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Investigating Whether Consuming Meals in a Dining Room Impacts Patients' Mood, Level of Interaction, and Subsequent Nutrient Intake in a Stroke Rehabilitation Ward.

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Investigating whether consuming meals in a dining room impacts patients' mood, level of interaction, and subsequent nutrient intake in a stroke rehabilitation ward.

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Abstract

Background/objectives:

Malnutrition is evident in hospitals and stroke patients are at increased risk. Protected mealtimes may help increase nutrient intake especially when patients interact and enjoy the dining room atmosphere. The aim of this research is to investigate if eating in a communal dining room increases nutritional intake compared to eating at the bedside and to investigate whether patient interaction and mood affects patient nutrient intake.

Population/methods:

A randomised cross-sectional study of 20 patients, assessing a comparison of patient's mealtime consumption at lunchtime in the dining room and at the bedside. Patients' meals were weighed before and after consumption as well as an estimated percentage of their meals consumed. Patients' interaction was observed and noted using a modified case report form. The Hammond depression scale was used to score patients' mood. Patient and staff satisfaction surveys were completed at the end of the study period.

Results:

There was no significant difference in protein and energy consumption in the dining room (16.4g protein and 379.2kcal) compared to at the bedside (13.2g protein and 333.8kcal), $p=0.160$ and $p=0.110$ respectively. Interaction was higher in the dining room. The percentage mealtime consumption increased the more interactive a patient was from a mean of 74% in less interactive patients to 98% in highly interactive patients ($p=0.193$). There was no significant association between depression score and mealtime consumption. All 19 patients enjoyed eating in the dining room and 14 out of the 19 patients preferred eating in the dining room.

Conclusion:

Further studies are required to explore how intake can be improved among stroke rehabilitation patients.

Keywords: dietetics, nutrition, malnutrition, stroke, patient-to-patient interaction, post-stroke depression

1. Introduction

In Ireland, 1 in 3 hospitalised patients are malnourished (Understanding Malnutrition, Irish Society for Clinical Nutrition, 2018) and this in turn gives rise to increased morbidity, mortality and may extend hospital stay (Poels *et al.*, 2006). Factors such as impaired cognitive function, patients missing their meals due to interruptions, lack of assistance or a disease that may cause loss of appetite (Department of Health and Children, DOHC, 2009) can negatively impact on dietary intake in hospitals. In particular, hospitalised stroke survivors may experience difficulties such as dysphagia which can further increase their risk of malnutrition (Cohen *et al.*, 2016). Strategies that encourage increased intake at mealtimes can help reduce malnutrition risk in hospitalised patients.

Protected Mealtimes is an intervention to help prevent unnecessary disruptions for patients during their mealtimes (Wright, Hickson and Frost, 2006). This ensures that patients may have enough time to eat and enjoy their meal without any interruptions. However, patients can freely interact with other patients or assistant staff while consuming their meal. This can be encouraged when patients dine in a dining room. Previous research suggests that the dining room can help change their mood and meeting other patients can create a social environment which is different to being alone at their bedside. Other people's presence can have an effect on food intake during food consumption as people eat more surrounded by other people when eating alone (Kiesges *et al.*, 1987; Stroebele and De Castro, 2004). Consumption can be influenced by the social relationship people have when consuming a meal (Stroebele and De Castro, 2004). The dining room can create a positive eating environment for stroke survivors. Changing the atmosphere from a small bedside to a spacious dining room can brighten their mood and encourage them to move more (Baptiste, Egan and Dubouloz-Wilner, 2014). The dining room can allow patients to practice their mobility to and from the dining room, help patients build more confidence interacting with other patients and help with improving their speech.

The hypothesis of this study was that compared to eating at the bedside, consuming meals in the dining room will improve patient to patient interaction and therefore improve their mood and nutrient consumption.

2. Materials and methods

Study design and patient recruitment

A randomised cross-sectional cross over study took place on the George Frederick Handel ward in St. James's Hospital, Dublin between the 12th of March and the 13th of April 2018. This ward mainly caters for stroke rehabilitation patients, with a capacity for 29 patients. A similar study that was carried out by Wright and co-workers (2006) showed an energy intake increase in elderly patients (n = 48) in an acute elderly medical ward when eating together in a dining room compared to their bedside. However, it should be noted that Wrights and colleagues applied a parallel study design, while this study utilised a cross-over study design to eliminate inter-individual variation and offer greater statistical sensitivity. Ethical approval was obtained before project commencement from St. James's Hospital/Adelaide, Meath and National Children's Hospital (SJH/AMNCH) Research Ethics Committee. The research was executed in collaboration with the Department of Clinical Nutrition and Speech and Language Therapy as this department work closely with the patients and monitor their progress. At the beginning of each week, at a multidisciplinary meeting attended by medical, dietetic, nursing, catering, and speech and language therapy staff, suitable participants were identified. The following inclusion and exclusion criteria were applied:

Inclusion:

- Inpatients on George Frederick Handel ward, with a;
 - MoCA (Montreal Cognitive Assessment, a tool to test for mild cognitive impairment (Brouillette *et al.*, 2015)) score had to be > 12,
 - Adequate assistance availability to and from the dining room.

Exclusion:

- Patients that were not inpatients on George Frederick Handel ward, or,
- patients with severe aphasia or severe dysphagia, or,
- patients with a MOCA score of less than 12, or,
- patients that did not have suitable care assistance availability to and from the dining room

The study lasted 5 weeks in duration, with a total of 3-6 patients participating each week. Patients were invited to participate and introduced to the study design, objectives of the study and the role of the patient in the study. Information leaflets (see Appendix I) and consent forms (see Appendix II), both of which were approved by speech and language therapists (SLTs) as being aphasia friendly suitable for patients with aphasia and/or communication difficulties, were given to each patient. Under guidance of the SLTs, whiteboards, drawings, hand gestures and altered speech were also methods used to convey the aim and design of the study. In cases where severe communication difficulties were identified, the next of kin was informed about the study and asked to consent in place of the patient if they agree for them to participate.

In consenting participants, food intakes, interaction and safety measures were recorded using a modified case report (see Appendix III) during the midday meal on 4 days each week. Two days in the week the patients were asked to eat at their bedside (control) and for the other two days they were invited to eat in the dining room. To ensure patients within the study were appropriately located for their meals on study days (i.e., bedside or dining room), nursing staff, health care attendants, and catering staff were advised verbally and via whiteboard notifications at the nursing station and in the catering pantry.

The study was randomised meaning that the type of food that patients received was not controlled and entirely subject to change. Each patient acted as their own control. Each patient was randomly chosen to participate for 4 days, 2 days at the dining room and 2 days at the bedside. Patients were randomly allocated to either the bedside or the dining room on their first day and then alternated the second day to the other location.

*Food and nutrient intake**Total food consumption*

To determine total volume consumed at each meal, patients' food plates/bowls were weighed using a weighing scale, before and after meal consumption. The average weight of an empty plate/bowl was subtracted to determine total weight of food consumed.

Protein and energy intake

Prior to study commencement, a validated food atlas was prepared, illustrating all hospital menu options and their protein and energy content (calculated using Nutritics, a nutrition analysis software). To allow for estimation of nutrient intake for various volumes of consumption and consumption of different component parts of a meal, each meal option was shown at 100%, 80% 60% 40% 20% and 10% with corresponding protein and energy values. In this study, both investigators completed a pilot exercise to ensure their competency, to correctly estimate percentage food type consumption using the Food Atlas and was validated by the dietitians on the ward.

Food modification

There are three categories for modified foods used in George Frederick Handel ward. Texture A is soft, texture B is mince and moist and texture C is smooth pureed. Each patient was assessed by a speech and language therapist who recommends the most suitable diet consistency for that patient. They work closely with the dietitian who orders the appropriate diet from the kitchen and advises the patient and their family on suitable foods to include and avoid. Fluids are also categorised as; grade 1, grade 2, grade 3 and grade 4. Grade 1 fluid is very mildly thick. Grade 2 is mildly thick, grade 3 is moderately thick and grade 4 is extremely thick. Fluids were thickened by using the appropriate number of scoops of *Nutlis Clear*, a dietetic supplement.

Assessment of interaction and mood

Observational methods were used to determine interaction levels of patients partaking in this study. Levels of social interaction were determined based on the frequency of verbal and non-verbal communication by each patient. The baseline interaction levels of each patient were based on their interaction at their bedside (control, interaction = 0). Non-verbal communication included hand gesture, facial expressions and nodding.

A depression scale adapted from Hammond *et al.*, (2000; see Appendix IV) was used in order to assess the mood of patients in the different environmental settings. This scale included a series of nine questions, five main questions were used, each addressing perceptions on how the patient was feeling. The patient's level of depression was calculated at the end of each meal time with patients scoring 0-5 (not depressed - very depressed).

Patient experience

Each week after the final day of data collection, patients were invited to complete surveys to summarise their experience at mealtimes in the hospital, as well as their reflections on the dining room experience and their view on interactions with other patients on the ward. To account for the differences in competency of patients (possible expressive/comprehensive aphasia), the survey was recorded through oral communication and body language, as well as through the written record. Where possible, patients were asked to expand on their overall experience in the dining room at lunchtime and explain the reasons behind their preference on mealtime location.

Statistical analysis

All food data was inputted into an Microsoft Excel 97-2003 spreadsheet, with the protein and energy consumed calculated in addition to the percentages consumed of each food. Interaction data and patients survey data was also transferred to Excel 2016 spreadsheet. All information was then transferred to IBM SPSS Statistics for Windows, Version 24 (IBM Corporation 2014, NY, USA) for statistical analysis. The baseline sample distribution was assessed for normality using a mixture of results of the Kolmogorov-Smirnov statistic and the visual distribution in histogram and a Normal Q-Q plot.

A paired T-test of energy and protein intake from the bedside and dining room was calculated in addition to percentage meal consumed. A one-way ANOVA test was used between two or more variables to assess differences in patient food consumption and interaction as well as patient food consumption and mood.

3. Results

Characteristics of the study cohort

Table 1. Patient demographics.

Characteristics		
Age (n,(n%)), mean (SD)	42 – 60 years	5 (25%)
	61 – 75 years	5 (25%)
	76 – 85 years	5 (25%)
	86 +	5, (25%) 72 years (14.08)
Gender n (%)	Male	13 (65%)
	Female	7 (35%)
Diagnosis n (%)	Ischemic	10 (50%)
	Haemorrhagic	5 (25%)
	Transient Ischemic Attack	2 (10%)
	Falls	3 (15%)
Length of stay n (%), Mean (SD)	1 – 30 days	11 (55%)
	31 – 90 days	5 (25%)
	90 – 120 days	0 (0%)
	121 – 170 days	3 (15%)
	170 +	1 (5%), 58.06 (74.23)
Communication impairment n (%)	Yes	8 (40%)
	No	12 (60%)
Swallowing difficulties n (%)	Yes	5 (25%)
	No	15 (75%)
Diet n (%)	Normal	14 (70%)
	Texture A	0 (0%)
	Texture B	5 (25%)
	Texture C	1 (5%)
Fluid n (%)	Normal	16 (80%)
	Grade 1	3 (15%)
	Grade 2	1 (5%)
	Grade 3	0 (0%)
	Grade 4	0 (0%)
MoCA n (%), mean (SD)	No test	7 (35%)
	< 11	2 (10%)
	12- 18	6 (30%)
	19 – 25	3 (15%)
	26 – 30	2 (10%), 17.62/30 MoCA score (5.41)

Percentage meal consumed, energy and protein intake in bedside and dining room

Table 2. The percentage meal consumed, energy and protein intake in bedside and dining room

Mean (SD)	Bedside	Dining room	P - value
Percentage Consumed (%)	88.26 (22)	86.43 (17)	0.728
Energy (kcal)	379.24 (166)	333.80 (165)	0.160
Protein (g)	16.38 (9.6)	13.74 (6.5)	0.110

Figure 1a. Mean patient meal percentage consumption.

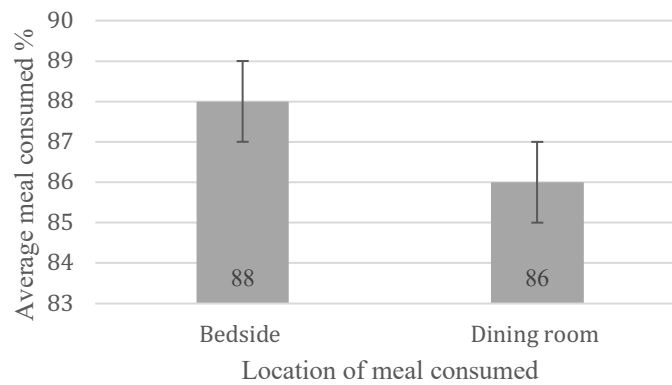


Figure 1b. Mean patient energy intake in bedside and dining room

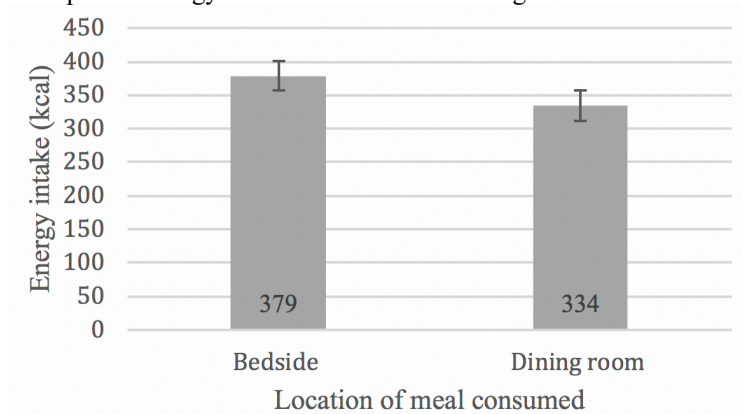
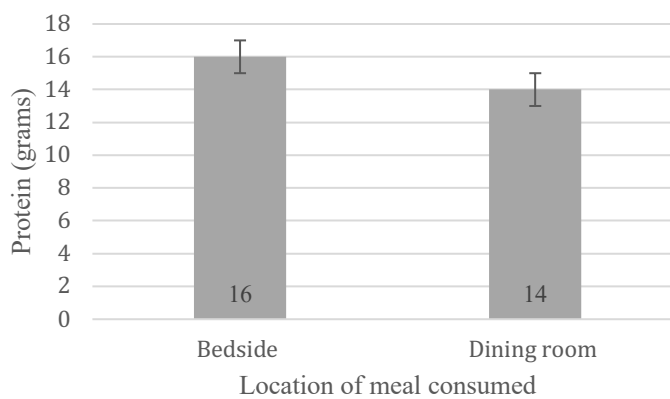
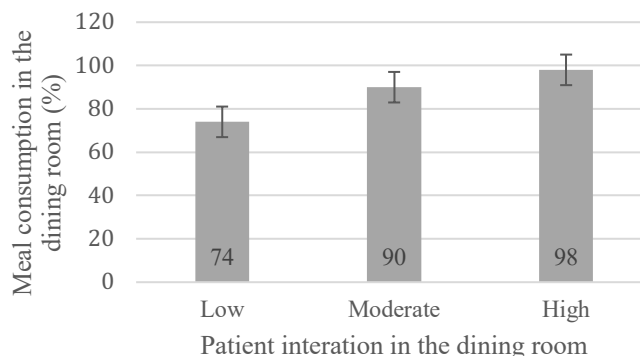


Figure 1c. Mean patient protein intake at the bedside and dining room.



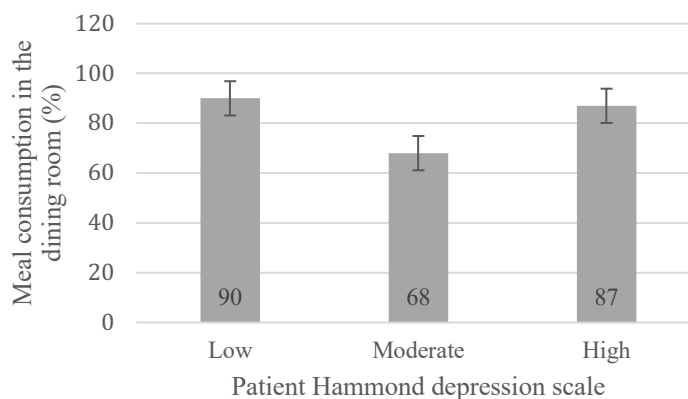
Dining room interaction impacting meal consumption

Figure 2. The impact of patient interaction on their meal consumption in the dining room.



Patients mood impacting meal consumption

Figure 3. Bar graph showing the impact of patients' mood on their meal consumption in the dining room.



3.5 Patient survey

Table 3. Patient survey results

Question number	Response	N (%)
1. How did you find the dining room atmosphere?	Very good	7 (37%)
	Good	7 (37%)
	Neutral	5 (26%)
2. Did you enjoy eating in the dining room?	Yes	19 (100%)
	No	0 (0%)
3. Did you enjoy eating at your bedside?	Yes	15 (79%)
	No	4 (21%)
4. Where would you prefer to have your meal?	Dining room	14 (74%)
	Dining room and bedside	3 (16%)
	Bedside	2 (11%)
8. How much did you enjoy being with other patients while eating in the dining room?	Very enjoyable	6 (32)
	Enjoyable	9 (47%)
	Neutral	4 (21%)
9. How much did you enjoy eating alone at your bedside?	Very enjoyable	1 (5%)
	Enjoyable	11 (58%)
	Neutral	4 (21%)
	Not enjoyable	2 (11%)
	Not enjoyable at all	1 (5%)

*Staff survey***Table 4.** Staff survey results

Question number	Response	N (%)
1. What did you think of the overall mood of the patients?	Extremely positive	1 (17%)
	Positive	4 (67%)
	Indifferent	1 (17%)
2. Did you find a high level pf patient interaction in the dining room?	Very high	2 (33%)
	High	1 (17%)
	Moderate	3 (50%)
3. Did you find patients interacting with the same patients all week?	Most days	5 (83%)
	Sometimes	1 (17%)
5. Did you feel that patients were more at ease in the dining room or bedside?	Mostly dining room	1 (17%)
	Both	4 (67%)
	Mostly bedside	1 (17%)
7. Did you think patients felt comfortable interacting with other patients?	Very comfortable	1 (17%)
	comfortable	5 (83%)

4. Discussion

It is advised that hospitalised elderly patients should consume a high energy and protein diet to optimise their health status (Nishioka *et al.*, 2017) as they are at risk of malnutrition (Porteous and Markus, 2004). It is important to make ensure that stroke survivors consume their meals to prevent malnutrition in hospitals. Stroke survivors tend to have limited activity due to complications. It has been recommended for elderly patients to have their meal in the dining room due to its association with increasing food intake (Baptiste, Egan and Dubouloz-Wilner, 2014). In this study patients were requested to stay in the dining room for two days and their bedside for another two days and to consume their usual meal. They completed a patient satisfaction survey afterwards (see Appendix V).

Patients characteristics

Patients included in this study were diagnosed with ischemic and haemorrhagic stroke, Transient Ischemic Attack (TIA; Fischer *et al.*, 2010) and falls (see Table 1). It was expected to see a high prevalence of patients with ischemic stroke on this ward as it occurs in 87% (Benjamin *et al.*, 2017) of stroke patients. The mean patient age in this study was 72 years. Over 50% of all strokes occur in people over 75 years of age as there is a significant increase in stroke incidence with age (Falcone and Chong, 2007). In the IHF/HSE National Stroke Audit 2015 reported of the 874 cases, there was a mean age of 73.3 years. This audit also reports that there were more males (57%) than females (41%) (McElwaine, McCormack and Harbison, 2015). This study included 13 male participants and 7 female participants (see Table 1). There was a low percentage of patients (n = 5) with swallowing difficulties that participated on this ward which was not expected. However, that was due to majority of patients that did not agree to participant in the study having these swallowing difficulties. The Malnutrition Universal Screening Tool (MUST; Chao *et al.*, 2015) score was also calculated, however, not all patients had up-to-date scores and some patients did not have a MUST score resulting in only one patient with a MUST score of 1. Therefore, the MUST score was excluded from the results.

Patient participation

There were a number of factors to consider when it came to patients participation. Some patients declined to take part in the study as they did not feel comfortable to change the location that they usually have their meal in. Discussions with dietitians, speech and language therapists and staff on the ward suggested the results may be affected due to low numbers of participants, confidence in social situations, mood and self-awareness of reduced capabilities when eating or

conversing may have contributed to some patients declining participation in the study. Other patients were reluctant to change their usual dining location, and this may have had an effect on their overall mood and that may link to their consumption. Patients may have refused because they felt they may not receive the assistance they needed in the dining room while other patients simply refused straight away. Other factors that may have affected the results could be that patients may have different appetites on different days. Some patients have additional snacks in their room and may have consumed something before the meal, thus affecting how much they consumed during the mealtime. Bias may have occurred such as the observer expectancy effect and patients may have been subconsciously influenced. Patients were first informed about the study and the research questions and this may have influenced patients' consumption, interaction and their mood whilst being observed. However, to minimise bias, patients were informed that this study would not affect their diet or meals after the study and they should just be comfortable and be themselves.

Patient consumption in the dining room compared to their bedside

There was no significant difference between the mean meal consumption in the dining room (88%) and at the bedside (86%), $p=0.728$ (see Table 2). There was a slightly higher energy and protein intake at the bedside (379.2 kcal and 16g protein) than the dining room (333.8 kcal and 13.7g protein), $p=0.160$, $p=0.110$ respectively. This was not expected as a similar study by Wright *et al.*, (2006) showed the opposite. Patients ($n = 30$) attended the dining room four times and consumed an average of 489kcal and 18.9g of protein in the dining room but less was consumed at the patients' ($n = 18$) bedside (360kcal and 17.7g of protein). Whilst that study showed a more positive association of nutrient intake and in the dining room, this could be due to patient and staff attitude (Wright, Hickson and Frost, 2006) as it has been implied that the interaction between patient and staff could increase the elderly's food consumption (Pearson, Fitzgerald and Nay, 2003).

Patient interaction and its impact on food consumption in the dining room

This study reports patient-to-patient interaction in the dining room. Figure 2 depicts all patients excluding patients who have severe aphasia. Each patient is categorised depending on how interactive they were during the study. Patients had less interaction at the bedside (control) during lunchtime due to Protected Meal times. However, there were few rare occasions ($n=4$) when this system was overlooked by patients and family members visited them during lunchtime. There was no significant association between patient mealtime consumption and interaction, ($p=0.193$). However, the results appear to show how consumption of meals increased with increased conversation increasing the mean consumption from 74% (95% CI = 53.66 - 95.06) to 98% (95% = 65.73 - 129.26). A study by Paquet and colleagues (2008) noted a positive relationship between patient interaction and food intake due to patients interpersonal behaviour.

In this study, and as noted through observation, patients seemed to interact with fellow patients that they know or regularly see. A popular feedback comment was that patients looked forward to seeing their fellow patients. Some patients would also interact with the assistant staff. New patients who only had a short stay tended to dine alone and not interact with others. They would usually distract themselves with their phone or eat very quickly to leave to their bedside. There may be a number of factors that may influence social engagement. With the elderly being more likely to have reduced meaningful social and intellectual participation. Older people may prefer to be with other people who are important to them (National Research Council (US) Committee on Aging Frontiers in Social Psychology, Carstensen and Hartel, 2006). Patients may experience negative emotions due to their experience of their illness which triggers anxiety and vulnerability (Davis *et al.*, 2007), which may play a role in short stay new patients preferring

not to engage with other patients. Reed and co-workers (2005) note that long term residents had a higher food intake in the dining room as environmental characteristics that include social interactions can influence intake. The dining room ambience can have an effect on patients eating behaviour and increase communication frequency (Stroebele and De Castro, 2004). The atmosphere in the George Frederick Handel ward dining room was ordinary.

Patient's mood and its impact on food consumption in the dining room

The patients' food consumption and their mood including all patients was documented in this study (n = 20, see. Figure 3). Each patient was categorised depending on their mood score during the study. The Hammond depression scale (Hammond *et al.*, 2000) was used for this study and there was no significant association between food consumption and depression score (p=0.126). Patients with a normal depression score had a mean consumption of 90.06% (95% CI = 81.64 - 98.46), mildly depressed patients had a mean consumption of 68% (95% = 9.55 - 126.67) and moderately depressed patients had a mean consumption of 87% (95% = 44.29 - 129.04). This tool was completed by observers and is challenging to complete. Patients were aware they were being observed and so behaviour may have been altered.

The dining room can play a role in the patient's mood. One patient commented that the sun light that brightens the dining room makes them feel more positive. The television or radio were turned on for the duration of their meal which can have an effect on the patients' mood. Having a family-style dining in a long term setting can improve the elderly patients quality of life (Douglas and Lawrence, 2015). The patients' well-being and food intake can be influenced by the meal environment. A study in a clinical dining room was decorated with paintings, chinaware and carpets to create a 1940s atmosphere for geriatric patients have resulted in improvements (Stroebele and De Castro, 2004). This however was a slight issue in the George Fredrick Handel ward as the dining room was yet to be decorated. The dining room did not have any pictures and the tables had nothing on them except for patients' food trays.

A study by Paquet and colleagues (2003) based on emotions and food intake, reported that the more intense an emotion, the higher the food consumption. The study concluded that food consumption was higher in patients with positive emotions and anxiety had a negative effect. There is also a positive impact on food consumption in patients with mild depression. Similar to this study as patients that scored normal and moderately depressed had high meal consumption. Patient's emotional state was reported in a study by Baptiste and co-workers (2014). Patients reported that their decision of where to have their meal was influenced by their mood. Patients seemed to prefer to eat alone if they felt upset.

Patient survey

At the end of each patients' period of data collection, they were asked to complete out a satisfaction survey. The dining room was popular amongst patients, with 100% of patients reporting they enjoyed the dining room. Conversely, only 80% enjoyed the bedside (see. Table 3). Baptiste and coworkers (2014) interviewed 8 patients about their perception of the dining room in a geriatric rehabilitation unit, and of those participants, 50% preferred to have their meal in the dining room. Two patients preferred their bedside and two had no preference. These results are quite similar to this study in regard to patients preferring to eat their meal in the dining room with company. Through exploring this in more detail, patients experiencing a longer stay in this ward seemed to know other patients and would usually communicate with the same patients in the dining room. However, a patient may stop going to the dining room when their fellow patient was discharged. The newer patients seemed unaware that there was a dining room on the ward. These patients tended not to get introduced to, and mingle with, other patients making it harder to interact with anyone on the ward except staff. Patients that were positive about the dining room complimented the dining room being bright, spacious and

sociable. Patients that disliked the dining room or did not want to take part in the study because they refused to go down to the dining room commented how they preferred the privacy and quietness of the bedside. They also were not sure whether they would still receive the assistance they needed if they went to the dining room.

Staff survey

A total of five staff surveys were collected post study completion from nursing staff and health care assistance staff. A total of 67 % of the staff surveyed believed that patients' overall mood was positive. There were no negative responses. Some staff seemed to observe a moderate (50%) interaction among patients in the dining room. Patients seemed to interact with the same patients on most days (83%). A total of 67% of staff surveyed believed that patients felt at ease in both dining room and bedside during lunchtime. Staff perceived that patients were equally (17%) at ease at their bedside and in the dining room. Positive results were reported for patients interacting in a comfortable manner with each other. These results show an overall positive attitude amongst staff towards patient-to-patient interaction and comfort in both dining room and bedside experience. The staff have commented on the atmosphere of the dining room. They believe it should look more 'home-like' and requires redecorating such as having '*pictures on the wall*' and '*flowers on the table*' to make it look '*less like an institution*'. Three commented on the lack of staff assistance on the ward and how it was needed. Two commented how staff should try and to encourage patients to come to the dining room. Another commented saying that 'most patients don't like eating with people watching them'. These comments are very valid. The dining room in the George Frederick Handel ward is empty in terms of decoration. There are no pictures on the walls, the tables have nothing on them. Some effort was made to improve the atmosphere, such as pulling up blinds and having the television or radio on for background entertainment.

5. Conclusions

Previous studies have shown positive outcomes of patients consuming their meal in the dining room. This study however, has shown no significant impact on meal consumption of eating in a communal dining room. No association was found between meal consumption and interaction and there was also no significant association between meal consumption and patients' mood. However, patient satisfaction surveys demonstrate that the social aspects of the dining room have positive outcomes in terms of the overall wellbeing of patients compared to patients being alone at the bedside. Further encouragement from staff is needed to support patients to have their meal in the dining room. Additional research is needed to further study on the impact of patients' mood on their nutritional intake.

6. Future Work

Protected Mealtimes are encouraged as best practice. A more consistent approach to their implementation would be beneficial. However, enforced Protected Mealtimes were shown to be challenging as a few families and visitors did not follow that system. This may be due to their lack of awareness in relation to the benefits of Protected Mealtimes. This could be overcome by advising families about the benefits of Protected Mealtimes and encouraging their support. Future work should include strategies to overcome this challenge. Empathy will be required to support both patients and visitors to ensure minimal stress on both parties. It would also be beneficial if medical and health specialists schedule appointments that do not conflict with patients' mealtimes. Improved communication and scheduling appointments can be controlled electronically through shared online calendars or manually using ward white boards that are usually available at the ward reception. Staff should also try to encourage patients to interact

with other patients by informing them more about the dining room, reminding patients that the room is there and always available. It would also be beneficial to improve the atmosphere in the dining room while patients enjoy their meals as this may improve patients' mood. Improvements such as decorating the walls with pictures or educational posters, painting the walls a stimulating colour and have good lighting, to make sure the blinds/curtains are open to allow sunlight in or to have the lights on. Turning the television on or keep the radio playing as background noise.

7. Acknowledgements

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9.1 Appendix I: Patient information leaflet (aphasia friendly)

Version 1 Jan 2018



Come Dine with Me.



Participant Information Leaflet.

HOSPITAL: St. James's Hospital Dublin

DEPARTMENT: Department of Clinical Nutrition and
Department of Speech and Language Therapy, St.
James's Hospital

STUDY TITLE: 'Come Dine With Me'

NAME OF PRINCIPAL INVESTIGATOR:

Dr. Aoibheann McMorro, PhD
Dietitian, St. James's Hospital

**You are being invited to participate in a research
study. Thank you for taking.**

WHAT IS THE PURPOSE OF THE STUDY?

After a stroke, **getting enough nutrition** can be difficult. Some stroke survivors have a **loss of appetite**. For others, eating may be **difficult** due to swallowing problems or limited limb movement. Because of this, we want to look at whether eating **environment affects nutrition and safety** during mealtimes.



WHY HAVE I BEEN CHOSEN TO PARTAKE IN THIS STUDY?

All patients on **George Frederick Handel ward** who are able to eat and drink are being invited to participate in this study.

WHAT WILL HAPPEN IF I VOLUNTEER TO PARTICIPATE?

If you agree, you will be invited to eat your lunch in the ward **dining room** on **2 days** and at your **bedside 2 days**. **Nutrition and safety** will be looked at mealtimes when you eat in the **dining room** and compare it to your nutrition and safety when you eat at your **bedside**.



ARE THERE ANY RISKS INVOLVED IN PARTICIPATING?

There are **no known risks** when taking part in study.



ARE THERE ANY BENEFITS INVOLVED IN PARTICIPATING?

We do not know the answer to this yet. The **menu** and mealtimes will be the **same** for dining room and bedside.

WHAT HAPPENS IF I DO NOT AGREE TO PARTICIPATE?

If you choose not to participate in this study, it will **not affect your care** at all.

WILL MY PARTICIPATION OR WITHDRAWAL HAVE ANY IMPACT ON MY ROUTINE CARE?

No, your routine care will **not be affected** by participating or dropping out from this study. You may **withdraw** from this study any time until the end of study data collection.

WILL MY PARTICIPATION BE CONFIDENTIAL?

Yes.

If you choose to participate you will be given an **anonymous study code**. All information will be collected under this anonymous study code and not under your name or hospital number.



INDEMNITY

Your health care providers are **insured** by the State Claims Insurance Service.

WHO IS ORGANISING AND FUNDING THIS RESEARCH?

This research is being organised by the Department of **Clinical Nutrition** and the Department of **Speech and Language Therapy** at St. James's Hospital.

HAS THIS STUDY REVIEWED BY AN ETHICS COMMITTEE?

Yes.



CONTACT DETAILS

Name: Aoibheann McMorrow, Dietitian

Address: Department of Clinical Nutrition, St. James's Hospital, Dublin 8

Phone: 01-4162180

9.2 Appendix II: Patient consent forms (aphasia friendly)

**Come Dine with Me.
Patient Consent Form.**



Please tick the box.

- I have **read** and **understood** the information leaflet.

Yes No



- I have had the chance to **ask questions** and **talk** about the study.

Yes No



- I am **happy** with the **answers** to all my questions.

Yes No

- I have received **enough information** about this study.

Yes No



- I understand that I can **withdraw** from the study at any time.

Yes No

- I understand that this will not **affect** my future medical **care**.

Yes No



- I **agree** to take part in this study.

Yes

No

Participant's signature: _____

Date: _____

Participant's name (printed): _____

Investigators signature: _____

Date: _____

Investigators name (printed): _____

9.3 Appendix III: Patient case report form

Participant Code	
Age	
Sex	M <input type="checkbox"/> F <input type="checkbox"/>
Length of stay	
Diet Consistency	Normal <input type="checkbox"/> Soft <input type="checkbox"/> Minced Moist <input type="checkbox"/> Any change to diet consistency recommendations during the study? Y <input type="checkbox"/> N <input type="checkbox"/>
Fluids Consistency	Grade: 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/>
Type of stroke	Haemorrhagic <input type="checkbox"/> Ischaemic <input type="checkbox"/> Other <input type="checkbox"/> _____
Cognitive Status	MMSE <input type="checkbox"/> MoCA <input type="checkbox"/> ___/30 (or out of ___ if not out of 30) Date of test: ___
Does the patient have a communication impairment:	Yes <input type="checkbox"/> No <input type="checkbox"/>
Does the patient have a swallowing impairment:	Yes <input type="checkbox"/> No <input type="checkbox"/>

Day 1 (Date __/__/__)	
Setting	Bedside <input type="checkbox"/> Dining Room <input type="checkbox"/>
Meal consistency	Normal <input type="checkbox"/> Soft <input type="checkbox"/> Minced Moist <input type="checkbox"/> Consistent with recommended diet Y <input type="checkbox"/> N <input type="checkbox"/>
Fluids consistency	Normal <input type="checkbox"/> Soft <input type="checkbox"/> Minced Moist <input type="checkbox"/> Consistent with recommended fluids Y <input type="checkbox"/> N <input type="checkbox"/>
Pre meal weight g (incl plate)	
Post meal weight g (incl plate)	
% of meal consumed	1: _____ % consumed _____ 2: _____ % consumed _____ 3: _____ % consumed _____ 4: _____ % consumed _____ 5: _____ % consumed _____ 6: _____ % consumed _____ 7: _____ % consumed _____ 8: _____ % consumed _____
Company	Yes <input type="checkbox"/> No <input type="checkbox"/> No of other people present (incl staff) ____
Interaction	Has the pt spoken to any other pts or staff Y <input type="checkbox"/> N <input type="checkbox"/> How many times ____ Non-verbal communication (Gestures) Nodding Y <input type="checkbox"/> N <input type="checkbox"/> How many times ____ Smiling Y <input type="checkbox"/> N <input type="checkbox"/> How many times ____ Hand gestures Y <input type="checkbox"/> N <input type="checkbox"/> How many times ____ Change in posture Y <input type="checkbox"/> N <input type="checkbox"/> How many times ____
Safety	Has a staff member provided assistance with: Meal set-up Y <input type="checkbox"/> N <input type="checkbox"/> Required Y <input type="checkbox"/> N <input type="checkbox"/>

	Feeding Y <input type="checkbox"/> N <input type="checkbox"/> Required Y <input type="checkbox"/> N <input type="checkbox"/> Has a staff member provided encouragement/prompting to the patient Y <input type="checkbox"/> N <input type="checkbox"/> Is the patient sitting upright Y <input type="checkbox"/> N <input type="checkbox"/>
Distractions	Has the mealtime been interrupted by a staff member Y <input type="checkbox"/> N <input type="checkbox"/> Has the mealtime been interrupted by a family member Y <input type="checkbox"/> N <input type="checkbox"/> Is the television on Y <input type="checkbox"/> N <input type="checkbox"/>

9.4 Appendix IV : Hammond *et al.*, 2000 depression scale questions

Participant code _____

1. Does the patient sometimes look sad, miserable or depressed?
0 1 2 3 4 5

2. Does the patient ever cry or seem weepy?
0 1 2 3 4 5

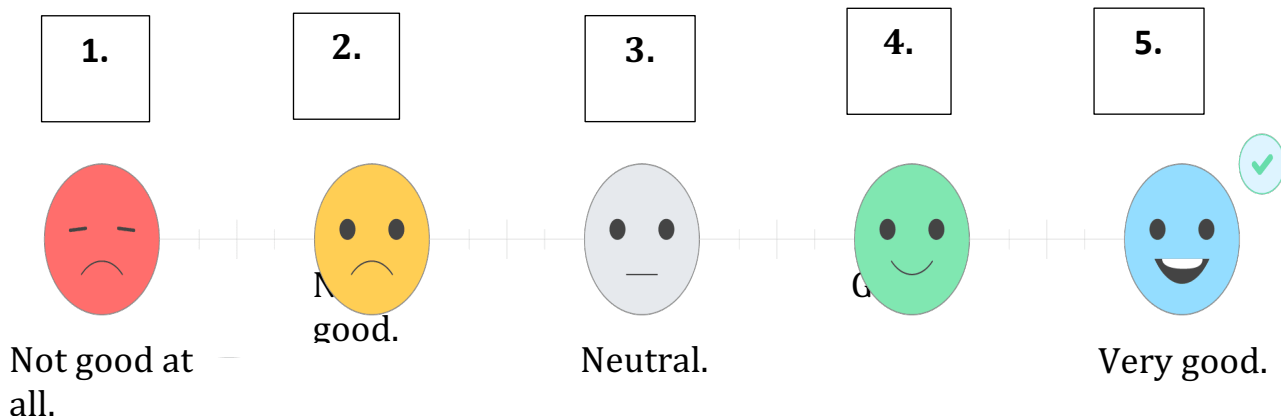
3. Does the patient seem agitated, restless or anxious?
0 1 2 3 4 5

4. Does the patient need a lot of encouragement to do things for him/herself?
0 1 2 3 4 5

5. Does the patient seem withdrawn, showing little interest in the surroundings?
0 1 2 3 4 5

9.5 Appendix V: Patient satisfaction survey (aphasia friendly)

1. How did you find the dining room atmosphere?



2. Did you **enjoy eating** in the dining room?



Yes



No

3. Did you enjoy eating at your bedside?



Yes



No

4. *Where would you prefer to have you meal?*

<input type="checkbox"/>	Dining room	<input type="checkbox"/>	Bed side
--------------------------	-------------	--------------------------	----------

5. *Do you need assistance at mealtimes?*



Yes



No

5a. *Did you feel you had enough assistance in the dining room?*



Yes.



No.

5b. Did you feel you had enough assistance at your bedside?



Yes.



No.



6. Did you have **enough time** to finish your meal in the dining room?



Yes



No

7. Did you have **enough time** to finish your meal at your bedside?

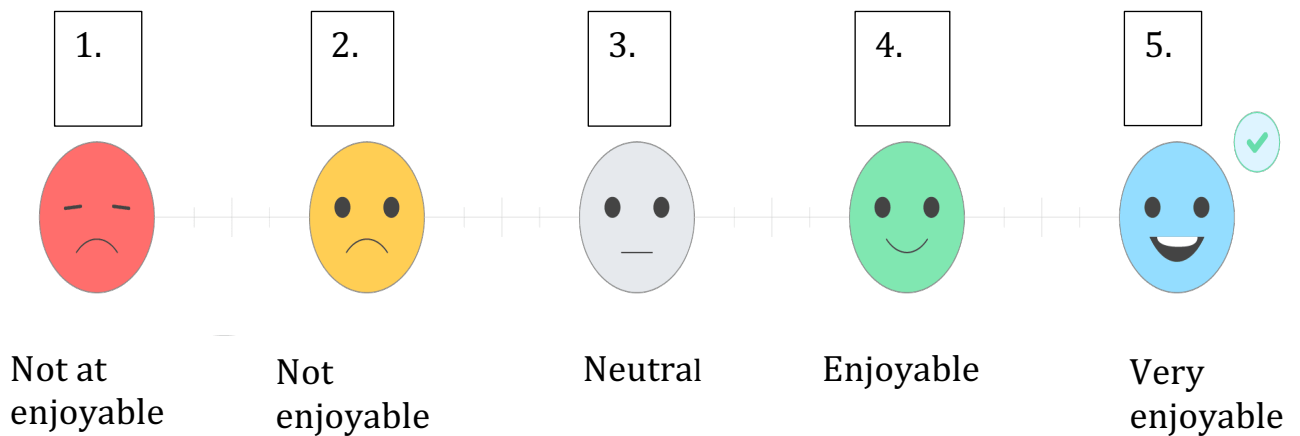


Yes

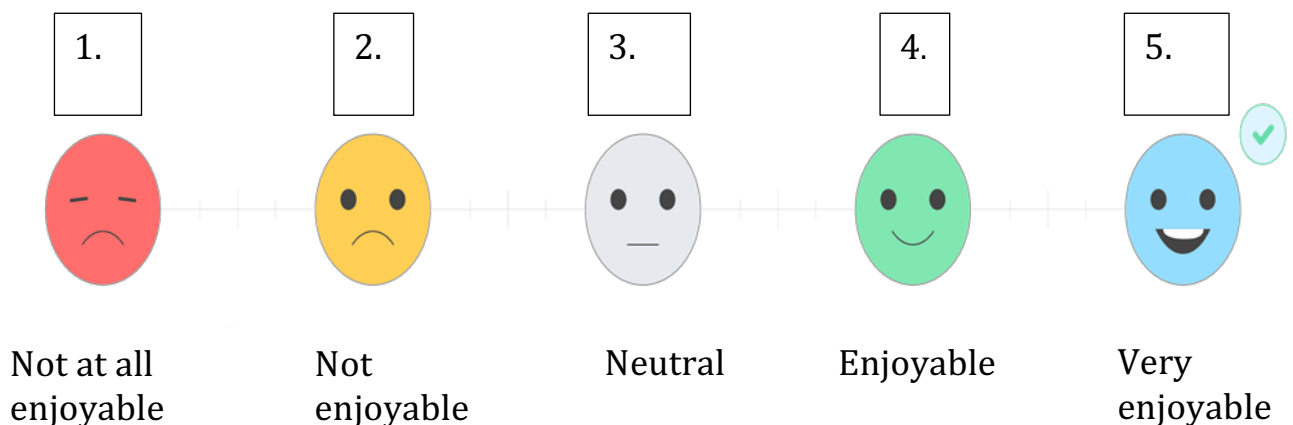


No

8. How much did you enjoy being with other patients while eating in the dining room?



9. How much did you enjoy eating alone at your bedside?



9.6 Appendix VI : Staff perception survey

1. What did you think of the overall mood of the patients?

-
- Extremely positive Positive Indifferent Negative

2. Did you find a high level of patient interaction in the dining room?

-
- Very high High Moderate Low

3. Did you find patients interacting with the same people all week?

-
- Most days Sometimes Change everyday

4. Did you think there was enough assistance around the dining room?

-
- Enough for everyone Some assistance Little assistance No assistance received

5. Did you feel that patients were more at ease in dining or at bedside?

-
- Mostly dining room Both equally Mostly bedside

6. Did you observe patients waiting between receiving meal and receiving assistance?

-
- Did not wait at all Waited for a bit Waited for a long time

7. Did you think patients felt comfortable interacting with other patients?

-
- Very comfortable Comfortable Not comfortable

8. Any further comments?
