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Patient perceptions of NHS hospital food in the U.K; a cross sectional survey

Dissertation - Academic Paper

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I declare that the whole of this work is the result of my individual effort and that all quotations from other authors have been acknowledged.

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ABSTRACT

Background

Malnutrition in hospital patients can have severe clinical consequences and is associated with worse patient outcomes. As most patients are reliant on hospital food to meet their requirements, it is important that hospital food meets nutritional standards and is well-perceived. Few studies have recently explored the perception of the hospital food experience in the UK; the aim of this study was to investigate the perception of the NHS hospital meals in the UK by previous inpatients.

Method

A cross sectional questionnaire analysis of 28 previous U.K NHS inpatients aged over 18 recruited via opportunistic, snowball sampling drawn from the researcher's friends and family.

Results

The rate of overall satisfaction with the hospital food experience was 57%. Taste was ranked the most important factor in both average rank and appearance in the top 3 ranks, followed by nutritional content and temperature. 39% of participants agreed that hospital food is appetizing, and 42% agreed that hospital food is nutritious. Those who agreed that hospital food is nutritious were more likely to express overall satisfaction with the hospital food experience ($p=0.023$).

Conclusions

The results suggest that there remains significant room for improvement with patient satisfaction. Those who had been in hospital within the last three years had the most positive perceptions of hospital food, suggesting perceptions may be improving since the government introduction of hospital food standards in 2014. Nutritional content is highly valued by patients but only half perceive hospital food to be nutritious, suggesting improving patient's



understanding of the nutritional value of hospital food of this may be an area of focus for improvement efforts.

Keywords: Hospital food, hospital meals, patient satisfaction.

INTRODUCTION

Malnutrition among hospital patients remains a significant problem, despite the growing amount of research highlighting both its financial and clinical consequences.

Whether provided by hospital food or nutrition support, the impact of adequate nutrition on patient outcome is well-documented (Brogden, 2013). Poor food intake in hospitals has been found to be associated with a number of negative outcomes, including more frequent readmissions and greater in-hospital mortality (Agarwal et al, 2013).

Current research indicates that undernutrition on admission to hospital is a common problem; a study undertaken by BAPEN found that 28% of patients in Wales, 25% of patients in Scotland and 29% of patients in the rest of the U.K entered hospital malnourished (BAPEN, 2009). The hospital setting offers a window of opportunity to detect malnutrition and initiate appropriate treatment (BAPEN, 2009).

Most hospitalised patients are dependent on hospital food to meet their nutritional requirements (Stanga, 2003). It has been suggested that in a number of areas, including taste and visual appeal, hospital food frequently fails to meet acceptable standards, which could have detrimental effects on patient's nutrition status (Stanga, 2003). Therefore, it is vital that all patients have access to an appetising meal that meets both their cultural and clinical needs – a point highlighted in the NHS standards (NHS, 2016¹).

The hospital environment itself poses a number of potential barriers to achieving adequate oral intake, all of which can contribute to reduced food intake, regardless of how nutritious it may be. Keller et al (2015) found that interruptions at mealtimes and not being offered food when mealtimes were missed were two barriers frequently reported by patients. In addition, Patel and Martin (2008) suggested that mood disturbances and catering limitations also contribute to reduced food intake in the acute hospital setting.

Whilst hospital food menus generally tend to offer sufficient calories, in line with NHS Standards (NHS, 2016¹), BAPEN (2012) found that 30-50% of hospital meals are wasted and the average food intakes are less than 75% of that recommended - a problem particularly extensive among the elderly.

There are a number of standards in place to regulate the quality of hospital food, although the enforcement of these standards is questioned, with only half of English hospitals found to be fully compliant with standards in 2016 (Department of Health, 2017).

Research by the King's Fund found that the quality of NHS hospital food had reportedly improved from the years 2005-2013, although was still rated comparatively low overall compared to other hospital services (Raleigh et al, 2015).

In 2014, the Department of Health introduced a set of mandatory hospital food standards in England in collaboration with Age UK, which refer to a number of key documents, including the universal malnutrition screening tool (BAPEN, 2011), the NHS 10 key characteristics of good nutrition and hydration care (NHS England, 2015) and The Nutrition and Hydration Digest (British Dietetic Association, 2012)

Since April 2015, these guidelines have been included in the NHS Standard Contract, making them legally binding (NHS England, 2016²). Similar frameworks have been introduced in other countries in the U.K, with the National Catering and Nutrition Specification for Food and Fluid Provision in Hospitals (The Scottish Government, 2008), the All Wales Nutrition and Catering Standards for Food and Fluid Provision for Hospital Inpatients (Welsh Government, 2011) and The Nursing Care Standards for Food in Hospital (Department of Health, Social Services and Public Safety, 2007) used in Scotland, Wales and Northern Ireland respectively.

UNISON and Campaign for Better Hospital Food (CBHF), which surveyed hospital staff in March 2016, discovered as part of their Keep Hospitals Cooking report that patient food in

hospitals remains a major issue (UNISON, 2016). 72% of staff confirmed they had received negative feedback from patients regarding the hospital meals, with just under half of these comments relating to meals not tasting good (UNISON, 2016). Other issues that arose were related to the food being unhealthy or visually unappealing (UNISON, 2016). More than half (55%) of staff said they would not be prepared to eat the meals themselves, suggesting that many people would consider the current standard of hospital food unacceptable (UNISON, 2016). Furthermore, a review by the Department of Health (2017) found that around 18% percent of patients rated food as poor, a figure barely changed since 2012, before the 2014 hospital food standards were introduced, suggesting further improvements are required to increase patient satisfaction.

The quality of food service can not only influence a patient's satisfaction with their overall hospital experience, but can also contribute to patient recovery (McLymont et al, 2003). Hence, it is of great importance that patient perception of hospital food is positive.

In order to increase patient satisfaction with hospital meals, it is important to know in what areas improvement is required. A number of factors can contribute to what makes a good hospital meal – from taste, to meal choice and even service from catering staff (Wright et al, 2003). A factor analysis by Hwang et al (2003) found, with high reliability, three key dimensions to the mealtime experience: properties of food, environmental presentation and interpersonal service. Properties of food was found to be the best predictor of patient satisfaction, which reiterates similar findings by older, previous studies such as those by O'Hara et al (1997) and Lau and Gregoire (1998) who concluded that food quality is the predictor of overall satisfaction with the hospital food service.

A study on patient satisfaction with hospital food service within general hospitals in Saudi Arabia found that the variables with the strongest correlation with patient satisfaction were the

taste, appearance, and availability of favourite foods (Abdelhafez et al., 2012). It is likely that food service provision in this study will vary considerably compared to hospitals in the UK, therefore the data is by no means representative of UK hospitals – although, it is possible that the factors patients consider important may be resemblant.

As most patients are reliant on hospital food as their nutrition source whilst in hospital, it may be that a combination of improving the hospital food services and educating patients about the importance of adequate nutrition during hospital stays is what is required to improve patient outcomes (Stanga, 2003). In order to focus improvement effort and help meet patient expectations, it is important to understand which aspects of the hospital food experience are important to patients and whether these are reflected in the hospital food provisions offered; few recent studies have explored this, thus the aim of this study is to investigate the perception of the NHS hospital meals in the U.K by previous inpatients.

METHOD

Design

The study was a cross-sectional analysis of previous inpatients of NHS hospitals in the U.K. Cross-sectional study design involves the collection of multiple variables of data at a single point in time, and tend to be quick, cheap and simple to perform (Bryman, 2015; Sedgwick, 2014). This study type is often used to measure age and gender related differences, therefore was appropriate when considering the aims of this piece of research (Breakwell et al, 2012).

A questionnaire was the research tool used to undertake the research, in line with similar previous studies such as those by Stanga (2003) and Abdelhafez et al (2012), who used questionnaires as their primary method of data collection. The use of a similar method will give the additional benefit that the results could be used for meta-analysis of the subject (Edwards, 2010).

A questionnaire is an economically viable way of reaching a large number of participants, generally being cheaper to administer than alternative methods such as a structured interview (Bryman, 2015). Furthermore, self-completed questionnaires hold the comparative benefit of eliminating interview bias, where the individual may feel pressured to answer a certain way in the presence of the interviewer (Bryman, 2015). There is also no interviewer variability – with each participant receiving the exact same set of questions in the same order (Bryman, 2015). Online surveys are a cheap way of accessing participants spread over a large geographical area and tend to be less costly than paper questionnaires as they eliminate the need for printing, postage and data entry (Wright, 2005).

Those who may be less confident with or do not have access to technology, such as the elderly and poor, can be underrepresented in online research (Rubin et al, 2009). Thus, the questionnaire was administered both online and in-person, depending on the preferred or most

appropriate method of response for each participant in order to maximise both participation rates and external validity.

Question Design

Cross-sectional studies should contain quantitative or quantifiable data (Bryman, 2015). The research piece is based on satisfaction, which is subjective, opinionative information. 5-point Likert scales were used to quantify opinionative information, allowing the participant to express to which degree they agree with a certain statement; research suggests that 5-point scales appear to increase response rate and quality and reduce respondent's frustration level (Bouranta et al, 2009).

The difficulty of interpreting patient satisfaction surveys when the questions are too general has been outlined by Draper et al (2001), often leading to poor application of the results to improvement measures (Theurer, 2011). Urden (2002) and Watters et al (2006) highlight the need for future surveys to not only address, but clearly differentiate the main aspects of food services. Therefore, a question was included allowing participants to rank specific factors in subjective importance.

Previous studies such as those by Sarin et al (2006) and Dayasari and Lekamge (2010) found that patient-specific characteristics including gender and age can affect satisfaction level, thus demographical information including age, gender and organisation with which patients had their hospital stay were recorded, to allow for comparison and to acknowledge that the hospital food service may vary by location.

Following approval from the ethics board, a pilot questionnaire was distributed to a small sample of 5 prospective participants to identify any problems and ensure the clarity of questions. Pilot studies can help to improve internal validity of questionnaires by allowing researchers to identify and discard or modify any unnecessary or ambiguous questions (van

Teijlingen and Hundley, 2001). Feedback from the pilot was received verbally, and no amendments to the questionnaire were subsequently necessary.

Previous similar studies such as by Stanga (2003) acknowledged patient's reported appetites in addition to their perception of hospital food. The questionnaire will take into account confounders such as poor appetite as a result of their health condition by asking the participant to report their appetite at the time of stay.

Participants

A sample of 35 was obtained through opportunistic, snowball sampling drawn from the researcher's friends and family and therefore cannot be generalised to the population. An alternative sampling method would be random sampling of patients in hospital wards – thus limiting selection bias associated with opportunistic sampling (Lim and Ting, 2013). However, in this study it was not feasible to study current inpatients due to time constraints associated with the extended ethics process, hence opportunistic sampling was the most effective way to access a large number of respondents who fit the required criteria.

The inclusion criteria included those who have been an inpatient in any U.K hospital within the past 15 years aged 18 and above at the time of the questionnaire completion, thus avoiding those who are too young to give informed consent themselves (Berg et al, 2006). This 15 year window allowed the participation of individuals with hospital stays both before and after the introduction of the 2014 hospital food standards, rather than just recent hospital stays, to allow for comparison of satisfaction trends over a longer period of time.

The exclusion criteria included those on therapeutic and specialised diets given for clinical purposes that could reasonably affect the palatability of the food, including texture modified diets and modified nutrient diets. Ethnic, religious, vegetarian and vegan diets that are chosen for lifestyle or cultural reasons will be included in the study, as they should be characteristic of

what the individual would typically consume; the NHS hospital food standards state that hospital food should appropriately cater to personal dietary needs such as vegan, kosher and halal (NHS England, 2016¹).

Procedure

The study was approved by the Cardiff Metropolitan University, School of Health Sciences Ethics Committee prior to any data collection, including that of the pilot study (See Appendix 5). Data was organised through the preparation of a codebook (Appendix 6). Descriptive statistics were analysed using Microsoft Excel 2016 (Appendix 3). Inferential statistics were analysed using SPSS version 20 (Appendix 4). Results from Likert scale questions were amalgamated into agree, disagree and neither agree or disagree for ease of analysis. All data collected from the questionnaire was quantitative with the exception of the additional comments box where participants were able to share any further remarks they had; thematic analysis was used to classify this qualitative data.

RESULTS

Of 35 responses received, 7 participants met one or more of the exclusion criteria leaving a final sample size of 28.

Table 1 – Times each Exclusion Criterion was met by excluded prospective participants

Exclusion Criterion	Times Met by prospective participants
Hospital Outside of U.K	1
Private Healthcare provider (U.K)	2
Diet – Texture modified	3
Diet – Nutrient modified	2
Diet – Oral Nutrition Supplements	1

Table 2 - Participant Characteristics (n=28)

Characteristic	%
GENDER	
Male	29 (n=8)
Female	71 (n=20)
AGE	
18-24	64 (n=18)
25-64	36 (n=10)
65+	0
Median age (years)	23
ORGANISATION/REGION	
NHS England	82% (n=23)

NHS Wales	18 (n=5)
NHS Scotland	0
HSC Northern Ireland	0

Participants were chiefly female (71%). The majority (82%) of participants had their hospital stay with NHS England organisations. Some data was recorded for NHS Wales, although no responses with stays in NHS Scotland and HSC Northern Ireland within the 28 participants that met the criteria of the study were recorded.

Table 3 – Overall Satisfaction with Hospital Food by Year

Year of Stay	‘Yes’ to Overall Satisfaction	‘No’ to Overall Satisfaction
≤2014 (n=10)	50% (n=5)	50% (n=5)
2015-2017 (n=18)	61% (n=11)	39% (n=7)
All Years (n=28)	57% (n=16)	43% (n=12)

57% of participants reported overall satisfaction with the hospital food services. Participants with hospital stays post-2014 appeared to report slightly higher satisfaction than those before, although this was not statistically significant using Pearson’s chi-square test ($p=0.569$). This could in part be due to the low number of participants with earlier hospital stays; the median year of stay among participants was 2016.

Table 4 – Participant agreement with statements about hospital food

Statement	Agree	Neither Agree nor Disagree	Disagree
‘Hospital Food is Appetizing’	39% (n=11)	11% (n=3)	50% (n=14)
‘Hospital Food is Nutritious’	43% (n=12)	36% (n=10)	21% (n=6)

Half of participants disagreed with the statement that hospital food is appetizing, with 11% not agreeing or disagreeing and 39% agreeing. 43% agreed that hospital food is nutritious, although 36% did not agree nor disagree and 21% disagreed.

Table 5 – Factors perceived as most and least important by participants

Factor	Appearance	Fresh	Nutritional Content	Portion	Range	Smell	Taste	Temperature	Texture	Timing
% people who ranked within their Top 3	14% (n=4)	39% (n=11)	46% (n=13)	11% (n=3)	21% (n=6)	29% (n=8)	68% (n=19)	46% (n=13)	18% (n=5)	7% (n=2)
Mean rank out of 10 (\pm standard deviation)	6.1 (\pm 2.4)	5.6 (\pm 3.0)	4.2 (\pm 2.6)	6.8 (\pm 2.8)	5.4 (\pm 2.7)	5.4 (\pm 2.6)	2.9 (\pm 1.9)	4.4 (\pm 2.4)	6.6 (\pm 3.0)	7.5 (\pm 2.4)

Taste appeared to be considered the most important of all the factors, ranked within the top 3 by 68% participants, considerably higher than any other factor. It was followed by nutritional

content, ranked within top 3 most important by 46% of participants, and temperature, ranked within top 3 most important by 46% of participants.

Taste held the highest average rank at 2.9, where 1 is most important and 10 is least important. Nutritional content and temperature came closer to each other in average rank than in appearance in the top 3, with average ranks of 4.2 and 4.4 respectively.

Timings of meals appeared to be considered the least important by participants, with an average rank of 7.5 and 57% of participants ranking it in their bottom 3. Portion size was also generally not considered of high importance, with an average rank of 6.8 and 50% of participants placing it in their bottom 3.

Table 6: Importance of factors among vegetarians

	% of group that ranked 'Taste' in Top 3	% of group that ranked 'Nutritional Content' in Top 3	% of group that ranked 'Temperature' in Top 3	% of group that ranked 'Range of choice' in Top 3
Vegetarian (n=6)	66% (n=4)	33% (n=2)	50% (n=3)	50% (n=3)
Non-Vegetarian (n=22)	71% (n=15)	50% (n=11)	45% (n=10)	13% (n=3)

There was a marginal difference between appearance of 'temperature' and 'taste' in the top 3 most important factors among vegetarian and non-vegetarians. Vegetarians appeared less likely to value nutritional content than their meat-eating counterparts, although this did not reach statistical significance with Pearson's Chi-squared test ($p=0.468$). Vegetarians were more likely to consider Range of choice important, although this fell just short of significance with Pearson's chi-squared test ($p=0.054$).

Table 7: Importance of factors by gender

	Factor	Appearance	Fresh	Nutritional Content	Portion	Range	Smell	Taste	Temperature	Texture	Timing
% who ranked within their Top 3	Male (n=8)	13% (n=1)	50% (n=4)	38% (n=3)	25% (n=2)	0% (n=0)	50% (n=4)	75% (n=6)	50% (n=4)	13% (n=1)	0% (n=1)
	Female (n=20)	15% (n=3)	35% (n=7)	50% (n=10)	5% (n=1)	30% (n=6)	25% (n=5)	65% (n=13)	45% (n=9)	20% (n=4)	10% (n=2)

There appeared to be some variation in which factors were considered most important by male and females, although inferences were limited due to the relatively small sample sizes.

Table 8: Satisfaction by importance of nutritional content to participants

		Overall Satisfaction with Hospital Food	
		Yes	No
'Nutritional Content' rank of importance	1-5 (high) (n=18)	44% (n=8)	56% (n=10)
	6-10 (low) (n=10)	80% (n=8)	20% (n=2)

Those who ranked nutritional content in their top 5 most important were more likely to be dissatisfied with the hospital food service than those who perceived it as less important, although Pearson's Chi-square analysis showed this did not reach statistical significance (p=0.069).

Table 9: Satisfaction by Agreement that hospital food is nutritious

		Overall Satisfaction with Hospital Food
'Hospital Food is Nutritious'	Agree (n=12)	83% (n=10)
	Neither agree nor disagree (n=10)	50% (n=5)
	Disagree (n=6)	16% (n=1)

Those who agreed that hospital food is nutritious were more likely to express overall satisfaction with statistical significance ($p=0.023$) using Pearson's chi-squared test.

In contrast, those who ranked taste within their top 5 were statistically no more likely than those who did not to express overall satisfaction with the hospital meal experience ($p=0.378$)

Table 10 – Satisfaction by importance of Taste to participants

		Overall Satisfaction with Hospital Food	
		Yes	No
'Taste' rank of importance	1-5 (high) (n=15)	60% (n=15)	40% (n=10)
	6-10 (low) (n=3)	33% (n=1)	66% (n=2)

50% of participants stated their appetite was either somewhat or significantly decreased during hospital, which may have been a confounder to the study. However, Pearson's chi-squared test showed that there was no significant difference ($p=0.943$) in satisfaction between those who reported a decrease in appetite and those who reported no change or an increase in appetite.

Table 11 – Satisfaction with hospital food by effect of condition on appetite

	Total	Overall Satisfaction with the hospital food experience	
		Yes	No
Appetite increased	14% (n=4)	50% (n=2)	50% (n=2)
Appetite unaffected	36% (n=10)	60% (n=6)	40% (n=4)
Appetite decreased	50% (n=14)	57% (n=8)	43% (n=6)

Participants whose appetite was unaffected during their hospital stay were most likely to be satisfied by the hospital food experience, although as aforementioned, this did not reach statistical significance with Pearson’s chi-squared test (p=0.943).

Table 12: Satisfaction by duration of hospital stay

	Short stay patients (0-13 days)	Long stay patients (14+ days)
Overall satisfaction with hospital food (n=16)	54% (n=13)	75% (n=3)

Patients with longer stays (14+ days) appeared to have higher overall satisfaction rates than those with shorter stays, although this did not reach statistical significance with Pearson’s chi-squared test (p=0.436).

DISCUSSION

The aim of the study was to explore patient perceptions of and factors considered most important within the hospital mealtime experience in NHS hospitals in the U.K. This included whether hospital food is perceived to be nutritious and appetizing, which factors and food qualities are considered most important by patients, and overall satisfaction levels with the hospital food service. Response rates were not quantifiable due to the nature of the sampling methods used.

The results suggests that despite the widespread implementation of legally-binding standards to regulate the quality of hospital food, there remains yet more scope for improvement in meeting patient expectations. The finding from this study support conclusions made such as those by UNISON (2016) and Department of Health (2017), who also suggested further improvements are required in the hospital food service.

Taste, nutritional value and temperature appeared to be the aspects of the hospital food experience that participants considered most important. The average ranks of each factor supported the conclusion that the factors considered most important by participants are taste, nutritional content and temperature respectively.

Out of the ten given factors, taste seems to be considered most important by participants, with both the highest average rank and highest rate of appearance in the top 3 most important aspects. Whilst limited U.K literature was available to compare to, this is consistent with findings by Abdelhafez et al (2012) who found that taste was the variable correlating most with patient satisfaction, and by Hwang et al (2003) that properties of the food was the best predictor of patient satisfaction out of all the dimensions of hospital mealtime experience. This concurs with wider food habits literature which suggests that taste is often the key factor in food choice (Shepherd and Raats, 2006).

Nutritional value is highly valued by participants, with the 2nd highest average rank and with 32% of participants including it in their top three most important factors. Despite this, only 42% of patients agree or strongly agree that hospital food is nutritious. Those who ranked nutritional content of hospital food in their top 5 most important factors were more likely to be dissatisfied with the hospital food service, although this just fell short of reaching statistical significance at $p=0.069$. As it was close to significance ($p=0.05$) it may be worth considering that larger sample size may have resulted in statistical significance, although there is a lack of similar studies in the literature that have explored patient perception of the nutritional value of hospital food.

These findings could be likened to compliance with oral nutritional supplements; Norris (2012) found three dimensions affecting compliance: sensory properties such as taste, attributes of the individual prescribed the supplements, and education of the benefits surrounding supplementation.

Hospitals are encouraged to carry out frequent nutritional capacity assessments as per the BDA Nutrition and Hydration Digest (BDA, 2012); which requires that hospital menus provide the capacity for adequate nutrition for all patients, therefore it may be that educating patients on the nutritional sufficiency of hospital food is an area of focus for improving hospital food consumption.

There appeared to be some difference in factors considered most important by vegetarians; only 33% of vegetarians considered 'Nutritional content' one of their top 3 most important factors, in contrast to 50% of non-vegetarians, although this did not reach statistical significance with Pearson's chi-squared test ($p=0.468$). This contradicts the wider literature which suggests vegetarians are generally more health-conscious, although limited literature exists in the context of the hospital setting (Bedford and Barr, 2005). One explanation may be

that if they exclude meat for ethical reasons, they may be less likely to care about nutritional value and more that they have access to the food that aligns with their ethical values. This idea could explain the fact that vegetarians appeared more likely to value range of choice than their meat-eating counterparts – 50% (n=3) of vegetarians placed range of choice within their top 3, compared to 13% (n=3) of non-vegetarians, falling just short of significance at $p=0.054$ with Pearson's chi-squared test.

The number of participants who were satisfied overall with the hospital meal experience is higher in those who had their hospital stay after 2014 (61%) than those who had their hospital stay pre-2014 (50%). This could indicate that some progress has been made since the introduction of the NHS hospital food standards in 2014, although the figures suggest there is yet still room for improvement in improving hospital food services to better match patient needs and expectations.

No significant link was observed between reported satisfaction and length of stay (LOS), which is in line with findings of some studies such as that by Fernando and Wijesinghe (2015). However, there were limited participants with extended hospital stays, with a median length of stay of 3 days among participants. Many NHS hospitals operate a two week menu cycle, therefore most participants in this case were unlikely to experience menu fatigue associated with longer hospital stays, a concept which may explain contrasting findings such as that by (Stanga, 2003) who found that LOS was an independent predictor of satisfaction with hospital food.

The rate of overall satisfaction with hospital food among participants was higher in participants with hospital stays in the past three years, suggesting effective improvements may have been made since the introduction of the legally-binding government standards in 2014. However, the data was collected in retrospect based on hospital stays up to 15 years ago. Hospital stays

can be stressful and emotional; research suggests that during emotional events, whilst memory of the key event tends to be good, memory for peripheral detail surrounding it can be relatively poor (Lanciano and Curci, 2011). One could suggest that hospital food would fall into the category of peripheral details, thus given the time passed and the fact that it surrounds an emotionally-charged event, the accuracy of the recollected information could be compromised.

Due to the inadequate number of older respondents, limited conclusions can be made about the relationship between age and satisfaction with hospital food at this time, with further research required. One potential explanation for this may be that older individuals are more likely than younger individuals to be on oral nutrition supplements or on a texture modified diet, and therefore fall within the exclusion criteria of this study.

It is important to acknowledge the study had a number of limitations. There was a skew in the gender of participants, with 20 female and 8 male participants, compromising the external validity of the study. Older adults are more likely than their younger counterparts to access healthcare; the mean age of hospital patients in 2015-2016 was 53, compared to a median age of 40 amongst the general population (NHS Digital, 2016). The median age of the participants in the study was 23, thus, extrapolation of the data to the general or hospital population is limited. Respondent's hospital stays were primarily with NHS England (82%), with the other 18% in NHS Wales. No data was recorded for stays within NHS Scotland or HSC Northern Ireland. Therefore, the data may be of use when looking at NHS England, but extrapolation of data to the other regions is limited due to poor response rates. This was likely due to the sampling method used.

Following omission of questionnaires where one or more of exclusion criteria was met, the usable sample size (n=28) was relatively small. This may be a consequence of the fact that the group studied were difficult to access outside of hospital. Time and funding constraints made it unfeasible to use preferable sampling methods, such as random sampling, and to

obtain a larger sample size.

Future studies may look to stratify the sample to make it more representative of the hospital population, of which older adults comprise a large part. Stratified sampling may also help to get a more complete view of U.K healthcare providers; alternatively, it may also be useful to focus future studies on one organisation specifically, e.g., NHS Wales. One area for future research may be to investigate patient's perception of their own nutritional needs in hospital; it is common that nutritional requirements among hospital patients are raised as a result of acute and/or chronic illness (Richardson and Davidson, 2003). Thus, lower calorie meals such as salads traditionally perceived as 'healthy' and 'nutritious' options are likely to be nutritionally inadequate in this population.

The findings suggest that there remains significant room for improvement in hospital food services to meet expectations of patients, although satisfaction appears to be improving over time. Nutritional content is highly valued by patients but only half perceive hospital food to be nutritious, suggesting improving patient's understanding of the nutritional value of hospital food of this may be an area of focus for improvement efforts.

Whilst not directly responsible for the quality of hospital catering services, the dietitian plays an integral role in ensuring the nutrition needs of patients are met. The findings suggest that patients generally value the taste, nutritional content and temperature of a meal, although the nutritional importance of hospital food goes underestimated despite theoretical menus generally offering the capacity for adequate nutrition for most patients as per the NHS Standards (NHS, 2016).

Ensuring that patient values, needs and expectations surrounding the hospital meal experience are met may help to improve food consumption and reduce reliance on expensive oral nutrition supplements. The dietitian and other healthcare professionals are well-placed to improve perception of hospital food by helping patients to understand the role of good

nutrition in their individual recovery, promoting the nutritional value of hospital meals and helping patients to understand how this will benefit them in terms of their own health priorities. In light of NHS financial constraints, the addition of a nutritional quality assurance stamp on hospital menus could be a low-cost way to improve patient awareness of the nutritional adequacy of hospital food.



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APPENDIXES

Appendix 1 – Research Tool



Cardiff
Metropolitan
University

Prifysgol
Metropolitan
Caerdydd

Participant Questionnaire

Please rate the following statements on how much you agree with them by placing a checkmark in the appropriate box

1) Hospital food is appetising

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree

2) Hospital food is nutritious

Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree

3) What was the approximate duration of your hospital stay?

_____ days

4) Did your condition have an effect on your appetite in hospital?

- Yes
- No

5) To your knowledge, were you on any of the following specialised diets? (Tick all that may apply)

- Low potassium
- Low/high fibre
- Low or No added salt
- Renal diet
- Texture modified (e.g pureed, mashable)
- Ethnic, halal or kosher
- Vegetarian or vegan
- Gluten-free
- Other, please specify _____

6) Please rate the following factors from 1-10 in terms of what you consider most important in hospital meals

1 – Most important
10 – Least important

- Temperature (food is served hot or chilled as appropriate)
- Range of choice/variety of foods
- Smell/aroma
- Taste
- Texture
- Appearance and visual appeal
- Timings of mealtimes
- Nutritional content
- Freshly cooked food
- Portion size

7) Overall, were you satisfied with your experience of hospital meals?

- Yes
- No

8) Do you have any additional comments or criticisms about the hospital food service?

9) What is your age?

_____ years

10) What is your gender?

- Male
- Female

11) In what year was your hospital stay?

12) With which organisation was your hospital stay?

- NHS England
- NHS Wales
- NHS Scotland
- HSC Northern Ireland
- Private Healthcare provider (Nuffield, Spire etc)
- Other outside U.K

Appendix 2 – Participant Information Sheet



Cardiff
Metropolitan
University

Prifysgol
Metropolitan
Caerdydd

Ethics Committee Participant Information Sheet

Project reference number: 9293

Title of Project: The Public Perception of the Hospital Food Experience

This project was stimulated by previous research investigating the public opinion of the quality and importance of hospital food. We want to investigate the factors that affect the perceived quality of hospital food, and whether members of the public consider hospital food to be nutritious and important in terms of aiding recovery. We want to find this out in order to help develop the hospital food provision in the future.

- This is an invitation to you to join the study, and to let you know what this would involve. The study is being organised by Joanna Ball, a final year BSc (Hons) Human Nutrition and Dietetics student at Cardiff Metropolitan University
- If you want to find out more about the project, or if you need more information to help you make a decision about joining in, please contact the study supervisor [REDACTED]

Why you have been asked

We are asking those aged 18+ with inpatient experience of hospital meals to take part.

What happens if you want to change your mind?

If you decide to join the study you can change your mind and stop part way through the completing the questionnaire. You will not be asked why you've stopped. We will completely respect your decision.

If you choose to complete the questionnaire in full, you are consenting to take part in the research.

What would happen if you join the study?

If you agree to join the study, then we will ask you to complete a questionnaire about your previous experience of hospital food. This will be given to you, and we think this would take you about 5-10 minutes to complete and hand back to us.

Are there any risks?

We do not think there are any significant risks if you take part in the study.

Any special precautions needed?

[REDACTED]

None

What happens to the questionnaire results?

Joanna Ball is responsible for putting all the information from the study into a computer programme. We will then look to see if there is a link between the opinion of hospital food and the perceived importance on recovery, and how this varies between ages.

Are there any benefits from taking part?

There are no direct benefits to you for taking part.

How we protect your privacy:

All the information we get from you is anonymous, and everyone working on the study will respect your privacy.

All questionnaires are anonymous and we will not require your name or any personal details from you. There is no information on the questionnaire that could let anyone work out who you were.

At the end of the study we will destroy the information we have gathered.

Contact Details: [REDACTED]

[REDACTED]

[REDACTED]



Appendix 3 – Excel summary

See separate Turnitin upload

Appendix 4 – SPSS Output

Satisfaction * StayNom Crosstabulation

Count

		StayNom		Total
		Pre 2014	Post 2014	
Satisfaction	Yes	5	11	16
	No	5	7	12
Total		10	18	28

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.324 ^a	1	.569	.698	.430
Continuity Correction ^b	.029	1	.864		
Likelihood Ratio	.323	1	.570		
Fisher's Exact Test					
Linear-by-Linear Association	.312	1	.576		
N of Valid Cases	28				

Vegetarian * NutrTop3 Crosstabulation

Count

		NutrTop3		Total
		Yes	No	
Vegetarian	Vegetarian	2	4	6
	Non-Vegetarian	11	11	22
Total		13	15	28

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.526 ^a	1	.468	.655	.400
Continuity Correction ^b	.070	1	.792		
Likelihood Ratio	.537	1	.464		
Fisher's Exact Test					
Linear-by-Linear Association	.508	1	.476		
N of Valid Cases	28				

RangeTop3 * Vegetarian Crosstabulation

Count

		Vegetarian		Total
		Vegetarian	Non-Vegetarian	
RangeTop3	1	3	3	6
	2	3	19	22
Total		6	22	28

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.702 ^a	1	.054	.091	.091
Continuity Correction ^b	1.858	1	.173		
Likelihood Ratio	3.253	1	.071		
Fisher's Exact Test					
Linear-by-Linear Association	3.570	1	.059		
N of Valid Cases	28				

Satisfaction * NutrTop5 Crosstabulation

		NutrTop5		Total
		1-5	6-10	
Satisfaction	Yes	8	8	16
	No	10	2	12
Total		18	10	28

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.319 ^a	1	.069	.114	.076
Continuity Correction ^b	2.025	1	.155		
Likelihood Ratio	3.504	1	.061		
Fisher's Exact Test					
Linear-by-Linear Association	3.200	1	.074		
N of Valid Cases	28				

Satisfaction * Food_Nutri Crosstabulation

Count

		Food_Nutri			Total
		Agree	Neither	Disagree	
Satisfaction	Yes	10	5	1	16
	No	2	5	5	12
Total		12	10	6	28

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.583 ^a	2	.023
Likelihood Ratio	8.160	2	.017
Linear-by-Linear Association	7.312	1	.007
N of Valid Cases	28		

Appetite * Satisfaction Crosstabulation

Count

		Satisfaction		Total
		Yes	No	
Appetite	Increased	2	2	4
	No affect	6	4	10
	Decreased	8	6	14
Total		16	12	28

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.117 ^a	2	.943
Likelihood Ratio	.116	2	.944
Linear-by-Linear Association	.022	1	.881
N of Valid Cases	28		

Satisfaction * TastTop5 Crosstabulation

Count

		TastTop5		Total
		1	2	
Satisfaction	Yes	15	1	16
	No	10	2	12
Total		25	3	28

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.778 ^a	1	.378	.560	.389
Continuity Correction ^b	.070	1	.791		
Likelihood Ratio	.773	1	.379		
Fisher's Exact Test					
Linear-by-Linear Association	.750	1	.386		
N of Valid Cases	28				

Satisfaction * ShortLongStay Crosstabulation

Count

		ShortLongStay		Total
		ShortStay	Longstay	
Satisfaction	Yes	13	3	16
	No	11	1	12
Total		24	4	28

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.608 ^a	1	.436	.613	.417
Continuity Correction ^b	.055	1	.815		
Likelihood Ratio	.640	1	.424		
Fisher's Exact Test					
Linear-by-Linear Association	.586	1	.444		
N of Valid Cases	28				

Appendix 5 – Ethics Approval

See separate Turnitin upload

Appendix 6 – Code Book

Variable Name	SPSS Variable Name	Coding Instructions	Type of Data
'Hospital food is appetizing' – Likert Scale	Food_App	1 – Agree 2 – Neither agree nor disagree 3- Disagree	Ordinal
'Hospital food is nutritious' – Likert Scale	Food_Nutri	1 – Agree 2 – Neither agree nor disagree 3- Disagree	Ordinal
How was appetite affected in hospital	Appetite	1 – Increased 2 – Unaffected 3 - Decreased	Nominal
Was participant on specialised diet	Diet	0 = None 1 = Low Potassium 2 = Low or High Fibre 3 = Renal Diet 4 = Texture modified 5 = Ethnic/Halal/Kosher 6 = Vegan/Vegetarian 7 = Weight reduction 8 = Oral Nutrition Supplements 9 = Lactose free 10 = Nut free 11 = Reduced phosphate 12 = Gluten free 13 = Low sodium	Nominal
Was participant vegetarian	Vegetarian	1 – Vegetarian 2 – Not vegetarian	Nominal
What was the duration of the hospital stay	Duration	Actual duration in days	Scale
Was participant long stay or short stay?	ShortLongStay	1 – Short stay (<14 days) 2 – Long stay (14+days)	Nominal
Participant perceived rank of importance for 'Appearance'	5_Appearance	Rank of perceived importance 1-10	Ordinal

Participant perceived rank of importance for 'Fresh'	5_Fresh	Rank of perceived importance 1-10	Ordinal
Participant perceived rank of importance for 'Nutritional content'	5_NutrCont	Rank of perceived importance 1-10	Ordinal
Participant perceived rank of importance for 'Portion size'	5_Portion	Rank of perceived importance 1-10	Ordinal
Participant perceived rank of importance for 'Range of choice'	5_Range	Rank of perceived importance 1-10	Ordinal
Participant perceived rank of importance for 'Smell'	5_Smell	Rank of perceived importance 1-10	Ordinal
Participant perceived rank of importance for 'Taste'	5_Taste	Rank of perceived importance 1-10	Ordinal
Participant perceived rank of importance for 'Temperature'	5_Temp	Rank of perceived importance 1-10	Ordinal
Participant perceived rank of importance for 'Texture'	5_Tex	Rank of perceived importance 1-10	Ordinal
Participant perceived rank of importance for 'Time'	5_Time	Rank of perceived importance 1-10	Ordinal
Was nutritional content in the top 3 of importance rank	NutrTop3	1 – Yes 2- No	Nominal
Was taste in top 3 of importance rank	TasteTop3	1 – Yes 2 - No	Nominal
Was range in top 3 of importance rank	RangeTop3	1 – Yes 2 - No	Nominal
Was nutritional content in the top 5 of importance rank	NutrTop5	1 – Yes 2- No	Nominal
Was taste in top 5 of importance rank	TasteTop5	1 – Yes 2 - No	Nominal
Overall satisfaction with hospital food	Satisfaction	1 = Yes 2 = No	Nominal
Gender	Gender	1 = Male 2 = Female	Nominal
Age	Age	Actual age in years	Scale
Year of Stay	StayYear	Actual year of stay	Scale

ST [REDACTED]

Pre or Post 2014 Stay	StayNom	1 – Before or during ≤2014 2 – 2015-2017	Nominal
Organisation of hospital stay	Organisation	1 = NHS England 2 = NHS Wales 3 = NHS Scotland 4 = HSC Northern Island 5 = Private Healthcare Provider 6 = Other outside UK	Nominal