Disaggregating Young Adults' Knowledge of Healthy Lifestyle Practices

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Centre for Rural Economy Discussion Paper Series No. 30

March 2011

Summary

This research paper explores the lifestyles of a group of 19-26 year olds from the North East of England, and the levels of knowledge they hold as to what constitutes healthy lifestyle practices. In order to explore their food, alcohol and physical activity behaviours, a sequential mixed-methods design involved focus groups, self-reported lifestyle diaries and in-depth interviews. Findings indicate that whilst some of the young adults understood what healthy food, alcohol and physical activity behaviours are, some did not. Additionally, even if individuals possessed this baseline knowledge on healthy lifestyle behaviours, some of the young adults did not know how to implement this knowledge, or have the confidence to put it into practice. As a result, strategies were explored in collaboration with the young adults, which may help them to become healthier over the longer term. Underpinning this research was a social marketing approach, which provided a framework to both explore the lifestyles, but also to propose strategies to encourage behavioural change.

Introduction

The extent to which obesity is becoming a public health issue is widely publicised in newspapers, journal articles, and policy papers, on a worldwide scale (Wright, O'Flynn, Macdonald, 2006). Young adults are increasingly engaging in erratic food choices, binge drinking and sedentary activities, which when combined bode ill for weight gain and obesity (Story, Neumark-Sztainer and French, 2002; Gill, 2002; Van Sluijs, McMinn and Griffin, 2007). The United Kingdom (UK) government, together with organisations such as the Food Standards Agency [FSA] and the National Social Marketing Centre [NSMC], are bringing this obesity and health focus to the forefront of their research and public health policies. However, this focus appears to be less concerned with young adults in comparison to other population groups such as children (Wills, 2005). The research presented here is based on focus group, self-reported lifestyle diary and interview data with young adults aged 19-26 from the North East of England. The role of social marketing to investigate lifestyle behaviours is outlined, alongside discussion of the value of a social marketing approach to tackle public health concerns such as obesity and unhealthy lifestyles in young adults.

A focus on obesity

While obesity is not the only outcome of an unhealthy lifestyle, nor is an unhealthy lifestyle the only cause of obesity, it is generally accepted that obesity (as a non-communicable disease outcome) arises predominantly from excessive unhealthy food and alcohol intakes, and low physical activity levels (Lahti-Koski *et* al., 2002). Obesity can affect individuals in a number of ways, both directly and indirectly. Direct effects include physical and mental stress, whilst indirect effects include increasing NHS expenditure on treating obesity and its related diseases (Law et al., 2007). The impact of obesity is widely cited in the literature, including statistics citing obesity as a contributory factor in 9000 premature deaths in England each year (Food Standards Agency, 2006). Furthermore, obesity impacts on individuals' life expectancies, with the life expectancy of obese individuals estimated to be as much as nine years shorter than that of an individual of a healthy weight (Food Standards Agency, 2006).

Body Mass Index (BMI) is an indicator of the amount of excess body fat that individuals hold, and is widely used to assess overweight and obesity in individuals (World Health Organisation [WHO], 2006). It is calculated by dividing a person's weight in kilograms by the square of an individuals' height in metres. A BMI of more than 25 indicates that a person is overweight; with a figure of more than 30 indicating a person is obese (WHO, 2006). Whilst this scale does have its limitations, for example it does not directly measure body fat (Centers for Disease Control and Prevention, 2010), it nevertheless indicates a growing problem of weight issues within England, and whether individuals can successfully regulate their own weight.

In summary, England now exhibits one of the highest global levels of obesity, with a 400% increase occurring over the last 25 years (House of Commons Health Committee, 2004). England has also exhibited faster growth rates in levels of obesity when compared to other European countries. For example, there has been more than a two-fold increase in levels of obesity in England over the last ten years (House of Commons Health Committee, 2004); with 6% and 8% of men and women respectively being classified as obese in 1980, compared to 22.1% and 22.8% in 2002 (House of Commons Health Committee, 2004: 13). More recent evidence from Butland *et al* (2007) shows that in England around 25% of men and women are classified as obese on the Body Mass Index (BMI) scale.

Healthy lifestyles

Healthy lifestyles incorporate basic fundamentals such as appropriate intake levels of healthy food and alcohol, and participating in recommended amounts of physical activity (Cross-Government Obesity Unit, 2010). However, healthy lifestyles also encompass enjoyment gained from lifestyle choices and overall wellbeing; including the absence of distress, satisfaction with daily lives, and *"contentment, satisfaction, or happiness derived from optimal functioning"* (McDowell, 2010: 70).

Focusing only on healthy food, alcohol and physical activity practices as a measure of healthy lifestyles, even minor changes to one's lifestyle such as increasing fruit and vegetable consumption, can help when seeking to follow a healthy diet (Mintel, 2005). The reasons why individuals either do not follow (even partly) healthy lifestyles, or are unable to make changes to their lifestyle behaviours, is therefore an important area of research. That said, becoming healthier in one's food, alcohol and physical activity practices, does presume an understanding of what constitutes a healthy lifestyle in these three areas. Certainly, current guidelines are available to the public to inform them of 'best practice' behaviours in terms of food, alcohol and physical activity. For example the 'eatwell plate' from the Food Standards Agency indicates the main food groups that individuals should be consuming on a daily basis (see Figure 1) (Food Standards Agency, 2007).

Figure 1: The Food Standards Agency's 'eatwell plate'

(Food Standards Agency, 2007)

In relation to these requirements, Table 1 presents more specific dietary recommendations, alcohol intake guidelines and physical activity recommendations advocated by the Department of Health (DH, 1991).

Table 1: Dietary reference values, and alcohol and physical activity guidelines

	Female	Male
Energy (Calories)/day	1940	2550
Total Fat/day	No more than 35% of food energy	No more than 35% of food energy
Saturated Fat/day	No more than 11% of food energy	No more than 11% of food energy
Carbohydrate/day	No more than 50% of food energy	No more than 50% of food energy
Non-milk extrinsic sugars/day	No more than 11% of food energy	No more than 11% of food energy
Intrinsic and milk sugars and starch/day	No more than 39% of food energy	No more than 39% of food energy
Protein (g/day)	45	55.5
Dietary Fibre (g/day)	18	18
Alcohol units (per day)	2-3	3-4
Physical activity (per week)	30mins x 5 sessions (moderate intensity)	30mins x 5 sessions (moderate intensity)

(DH 1991: xix-xxi; DH, 2006a; DH, 2006b)

Table 1 presents information that is made available to the general population, from sources such as the Department of Health, the Food Standards Agency, and also in forms such as newspapers, magazines and NHS leaflets. The need to follow these 'healthy lifestyle' principles is paramount for all adults to maintain good health. In particular, young adults would benefit from following this information and leading healthier lifestyles, considering that if healthy behaviours are adopted at younger ages, then they make be continued into adulthood (as would unhealthy behaviours) (Lake *et* al, 2009; Adamson and Mathers, 2004).

A focus on young adults

The desire to better understand the lifestyle behaviours of young adults who have the potential to continue these healthy lifestyle practice over the long term, led to a focus on 19-26 year olds within this research. One of the main reasons for focusing on young adults centres on the rising incidence of obesity and weight gain which is 'tracked' from childhood, through adolescence, into adulthood (Lake *et al.*, 2009). By building research into the lifestyles of young adults, including investigating their knowledge of healthy lifestyle behaviours and the implementation of this knowledge, in addition to exploring how to engage young adults with healthy behaviours, it may be possible to slow and preferably halt weight gain within this age group.

In specific relation to young adults, Table 2 shows that whilst young adults have lower levels of obesity in comparison to older age groups, they have a greater propensity to become obese as they age compared to these other population groups (The Information Centre, 2010). In other words, an upward trend in obesity levels is occurring as young adults move from teenage to adulthood (The Information Centre, 2010). This emphasises the need to target young adults and their lifestyle behaviours, to halt any further rises in levels of obesity within this age group, and to instil long-term and healthy lifestyle behaviours to combat weight gain as they age.

Table 2: Adult obesity levels by age, England, 2009

Age	Obesity Level (000s) - Year 2009
16-24	701
25-34	999
35-44	1805
45-54	2119
55-64	1873
65-74	1305
75+	773

(The Information Centre, 2010)

By exploring the typical lifestyles of young adults (in reference to guideline recommendations concerning food, alcohol and physical activity), it is not unsurprising why this age group has a susceptibility to gain weight as they age (The Information Centre, 2006). Generally, young adults are characterised by low levels of physical activity, higher than average alcohol consumption, and nutritionally-poor diets (Story, Nuemark-Sztainer and French, 2002; Gill, 2002; Van Sluijs, McMinn and Griffin, 2007).

Currently many adults across the age ranges do not meet recommended physical activity guidelines. While research into physical activity is still in its infancy, findings are beginning to indicate a correlation between physical activity and good health (Department of Health, 2004a). Yet, it is unclear why few adults, including young adults, undertake physical activity on a regular basis; particularly when there are numerous opportunities for individuals to undertake both structured activities (e.g. running, tennis), and/or build activity into everyday life (e.g. walking) (Department of Health, 2005). Recent research from the NHS Information Centre reported that 53% of men, and 33% of women aged 16-24, met recommendations of five thirty minute sessions of physical activity per week in 2006 (The Information Centre, 2008). This leaves a substantial proportion of young adults who do less physical activity per week than is recommended. Exploring why young adults do not meet these physical activity recommendations is necessary if behavioural change is to be achieved.

Less than ideal lifestyle behaviours are also seen in young adults in relation to their alcohol consumption. Alcohol consumption behaviours contribute to a binge drinking culture, where binge drinking is defined as a *"pattern of heavy drinking that occurs in an extended period set aside for the purpose* (WHO, 1994:_)*"*, with consumption levels of *"more than eight units for men and six units for women on any one day"* (NHS Choices, 2009: _) and which results *"in intoxication"* (Herring *et al.*, 2007: 476). Additionally, the Parliamentary Office of Science and Technology [POST] define binge drinking as *"the consumption of twice the daily benchmark given in the Government's guidelines"* (2005: 1).

Consuming alcohol in large quantities in one sitting is a common alcohol-related behaviour in young adults (Gill, 2002). Consuming more than the recommended number of alcohol units at one time, is dangerous for health and wellbeing. It can interrupt normal living routines, have an impact on performance at work or educational attainment, lead to accidents or incidences of violence, as well as the medical impact on an individual (Gill, 2002). The levels of binge drinking in young adults are in fact quite marked when comparing the consumption patterns of alcohol with other age groups. Table 3 shows the disparity between levels of alcohol consumed by age group. It clearly shows that more young adults consumed 'binge' quantities of alcohol in 2005 than older age groups.

Table 3: Percentage of men and women who drank more than 8 and 6 units respectively, on at least one day, by age and gender – Great Britain 2005

Age	Male > 8 units/day (%)	Female > 6units/day (%)
16-24	27	20
25-44	25	12
45-64	15	4
65+	4	0

(Goddard, 2006: 70)

Whilst this binge drinking behaviour is harmful in itself, total alcohol consumption also needs to be considered from a nutritional perspective. Whilst there is contradictory evidence within the literature, alongside a lack of studies into the relationship between alcohol and obesity, recent work by the World Cancer Research Fund/American Institute for Cancer Research (2009) suggests that there may be a link between the amount of alcohol consumed and levels of obesity. Indeed alcohol contributes to daily energy intake as highlighted in Table 4.

Table 4: Approximate calorie content of selected alcoholic drinks

Alcoholic Drink	Typical Serving Size	Approximate Total Calories
Beer	~355ml	144
White wine	~148ml	100
Red wine	~148ml	105
Spirits	~45ml	96

(US Department of Health and Human Services, 2005: 46)

Whilst the previous discussion indicated that young adults are not following recommended guidelines in relation to physical activity and alcohol consumption, there is a third lifestyle area that needs to be considered; being food and dietary behaviours. As seen with alcohol consumption and physical activity levels, young adults' food behaviours do not fit with recommended consumption guidelines for long term good health. A national census (Henderson *et al.*, 2002) of foods consumed by the British population during the period of July 2000 and June 2001 indicated that young adults consumed more savoury snacks and soft drinks containing a high number of

calories, alongside typical convenience or 'junk' foods such as burgers and coated meat products. In comparison, older individuals reported that they were more likely to consume wholegrains and fresh fruit and vegetables (Henderson *et al.*, 2002). The most recent NDNS data indicates that the types and levels of macronutrients consumed in 2008/2009 compared to those consumed in 2000/2001 is similar in many respects (Bates, Lennon and Swan, 2010). Energy, carbohydrate and total fat intake by all adults was similar in 2000/2001 and 2008/2009, with the amount of protein being consumed showing a slight increase and saturated fatty acid intake a slight decrease in the most recent NDNS survey (Bates, Lennon and Swan, 2010).

Whilst young adults' actual food intakes may not always meet recommended guidelines, young adults do recognise that they should be consuming more healthy products in their diets, in particular, foods that contain less salt, sugar and fat (TNS, 2007). The issue appears to be that they are not putting this knowledge into practice (TNS, 2007). The disparity between what young adults know they should be consuming and what they are actually consuming does in fact seem to be increasing (Moreno *et* al, 2008; Croll, Neumark-Sztainer and Story, 2001). In summary, these lifestyle behaviours indicate that there is a need to adopt a preventative approach to tackling lifestyle behaviours in young adults, so that they reduce the number of unhealthy behaviours that they engage in, and increase healthier practices, but also that they sustain these throughout their life course (Gordon-Larsen *et al*, 2004; Lake *et al*, 2009).

Rising obesity levels and the role of social marketing

Overall leadership in the fight against world wide levels of obesity has been declared by the World Health Organisation, whose remit includes the provision of advice and information to improve population dietary intakes and physical activity levels (WHO, 2004). Recent attention has turned to methods and approaches to encourage and facilitate behavioural change within target population groups concerning health issues. Table 5 outlines the key methods that can be employed to target health behaviours.

Table 5: Methods to facilitate behavioural change

Method	Description	Example
Social marketing	• 3 core concepts and principles (behavioural theory, insight, exchange, competition, audience segmentation, marketing mix), used together with marketing techniques to encourage, facilitate, and sustain behaviour change (NSMC, 2007).	Department of Health Tobacco Control Campaign – 2007-2009 Social marketing campaign to address smoking in *"routine and manual smoker group"* (NSMC, n.d.:_).
Support & advice	• Provision of help and support to encourage those who are both trying, and contemplating trying, to change their behaviours (NSMC, 2007).	'Quitline' – support from an independent charity via a free helpline (Quitline, n.d.).
Education/Information/ Awareness Campaigns	• To raise awareness/increase knowledge of potential behaviour change to an uninformed/unaware audience.	Food Standards Agency 'Eatwell' plate – advice on making healthy dietary options (FSA, 2007).
Legal Action	• Enforce behaviour change through legislative action – used for resistant or deep-rooted 'unhealthy' behaviours.	Smoking ban in the UK in 2007 (Smokefree, n.d.).
Commercial Marketing	• Use of techniques such as the 4P's, to change individual behaviours - usually to sell products and services; and therefore to gain profit (NSMC, 2007).	Most television advertising campaigns from corporations aiming to sell products and/or services.

(NSMC, n.d.; Quitline, n.d.; FSA, 2007; Smokefree, n.d.)

Indicated in Table 5, as one behavioural change method, is social marketing. As commercial marketing or legislative actions changes individual behaviours through persuasion or legal action respectively, social marketing can also alter individual behaviours. However, rather than enforcing behavioural change, as legislation would, social marketing utilises the same techniques used in commercial marketing but for achieving a social good rather than profit (NSMC, 2007). Additionally, whilst educative methods and support can inform individuals of the need for behaviour change, they do not necessarily facilitate behavioural change in practice. In this regard, social marketing can both educate individuals, but also help them to physically change their behaviours (NSMC, 2007). Social marketing is a socially-grounded approach for the benefit of individuals and communities, rather than being of benefit to those who carry out social marketing. It is this customer-orientation that is adopted when using (social) marketing approaches to behaviour change that makes change successful over the short-, medium- and long-term (NSMC,

2007). Furthermore, social marketing has been/is being used for a multitude of reasons, such as tackling drink driving, drug taking and low physical activity levels, making it a flexible behavioural change approach (NSMC, 2007).

When defining social marketing, one of the first definitions appeared in 1971 from Kotler and Zaltman (1971: 5) where *"social marketing is the design, implementation, and control of programs calculated to influence the acceptability of social ideas and involving considerations of product planning, pricing, communication, distribution, and marketing research"*. This definition of social marketing has been re-worded and developed since this early period, but it is essentially very similar. Social marketing is currently taken to mean the use of what would be deemed 'commercial' marketing techniques and approaches, which include marketing elements similar to those advocated by Kotler and Zaltman (1971); pricing, product, promotion, and place elements. These are combined with six central constructs of social marketing, diagrammatically represented in Figure 2 (NSMC, 2007: 37). Contextually, social marketing developed when practitioners, academics and marketers began to think that commercial marketing techniques could be used in a not-for-profit manner (Stead, Hastings and McDermott, 2007). This thinking arguably dates back to Wiebe's (1951) article, which likens promoting 'brotherhood' in the same terms as soap, i.e. using marketing principles to 'sell' social concepts rather than just commodities (Wiebe, 1951; Stead, Hastings and McDermott, 2007).

Figure 2: Social marketing 'customer triangle'

(National Social Marketing Centre, 2007: 37)

A more recent diagrammatic conceptualisation of social marketing is shown in Figure 2, whereby the consumer is placed at the centre of social marketing. Within this model, individuals are seen as active agents in their own behavioural change. As such, emphasis is placed on thorough research of the consumer within their social contexts and environments (NSMC, 2007). Essentially however,

the main difference between social and commercial marketing is that social marketing is not undertaken for profitable gain, but for the social good that it can achieve in relation to behaviour change (NSMC, 2007).

Related to this social good, is increasing recognition of the advantages of social marketing in order to bring about behaviour change (Neiger *et al.*, 2003). An independent report commissioned by the Department of Health - *'It's Our Health!'* - undertaken by the National Social Marketing Centre (2006), argues the case for social marketing and its potential contribution to tackling public health issues. This report recognises that traditional, educational-based methods are not resulting in actual behaviour change within individuals and the population as a whole, even though they may increase awareness of/knowledge on an issue (see Table 5 for an example) (NSMC, 2006). It further acknowledges the success of social marketing for health issues in other countries. In Canada, the US, Australia and New Zealand social marketing has been more extensively employed than in the UK; where positive behavioural change in their populations in reference to public health behaviours has been seen and measured (NSMC, 2006). Table 6 presents a selection of social marketing campaigns undertaken in other countries, which indicates the achievements that these social marketing campaigns have had in tackling physical activity levels, seat belt wearing, saving for pensions, smoking and impaired driving.

Table 6: Successful international social marketing campaigns

Issue	Description	Results/Evaluation
'Really Me' – Canada's Drug Strategy ***(Health Canada, n.d.)***	***Target audience:*** 11-13 years ***Objective:*** To promote a drug-free lifestyle ***Media:*** TV, radio, bus, magazine adverts	***Attitude:*** More positive attitudes towards reducing alcohol and drug intake ***Behaviour:*** Reports of drinking and drug use falling between 1989-90
'Play It Smart' – Canada, Impaired Driving ***(Health Canada, n.d.)***	***Target audience:*** 16-24 years ***Objective:*** To discourage drink-driving and encourage drivers to think about their passengers ***Media:*** Adverts, radio commercials	***Attitude:*** French Canadians more likely to view drink driving negatively ***Behaviour:*** Reduction in reports of drink driving between 1988-90
'Break Free"'– Canada, Tobacco Use ***(Health Canada, n.d.)***	***Target audience:*** 12-14 years ***Objective:*** To promote the benefits of quitting /not starting smoking, and to make it easier to do so ***Media:*** Television, radio, bus and bus shelter adverts, poster and lyric writing contests	***Attitude:*** Both English and French Canadians likely to view smoking as unglamorous once exposed to the campaign ***Behaviour:*** Reports of smoking decrease in youth between 1987-90
'Push Play' – New Zealand, Physical Activity Levels ***(McLean, n.d.)***	***Target audience:*** 30-54 years, males, contemplating doing more exercise ***Objective:*** Increase physical activity in the target group from 64% to 70%; increase awareness of benefits of exercise ***Media:*** Culturally relevant activities and 'green' prescriptions	***Attitude:*** Campaigns were successful in raising awareness of key messages, and in increasing intention to exercise from 1.8% to 9.4% (1999-2002) ***Behaviour:*** An initial increase in physical activity was found, increasing from 38.6% to 44.5% (1999-2000)
'Sorted' – New Zealand, pension saving ***(Retirement Commission, 2004)***	***Target audience:*** All New Zealanders; sub-groups including: children 5-12, students, 60+ ***Objective:*** To enable New Zealanders to understand retirement financial planning, and to make informed financial choices ***Media:*** Financial planning education through website, school events, advertising and promotion	***Attitude:*** Awareness of the benefits of saving for retirement increased in those who had received the campaign information ***Behaviour:*** Use of financial planning calculators on the website was great – with near 2million uses (1998-2004)
'Truth' – USA, Anti-Smoking ***(Social Marketing Institute, n.d.)***	***Target audience:*** Middle- and high-school ages; adults who manipulate teens to smoke ***Objective:*** To reduce the number of adults who would manipulate teens to smoke ***Media:*** Promotion of campaign using traditional media	***Attitude:*** Teens surveyed were influenced to avoid smoking based on the campaign information; with a view that tobacco companies were manipulating them to smoke ***Behaviour:*** Reduction in smokers from 19.4% to 8.0% between 1998-99
'Click It or Ticket' – USA, seat belt wearing ***(Social Marketing Institute, n.d.)***	***Target audience:*** All adult car drivers and passengers ***Objective:*** To increase seat belt use ***Media:*** Advertising new law (being stopped by police)	***Attitude:*** 76% of North Carolina citizens were aware of the seat belt campaign ***Behaviour:*** Average seat belt use in North Carolina increased from 65% to 80% over the first 6 months

A particular contribution of social marketing to public health behaviours is its ability to work at many levels as indicated in Table 6. Social marketing can work with groups in community settings, in work and school settings, and at an individual level (National Consumer Council, 2006). The flexibility of this approach was one of the key reasons for its choice as a framework within this research. Additionally, social marketing works with individuals who are willing to alter their behaviours, and so does not enforce individuals to change their behaviours if they do not want to. This can lead to long-term behaviour change rather than short-term change, given that individuals only change their behaviours if they can and want to (NSMC, 2007). Other approaches such as legislative enforcement would never be able to alter behaviours of all individuals by voluntary action. It could therefore be argued that social marketing is a more ethical approach to behaviour change (Yeo, 1993).

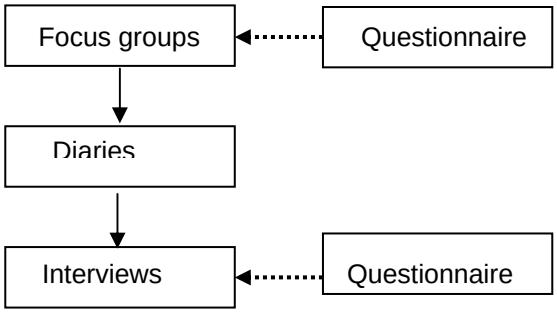
Because social marketing is a conceptual framework in itself, it provides a structure to investigate behaviours (NSMC, 2007). It prompts the investigator to research individual and community behaviours and relate these to theory, to explore the current level of a desired behaviour (e.g. the level of physical activity in a target population), the barriers and incentives to changing their behaviour (e.g. increasing the level of physical activity), and the strategies that could be successful in helping to implement change (NSMC, 2007). Thus, it provides direction in research investigation, campaign planning and campaign implementation (NSMC, 2007). The ability of social marketing to offer this structure was a foremost reason for why social marketing was used in this research to investigate the lifestyles of young adults and how they could be encouraged to adopt change in their food, alcohol and physical activity behaviours, which could result in improved health.

In using social marketing to investigate lifestyle behaviours, one of the main findings was that young adults know what they should be eating, doing, and drinking to lead healthier lifestyles, but do not always put this knowledge into practice *(individual research)*. Reasons for this disparity included a lack of self efficacy to implement this knowledge *(a barrier to behaviour)*; yet numerous suggestions were also given to encourage behaviour change in young adults *(strategies)*. These results are presented in succeeding sections, before which the methodology of the research is outlined.

Methodology

As a whole, three data collection stages provided key results, which when combined contributed to an understanding of the lifestyles of young adults, and their food, alcohol and physical activity knowledge and actions. The mixed-methods design (Flick, 2002) employed a sequential approach to data collection, which can be seen in Figure 3.

Figure 3 Research methods and sequence



The focus groups acted as an exploratory data collection method into the area of study, followed by the self-reported lifestyle diaries and in-depth interviews; both used to gain a more detailed insight of the lifestyles of the young adults. Table 7 indicates the time frame, participant numbers, recruitment methods, sought and recruited participant characteristics, data analysis and further particulars of each method.

In total 12 focus groups were conducted with 54 participants, 55 individuals then completed a self-reported lifestyle diary, totalling 220 diaries, and the 55 diary participants then completed an in-depth interview. Not all of the participants took part in each stage of the data collection process. New participants were recruited at the diary stage as not all of the focus group participants volunteered for the later stages of the research. However, all participants who completed four lifestyle diaries also took part in an in-depth interview. Therefore, for some of the participants, data was collected on their attitudes and behaviours at all three stages (focus groups, diaries and interviews) and thus allowed a degree of cross-referencing for these individuals.

Verbatim transcripts were produced for both focus group and individual interview discussions. These transcripts were then analysed using NVivo 7. This qualitative software package allows transcripts to be uploaded and then coded in a similar manner to manual coding. Coding of both the focus group and interview data took the form of both *in vivo* and sociologically constructed codes (Flick, 2002; Strauss, 2003). The former involved coding specific words which were used by the participants, whilst the latter approach involved the researcher assigning coded words which best represented the meaning of the words directly used by the participants.

The use of WinDiets 2005 to analyse the diaries involved a web-based database which allowed the inputting of individuals' foods and drinks and physical activity (Wise, 2006, 2008). The dietary composition of individual foods could then be gained to assess how 'healthy' an individuals' diet was. The physical activity analysis also indicated, in a crude manner, how active individuals were over the course of their four diaries. In order to check how accurately these diaries were completed there was a subsequent interview, which discussed the behaviours written in the diaries

with individuals, and sought areas of clarification if there were anomalies within the data.

	Focus groups	Self-reported lifestyle diaries	In-depth interviews
Time frame	April 2007 – August 2007	4 diary cycles (1 per month over 4 months – 4 days per diary) February 2008 – May 2008	June 2008
Participant numbers	12 groups with 54 participants	55 participants, totalling 220 diaries	55 participants
Recruitment methods	• Recruitment notices • Internal emails to Newcastle University employees and students • Internal Newcastle University web system messages • Snowball and convenience sampling	• Willing focus group participants • Snowball and convenience sampling	N/A – all interviews were held with those who had completed 4 lifestyle diaries
Participant characteristics sought	• Male/Female • Aged 19-24 • Living or from the NE of England • Employed, unemployed and student occupations	• Male/Female • Aged 19-26 • Living or from the NE of England • Employed, unemployed and student occupations	All those who had participated in the diary cycles
Participants recruited	• 36 females aged 19-24 • 18 males aged 19-24, of those: • 15 employed • 39 students • From County Durham, Tyne & Wear, Northumberland and Tees Valley	• 30 females aged 19-26 • 25 males aged 19-21 and 23-26, of those: • 22 employed • 33 students • From County Durham, Tyne & Wear, Northumberland and Tees Valley.	All those who had participated in the diary cycles
Method of investigation	Semi-structured discussion guide	Self-reported, semi-structured lifestyle diaries.	Semi-structured interview guide
Remuneration	£20 shopping voucher	£40 shopping voucher (1 per diary)	£10 shopping voucher
Particulars	Heterogeneous and homogenous groups	A5, black and white, paper and electronic versions	Included individual diary reflections
Data analysis	Using NVivo 7	Using WinDiets 2005 and paper-based analysis.	Using NVivo 7

Table 7: Data collection methods

Results

The full research project enabled a detailed insight into the lifestyles of young adults in terms of:

- identifying the attitudes and perceptions of the young adults with respect to their diet and lifestyle,
- profiling the typical lifestyles of young adults,
- examining the identified barriers to maintaining a healthy lifestyle and exploring strategies for overcoming these barriers; and,
- developing a targeted social marketing plan aimed at encouraging and facilitating dietary and lifestyle change among the young adults.

The results presented in this section focus solely on one aspect of the results that were obtained however. This focus concerns why there is a disparity between what the young adults know they should be doing in terms of leading healthy lifestyles, and what they actually do. In addition, the discussion section focuses on how to engage these particular young adults with healthier lifestyle behaviours in both the short and long term.

By investigating how the young adults self-classified their lifestyle behaviours, the data indicated that the majority of the individuals understood what was generally required in terms of leading healthy lifestyles. Acknowledging the need to participate in physical activity, the need to consume a healthy diet and to avoid harmful alcohol consumption behaviours was identified. This general knowledge is illustrated in the following quotations:

> *"I would class me as ok cos I do exercise and I don't just you know eat rubbish food and do noting about it. I kind of compensate with the exercise..."* [FG03CO09FE]

> *"I'll always bike and do karate and stuff, but on the flip side I drink a lot and...My diet could be better as well..."* [FG11CP48MS]

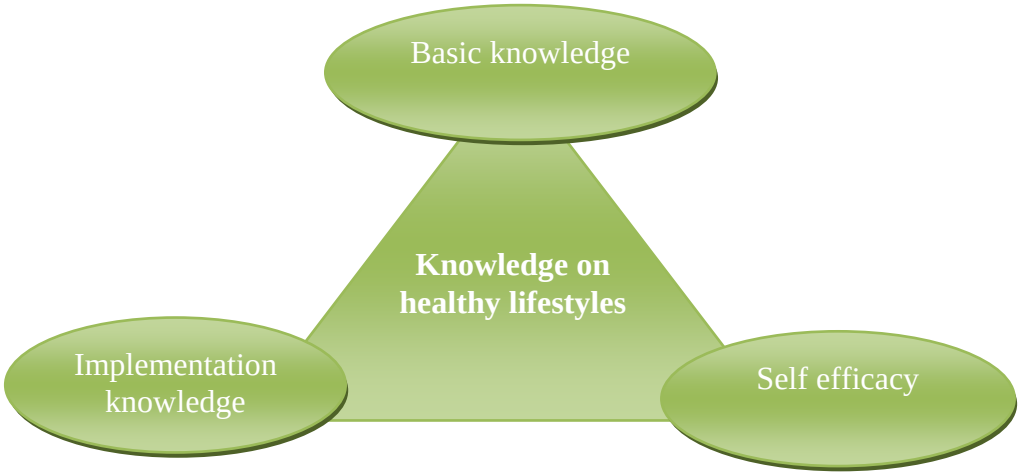
Whilst the majority of the young adults possessed general knowledge on healthy lifestyles, some individuals did lack specific knowledge in relation to the guideline recommendations for healthy food, alcohol and physical activity behaviours (these guidelines were shown in Table 1). The lack of this specific knowledge was particularly noticeable in relation to not understanding what alcohol units were, not understanding the minimum amount of moderate exercise required per week to maintain fitness and health, and not fully understanding what constitutes a healthy diet except from consuming five fruit and vegetables per day. Whilst there was a general understanding of the need to consume five portions of fruits and vegetables per day, there was less emphasis on other

macronutrients such as protein, carbohydrate and fat. Overall, responses focused on the need to restrict one's intake of 'junk foods', when considering dietary intake.

When analysing the results relating to the young adults' knowledge of healthy lifestyles, it became apparent that there was a distinction between the types of knowledge and understanding individuals held. Initially their knowledge of healthy lifestyles was analysed as a discrete concept, but it soon became clear however that a distinction needed to be made between the different levels of knowledge and types of understanding held. These three types are shown in Figure 4. In essence the three elements of knowledge: 1) basic knowledge, 2) implementation knowledge, and 3) self-efficacy, all contributed to the level of understanding the young adults held on healthy lifestyles. These three elements, for some of the young adults, constituted barriers to implementing healthier lifestyle behaviours.

Firstly, the basic knowledge refers to those individuals who lacked a basic understanding of what being 'healthy' in terms of food, alcohol and physical activity means. This covers both a general understanding and a more specific understanding in line with government recommendations. The second knowledge element concerned those individuals who possess the basic knowledge on healthy lifestyles, but who are unsure as to how to implement this knowledge in practice. This could be as simple as how to source and consume five portions of fruit and vegetables. The third element concerned individuals who may well possess the basic knowledge on healthy lifestyles, as well as the information required to implement this knowledge, but lacked the confidence and/or the belief that they could successfully implement their knowledge. Thus, they lacked the self-efficacy required to instil healthy lifestyle behaviours.

Figure 4: Three elements of knowledge



Considering these three knowledge components, the majority of the young adults did not lack basic knowledge on healthy lifestyles; most understood what was required of them to be healthier

in terms of food, alcohol and physical activity. However, they misunderstood, or lacked the knowledge to implement their understanding of what constitutes a healthy lifestyle and/or the confidence to implement the information. This indicates one reason for why there is such a disparity between why young adults understand requirements of a healthy lifestyle but do not always put this knowledge into practice (i.e. they lack implementation and/or confidence to put the knowledge into practice).

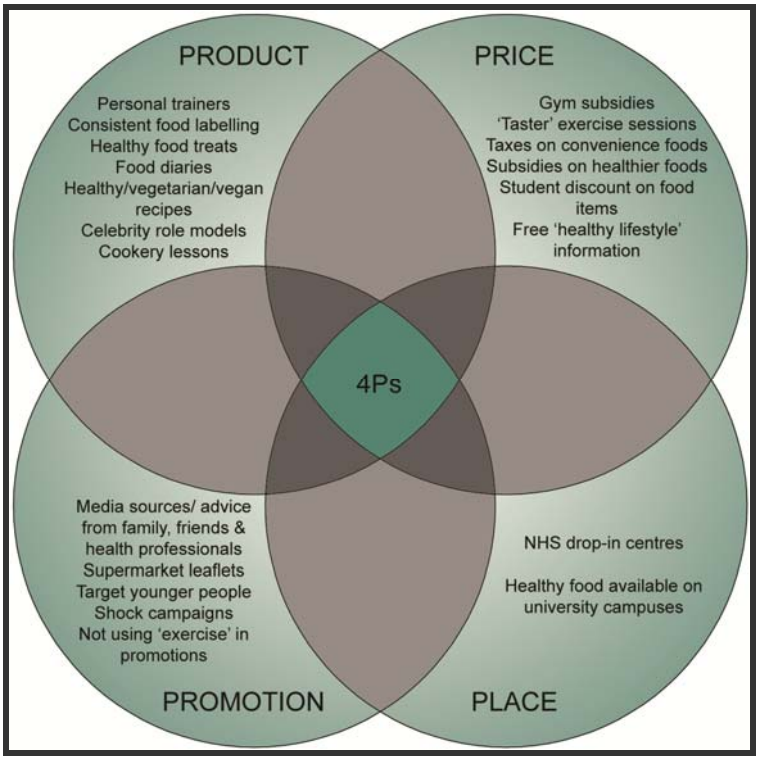
Discussion

The preceding section indicated that for the young adults within this study, whilst most possessed basic knowledge on lifestyle 'best practices', many did not understand how to implement this knowledge and/or have the confidence to put it into practice. By dividing the general concept of 'knowledge' into its components, the analysis offered one reason for why the young adults did not always follow healthy lifestyles even if they understood the requirements for one. Indeed, for those lacking the basic knowledge on healthy lifestyles, they would require both advice and support to establish their basic knowledge, but also encouragement to implement this knowledge in practice.

Whilst many of the individuals indicated that they lacked implementation knowledge and/or the self-efficacy to put lifestyle information into practice, they did register a willingness to change these shortfalls. One quarter of the young adults within the study indicated that they were unhappy with their lifestyle behaviours and the level of knowledge that they possessed, and so were willing to change both their behaviours and the information that they held. Therefore, by using a social marketing framework, not only could this insight be gained into the lifestyle behaviours and practices of the young adults, but it offered a framework to engage with individuals during the research process to investigate: their behaviours, the types of behavioural changes that they would be willing to make, and the approaches that they would prefer to facilitate them in making these changes.

Whilst a plethora of barriers were identified by the young adults, which they said hindered them from adopting healthier lifestyle behaviours (including knowledge barriers), these individuals did indicate a number of recommendations and strategies which they perceived to be useful to help them to lead healthier behaviours. These recommendations will be presented separately here, but in reality inter-link. They also include recommendations that may currently be available in general, but which are not accessible for some young adults, as well as new recommendations that could be useful in the future. Figure 5 indicates these main recommendations identified by the young adults.

Figure 5: Recommendations to encourage engagement with healthier lifestyle behaviours



As can be seen in Figure 5, these suggestions are divided in terms of the marketing mix. This framework accounts for the marketing mix component of social marketing. What these recommendations, divided in terms of their '4P' relevance highlight, are that it was not necessarily the case that the young adults did not want to engage with healthier lifestyles. In fact, a great willingness to adopt healthier lifestyle behaviours was indicated by many individuals, if recommendations such as shown in Figure 5 are instated. These recommendations refer to both increasing one's knowledge on healthy lifestyles, but also how to make behavioural changes once this knowledge is acquired.

Firstly, in terms of physical activity recommendations it was identified that subsidising the cost of activities, or even providing free activities would motivate these young adults to increase the amount of physical activity which they participate in. Indeed, many of the individuals were students, and so were on a reduced income in comparison to other population groups. Additionally, changing the way physical activity is promoted was a key consideration, such that leaflets should be made available that indicate the types of activities that are classified as moderate physical activities, and where these activities can be accessed. Thus, the young adults identified an explicit combination of both educative and practical advice/help in relation to increasing their participation in physical activities.

Secondly, and in relation to alcohol-related behaviours, there were a limited number of recommendations identified. It was certainly expressed by many of the young adults that this was

the one lifestyle area which they would be least willing to change, and is concurrent with previous research (Marlatt and Witkiewitz, 2002). However, promoting the need to reduce the amount of alcohol one should consume was suggested. Of course, there are many sources that promote the need for 'responsible' drinking, including to university students (Coghill, Orme and Swindells, 2009). Certainly, whilst the young adults in this research said that they were aware of these alcohol promotions, they either chose to ignore them, or said that they were the not communicated in a way that they would pay attention to and/or could easily understand – again similar to literature findings (Coghill, Orme and Swindells, 2009). This suggests that simply providing general alcohol-related information to young adults is not sufficient, if one is to increase their knowledge of best practice guidelines or achieve a reduction in the amount of alcohol consumed; the information needs to be targeted and developed according to their needs and their current level of understanding of recommended alcohol consumption guidelines (Coghill, Orme and Swindells, 2009).

Thirdly, as with physical activity, food recommendations were well-discussed, with numerous suggestions to promote food-related behaviour change being offered. These recommendations included subsidising healthier foods and raising taxes on unhealthier food items, making healthier foods more widely available in areas that young adults frequent such as university campuses, and providing educative facilities such as access to a community dietitian.

These recommendations are very specific to the group of young adults in this study, but do indicate that public health strategies and policy needs to consider both educative sources of advice, to increase young adults' knowledge of healthy lifestyles, whilst also creating an environment that promotes and is more conducive to healthy lifestyles. These *"supportive"* environments, together with personal support and educational material, appear to be especially useful for the young adults who participated in this research, given their current lifestyle knowledge and behaviours (Lake and Townshend, 2006: 263). In these terms, social marketing can account for aspects of support that individuals may need, a need for further education, design of environments, and also if necessary, legislation to enforce behaviour change (NSMC, 2007). This continuum of social marketing approaches seems applicable in relation to young adults, such as those in this research, particularly with relevance to educating them, and designing the environment, so that they lead healthier lifestyles in the immediate and long-term future.

Additionally, social marketing can empower individuals to change their own behaviours. Certainly, the wider literature acknowledges individuals want greater control over their lifestyle decisions and behaviours (DH, 2004b). This empowerment, together with the participative, voluntary, and ethical nature of social marketing, makes it a useful framework to use to: 1) explore, 2) instigate behaviour change in population groups, and 3) support them in maintaining any change in knowledge and behaviours over the long term (NSMC, 2007).

Conclusion

This paper first addressed the problems faced in the UK as a direct result of lifestyle behaviours, in particular the impact on individuals' weight. Public health concerns such as obesity have substantial health, social and economical impacts. Increases in obesity have been seen in many population groups, but in particular in young adults aged 19-26, where young adults have a greater propensity to become obese as they age. The incidence of obesity in young adults is somewhat unsurprising given that research indicates that young adults engage in low levels of physical activity, consume binge quantities of alcohol and have nutritionally poor diets. A need to tackle these 'poor' lifestyle behaviours is increasingly recognised in government policy, yet there is limited research in this area with young adults. This research therefore adopted a social marketing framework, a model which is advocated by government to be a successful framework to investigate, instigate and maintain healthy lifestyle behaviours (DH, 2008).

By using a social marketing framework in this research, it is clearer why some young adults may well understand what constitutes a healthy lifestyle, but do not necessarily put this information into practice. This study found that whilst most of the young adults held basic information on what adopting a healthy lifestyle means, they did exhibit a lack of knowledge of how to implement the information, and/or the self-efficacy to put this information into practice. However, even though many required greater implementation knowledge and/or the confidence to use this knowledge, they did express a willingness to improve their knowledge and lifestyle behaviours. In order to achieve this knowledge and behavioural change, they recommended strategies to help them to change their future lifestyle behaviours and knowledge levels in the areas of food, alcohol and physical activity. By examining these strategies within a social marketing framework, it was identified that young adults are willing to voluntarily change their lifestyle behaviours, given appropriate and targeted assistance.

Throughout this research a social marketing framework was used, which was beneficial in numerous ways. Firstly, by adopting a social marketing approach, a detailed understanding of the 'customer' was undertaken (i.e. young adults). By gaining this insight in relation to the lifestyle behaviours of young adults, it was found that many young adults possess a basic understanding of general lifestyle recommendations, but few understood more detailed government guidelines. Additionally, even if they held this basic information, fewer knew how to implement this in practice, or have the confidence to achieve it. Secondly, this social marketing approach also offered a framework to explore and analyse strategies that the young adults would find useful to help them to change their knowledge and lifestyle behaviours in the immediate and longer term. By accounting for the marketing mix, the strategies suggested by the young adults could be analysed in terms of their 'place', 'price', 'promotion' and 'product' relevance. As a result, the strategies which would improve knowledge levels and those that would aid behavioural change could be distinguished.

Lastly, by adopting a social marketing approach to this research, a dialogue was encouraged between the researcher and those who were researched. This dialogue was a key component in enabling a detailed understanding of these individuals. This framework also shows that it is possible to engage target audiences with research, to involve them in the research process, to understand their attitudes and behaviours in a rigorous manner, and to engage them with the notion of behavioural change. By empowering individuals in this process it may well be more likely that any behavioural or knowledge change that occurs is successful and maintained over both the short and long term (NSMC, 2007).

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