Dissertation Academic Paper

Title: Will the growth of accessibility and consumption of Lunchtime Meal Deals impact on future health due to their nutritional content?

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2016

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Student Declaration In Respect of Individual Work

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.

Dissertation submitted in partial fulfilment of the requirements of the University of Wales for the Degree of Bachelor of Science with Honours.

Signed: Rebecca Rose

Date:.........................................................
Will the growth of accessibility and consumption of Lunchtime Meal Deals impact on future health due to their nutritional content?

Abstract
Background – High intakes of fat, salt and sugar and development of associated diseases are concomitant with the recent obesity epidemic, indicating these trends are associated. This study therefore examined how growth in accessibility and consumption of Lunchtime Meal Deals may be impacting upon future health due to their nutritional content.

Methods – Fifty participants on a South Wales University Campus completed a self-administered questionnaire.

Results – Most participants were students between the ages of 18 and 28. Over half questioned consumed Lunchtime Meal Deals (LMD’s), with most consuming LMD’s twice weekly. Most participants over 29 years of age also consumed LMD’s, with most again consuming them twice weekly. No statistical significance was found between gender and LMD consumption. The most popular LMD choice consisted of a Sandwich, Crisps and Water. Under half of participants were aware of healthy LMD’s. The price participants were willing to pay and the typical price of a LMD were both thought to be £3.50. No statistical significance was found between monthly disposable income spent on food and the amount participants were willing to pay for LMD’s. Main reasons for purchasing LMD’s included convenience, price and habit/routine. Under half of participants felt that LMD’s were very accessible. Most participants believed that LMD’s were high in fat and thought that there was strong correlation between LMD consumption and weight gain.

Conclusions – Findings indicate that most individuals consume LMD’s due to greater accessibility and cheaper pricing. Although individuals are aware of the poor nutritional status of LMD’s and future health implications, many still consume them due to there being few healthy alternatives and because of convenience. An area for future research may be to conduct a Cohort study over a prolonged period to observe how nutritional content of LMD’s affects long-term weight gain and development of associated conditions.

Keywords: Lunchtime Meal Deals, Students, Fat, Salt, and Sugar
**Introduction**

The shift towards convenience foods has been concomitant with the recent obesity epidemic, increasing likelihood that these trends are casually related (Alkerwi et al, 2014). In United Kingdom (UK), around 25% of adults are classed as obese (National Obesity Awareness Week, 2015). Weight gain is thought to be as a result of modern lifestyles and unhealthy eating habits. Data from the National Diet and Nutrition Survey (Public Health England, 2014) revealed that in the UK, 19-64 year olds consume around 1.6% higher than recommended intakes of saturated fat, 4% higher than recommendations for sugar and above the recommended 6g daily limit for salt. This may be due to increased availability of convenience foods (Macdiarmid et al, 2015), which save time preparing, cooking and consuming (Brunner et al, 2010). High intakes of aforementioned nutrients are likely to be fueling development of health conditions such as type-2 diabetes (T2DM) and coronary heart disease (Arterburn and Noël, 2001).

Food retailers and manufacturers are aware of the growing popularity of convenience foods and hundreds of new products and promotions to sell these have recently been brought to market to exploit this trend. One such promotion is lunchtime meal deals (LMD’s). Swapping homemade lunches for LMD’s could be adding to the UK’s health crisis.

**What is an LMD?**

There seems to be no set definition for a LMD. Commonly, LMD’s comprise of a “sandwich, snack and drink” and are provided for around £3.00 by outlets such as Boots (2015), Greggs (2015) and Tesco, which is the most popular consumer choice (The Grocer, 2004). Alternative LMD components include wraps, salads, sushi, fruit packs and chocolate. Some retailers even provide nutritionally adapted LMD’s, such as Boots who offer a reduced calorie “Shapers”
range (2015). However, in 2009 only 7% of sandwich launches were low fat variants indicating there’s greater need for healthier options (Mintel, 2010).

**Accessibility and Availability**

According to The British Sandwich Association (BSA) (2014) the prime destination to purchase sandwiches are sandwich bars, which have 32% of the market and are estimated to have sandwich deal sales of around £1.85 billion (Mintel, 2010). This illustrates that even small shops are contributing to the huge LMD market growth. Mini-supermarkets, frequently opening on high streets are further fueling the trend as they stock “grab and go” foods, such as LMD’s and therefore provide greater accessibility to them (BBC, 2014).

With greater exposure to food outlets supplying LMD’s, new ideas to attract customers and predictions that the convenience sector will grow to £46.2 billion by 2018, it is likely LMD’s will become even more available (BBC, 2014). Hence, increasing risk of weight gain and obesity (Burgoine et al, 2014).

**Consumption**

The BSA (2014) reported that in 2013, sandwich sales were around £7,250,000,000, up 6%, and around 3,500,000, sandwiches were sold, an average of 55.1 sandwiches per individual. Mintel (2012) also reported that 42% of workers are more likely to buy sandwiches as part of LMD’s than make them themselves. Thus indicating that sandwich consumption is increasing.

Upmarket shoppers, working individuals and males consume the most sandwiches, according to the BSA (2014). Similar results were found in a study by Empathy Research, who indicated that most
individuals purchasing LMD’s are males and the younger generation. According to the study, 40% of 18-24 year olds purchase LMD’s at least once weekly, considerably more than other age groups (Checkout Magazine, 2015) It is likely that the older generation purchase less convenience foods due to having more time to prepare meals (Brunner et al, 2010) 

**Cost**

Three quarters of workers think shop bought sandwiches are overpriced. Nevertheless, 42% admit consuming them (Mintel, 2012). The BSA (2014) highlights that average sandwich prices are £2.07. This could be a key factor in explaining why many opt for LMD’s - they get more for their money. A single sandwich can cost £2, whereas a sandwich, drink and snack LMD costs £3.00. LMD’s may therefore be impacting upon health, as individuals consume higher amounts of fat, salt and sugar than they would with just a sandwich.

**Nutritional Content and Potential Impacts on Health**

Research has been carried out regarding nutritional content of convenience foods such as ready meals. However, little, if any research has been carried out on LMD’s.

Most literature highlights that convenience foods are high in energy and saturated fat and low in fruit, vegetables and fibre (Alkerwi et al, 2014). This is confirmed by Exum and Thompson (2014, p.66), who found that average convenience meals contain high contents of fat, salt and sugar, with average saturated fat contents around 18g. A woman should consume around 20g of saturated fat daily and a man 30g, indicating that 18g in one meal is high (The Department of Health, 1991). High fat, salt and sugar intake increases risk of weight gain, obesity and related diseases such as T2DM, all of which could impact upon future health. Increased prevalence of non-communicable diseases
is thought to be due to changing lifestyles and dietary habits, such as consumption of convenience foods like LMD’s (Black et al, 2013).

To illustrate the impact LMD’s may be having, consider the nutritional content of a Tesco LMD. A cheese and ham sandwich contains 445 kcals, 20.4g fat, 7.6g saturates, 3.1g sugar, 1.8g salt and 3.9g fibre. Thus providing 38% of daily saturates, 30% of salt and only 13% of fibre (Tesco, a, 2015). When combined with a 32.5g bag of crisps, saturated fat intake reaches around 49% of daily values and salt around 35% (Tesco, b, 2015). Adding a fizzy drink further increases sugar content.

According to Change for Life (2015) around 600 calories should be consumed for lunch. The above LMD contributes around 700 calories. Although this is not considerably higher than recommended, high proportions of fat, salt and sugar are being consumed at lunchtime alone, with no fruit or vegetables and little fibre.

Due to increasing obesity, health experts are calling for reduced intakes of fat, salt and sugar. The Scientific Advisory Committee on Nutrition (SACN, 2015) have recently advised free sugar intake to be halved to 30g daily. This is very little, considering one regular can of coke contains 35g of sugar (Coca Cola, 2015). Similarly, SACN (2015) have advised that fibre intake should be increased to 30g daily due to evidence linking high fibre diets to reduced incidence of T2DM, cardiovascular diseases and some cancers.

Summary

It is likely that LMD’s are increasingly consumed due to greater accessibility, availability and lower cost. With greater consumption comes the likelihood that LMD’s could contribute to higher intakes of fat, salt and sugar and hence weight-gain and associated health conditions. These problems are not due to consumption of LMD’s alone. However, they are possibly making it more likely for them
to occur. There is evidence that extensive research has been carried out into the sandwich market. However, only minimal research, mainly within the press, has been carried out into LMD’s. Greater evidence-based research is needed to provide more up-to-date, scientifically accurate information regarding LMD’s so that potential health impacts can be established.

The aim of this research was to answer the question: Will the growth of accessibility and consumption of Lunchtime Meal Deals impact on future health due to their nutritional content?

**Methodology**

**Study Design**

The study used a self-administered questionnaire (Appendix 3). These gather qualitative and quantitative data relatively quickly and cheaply and collect views and opinions via open and closed questions. Other study types were considered, such as a focus group. However, these only produce qualitative data and are time consuming to conduct and analyse. Questionnaires have been used in similar research projects, such as a study by Buckley et al (2007) further indicating that this was a suitable study type.

**Participants**

The study included 50 participants above the age of 18, such as students, lecturers and other personnel from a South Wales University. Individuals under the age of 18 were excluded, due to ethical considerations. To ensure participants were over 18 years old, age was asked prior to providing questionnaires.
Participants were recruited via the researcher asking individuals to fill in questionnaires.

Recruitment took place within lectures, seminars and public eating places. During recruitment, snowball sampling was adopted, which involved participants identifying other potential participants (Handcock and Gile, 2011). Some participants took questionnaires, gave them to colleagues and then returned them to the researcher. This was a quick data collection method. However, snowball samples can produce biased and inaccurate results (Waters, 2015).

Prior to data collection ethical approval was obtained (Appendix 1).

Materials

A self-administered questionnaire was chosen, as it suited the project’s time frame. Self-administered questionnaires encourage participants to disclose more truthful views and sensitive information as they write opinions down rather than discuss them. Furthermore, participants may not feel that they have to give socially acceptable answers, as they may do in focus groups (Bowling, 2005).

The researcher when administering questionnaires gave personal contact, to increase response rate. Participants were asked a few general questions and were informed that they had as long as they wanted to complete the questionnaire (Nieuwenhuijsen, 2005). The researcher distanced themself from the participants during questionnaire completion to eliminate interview bias (Bowling, 2005). Most participants completed the questionnaire immediately, increasing response rates.

The questionnaire included 24 questions in 9 sections and took 10-15 minutes to complete. Sections are common within questionnaires (Osman et al, 2014) as they aid structure and allow participants
to navigate it easily (FluidSurveys.com, 2014). Section 1, Background, gathered information on gender, age, occupation and general lunchtime habits. Further sections gathered more specific information on LMD’s - price, availability, accessibility, consumption and health impacts.

Three main question types were used - open, closed and scaled responses. Most questions were closed questions as they eliminate chances that the researcher has suggested the response. Where scaled responses were required, the five-point Likert scale was used (Osman et al, 2014) which is an easy way of obtaining quantitative degrees of opinion. Both types of question take very little time to answer and analyse (McLeod, 2008). Only two questions were open questions. These collect spontaneous views from the participant, and hence gather qualitative data. However, these can be time consuming to fill in and analyse (Reja et al, 2003).

Procedure

Questionnaires were completed upon receiving ethical consent. Data was collected between the 5th November and 25th January 2015 -2016 over a 3 month period, to allow for the Christmas holiday period.

Before questionnaire completion, participants were provided with a participant information sheet (Appendix 2). This informed participants that they had the right to withdraw at any point. Consent to involvement was given when returning the questionnaire to the researcher.

Data Analysis

Quantitative results from the questionnaire were hand tallied to generate overall results. This was viable due to the relatively small sample (Kumar, 2011, p.276). Once tallied, quantitative questions
and answers were coded and categorized as either nominal or ordinal data (Appendix 4) (Kumar, 2011, p.256). Prepared data were then inputted into Microsoft Excel (Microsoft Office, 2007) (Appendix 5). This allowed for descriptive statistics such as graphs and tables to be created, all of which linked to research aims and objectives. Graphs and tables were used to represent different data sets, and to help make data clearer and easier to understand (Kumar, 2011, p.297).

Quantitative data was statistically analysed using SPSS 20.0 (IBM SPSS statistics 20.0 for windows, IBM Corporation, New York), as in similar studies, such as studies by Deliens et al. (2014) and Arabi et al. (2013). Chi-squared tests were used to test for association between two variables, firstly between how much people spend monthly on food and how much they are willing to pay for LMD’s and secondly between gender and LMD consumption (Appendix 6). Chi-squared tests were used as most data was nominal or ordinal and hence it was the most appropriate test to use. A p value of below <0.5 was considered statistically significant (Arabi et al, 2013).

No data analysis was carried out on qualitative data as few participants completed qualitative questions.
Results

Fifty participants were invited to complete and return questionnaires. There was a response rate of 100%.

Characteristics and Demographics of Study Population

Table 1

<table>
<thead>
<tr>
<th>Gender</th>
<th>N</th>
<th>Proportion of sample (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>22</td>
<td>44%</td>
</tr>
<tr>
<td>Female</td>
<td>28</td>
<td>56%</td>
</tr>
</tbody>
</table>

Table 2

<table>
<thead>
<tr>
<th>Age</th>
<th>N</th>
<th>Proportion of sample (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 18</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>18 – 28</td>
<td>38</td>
<td>76%</td>
</tr>
<tr>
<td>29 – 39</td>
<td>4</td>
<td>8%</td>
</tr>
<tr>
<td>40 – 50</td>
<td>3</td>
<td>6%</td>
</tr>
<tr>
<td>51 – 61</td>
<td>4</td>
<td>8%</td>
</tr>
<tr>
<td>62+</td>
<td>1</td>
<td>2%</td>
</tr>
</tbody>
</table>

Table 3

<table>
<thead>
<tr>
<th>Other personnel*</th>
<th>N</th>
<th>Proportion of sample (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student</td>
<td>40</td>
<td>80%</td>
</tr>
<tr>
<td>Lecturer</td>
<td>3</td>
<td>6%</td>
</tr>
<tr>
<td>Other personnel*</td>
<td>7</td>
<td>14%</td>
</tr>
</tbody>
</table>

* Other personnel included cleaners and day service officers

Most participants were students (80%) between the ages of 18 and 28 (76%). Twelve participants were above the age 29 (24%). No one under the age of 18 participated.
Most participants spent relatively high amounts of monthly disposable income on food (n=19). No participants spent very little monthly income (n=0) on food. Chi-squared statistical analysis showed no statistically significant difference between how much monthly disposable income people spent on food and how much they were willing to pay for LMD’s (p =0.241 , t= 15.000, df = 12) (Appendix 6).

Consumption of LMD’s

Table 4

<table>
<thead>
<tr>
<th>Consumption of lunch on a regular basis</th>
<th>N</th>
<th>Proportion of sample (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>38</td>
<td>76%</td>
</tr>
<tr>
<td>No</td>
<td>12</td>
<td>24%</td>
</tr>
</tbody>
</table>

Table 5
Seventy six percent (n=38) of participants consumed lunch on a regular basis (Table 4), with 68% (n=34) of them consuming LMD’s (Table 5). Of those consuming LMD’s, 68% (n = 23) stated that they consumed LMD’s twice weekly and 20% (n=7) 3 times weekly. Only 1 participant consumed LMD’s daily (3%) (Figure 2).

Of student participants, 26 (n=52%) consumed LMD’s, 28% (n=14) of which consumed them twice weekly and 12% (n=6) 3 times weekly. Two thirds of participants over the age of 29 consumed LMD’s, 14% (n=7) of which consumed them twice weekly and only 6% (n=1) 3 times weekly. Of the 8 participants (16%) above the age of 40, 6 consumed LMD’s, with all 8 (n=6) consuming them twice weekly.
When participants were asked who consumed LMD’s, 50% (n=25) suggested students and 48% (n=24) suggested individuals of a working age. Chi-squared statistical analysis showed no statistically significant difference between gender and consumption of LMD’s (p =0.157, t=2.000, df = 1) (Appendix 6).

What is considered as an LMD

Figure 3 - A graph to show the 3 most popular main, snack and drink components of an LMD

The most popular LMD consisted of a sandwich, crisps and water with the second most popular choice being a wrap, fruit bag and fizzy drink.

Forty two percent of participants (n=42) named a Sandwich as the main component of a LMD, followed by a wrap (25%, n = 25) and Pasta (14%, n=14). Only 5% classed a salad (n=5) as the main LMD component. Additionally, 37 participants (37%) suggested that crisps were an ideal snack component of a LMD. More participants (20%, n=20) thought that a fruit bag was a better snack choice than chocolate (19%, n = 19). Water was the most popular drink (43%, n = 43), followed by...
Fizzy drinks (26%, n=26) and Juice (20%, n=20). No participants chose the milk or milkshake options.

Cost of LMD’s

Table 6

<table>
<thead>
<tr>
<th>Price</th>
<th>Price considered to be a the typical price of a LMD (N) (% Proportion of sample)</th>
<th>Price participants would be willing to pay for a LMD (N) (% Proportion of sample)</th>
</tr>
</thead>
<tbody>
<tr>
<td>£1.50</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>£2.50</td>
<td>9 (18%)</td>
<td>15 (30%)</td>
</tr>
<tr>
<td>£3.50</td>
<td>37 (74%)</td>
<td>26 (52%)</td>
</tr>
<tr>
<td>£4.50</td>
<td>4 (8%)</td>
<td>9 (18%)</td>
</tr>
<tr>
<td>£5.50</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

Seventy four percent of participants (n=37) considered the typical LMD price to be £3.50, which was also the price participants were willing to pay (52%, n=26). Most participants that did not choose £3.50 chose the lower price of £2.50. Eighteen percent of participants (n= 9) considered £2.50 to be the typical price of a LMD and 30% (n=15) suggested that they would be willing to pay this price for them. No participant chose £1.50 or £5.50 for either price option.

Figure 4 - A chart to show how strongly participants agree or disagree with the statement “LMD’s are realistically priced” (1 = strongly disagree, 5 = strongly agree)
Forty four percent of participants (n=22) neither strongly agreed nor disagreed that LMD’s were realistically priced. Ten percent (n=5) strongly agreed that LMD’s were realistically priced and 20% (n=10) agreed that LMD’s were realistically priced. Hence, a consensus that LMD’s were acceptably priced. No participant chose option 1, LMD’s not being realistically priced.

**Accessibility and Availability of LMD’s**

*Figure 5 - A chart to show how accessible participants feel LMD’s are (1 – not very accessible, 5 – very accessible)*

The general consensus was that LMD’s were accessible (38%, n= 19) or very accessible (48%, n= 24). No participant chose the options of not accessible or not very accessible. When respondents were asked where they purchased LMD’s, the most popular locations were Tesco (46%, n= 46), Greggs (22%, n= 22) and Boots (21%, n= 22). The least popular choice was the local sandwich shop (6%, n=6).

**Factors influencing LMD consumption**

Convenience, (46%, n=36), price (27%, n=21) and habit/routine (14%, n=11) were the most popular reasons for consuming LMD’s. LMD’s being unhealthy (42%, n=42) and dislike of them (42%, n=42)
were the main reasons for participants not consuming them. The least popular reason for not consuming LMD’s was cost (16%, n=8).

**Nutritional content of LMD’s**

*Figure 6 - A chart to show whether participants consider a LMD to be High, Medium or Low in Fat, Sugar, Salt and Fibre*

Most participants believed that LMD’s were high in fat, medium in sugar and fibre and equally high/medium in salt.

Fifty eight percent of participants (n=29) chose the option of high for fat, whereas only 4% (n=2) chose low. Most participants chose medium for sugar (50%, n=25) and 20% (n=10) chose low. Similarly, most participants chose medium for fibre (48%, n=24), with 36% (n=18) choosing low. Fifty percent (n=25) chose the option of medium, 50% (n=25) chose high and no participant chose the option of low for salt.
Regarding LMD’s and health, participants were asked “on a scale of 1-5 how healthy would you say LMD’s are? (1- very unhealthy, 5 – very healthy)”. Most chose option 3 (50%, n=25) and option 2 (40%, n=20). Only one participant chose option 1 (2%) highlighting the fact that most participants believed LMD’s to be unhealthy.

**Future Health**

*Table 6 – A table to show how participants believe a typical LMD of a ‘Sandwich, Drink and Crisps’ is going to affect certain aspects of health*

<table>
<thead>
<tr>
<th>Scale (1 = no effect, 5 = strong effect)</th>
<th>Weight (N) (% Proportion of sample)</th>
<th>Stroke (N) (% Proportion of sample)</th>
<th>Diabetes (N) (% Proportion of sample)</th>
<th>Heart Problems (N) (% Proportion of sample)</th>
<th>Cancer (N) (% Proportion of sample)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 (2%)</td>
<td>7 (14%)</td>
<td>5 (10%)</td>
<td>6 (12%)</td>
<td>15 (30%)</td>
</tr>
<tr>
<td>2</td>
<td>5 (10%)</td>
<td>17 (34%)</td>
<td>11 (22%)</td>
<td>13 (26%)</td>
<td>19 (38%)</td>
</tr>
<tr>
<td>3</td>
<td>12 (24%)</td>
<td>12 (24%)</td>
<td>11 (22%)</td>
<td>9 (18%)</td>
<td>5 (10%)</td>
</tr>
<tr>
<td>4</td>
<td>21 (42%)</td>
<td>9 (18%)</td>
<td>15 (30%)</td>
<td>16 (32%)</td>
<td>7 (14%)</td>
</tr>
<tr>
<td>5</td>
<td>11 (22%)</td>
<td>5 (10%)</td>
<td>8 (16%)</td>
<td>6 (12%)</td>
<td>4 (8%)</td>
</tr>
</tbody>
</table>

When participants were asked how LMD’s were going to affect health, the strongest effect was seen to be on weight. Twenty two percent (n=11) thought that LMD’s were going to have a strong impact upon weight, compared to just 2% (n=1) who thought they would have no effect. It was also felt that LMD’s had a strong effect on diabetes and heart problems. Sixteen percent (n=8) suggested that LMD’s would contribute to diabetes and only 10% (n=5) thought LMD’s would have no effect. Most participants (30%, n=15) chose the option of “no effect” when asked about LMD’s and their link with cancer and only 8% (n=4) thought that LMD’s would have a strong effect on cancer. Similar findings were also found regarding the link between LMD’s and stroke.

**Healthier LMD options**
Under half of participants (48%, n=24) were aware of healthy LMD’s. In contrast, 62% (n=31) stated that they would choose healthy LMD’s. When asked what a healthy option was considered to be, few participants responded. Of those that did, suggestions included salad, water and fruit/fruit bag. Reasons for choosing healthy options included weight management and health concerns. In addition, 90% (n=45) of participants agreed that healthy options needed to be more readily available and better advertised.
Discussion

The purpose of this research project was to determine whether it is possible that the growth of accessibility and consumption of LMD’s will impact upon future health due to their nutritional content.

As in every research project, limitations were observed. The study obtained a 100% response rate. However, due to a snowball sampling technique being adopted, many participants (n=38, 76%) were between 18-29 years of age. This may have introduced bias into the study and therefore, results may not be generalizable to the rest of the population. Furthermore, limited numbers of participants answered qualitative questions within the questionnaire. Open questions require participants to express their views and opinions, which younger participants may be less inclined to do (Kumar, 2011, p.153). When data was statistically analysed using SPSS 20.0 (IBM SPSS statistics 20.0 for windows, IBM Corporation, New York) no statistically significant results were found. This again may be due to large numbers in the 18 to 29 age category, which skewed results. Finally, question 12 was dismissed during analysis, due to its similarities with question 17. These similarities would have come to light sooner if a pilot study had been completed.

Most participants (n=34, 68%) consumed LMD’s, with 97% consuming them twice weekly or more (n=33), suggesting that LMD’s are accessible and available. The most popular LMD choice consisted of a Sandwich, Crisps and Water. This confirmed the theory that a typical LMD consists of those three components. Similarly, it confirmed the findings of Empathy Research, who found that 48% of consumers thought that a sandwich was the ideal LMD component, with another being a drink (Checkout Magazine, 2015). Water may have been the most popular drink due to the recent health issues surrounding sugar, and as a result of SACN (2015) halving sugar recommendations to 30g. However, water may also be popular as it is becoming increasingly fashionable in today’s culture.
Several manufacturers are marketing bottles of water, such as Fiji Water and Smart Water, with the aim of creating a “status” or “class” associated with drinking bottled water (Connell, 2006). A wrap, fruit bag and fizzy drink was seen to be the second most popular LMD. A fruit bag was seen to be a more popular snack choice (n=20, 20%) than chocolate (n=19, 19%). This is surprising, considering 48% (n=24) of participants stated that they were unaware of any healthy LMD choices.

When participants were asked why they consumed LMD’s, the most popular reasons were convenience (46%, n=36), price (27%, n=21) and habit/routine (14%, n=11). Brunner et al. (2010) suggested that convenience foods save time in preparation, cooking and consumption. Hence, suggesting why individuals may be consuming LMD’s. Eighty percent (n=38) of participants were students and so may have chosen LMD’s as a result of a lack of preparation time and/or cooking skills. This is confirmed by Papadaki et al. (2007) and Devine et al. (2006) who both found these habits to occur within student populations. Most individuals above the age of 29 also consumed LMD’s. Seventy five percent of participants above the age of 40 consumed LMD’s twice weekly. This is contrasting with the findings of Brunner et al. (2010) who indicated that the older generation purchase less convenience food due to having more time to prepare meals. A suggestion why the older generation in this study purchase LMD’s may be that they are working and therefore rely on convenience due to lack of time.

Mintel (2012) illustrated that 75% of working individuals think shop bought sandwiches are overpriced. Therefore, price being the second most popular reason for consuming LMD’s is not surprising as individuals are getting more for their money as stated previously. The most popular price for a LMD is £3.50 (n=37, 74%), which is also the price most participants would be willing to pay for them (n=26, 52%). Only 16% (n=8) of participants stated that cost would put them off purchasing LMD’s. Most participants admitted to spending relatively high amounts of monthly disposable income
on food (n=19, 38%). Again, these findings may be due to most participants being students or working individuals. Students do not have high incomes. However, students justify expenditure on LMD’s due to their convenience. No statistical significance was found between how much monthly disposable income people spend on food and how much they are willing to pay for LMD’s.

Accessibility is another reason participants purchased LMD’s. Forty eight percent (n=24) thought that LMD’s were very accessible and 38% (n=19) of participants believed they were accessible. Growth in accessibility may be due to the rise in smaller convenience stores which stock grab and go foods such as LMD’s (BBC, 2014). Results showed that the most popular location to purchase LMD’s was Tesco (n=46, 46%), followed by Greggs (n=22, 22%). This confirmed findings of The Grocer (2004) who found Tesco to be the most popular consumer choice. The least popular place to purchase LMD’s were local sandwich shops (n=6, 6%). This contrasted with the findings from Mintel (2010) who found that in 2009, LMD sales in sandwich shops were estimated to be at £1.85 billion. This may be because there are few, if any local sandwich shops around the University Campus and so, participants do not have the choice to use them. Furthermore, a Tesco supermarket close to the University Campus may suggest why it was the most popular destination to purchase LMD’s.

Participants’ knowledge of the nutritional content of LMD’s seemed to be relatively sound. Very few participants thought that LMD’s were low in fat, salt or sugar. Hence, suggesting that they understood that LMD’s were not the healthy option. Most participants believed that LMD’s were high in fat (n=29, 58%). This supports information in section 1.6 which revealed that a single LMD provides a high proportion of daily fat intake. Furthermore using a scale of “High, Medium and Low”, most participants chose medium, for fibre and sugar and an equal amount of participants chose the option medium and high for salt. No one chose the option of low for salt, suggesting that most participants have some level of knowledge regarding salt recommendations. However, most participants, mainly being students still consume LMD’s. This may be because students consider the
risk of LMD’s to health as low in comparison to other factors such as stress due to living away from home and work-life balance.

When future health was considered, over half of participants (n=32, 64%) thought that consuming LMD’s would impact upon weight. Similarly 44% (n=22) of participants thought that LMD’s would have an impact on heart problems and 46% (n=23) on diabetes. Research by Alkerwi et al. (2014) and Black et al. (2013), found that increased consumption of ready meals increases risk of obesity and related diseases, such as diabetes. This suggests that participants have some knowledge surrounding diet and health since they have come to this conclusion. Surprisingly, most participants thought that LMD’s would have no effect on cancer (n=15, 30%) or stroke (n=7, 14%). This may be because individuals infrequently associate these conditions with diet. This contrasts with the findings of The World Health Organization (2015) who advise individuals to reduce processed meat consumption, such as ham and bacon found in pre-packed sandwiches, due to potential links with colorectal cancer.

Young, well people such as students think that they will never become ill. This may be another reason why they choose LMD’s even though they are aware of health effects.

Consuming LMD’s routinely may be habit forming, and consumption may continue upon leaving University, as habits are difficult to break (Leona et al, 2010). Non-student participants in this study were generally working individuals, who were also seen to consume LMD’s. This further indicates that students may continue to consume LMD’s when working and consequently, their future health may be affected. Hence why healthier alternatives are needed.

Over half of participants (n=26, 52%) were unaware of healthy LMD options. However, 90% (n=45) of participants believed that healthy options needed to be more readily available and advertised, as it is more likely that individuals would then choose them (n=31, 62%). This relates to the second most popular LMD snack being a fruit bag, highlighting that if healthier options were available then
individuals will choose them. Although some retailers, such as Boots, have healthier alternatives, it is clear that these options are not well marketed. This suggests that there is greater need for marketing incentives to encourage consumers to choose healthier LMD alternatives. Furthermore, qualitative data revealed that participants believed a healthy option to be a salad or sushi, fruit or a fruit bag and water. Reasons for consuming healthy options were linked with weight management and health concerns. This is surprising considering most individuals within this study consumed less healthy LMD’s even though they were aware of their high fat and salt intake.

This study has unintentionally focused on student consumption of LMD’s due to it being conducted in a University, as well as the study adopting snowball sampling. Consequently, an area for future research may be to carry out the same, or a similar study in a non-student or working environment. Additionally, a Cohort Study could be carried out over a prolonged period to observe how nutritional content of LMD’s affects long-term weight gain, development of associated conditions and future health.

To conclude, most participants within this study consume LMD’s, consumption being driven by greater accessibility and reasonable pricing. It is evident that participants understand that LMD’s have poor nutritional content and are aware that they are likely to impact upon future health if consumed on a regular basis due to high fat, salt and sugar content. Hence, it is likely that most participants consume LMD’s due to their student or working status. Participants are aware of health implications but are not actively trying to change their diet, as convenience is more important than health, due to lack of time and income. To reduce consumption, greater advertising, including around Universities, may be an option to help educate students and individuals regarding healthy alternatives to LMD’s. This will hopefully prevent bad habits developing, especially within students. Furthermore, there is greater need for better accessibility and marketing of healthier LMD options by the Food Industry to help individuals make better choices and move away from the typical sandwich,
drink and snack. However, this is unlikely to happen in the near future, with the convenience sector, LMD’s being a part of this, being such a success. If the convenience sector is expected to grow to £46.2 billion by 2018 (BBC, 2014) it is likely LMD’s will become even more available in the future.

Therefore, greater Public Health Promotion is needed to better inform the general population regarding lunchtime eating habits and consumption of LMD’s. There is need for Public Health Nutritionists to educate the population on how to pick healthier options, how to read food labels and how to eat a healthy balanced diet. Hopefully, with the help of health promotion and Public Health Nutritionists, individuals will be less likely to consume LMD’s and form bad habits, and the impact on future health will be reduced. This piece of research provides a valuable starting point for future research, which would then hopefully lead towards a strong evidence base surrounding LMD’s to be developed.

**Word Count:** 5500
References


