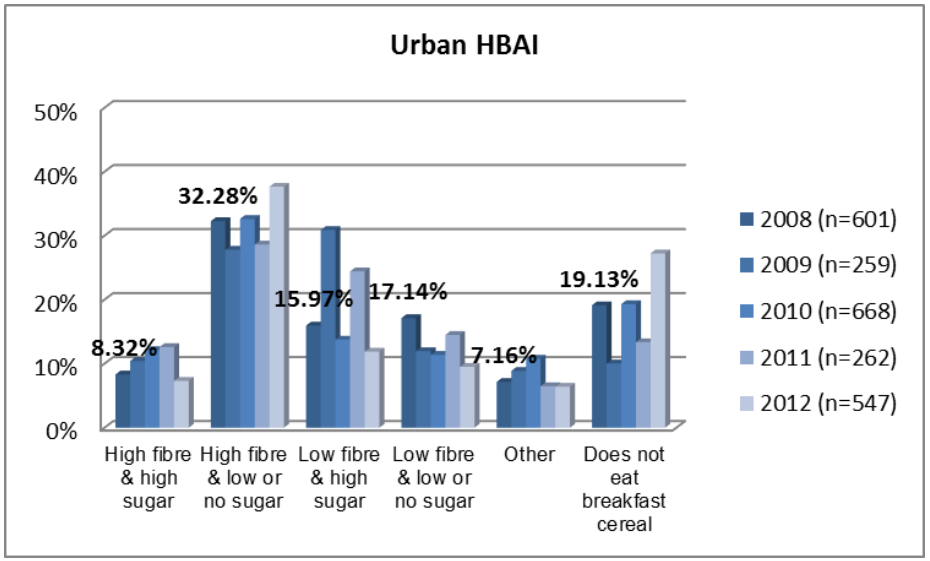


Figure 44: Percentage of Urban HBAI and Urban Non-HBAI by type of breakfast cereal purchased using SHeS (2008-2012)



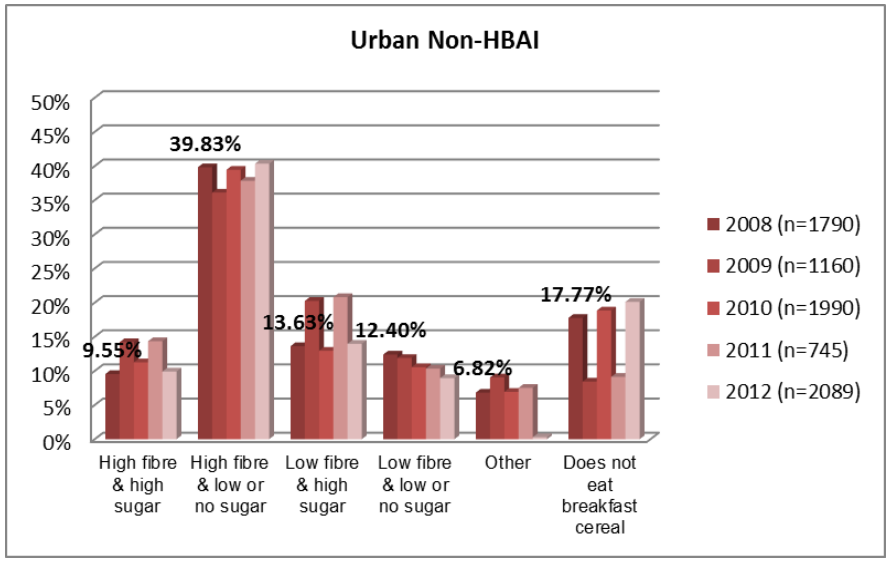
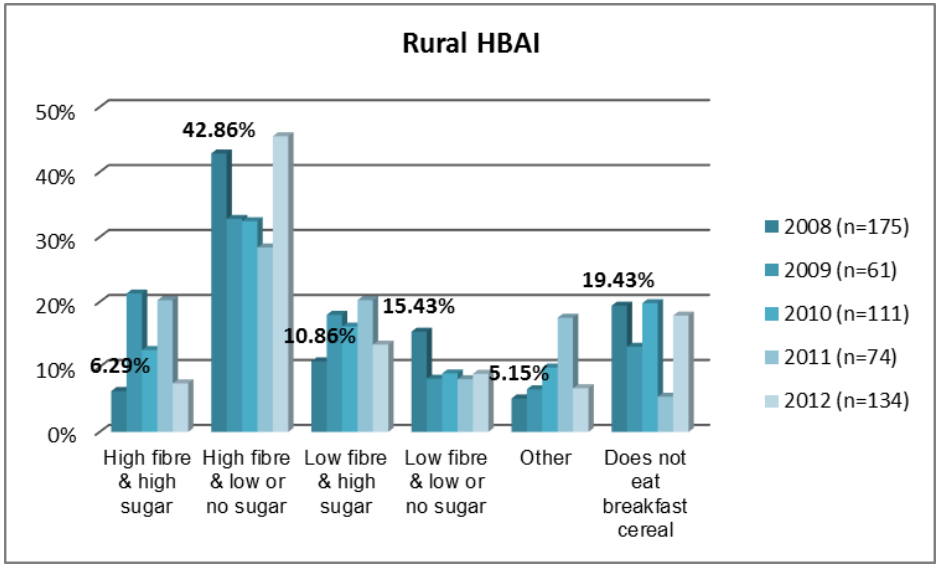


Figure 45: Percentage of Rural HBAI and Rural Non-HBAI by type of breakfast cereal purchased using SHeS (2008-2012)



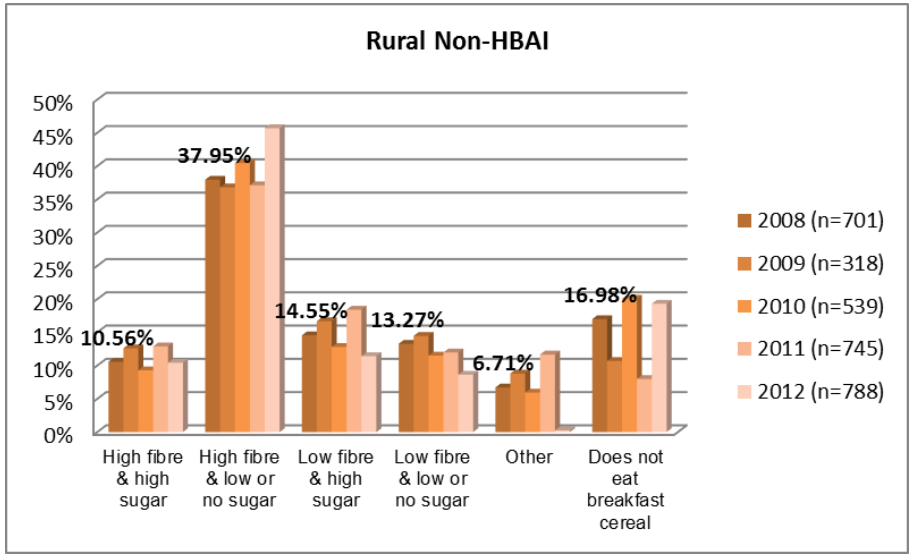
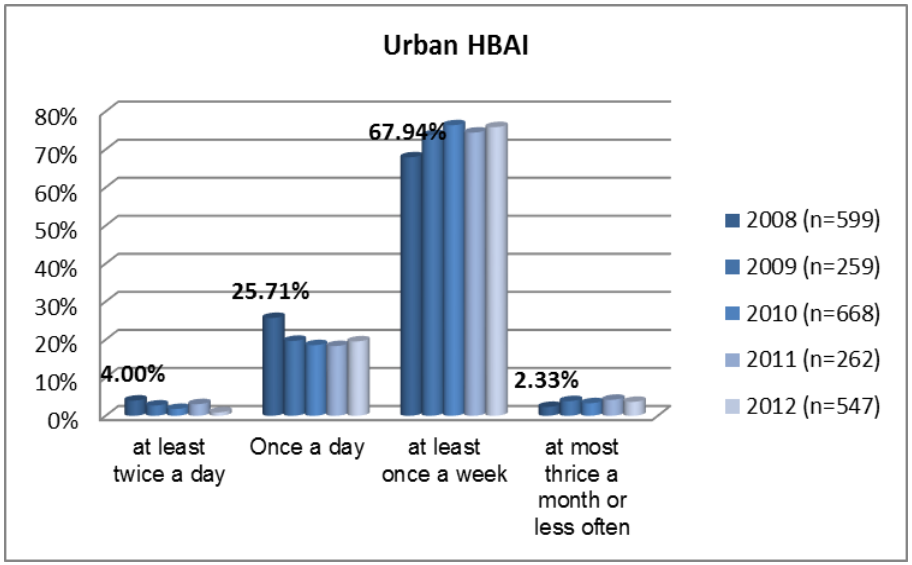


Figure 46: Percentage of Urban HBAI and Urban Non-HBAI by potatoes intake frequency using SHeS (2008-2012)



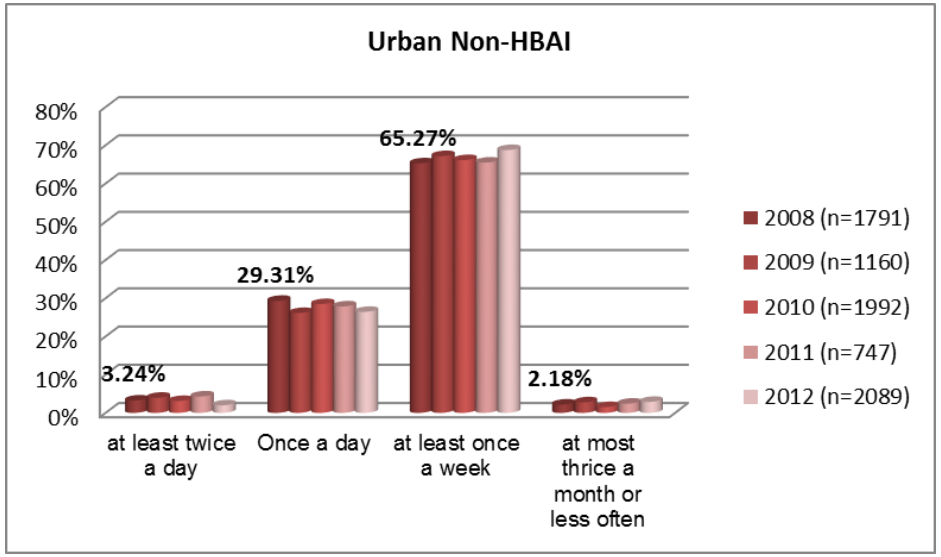
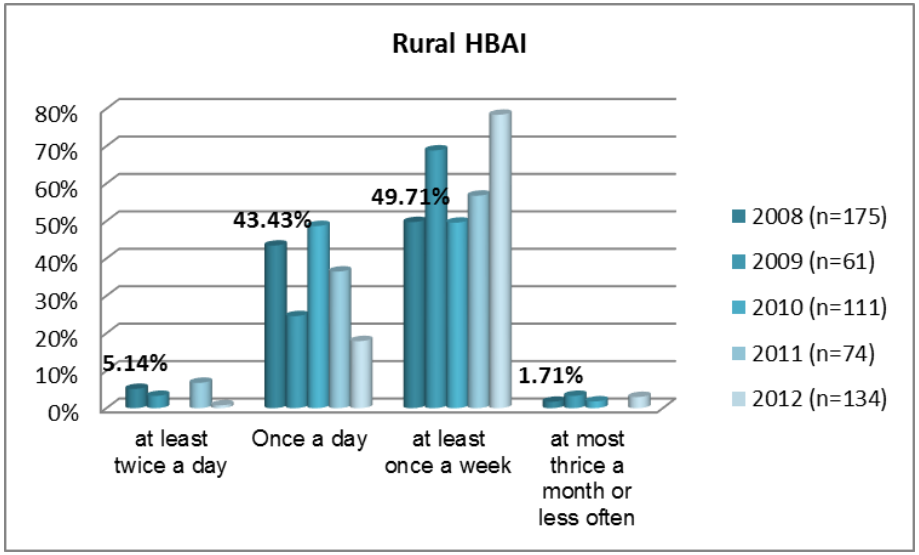


Figure 47: Percentage of Rural HBAI and Rural Non-HBAI by potatoes intake frequency using SHeS (2008-2012)



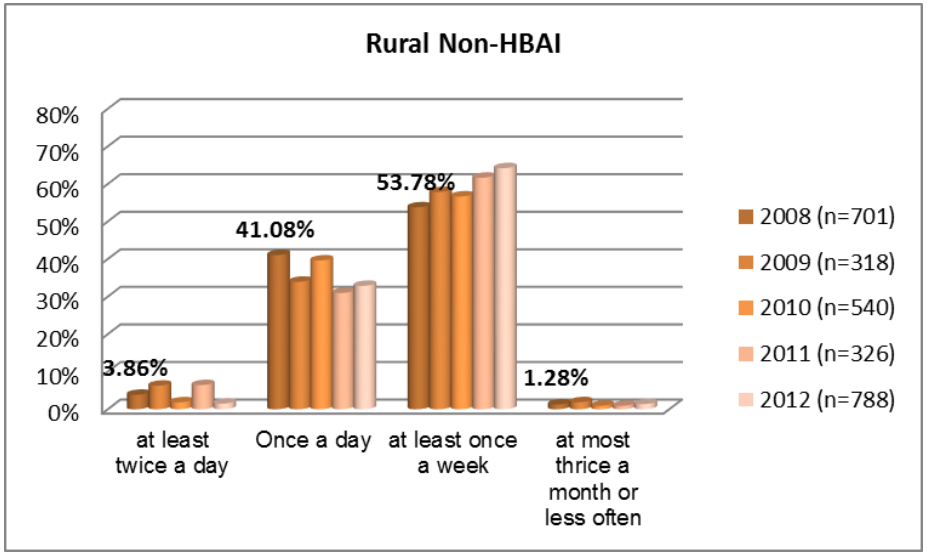
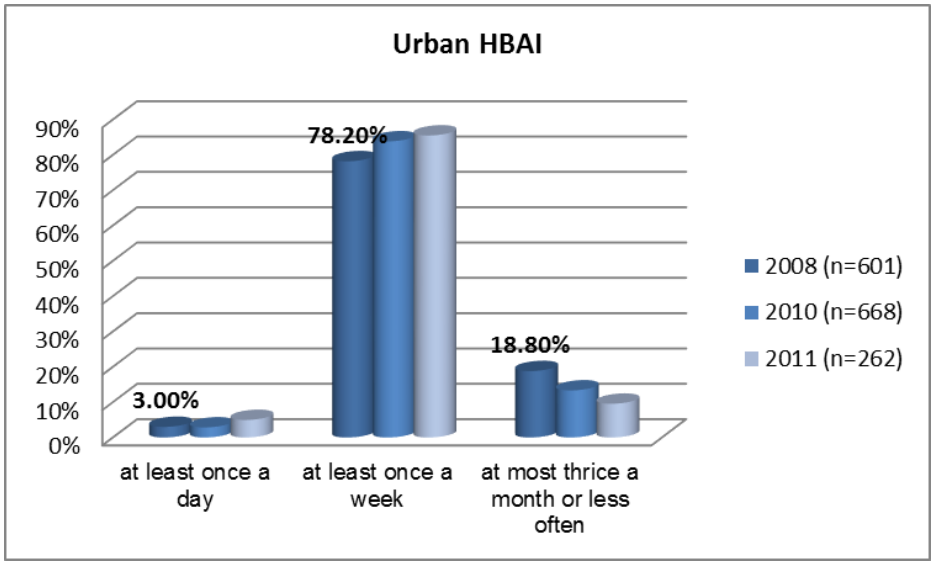


Figure 48: Percentage of Urban HBAI and Urban Non-HBAI by poultry intake frequency using SHeS (2008-2011)



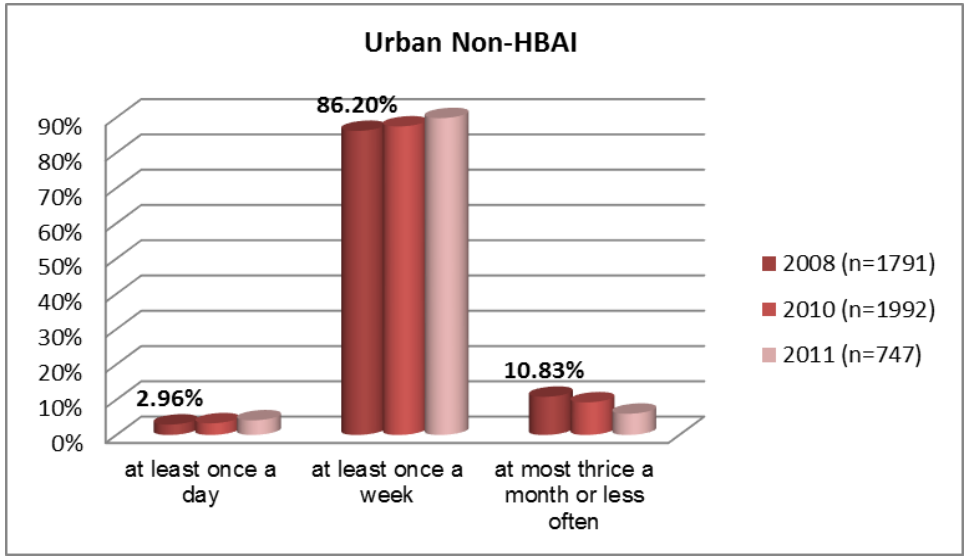
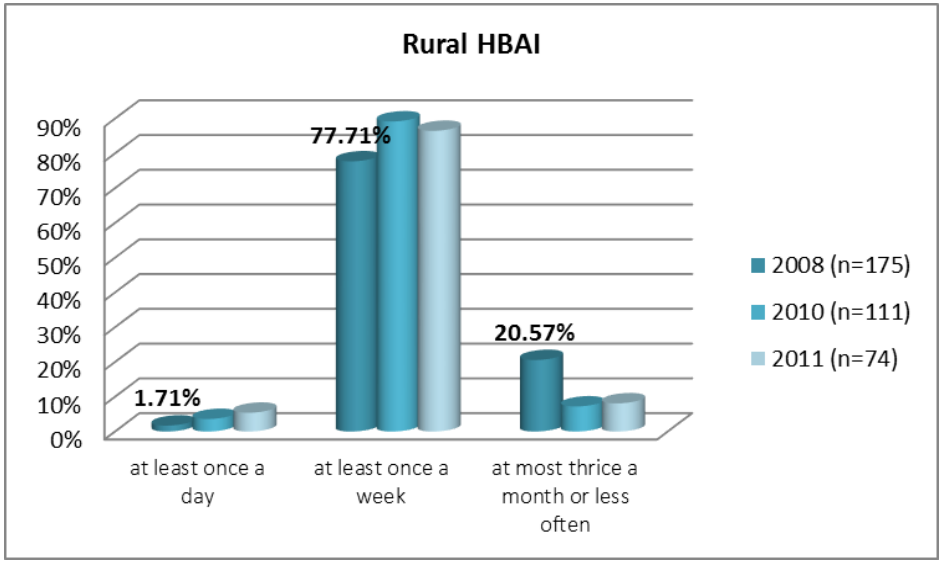


Figure 49: Percentage of Rural HBAI and Rural Non-HBAI by poultry intake frequency using SHeS (2008-2011)



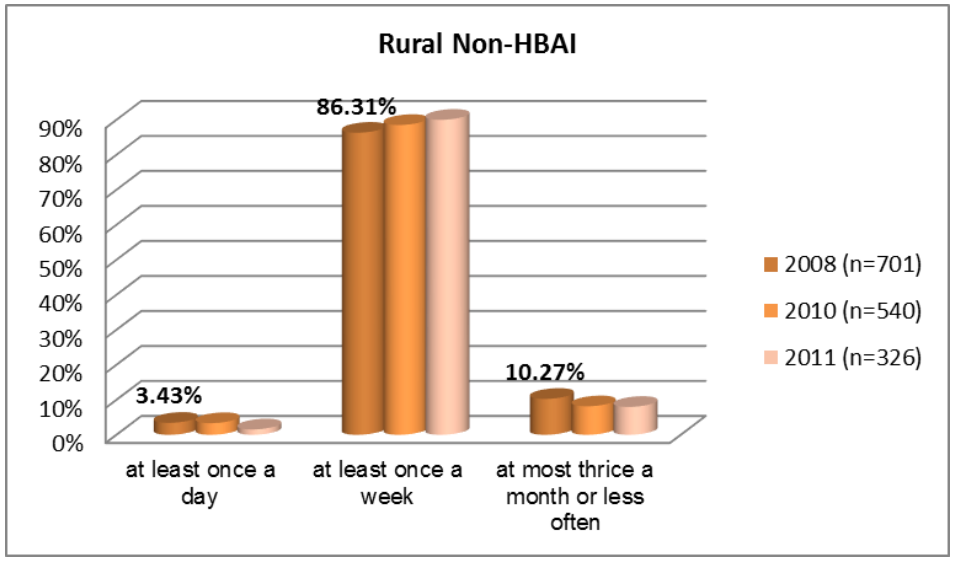
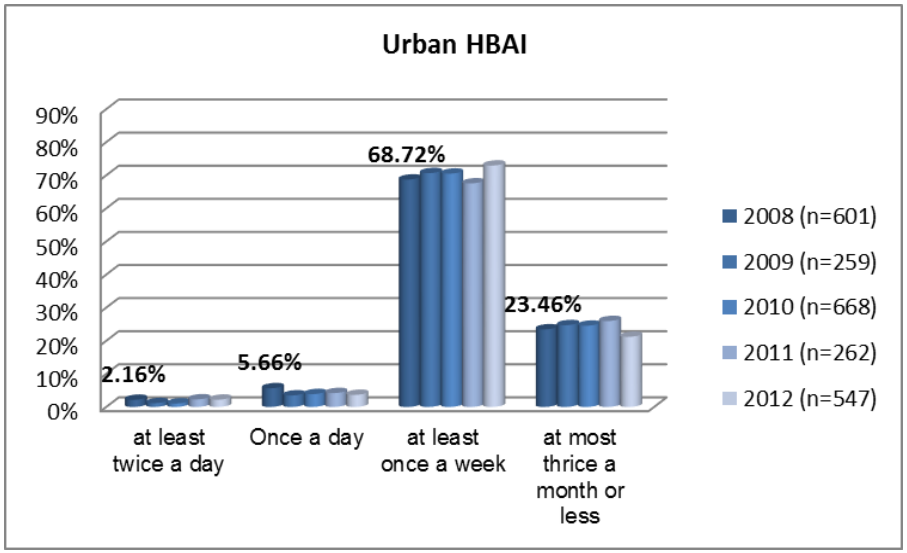


Figure 50: Percentage of Urban HBAI and Urban Non-HBAI by meat intake frequency using SHeS (2008-2012)



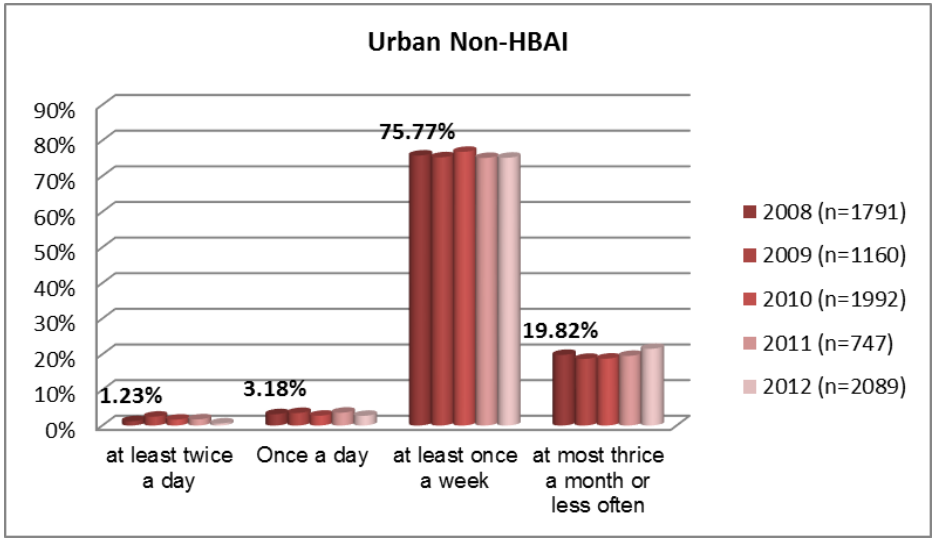
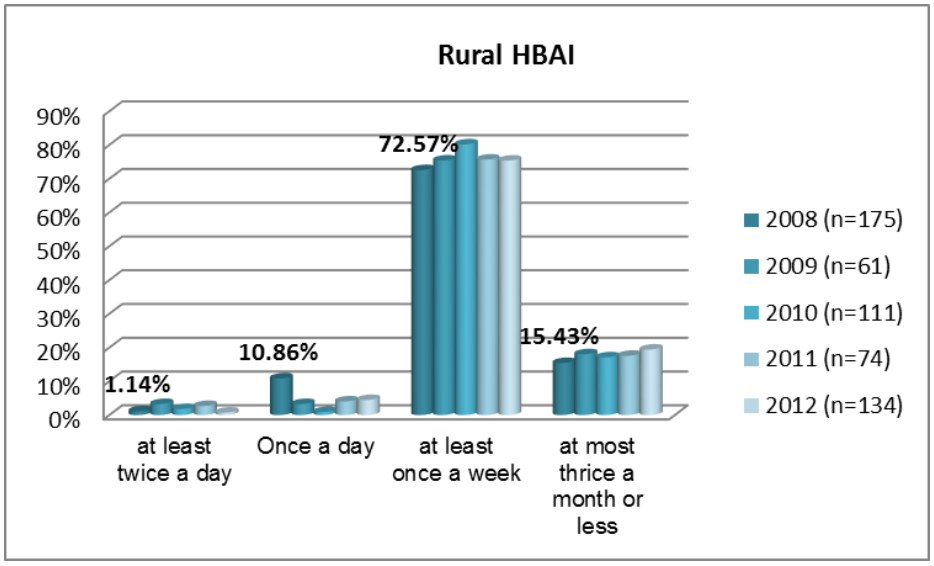


Figure 51: Percentage of Rural HBAI and Rural Non-HBAI by meat intake frequency using SHeS (2008-2012)



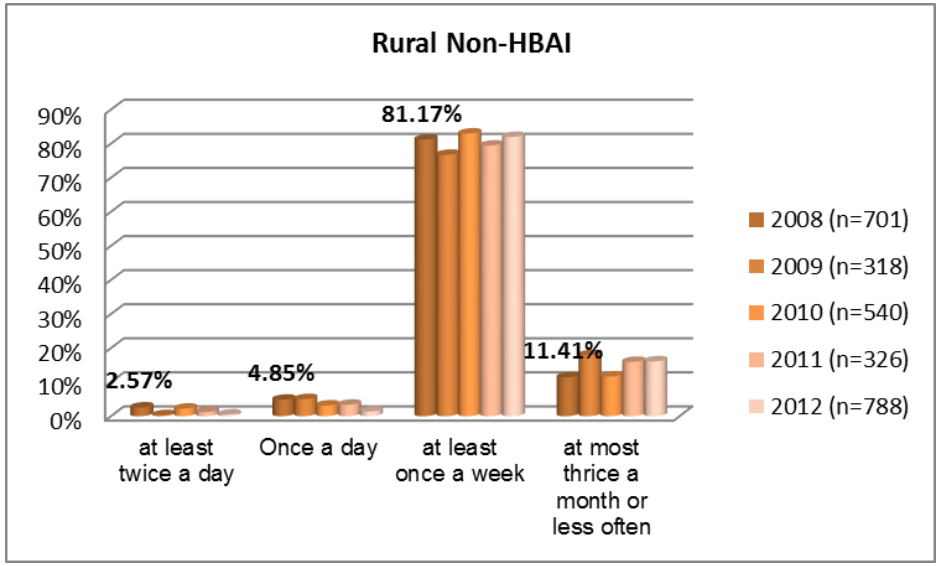
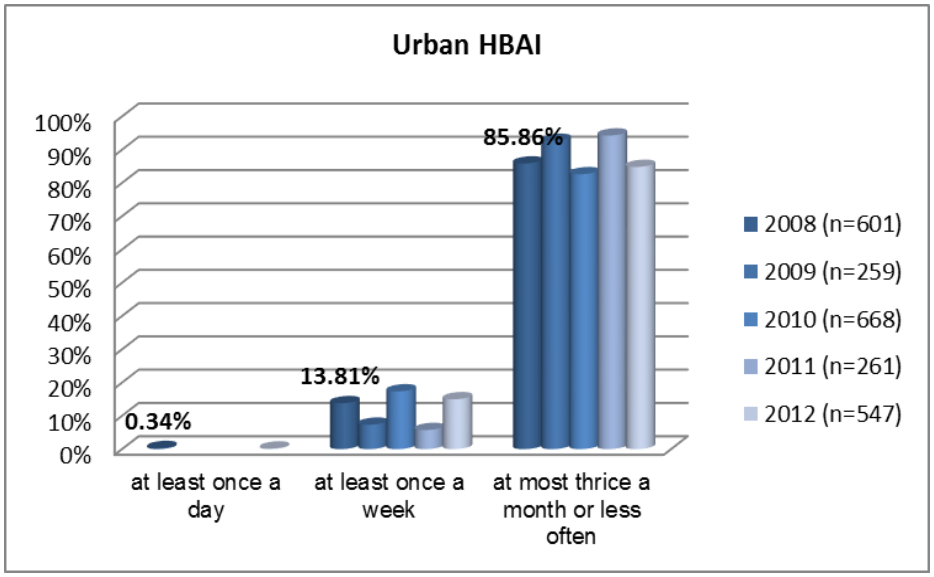


Figure 52: Percentage of Urban HBAI and Urban Non-HBAI by oily fish intake frequency using SHeS (2008-2012)



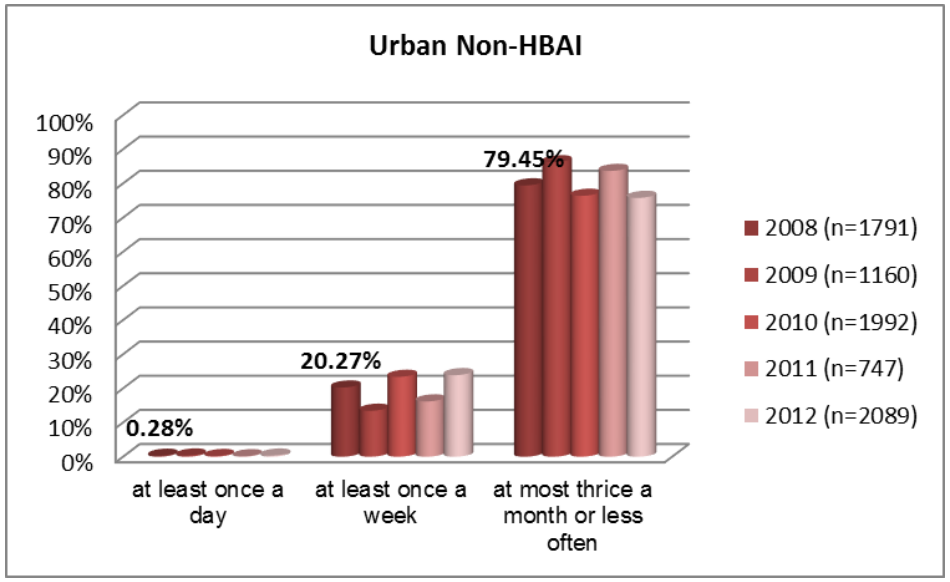
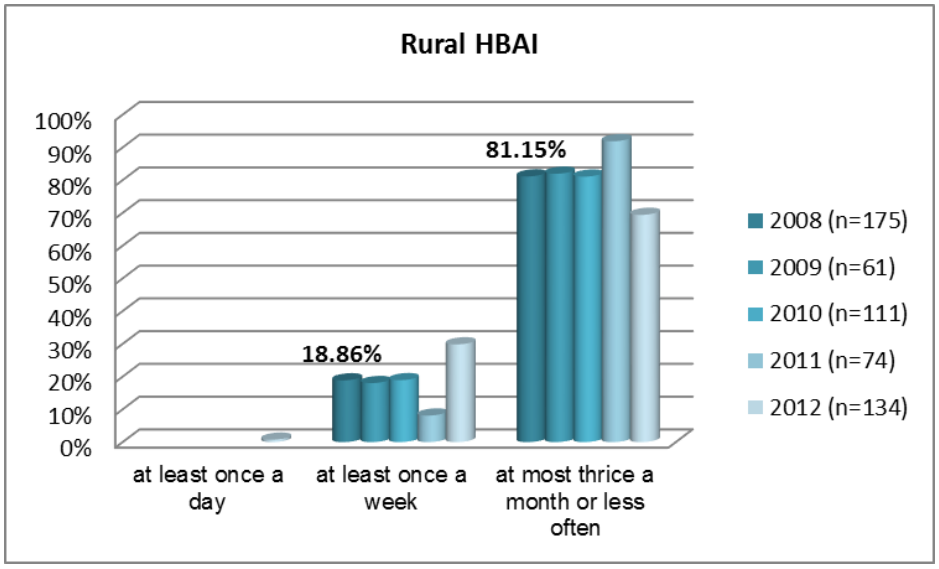


Figure 53: Percentage of Rural HBAI and Rural Non-HBAI by oily fish intake frequency using SHeS (2008-2012)



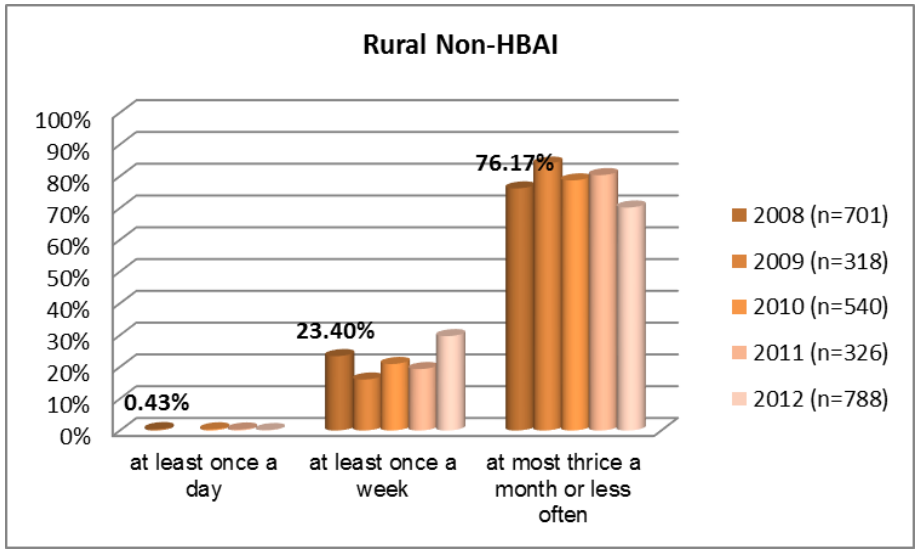
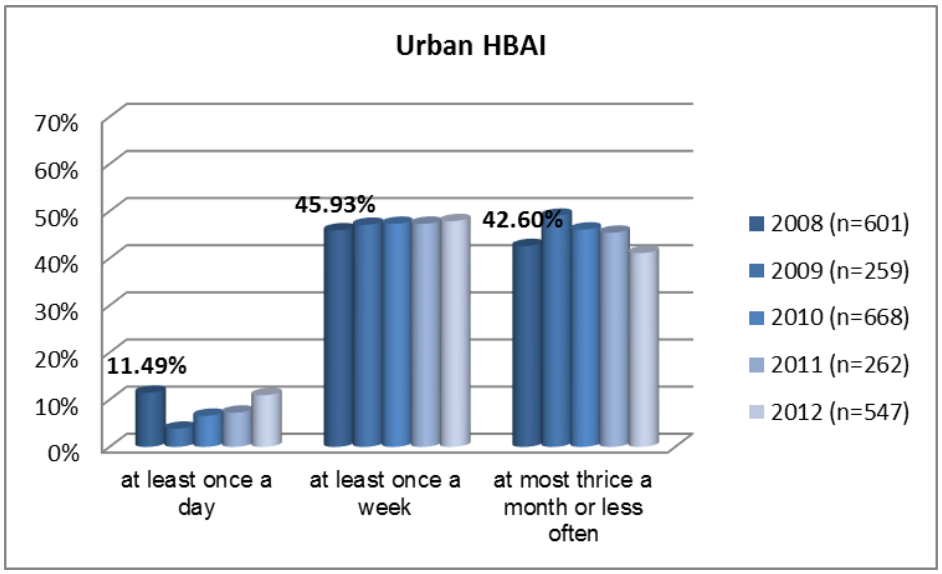


Figure 54: Percentage of Urban HBAI and Urban Non-HBAI by cakes, scones or pastries intake frequency using SHeS (2008-2012)



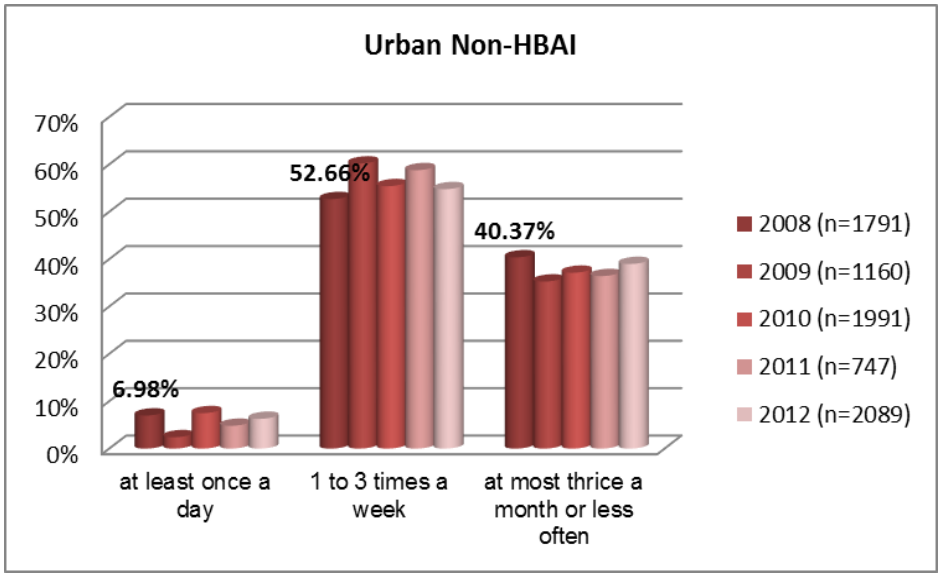
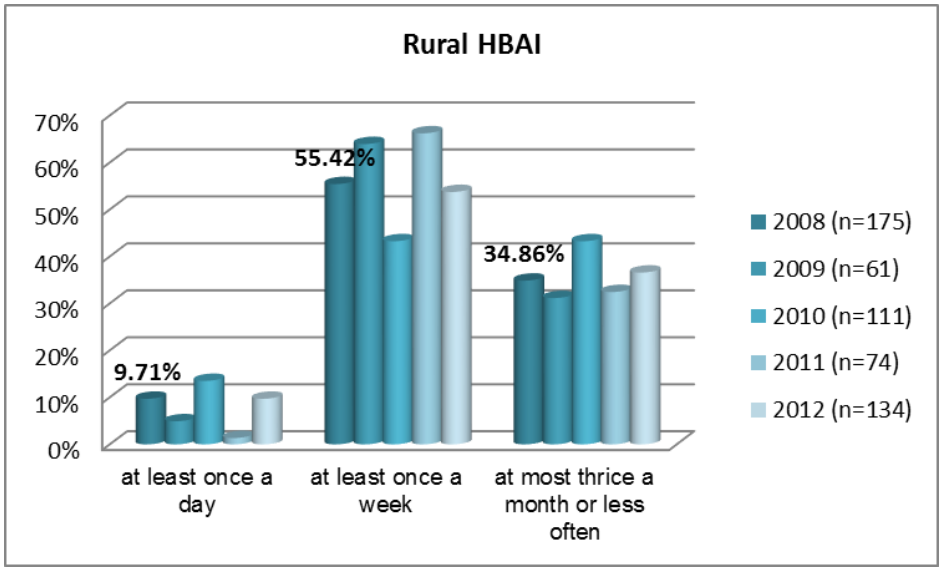


Figure 55: Percentage of Rural HBAI and Rural Non-HBAI by cakes, scones or pastries intake frequency using SHeS (2008-2012)



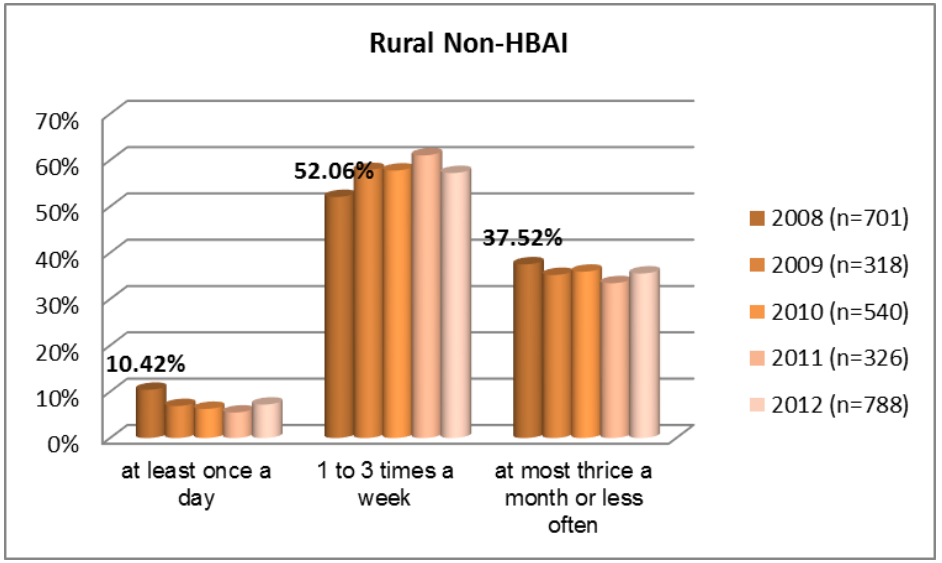
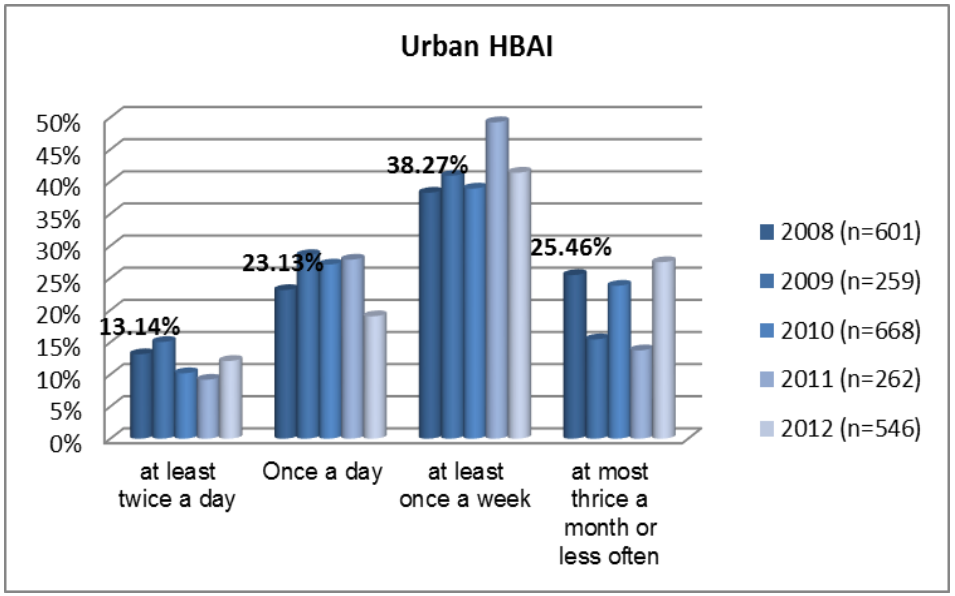


Figure 56: Percentage of Urban HBAI and Urban Non-HBAI BY biscuits intake frequency using SHeS (2008-2012)



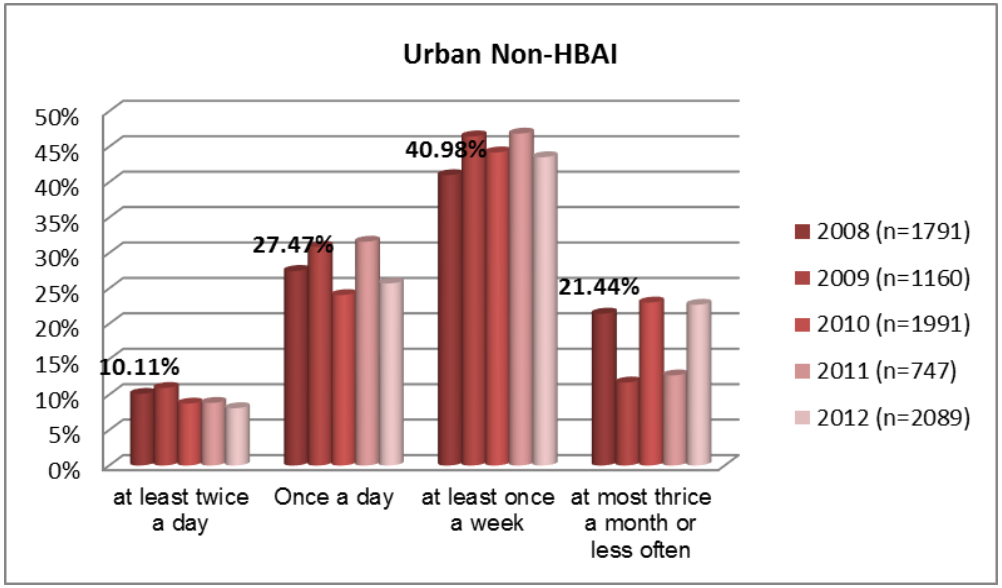
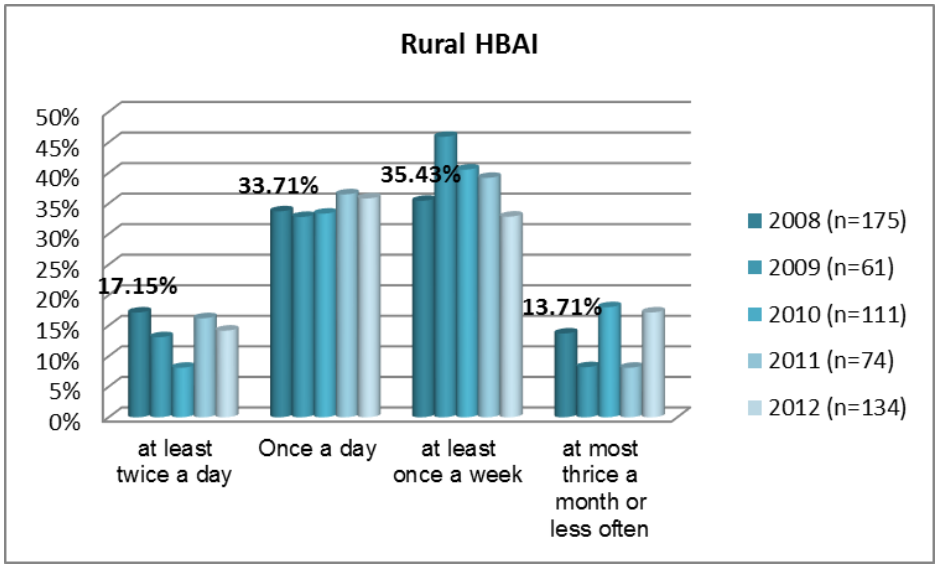


Figure 57: Percentage of Rural HBAI and Rural Non-HBAI by biscuits intake frequency using SHeS (2008-2012)



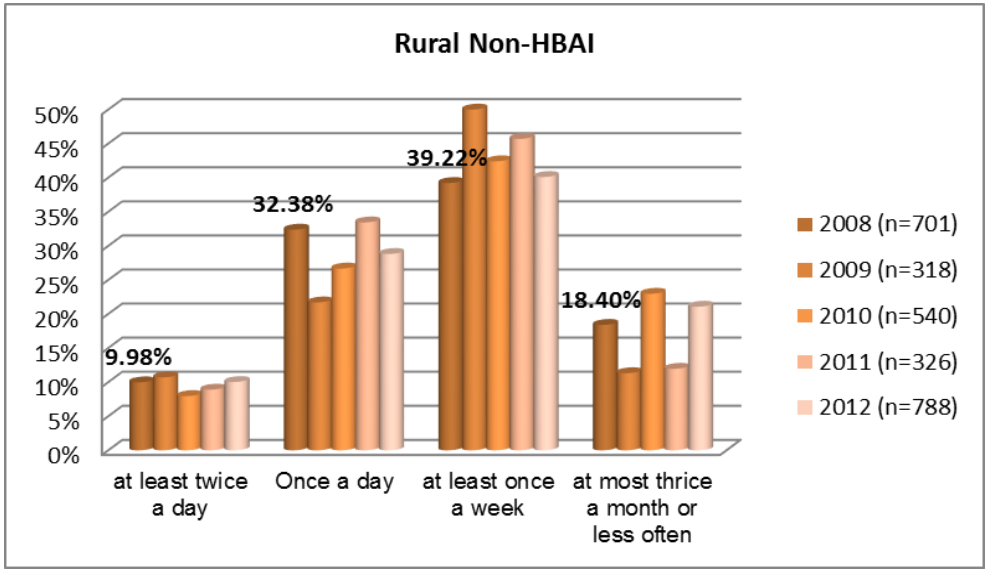


Figure 58: Percentage of Older HBAI and Older Non-HBAI by type of bread purchased using SHeS (2008-2012)

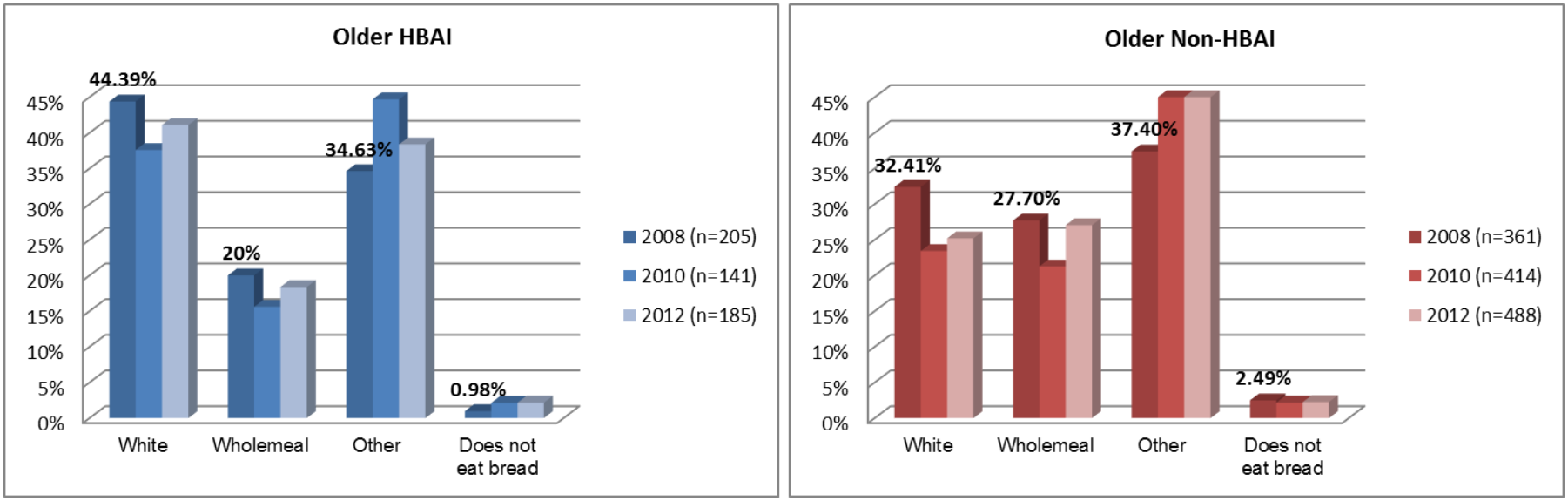


Figure 59: Percentage of Older HBAI and Older Non-HBAI by daily consumption of slices/rolls of bread using SHeS (2008-2012)

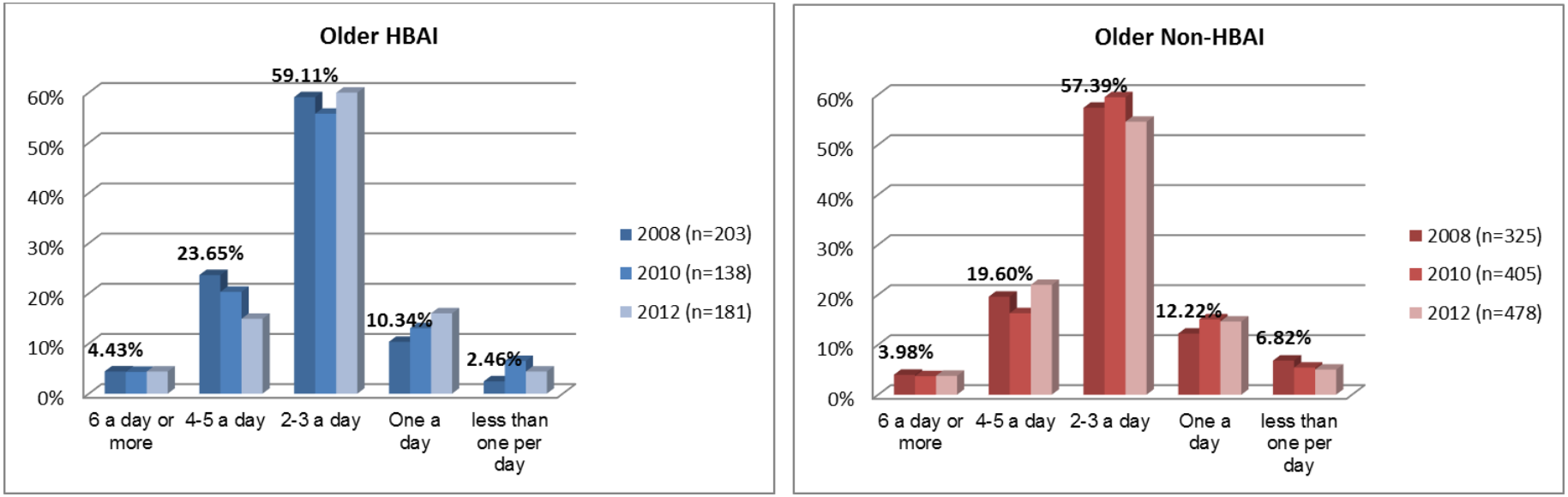


Figure 60: Percentage of Older HBAI and Older Non-HBAI by type of milk purchased using SHeS (2008-2012)

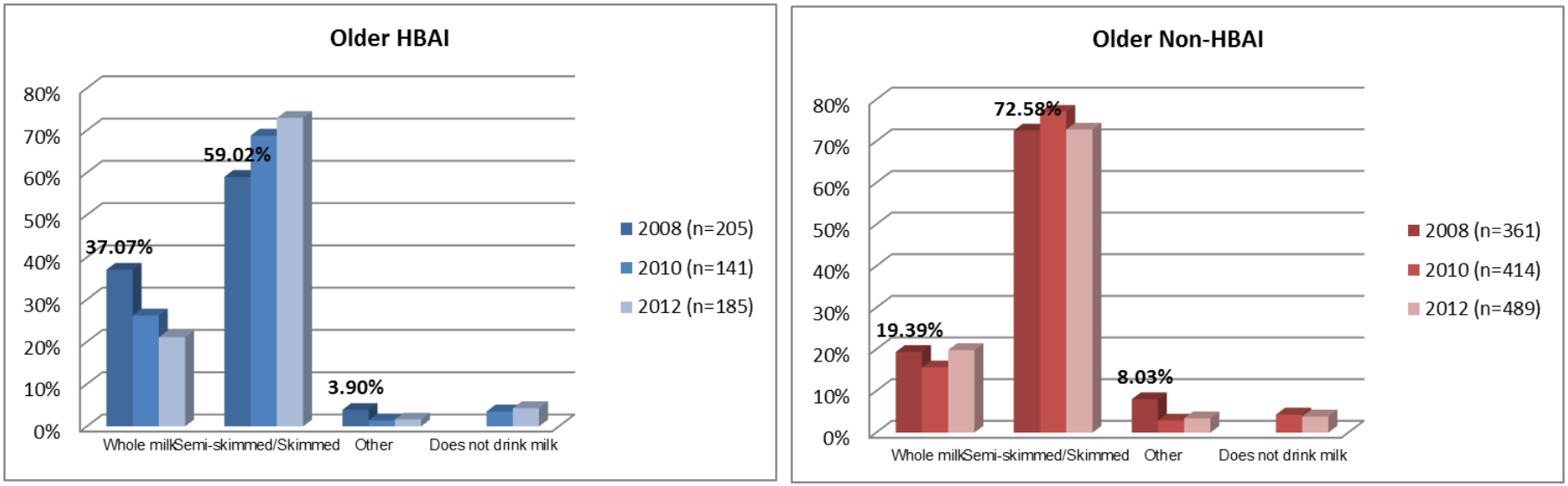


Figure 61: Percentage of Older HBAI and Older Non-HBAI by type of breakfast cereal purchased using SHeS (2008-2012)

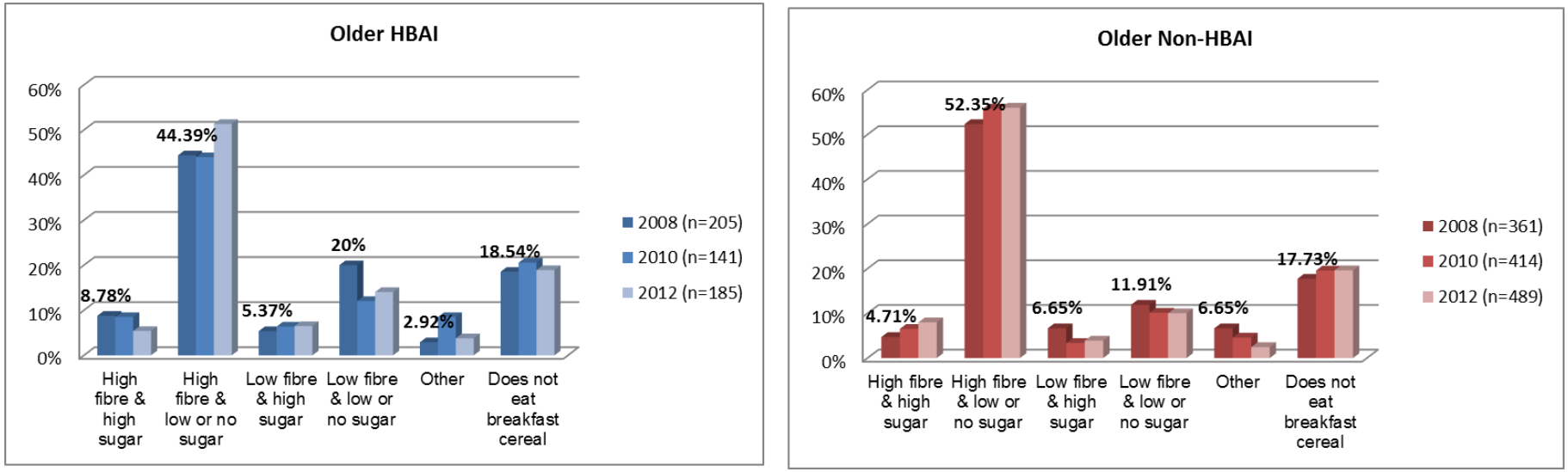


Figure 62: Percentage of Older HBAI and Older Non-HBAI by potatoes intake frequency using SHeS (2008-2012)

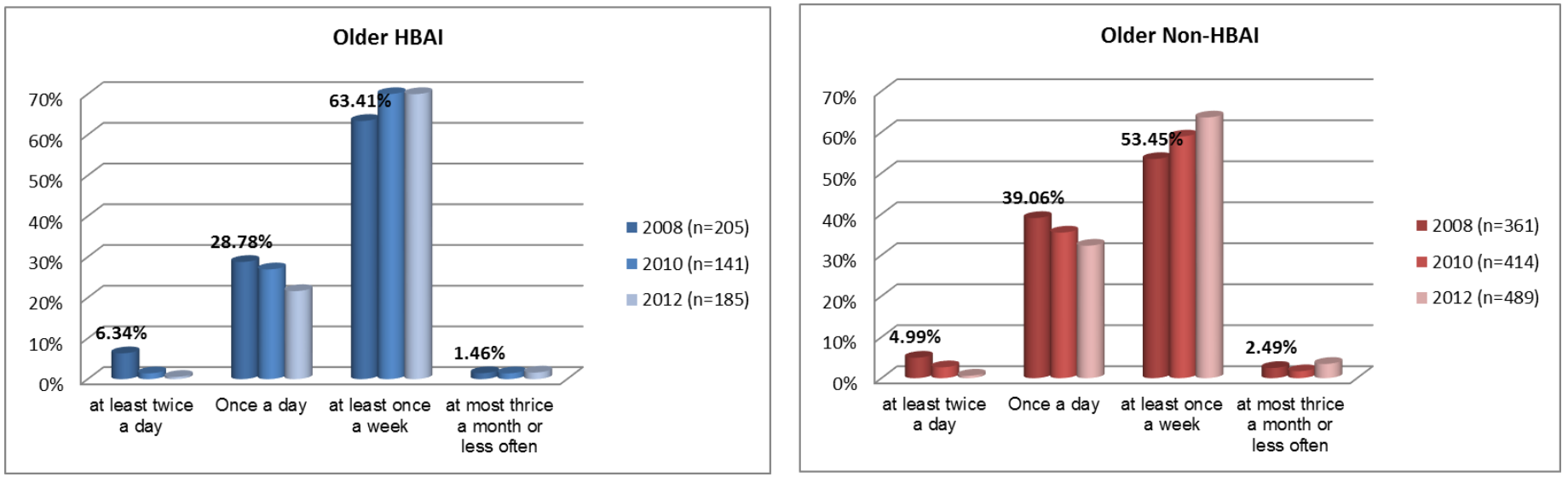


Figure 63: Percentage of Older HBAI and Older Non-HBAI by poultry intake frequency using SHeS (2008-2012)

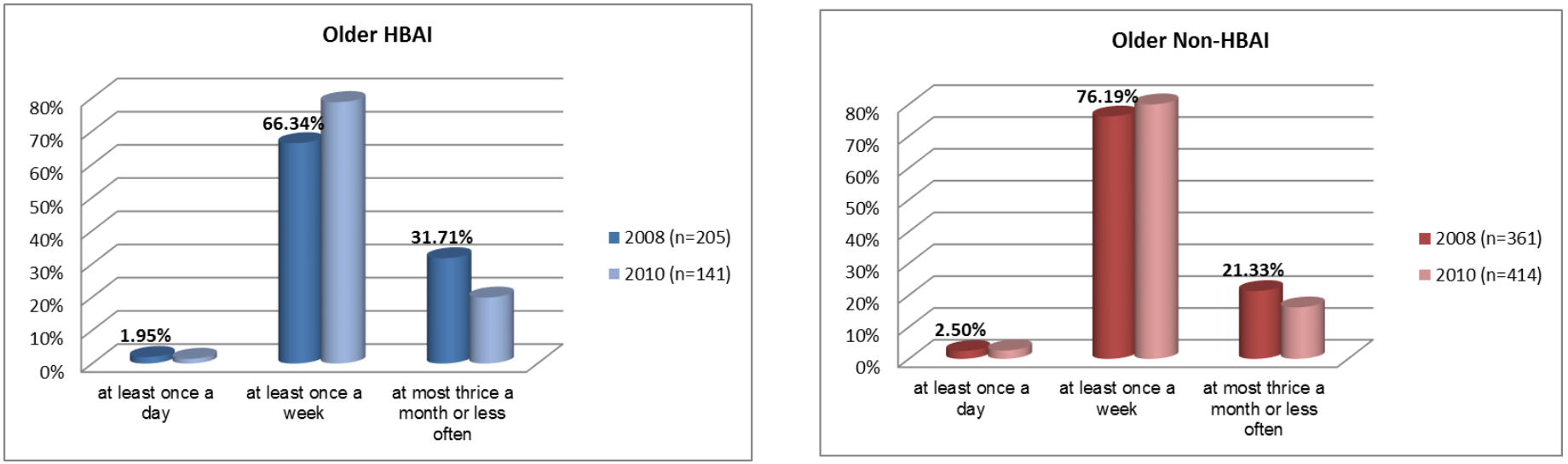
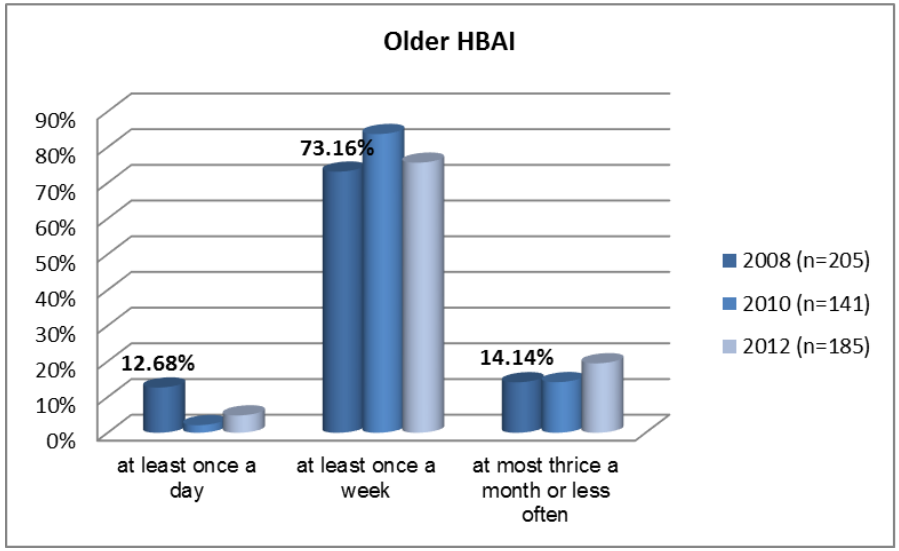


Figure 64: Percentage of Older HBAI and Older Non-HBAI by meat intake frequency using SHeS (2008-2012)



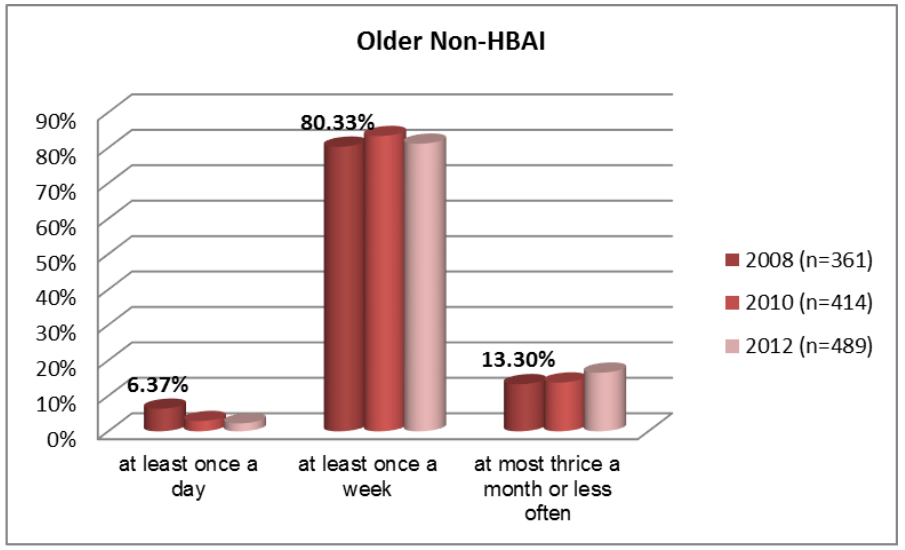
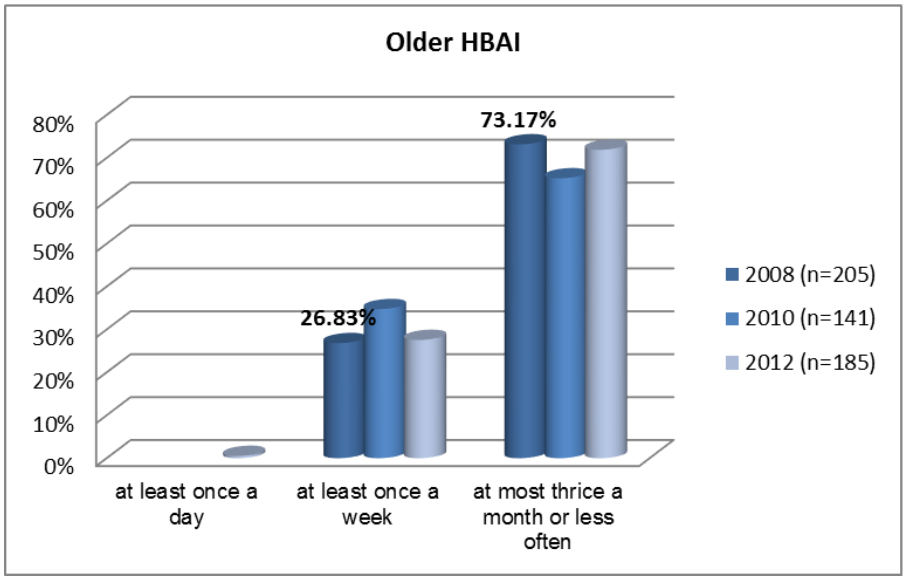


Figure 65: Percentage of Older HBAI and Older Non-HBAI by oily fish intake frequency using SHeS (2008-2012)



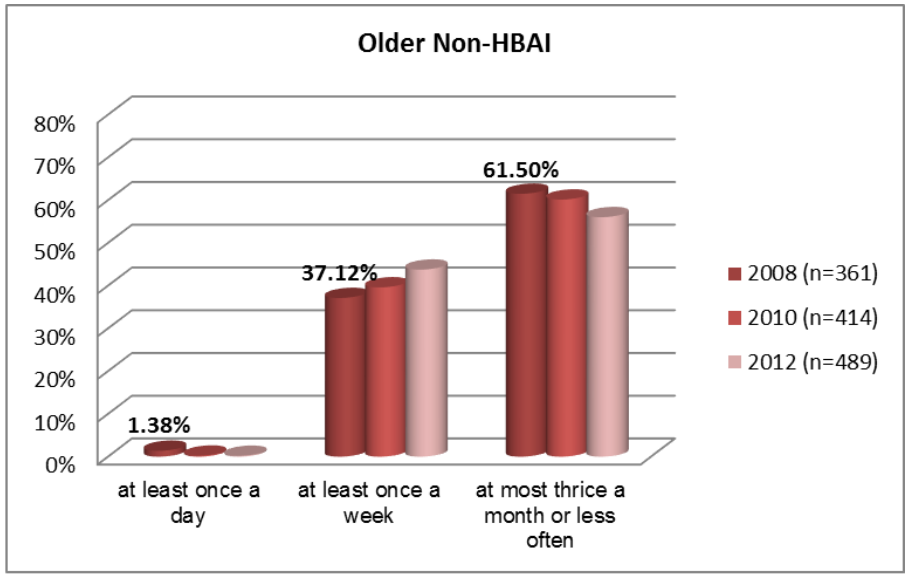
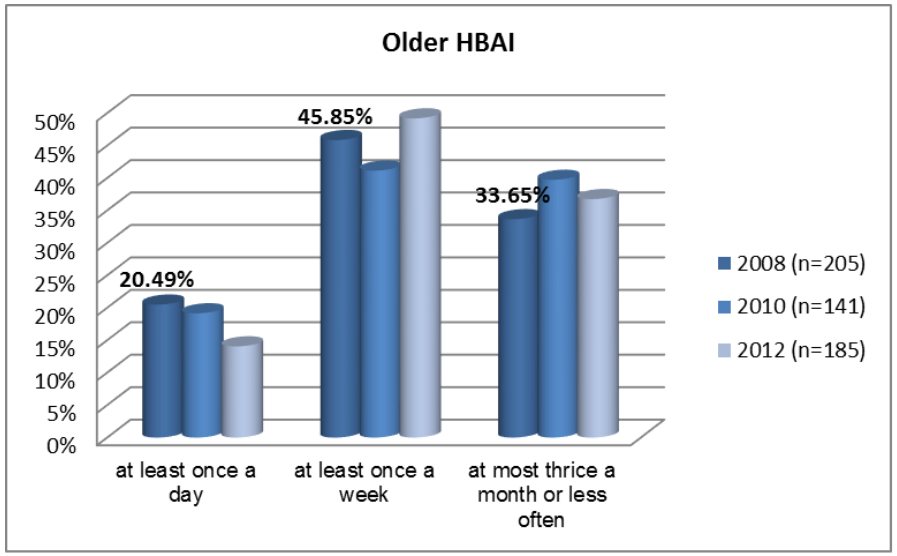


Figure 66: Percentage of Older HBAI and Older Non-HBAI by cakes, scones or pastries intake frequency using SHeS (2008-2012)



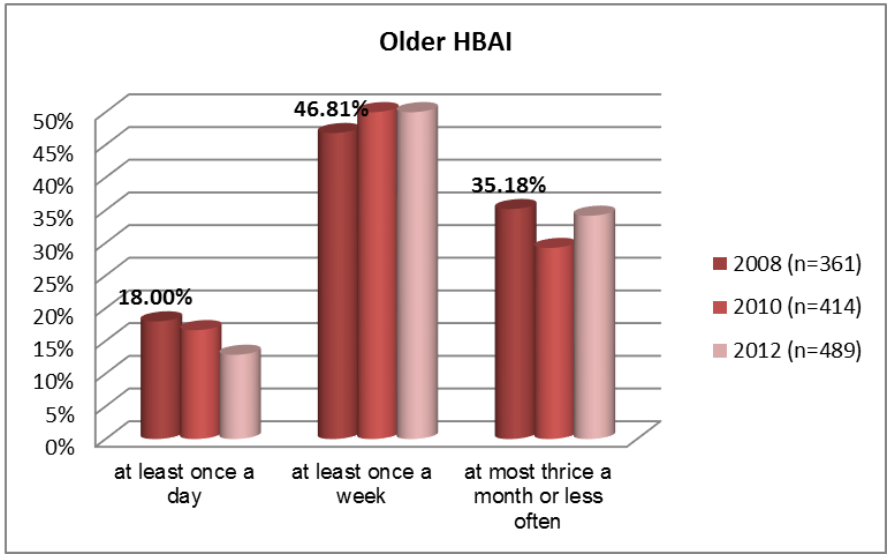
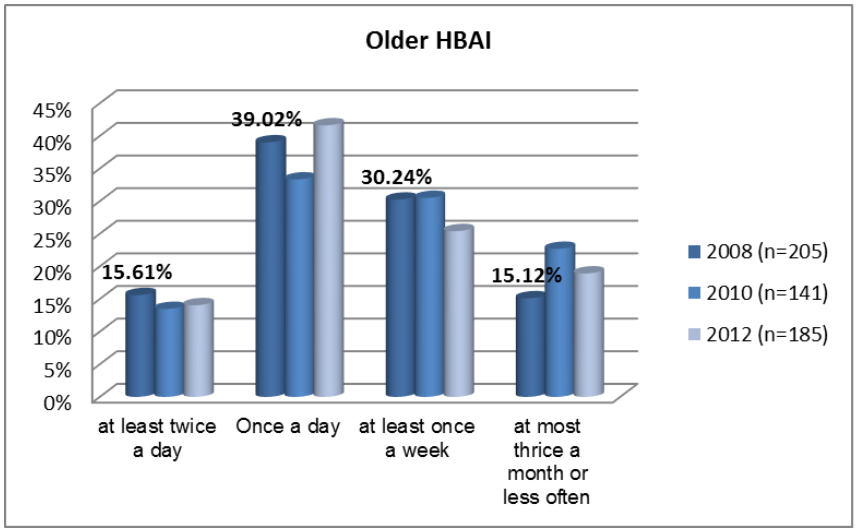


Figure 67: Percentage of Older HBAI and Older Non-HBAI by biscuits intake frequency using SHeS (2008-2012)



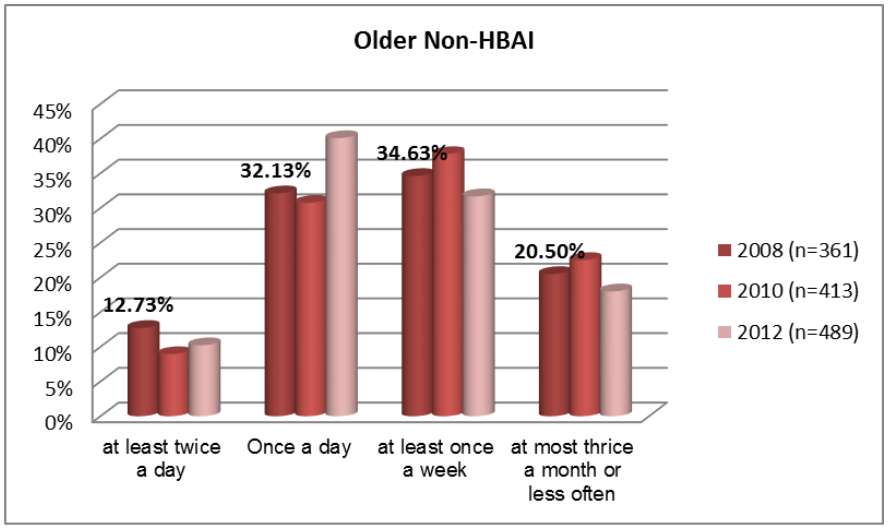
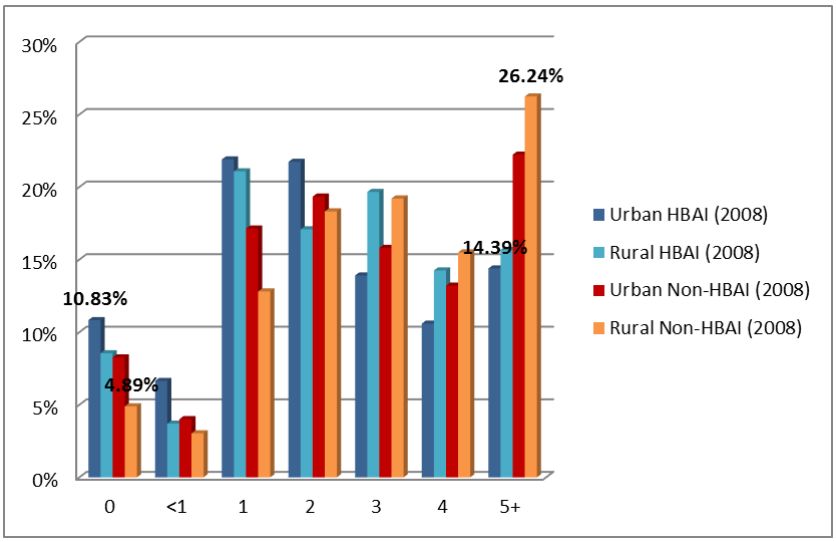


Figure 68: Percentage of Urban/Rural HBAI and Urban/Rural Non-HBAI by daily (i.e. day prior the interview) intake of fruit and vegetables using SHeS (2008)



Appendix 6: Qualitative study documentation

Topic Guide: Community Food Initiative Key Informants

Research objectives	**Main Questions**	
Introductions	Background to the study – explain and reiterate that this is being funded by Health Scotland and the Rowett Institute of Nutrition and Health - it is an exploration of Household food insecurity in the Scottish context. ***What is your name?*** ***What is your role in the organisation?*** ***What is the name of your organisation?*** ***What does your organisation do?*** ***Who is your service group?*** ***Who is your organisation targeting?***	**Probing questions**
The extent to which the Community Food Initiative (CFI) informant believes its organisation is dealing with food poverty amongst their client group at the present time.	***Thinking about your client group, would you say that any of those that you are coming into contact with are suffering from food poverty?*** ***Can I ask you to describe what comes to mind when you think of the term food poverty in the Scottish context?*** ***(For those agencies that offer a food bank service ask the following question)*** ***To what extent do you think your food bank service is able to deal with, or meet the needs of people who have chronic conditions (such as***	**If yes** – ask why they believe this is the case and who they believe is most affected by it? Ask them what makes them think this is the case? **If no** – ask why they think this is the case for their client group? Can describe what you think food poverty means in the Scottish context?

	diabetes, heart disease or, hepatitis)?	
Views about the role of their CFIs in providing emergency food aid and other services aimed at addressing food poverty.	***Thinking about your organisation, would you say that it has a role in alleviating or dealing with food poverty in Scotland currently?***	**If yes –** ask them to describe what they see that being?
The CFI future intentions regarding alleviating (locally-based) immediate food crises.	***Thinking about your organisation, what future role (if any) would you say that it has in alleviating food poverty in Scotland?***	
Their perspectives about longer term/chronic food poverty in Scotland and the potential role of CFIs (in general) in addressing this.	***Thinking about CFIs in general, what role (if any) do you see them playing in addressing food poverty in the future?***	
Ideas or views about alternative models for addressing food poverty at the community level.	***Are there any other ways you have thought about that would alleviate or eliminate food poverty in Scotland?***	
A.N.Other questions	***Are you aware of any reports or publications produced by your service or organisations in this area that are relevant to this topic and which would add to our overall knowledge of the nature of food poverty in Scotland?*** ***One final question, are there any other projects similar to yours that you think it would be useful for me to speak to about this research? If so can, tell me who I should speak to in those organisations about this research?*** ***That's all the questions I have for you, but is there anything you would like to talk about related to this subject that you feel I haven't covered in the interview so far?***	

Topic Guide: Service Provider Key Informant

Research objectives	**Main Questions**	
Introductions	Background to the study – explain and reiterate that this is being funded by Health Scotland - it is an exploration of Household food insecurity in the Scottish context. ***What is your name?*** ***What is the name of the organisation you work for?*** ***What is your role in the organisation?*** ***How long have you worked for the organisation?*** ***What does your organisation do?*** ***Who is your service/target group?*** ***Who is your organisation targeting?***	**Probing questions**
Perceptions and views about food poverty as a general issue within Scotland.	***Can describe what you believe food poverty means in the Scottish context?***	
The extent which informants believe it to be a problem for their target group (or otherwise).	***Thinking about your client group, would you say that any of those that you are coming into contact with are suffering from food poverty?*** ***Would you say that there have been any changes in the numbers of people you are dealing with through your work or the kinds of people you are dealing with who are afflicted by food poverty in the last 5 years or so?***	**If yes** – ask why they believe this is the case? Who do you believe is most affected by food poverty? **If no** – ask why they think this is the case for their client group? **If yes – what are the main changes that you have seen?**
Informants' views about nature of that problem (***if they believe there to be one)*** i.e. views about the underlying causes and its manifestations of the problem for their target group.	***What do you think are the reasons why your client group is experiencing food poverty?*** ***Can you describe what you mean by food poverty for your client group?*** ***How would you say you decide when someone is in food crisis, and needing help to get access to food?***	

	NB. <u>The following block of questions is only intended for those informants who talk about referring clients to a food bank.</u> ***What would you say are the key trigger points (signs) that make you decide someone needs emergency food aid?*** ***Do you know if those who you refer to food banks actually use them or not?*** ***To what extent do you think the food bank service you are referring people to is able to deal with, or meet the needs of people who have chronic conditions (such as diabetes, heart disease or, hepatitis)?*** ***What sources of help are your clients seeking out if they are food insecure to help with feeding themselves?***	
What if anything they doing as an organisation to mitigate the effects of the problem.	***Thinking about your organisation, what would you say that it is doing, if anything, to alleviate food poverty for your client group?***	If yes – can you describe what that is? If no – who or what organisation do you believe is or should be responsible for addressing this problem
A.N. Other questions	***Are you aware of any reports or publications produced by your service or organisations in this area that are relevant to this topic and which would add to our overall knowledge of the nature of food poverty in Scotland?*** ***One final question, are there any other projects similar to yours that you think it would be useful for me to speak to about this research? If so can, tell me who I should speak to in those organisations about this research?*** ***That's all the questions I have for you, but is there anything you would like to talk about related to this subject that you feel I haven't covered in the interview so far?***	

UNIVERSITY OF ABERDEEN

CONSENT FORM

Study title: Food Poverty / Insecurity in Scotland

Lead Researcher: Dr. Flora Douglas, University of Aberdeen, Public Health Nutrition Research Group, 1:073 Polwarth Building, Foresterhill, Aberdeen, AB25 2ZD.

Tel: 01224 437124. E-mail: f.douglas@abdn.ac.uk

Please initial here

1. I confirm that I have read and understand the information sheet dated 02/12/2014 (version 3) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.

…….

2. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason.

……..

3. I agree to take part in the above study.

……..

4. I agree to my interview being audio recorded and understand that the audio file will kept for 10 years in a secure password protected computer file which only the researchers will have access to. I understand that my file will be deleted after this time.

……

5. I agree to anonymised quotes from my interview being used in study reports, publications or presentations.

……..

Name of Participant (please print) _____
Date _____
Signature _____

Name of researcher _____
Date _____
Signature _____

Please return this form in the freepost envelope provided.

INFORMATION SHEET FOR Service Provider Representatives

Food Poverty / Insecurity in Scotland Study

We would like to invite you to take part in a research study. Before you decide whether to take part or not, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask us if there is anything that is not clear or if you would like more information before deciding to take part.

What is this study about?
We are interested in the insights and perspectives of individuals representing organisations that have day-to-day contact and responsibility for the care and support of some of the most vulnerable, social and economically-disadvantaged groups in Scotland. This study gives you the chance to share your views about current issues around food insecurity/poverty and to explore the role and contribution that community food initiatives have played in the Scottish population. The study will be more valuable if we have a wide range of views so we hope you will consider taking part.

What will I be asked to do if I agree to take part?
We would like to talk to you about your views and attitudes about the extent of food poverty/ insecurity in Scotland, how you believe it is experienced by particular vulnerable groups and how are community food initiatives adapting and challenged by current trends of food insecurity. If you are interested in taking part, please complete the reply and send it in the FREEPOST envelope within 1 week (no stamp is needed). If you decide to take part, a researcher will contact you to arrange a convenient time and venue to be interviewed. The discussion would last approximately 1 hour. We would like to sound record the discussion for research purposes to ensure that we have an accurate record of everything that is said. The research is being carried out by independent researchers at the University of Aberdeen. Everything you say will be treated confidentially and used only for research purposes.

Do I have to take part?
No, you do not have to take part, it is up to you to decide whether or not you wish to take part. Please read all the information carefully before you decide. You are free to withdraw at any time, without giving a reason. A decision to withdraw at any time, or a decision not to take part, will not affect your employment.

What are the possible benefits of taking part?
There will be no personal benefits to you. However, this research will inform future policy in this area in Scotland

Will my taking part be kept confidential?
Yes, absolutely. We will follow current ethical and legal practice and all information collected during the course of the research will be kept strictly confidential and secure for ten years in password protected files. During the study you will be assigned with a study number and all data will be coded such that they will be anonymous. Your study number can be traced back to you only by the two primary members of the research team. We will ensure that you cannot be identified in any study reports.

All research is looked at by an independent group of people, called a Research Ethics Committee, to protect your safety, rights, wellbeing and dignity. This study has been reviewed and given a favourable opinion by the North of Scotland Research Ethics Committee and University of Aberdeen College Ethics Review Board.

What if there is a problem?
In the unlikely event that there is a problem or if you are unhappy at any point in time about any matter relating to the study, please do not hesitate to contact any member of the study team. Alternatively, you can make a complaint to Professor Garry Duthie, University of Aberdeen, Rowett Institute of Nutrition and Health, Greenburn Road, Aberdeen AB21 9SB (01224 438623, g.duthie@abdn.ac.uk).

What will happen to the results of the research study?
We will write a report for NHS Health Scotland and the Rowett Institute of Nutrition and Health who are funding the study. We also plan to publish the results of the study in scientific journals and present the work at national and/or international meetings of specialists with an interest in food security. We would like to ask your permission to use direct quotes from your interview in reports about the findings of this study. All quotations would be anonymous and you would not be identified in any way. A summary of the results will be sent to study participants.

Further information and contact details.
If you have any questions about the study or would like to discuss some details in greater depth before taking part, please do not hesitate to contact Dr. Flora Douglas, by telephone on 01224 437124 or by e-mail: f.douglas@abdn.ac.uk, or Dr. Fiona MacKenzie (tel no.) 01224 438038 or by email f.mackenzie@abdn.ac.uk.

We would like to thank you for considering participating in the study – should you have any further queries with regards to the study, please do not hesitate to contact us.

INFORMATION SHEET FOR Community Food Organisation Representatives

Food Poverty / Insecurity in Scotland Study

We would like to invite you to take part in a research study. Before you decide whether to take part or not, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please ask us if there is anything that is not clear or if you would like more information before deciding to take part.

What is this study about?
We are interested in the insights and perspectives of individuals representing organisations that have day-to-day contact and responsibility for the care and support of some of the most vulnerable, social and economically-disadvantaged groups in Scotland. This study gives you the chance to share your views about current issues around food insecurity/poverty and to explore the role and contribution that community food initiatives have played in the Scottish population. The study will be more valuable if we have a wide range of views so we hope you will consider taking part.

What will I be asked to do if I agree to take part?
We would like to talk to you about your views and attitudes about the extent of food poverty/ insecurity in Scotland, how you believe it is experienced by particular vulnerable groups and how are community food initiatives adapting and challenged by current trends of food insecurity. If you are interested in taking part, please complete the reply and send it in the FREEPOST envelope within 1 week (no stamp is needed). If you decide to take part, a researcher will contact you to arrange a convenient time and venue to be interviewed. The discussion would last approximately 1 hour. We would like to sound record the discussion for research purposes to ensure that we have an accurate record of everything that is said. The research is being carried out by independent researchers at the University of Aberdeen. Everything you say will be treated confidentially and used only for research purposes.

Do I have to take part?
No, you do not have to take part, it is up to you to decide whether or not you wish to take part. Please read all the information carefully before you decide. You are free to withdraw at any time, without giving a reason. A decision to withdraw at any time, or a decision not to take part, will not affect your employment.

What are the possible benefits of taking part?
There will be no personal benefits to you. However, this research will inform future policy in this area in Scotland

Will my taking part be kept confidential?
Yes, absolutely. We will follow current ethical and legal practice and all information collected during the course of the research will be kept strictly confidential and secure for ten years in password protected files. During the study you will be assigned with a study number and all data will be coded such that they will be anonymous. Your study number can be traced back to you only by the two primary members of the research team. We will ensure that you cannot be identified in any study reports.

All research is looked at by an independent group of people, called a Research Ethics Committee, to protect your safety, rights, wellbeing and dignity. This study has been reviewed and given a favourable opinion by the North of Scotland Research Ethics Committee and University of Aberdeen College Ethics Review Board.

What if there is a problem?
In the unlikely event that there is a problem or if you are unhappy at any point in time about any matter relating to the study, please do not hesitate to contact any member of the study team. Alternatively, you can make a complaint to Professor Garry Duthie, University of Aberdeen, Rowett Institute of Nutrition and Health, Greenburn Road, Aberdeen AB21 9SB (01224 438623, g.duthie@abdn.ac.uk).

What will happen to the results of the research study?
We will write a report for NHS Health Scotland and the Rowett Institute of Nutrition and Health who are funding the study. We also plan to publish the results of the study in scientific journals and present the work at national and/or international meetings of specialists with an interest in food security. We would like to ask your permission to use direct quotes from your interview in reports about the findings of this study. All quotations would be anonymous and you would not be identified in any way. A summary of the results will be sent to study participants.

Further information and contact details.
If you have any questions about the study or would like to discuss some details in greater depth before taking part, please do not hesitate to contact Dr Flora Douglas, by telephone on 01224 437124 or by e-mail: f.douglas@abdn.ac.uk, or Dr Fiona MacKenzie (tel no.) 01224 438038 or by email f.mackenzie@abdn.ac.uk.

We would like to thank you for considering participating in the study – should you have any further queries with regards to the study, please do not hesitate to contact us.

The Food Poverty / Insecurity in Scotland Study:

Volunteers needed for an NHS Scotland/Community Food and Health [Scotland] funded research project aimed at exploring the nature and extent of household food poverty/security in Scotland.

We are looking for volunteers to talk to us about the extent to which they think vulnerable groups of people living in our communities are experiencing household food poverty/insecurity in Scotland.

Who we'd like to speak to

We are keen to speak to people who:

- Work in organisations responsible for the care and support of vulnerable groups such as older people and those at risk of, or, experiencing homelessness, or who are refugees and asylum seekers in Scotland.
- Work within community food initiatives/programmes in Scotland.

We are interested to know your views on household food poverty, and how you think it is affecting the groups of people you are concerned with, if it is something that you think is affecting them. We are also keen to find out how community food initiatives are responding to in-household food insecurity in Scotland currently.

What you will be asked to do:

You will be asked to take part in a telephone interview lasting approximately 1 hour.

Who we are

NHS Health Scotland has commissioned a group of researchers from the Rowett Institute of Nutrition and Health University of Aberdeen, the Health Economics Research Unit and the University of Glasgow to do this research.

Contact

If you would like to take part in our study, or find out more about it, please get in touch with Dr Fiona MacKenzie (01224 438038) f.mackenzie@abdn.ac.uk or Dr Flora Douglas (01224 437124) f.douglas@abdn.ac.uk

Table 1: Community Food Initiative Informant details

Participant ID	Type of organisation	Role of interviewee	Project or service description	Health Board Area	Population group served
1	Community Food Initiative: Community food programme with food bank	Manager of community food and health initiative	To improve people's health by providing them with nutritious food and cooking and nutrition classes	Greater Glasgow & Clyde	Vulnerable adults on a low income
2	Community Food Initiative: Food bank only	Manager of food bank	Food bank	Greater Glasgow & Clyde	Vulnerable children and adults on a low income
3	Community Food Initiative: Community food programme without food bank	Project Assistant at voluntary community health project	Voluntary community project which promotes healthy eating/living	Forth Valley	Vulnerable adults on a low income
4	Community Food Initiative: Community food programme with food bank	Chief Executive. Supports vulnerable adults	To improve health and wellbeing and to increase employability	Grampian	Vulnerable adults on a low income
5	Community Food Initiative: Community food programme without food bank	Community Food Development Worker for community food and health project	Supports people at risk of homelessness, offenders or those at risk of offending	Fife	Vulnerable adults on a low income
6	Community Food Initiative: Community food programme without food bank	Manager of a healthy living centre	Tries to alleviate food poverty through their education and promotion work	Greater Glasgow & Clyde	Vulnerable adults on a low income
7	Community Food Initiative: Food bank only	Development worker at the foodbank	Promotes healthy eating in local schools and nurseries and runs cookery classes	Greater Glasgow & Clyde	Vulnerable children and adults living in community
8	Community Food Initiative: Community food programme with food bank	Foodbank coordinator at national voluntary organisation	Food bank and drop-in advice service	Dumfries and Galloway	Vulnerable children and adults on a low income
9	Community Food Initiative: Community garden	Volunteer coordinator at community food and health project	Promotes healthy eating via cookery classes and workshops. Sells cheap fruit and veg	Fife	All residents living in the local village

10	Community Food Initiative: Community food programme with food bank	Food and Health Development Worker for this Community food and health project	Supports vulnerable people living in food poverty. Promotes healthy eating via cookery classes	Lothian	Disadvantaged groups in deprived areas of city – mainly serves families with young children

Table 2: Service Provider Informant details

Participant ID	Type of organisation	Role of interviewee	Project or service description	Location	Population group served
1	Service Provider	Staff nurse, Vulnerable Populations Team	Health Service representative supporting vulnerable adults	Greater Glasgow & Clyde	Vulnerable adults of all ages (16 and over)
2	Service Provider	Pre School Educational Home Visitor. Provides support & education to parents regarding their children's development needs	Education & children's services	Fife	Vulnerable parents regarding their children's development needs
3	Service Provider	Deputy manager of advice and information service for vulnerable groups	Supports homeless or those at risk of homelessness	Grampian	Homeless & other groups at risk of homelessness
4	Service Provider	Family worker supporting vulnerable families via parent and toddler groups	Supports vulnerable families	Highlands	Vulnerable families with young children
5	Service Provider	Principal adult social worker for vulnerable groups	Supports disabled and other vulnerable adults	Orkney	Disabled and other vulnerable adults
6	Service Provider	Welfare Support Assistant for unemployed people	Supports unemployed people back into work	Fife	Unemployed people
7	Service Provider	Community Health Improvement Advisor	Promotes healthy eating and the prevention of chronic illnesses	Grampian	Vulnerable adults of all ages (16 and over)
8	Service Provider	Community Links Practitioner working in Primary Care - supports all patients in GP practice	Supports vulnerable patients	Greater Glasgow & Clyde	All patients in GP practice in community
9	Service Provider	Manager. Supports vulnerable groups in city	Supports people back into work. Counselling services	Grampian	Vulnerable adults of all ages (16 and over)
10	Service provider	Adult befriending Service co-Ordinator. Supports adults who are socially isolated in community	Supports vulnerable adults in community	Orkney	All adults who are socially isolated in community
11	Service Provider	Assistant Chief Executive. Supports vulnerable young people	Supports young people at risk of homelessness back into employment	Highlands	Young people at risk of homelessness
12	Service Provider	Development officer. Supports vulnerable adults	Supports vulnerable adults in community	Grampian	Vulnerable adults of all ages (16 and over)
13	Service Provider	Re-generation Manager. Supports vulnerable adults	Supports vulnerable adults in community	Greater Glasgow & Clyde	Vulnerable adults of all ages (16 and over)
14	Service Provider	Administrator. Supports vulnerable adults	Supports vulnerable adults in community	Grampian	Vulnerable adults of all ages (16 and over)
15	Service Provider	Integration Development worker. Supports asylum-seekers and refugees	Supports asylum-seekers and refugees	Greater Glasgow and Clyde	Asylum-seekers and refugees