Characteristics and factors influencing fast food intake of young adult consumers in Johannesburg, South Africa

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Abstract

Objectives: To determine fast food consumption patterns, socio-economic characteristics and other factors that influence the fast food intake of young adults from different socio-economic areas in Johannesburg, South Africa.

Methods: A descriptive, cross-sectional study was undertaken, using an interviewer-administered, validated questionnaire to elicit the characteristics of the study population (adults aged from 19 to 30 years), their reasons for and frequency of fast food consumption, their specific fast food choices, and their attitudes towards health.

Results: The study population (n = 341) consisted primarily of young working adults (n = 242) with at least a secondary education. Almost half (42%, n = 102) of the employed participants earned less than R5 000 per month, but spent more than R200 on fast food per month. Twenty-one per cent of all participants had fast food at least once a week, while 27.6% had it two to three times a week. Socio-economic group (SEG) and gender were significantly related to fast food intake ($p < 0.01$), with a larger proportion of participants (65%, n = 76) in the lower socio-economic group (LSEG) showing more frequent use. Males consumed fast food more frequently than females. The most popular fast foods consumed were burgers (69.5%), pizza (56.6%) and fried chicken (38.4%). Soft drinks were the most popular beverage consumed (56%). The main reasons for choosing fast food were time limitations (58.9%), convenience (58.2%) and taste (52.5%). The majority of the participants were concerned about their health (93.3%) and indicated a fear of becoming overweight (44.3%). Seventy-eight per cent of all the participants would have chosen a healthier option if it had been available on the menu. Television was reported to be the most effective medium influencing their food choices.

Conclusion: Fast food intake appears to be very common in this group of young South African adults. Various factors that influence fast food intake were identified that provide health educators and policy makers with useful information for health promotion.

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Introduction

Globally there has been a dramatic increase in money spent on fast food, and the growth of the fast food industry has been phenomenal. McDonald's Corporation alone operates 30 000 restaurants worldwide, annually hires more employees than any American business (about 1 million), and is that nation's largest purchaser of beef and potatoes.[1] American statistics show that, in 1970, money spent on foods eaten away from home accounted for 25% of total food spending in the USA;[2] by 1999 it had increased to 47%.[3] In 2001 there were about 222 000 fast food locations in the United States, generating sales of more than $125 billion.[4]

In the 1960s, South Africa started to experiment with the concept of fast food and the very first American franchise hamburger restaurant, called Wimpy, was launched.[5] Currently, 41% of restaurants and fast food providers are listed members of the Franchise Association of South Africa. However, there appears to be a paucity of data in the public domain on the trends of fast food use in South Africa.[5]

Two age groups that appear to have undergone the most dramatic changes in eating habits over recent decades are adolescents aged 12 to 18 years, and young adults aged 19 to 29 years.[6] The fast food and food service industries have responded by making fast food outlets increasingly available to these clients by means of longer operating hours, delivery options and convenient locations, such as shopping malls and drive-through facilities.

Unfortunately, food items promoted by these industries are often energy dense and poor in micronutrients. This is of great concern to health professionals in the light of the growing prevalence of obesity and related chronic diseases of lifestyle.[7] Some of the unhealthy options available from fast food outlets include popular items like fried potato chips (fries), burgers, fried chicken, pizza and soft drinks.[8] These options are generally high in energy, fat, saturated fats, added sugar and sodium, and low in fibre and micronutrients. Furthermore, average portion sizes of fast foods have increased since the early 1970s.[9]

The link between obesity and fast food consumption is well established.[10,11,12] Obesity is a considerable health problem in South

Africa, in adults as well as children. The South African Demographic and Health Survey (SADHS), conducted in 1998 and 2003, showed that overweight and obesity (BMI ≥ 25) were high in men (29.9% and 29.8%) and women (56.2% and 54.9%).[13,14] Such a high prevalence of overweight and obesity can be expected to contribute significantly to the prevalence of non-communicable chronic diseases, such as heart disease, stroke, type 2 diabetes mellitus and some cancers.[14]

Due to the paucity of published data on fast food intake by South Africans, this study aimed at exploring the use of fast food outlets and characteristics of young adult fast food users in Johannesburg.

Methods

Study design and sampling

A descriptive, cross-sectional study design was employed to investigate the characteristics of fast food users, the frequency of fast food intake, specific food choices, factors influencing fast food intake, and the attitudes of consumers towards healthier meal options. "Fast food" was defined as cooked or ready-prepared foods bought at take-away restaurants. An interviewer-administered questionnaire was developed by the researchers. The questionnaire consisted of two open-ended and 21 closed-ended questions: 19 ranking questions and two questions that used a Likert-type scale (fully agree, agree, disagree and strongly disagree).

In order to ensure face and content validity, the questionnaire was evaluated by four registered dietitians before being used. A pilot study was undertaken to test the research process and to assess the face validity of the questionnaire. The questionnaire was tested on 36 participants visiting a similar shopping centre to those included in the study. Thereafter small changes were made to enhance the correct interpretation of the questions. Fieldworkers were trained to follow a standardised method of conducting the interview. Due to illness, one of the interviewers had to be replaced midway through the study and another was trained to take her place. This can be seen as one of the limitations of the study.

Convenience sampling was used to identify shopping malls in three different socio-economic areas (SEA) in Johannesburg. The shopping malls were selected on the basis of a previous market research study that determined the consumer profile at key shopping malls in the City of Johannesburg Metropole, according to the Living Standards Measurement (LSM) classification system.[15] (The LSM system groups people according to their living standards, using criteria such as degree of urbanisation and ownership of cars and major appliances. This research tool excludes education as a variable, and focuses on economic factors.) The LSM system was then used to determine the socio-economic status of the area, based on previous studies on consumer services and economic groupings in the City of Johannesburg.[15] One of the limitations of this approach is that people from other LSM areas may also visit the mall.

Data was collected on Fridays and over weekends in an endeavour to reach a more varied group of potential participants. Two field workers and the researcher were located at the entrance to each large grocery store within the shopping mall. The random sampling method was used by selecting every second woman and man passing the researchers. In practice this was not always practical due to the volume of people passing at certain times. However, every attempt was made to keep the sample as random as possible. Potential participants were approached and asked to participate in the study. Screening questions were asked in a polite and sensitive manner, and the questionnaire was completed if the participants fitted the inclusion criteria. Male and female consumers of all races, between the ages of 19 and 30 years who were citizens of South Africa and resided in Johannesburg, were included in the sample. Consumers older than 30 years, and those residing outside of Johannesburg, were excluded from the study. The questionnaire was administered in English and took approximately 10 minutes to complete.

The required sample size of participants was determined on the basis of the population density of the City of Johannesburg Metropolitan area.[16] The sample size was based on a 95% confidence interval and an error percentage of 5%. In order to achieve this, a sample size of 360 was required, consisting of at least 180 males and 180 females. In order to achieve the most representative sample from a lower (LSEG), medium (MSEG) and higher socio-economic group (HSEG), 120 participants per group were required.

Data was captured by the researcher using Excel 2007 and SPSS 15.0 (Statistical Package for the Social Sciences). For continuous variables, means and standard deviations were computed. Appropriate contingency table analyses were used and the data was analysed nominally. A variety of statistical tests was used, including Pearson's chi-square test, Kendal's tau b, likelihood ratios and Fisher's exact test at a $p < 0.05$ significance level.

Results

A total of 341 participants (95% participation) were interviewed at the three different shopping malls in the higher, medium and lower socio-economic areas (Table I).

Amount of money spent on fast food per month

The majority of the participants (49%) spent more than R200 on fast food per month (Table II). Only 6.2% spent less than R50 per month. There was a significant difference in the trend of money spent on fast food per month within the different levels of education ($p = 0.035$). Forty-three per cent ($n = 66$) of those with secondary education and 55% ($n = 98$) of those with tertiary education spent more than R200 on fast food per month. As expected, there was a highly significant relationship between money spent on fast food per month and frequency of fast food intake ($p < 0.01$).

The mean age of the participants was 24.5 years (SD = 3.49), and 180 (53%) were females. Of the total sample of young adults, 118 (35%) were from the HSEG, 106 (31%) were from the MSEG and 117 (34%) were from the LSEG. Fifty-two per cent of the total sample had a tertiary education, 44% had high school education, 3% had only primary school education and 1% had never received any schooling. Seventy-one per cent of all the participants were employed, 21% were students and 8% were unemployed. The largest percentage of participants ($n = 244$) who indicated their income level earned less than R5 000 per month (42%, $n = 103$) and only 74 (30%) participants earned more than R10 000[§] per month (about 1 300 USD) (Table II).

[§] 1 South African rand = 0.127789 US dollars

Table I: Level of education of participants within different socio-economic groups (SEGs) (n = 341)

Category socio-economic group (SEG)	Level of education	Number (n)	Valid percentage (%)
High socio-economic group (HSEG)	Primary school	1	0.8
	High school	36	30.5
	Tertiary education	81	68.6
	Total	**118**	**100.0**
Medium socio-economic group (MSEG)	No schooling	2	1.9
	Primary school	2	1.9
	High school	59	55.7
	Tertiary education	43	40.6
	Total	**106**	**100.0**
Low socio-economic group (LSEG)	Primary school	6	5.1
	High school	57	48.7
	Tertiary education	54	46.2
	Total	**117**	**100.0**

Table II: Demographic variables, frequency of fast food intake and money spent on fast food per month

	Money spent on fast food per month			
Demographic variables	**< R50**	**R50–R100**	**R100–R150**	**> R200**
TOTAL SAMPLE (n = 341) (%)	**21 (6.2)**	**71 (20.8)**	**82 (24)**	**167 (49)**
SEG (n = 341) (%) [A]				
LSEG (n = 117)	6 (5.1)	19 (16.2)	29 (24.8)	63 (53.8)
MSEG (n = 106)	7 (6.6)	25 (23.6)	28 (26.4)	46 (43.4)
HSEG (n = 118)	8 (6.8)	27 (22.9)	25 (21.2)	58 (49.2)
Level of education (n = 341) (%) [B]				
At most, primary school (n = 11)	3 (27.3)	4 (36.4)	1 (9.1)	3 (27.3)
Secondary education (n = 152)	8 (5.3)	37 (24.3)	41 (27.0)	66 (43.4)
Tertiary education (n = 178)	10 (5.6)	30 (16.9)	40 (22.5)	98 (55.1)
Income level (n = 244) (%) [B]				
< R5 000 per month (n = 103)	7 (6.8)	25 (24.3)	18 (7.5)	53 (51.5)
R5 000–R10 000 per month (n = 67)	0 (0)	6 (9.0)	18 (26.9)	43 (64.2)
> R10 000 per month (n = 74)	4 (5.4)	15 (20.3)	16 (21.6)	39 (52.7)
Frequency of fast food intake (n = 341) (%) [C]				
Less than once a month (n = 13)	3 (23.1)	6 (46.2)	1 (7.7)	3 (23.1)
At least two to three times per month (n = 126)	7 (5.6)	40 (31.7)	40 (31.7)	39 (31.0)
At least once a week (n = 81)	6 (8.5)	23 (18.3)	19 (26.8)	33 (46.5)
Two to three times a week (n = 94)	3 (3.2)	8 (8.4)	14 (14.9)	69 (73.4)
Daily (n = 37)	2 (5.4)	4 (10.8)	8 (21.6)	23 (62.2)

[A] Pearson's chi-square test: $p > 0.01$ [B] Pearson's chi-square test and likelihood ratio: $p \leq 0.01$;
[C] Pearson's chi square test and Kendal's tau b: $p \leq 0.001$;

Frequency of fast food intake

The relationship between fast food intake and demographic variables is shown in Table III. Eleven per cent of the participants ate fast food daily, 27.6% ate it two to three times a week, and 20.8% ate fast food at least once a week. Only 3.8% of participants had fast food less than once per month.

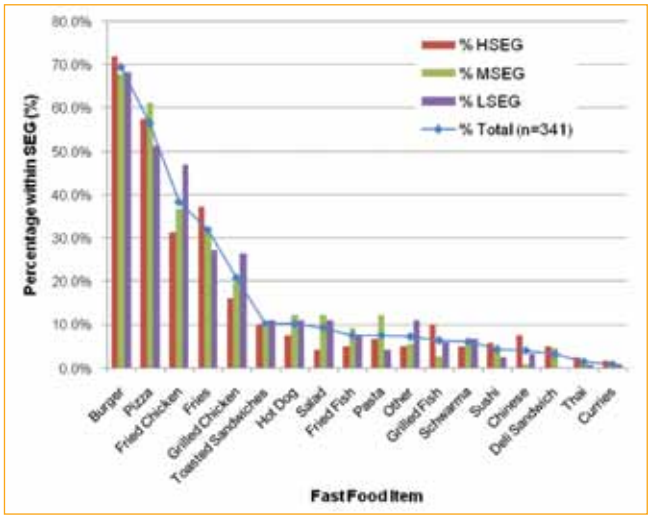
A larger proportion of participants in the HSEG had fast food at least once a week than in the MSEG and LSEG (28.0%, 17.9% and 16.2% respectively). The LSEG had the most participants consuming fast food daily (18%), compared with 8.5% and 5.9% in the MSEG and HSEG respectively.

Males (50.3%, n = 81) consumed fast food more often than females (27.8%, n = 50) when adding the two to three times weekly and daily usage. It was interesting to note that, in the unemployed group, 50% (n = 14) had fast food at least once per week or more, and that 21.4% (n = 6) of this group consumed fast food daily. There was a relationship between frequency of fast food intake and socio-economic grouping ($p = 0.009$).

Specific food choices at certain categories of fast food outlets

Figure 1 illustrates the most popular food choices at fast food outlets selected from a list of 18 items. Within the MSEG (n = 106) and LSEG (n = 117), the three most popular fast food choices were burgers (67.9% (n = 72) and 68.4% (n = 80)), pizza (61.3% (n = 65) and 51.3% (n = 60)), and fried chicken (36.8% (n = 39) and 47.0% (n = 55)) respectively. Within the HSEG (n = 118), burgers and pizza also ranked first and second (72.0% (n = 85) and 57.6% (n = 68)), while fries ranked third (37.3% (n = 44)) and fried chicken fourth (31.4% (n = 37)).

Figure 1: Fast food items purchased by participants within the total sample (n = 341) and within each socio-economic group (SEG)



Beverage choices at fast food outlets

The most frequently consumed beverages purchased with a any food meal were soft drinks (56.0%), pure fruit juice (13.8%), unflavoured water (7.6%), flavoured water (7.0%) and diet soft drinks (4.7%). There was no significant difference between the beverage consumption of males and females. Of interest, however, even though the numbers were small, was the finding that three times more females (n = 12) than males (n = 4) purchased diet soft drinks with fast food meals.

Table III: Demographic variables by frequency of fast food intake

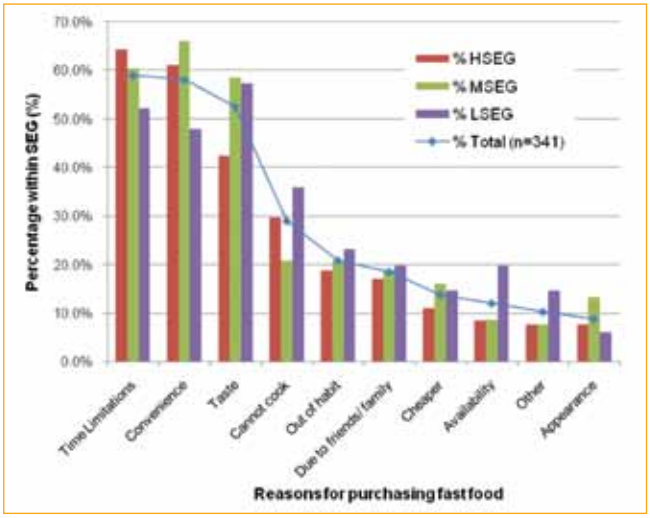
Demographic variables	Frequency of fast food intake				
	Seldom (less than twice per month)	At least two to three times per month	At least once a week	Two to three times a week	Daily
TOTAL SAMPLE (n = 341) (%)	**13 (3.8)**	**126 (37.0)**	**71 (20.8)**	**94 (27.6)**	**37 (10.9)**
SEG; n (%)[A]					
LSEG (n = 117)	1 (0.9)	40 (34.2)	19 (16.2)	36 (30.8)	21 (17.9)
MSEG (n = 106)	7 (6.6)	45 (42.5)	19 (17.9)	26 (24.5)	9 (8.5)
HSEG (n = 118)	5 (4.2)	41 (34.7)	33 (28.0)	32 (27.1)	7 (5.9)
Gender; n (%)[B]					
Male (n = 161)	6 (3.7)	46 (28.6)	28 (17.4)	56 (34.8)	25 (15.5)
Female (n = 180)	7 (3.9)	80 (44.4)	43 (23.9)	38 (21.1)	12 (6.7)
Level of education; n (%)[C]					
At most, primary school (n = 11)	1 (9.1)	4 (36.4)	3 (27.3)	2 (18.2)	1 (9.1)
Secondary education (n = 152)	9 (5.9)	55 (36.2)	28 (18.4)	42 (27.6)	18 (11.8)
Tertiary education (n = 178)	3 (1.7)	67 (37.6)	40 (22.5)	50 (28.1)	18 (10.1)
Income status; n (%) [B]					
Employed (n = 242)	5 (2.1)	85 (35.1)	52 (21.5)	77 (31.8)	23 (9.5)
Student (n = 71)	8 (11.3)	33 (46.5)	13 (18.3)	9 (12.7)	8 (11.3)
Unemployed (n = 28)	0 (0.0)	8 (28.6)	6 (21.4)	8 (28.6)	6 (21.4)

[A] Likelihood ratio: $p \leq 0.01$;
[B] Pearson's chi-square test and likelihood ratio: $p \leq 0.001$;
[C] Pearson's chi-square test: $p > 0.01$

Factors influencing fast food intake

Time limitations (58.9%), convenience (58.1%) and taste (52.5%) were the three main reasons provided for purchasing fast food (Figure 2; Table IV). Very few differences were noted between males and females in this regard. Of interest was the finding that more females (n = 40, 22.2%) than males (n = 23, 14.3%) were influenced by family and friends to purchase fast food, and that more males (n = 24; 14.9%) than females (n = 17; 9.4%) indicated that the availability of fast food was their main reason for having it.

Figure 2: Reasons for purchasing fast food within the total sample (n = 341) and within each socio-economic group (SEG)



The influence of media messages

Fifty-one per cent of the participants indicated that media messages did not persuade them to purchase fast foods, while 49% indicated that it sometimes or always did. Participants from the MSEG and LSEG were more frequently influenced by media messages than participants from the HSEG (p = 0.001). Within the HSEG, 43.2% (n = 51) of the participants indicated that media messages never resulted in them purchasing fast foods, while 11.9% (n = 14) indicated that they were always influenced by media messages. When investigating the impact of various media on promoting fast food consumption, the largest number of participants within the total sample indicated that television announcements or advertisements most often resulted in fast food purchasing (80.6%, n = 170), while flyers or hand-outs (1.9%, n = 4) influenced very few participants.

Attitude towards health

Health concerns differed significantly across the SEGs (p = 0.011) (Table V). While the majority of participants from the HSEG and LSEG were *always concerned* about health [55.1% (n = 65) and 53.8% (n = 63)], the majority of participants in MSEG were *sometimes concerned* with health [50.9% (n = 54)]. Almost 60% (n = 11) of all the participants who were *seldom concerned* about health were from the LSEG. A significant relationship (not shown) was found between level of education and health concern (p = 0.014), with participants having a tertiary education being more concerned with health than those having secondary or primary schooling.

When asked about their health, the participants gave overweight and obesity [44.3% (n = 141)] as their main concern, followed by heart disease and cancer [19.2% (n = 61); 18.6% (n = 59)] respectively. Although these findings were not significant, substantially more participants in the HSEG were concerned about diabetes [17.0% (n = 19)], while more participants in the LSEG [23.1% (n = 25)] and MSEG [19.4% (n = 19)] were concerned about heart disease.

Table IV: Media messages and fast food intake

Question	Total Sample	Category socio-economic group (SEG)			Gender	
'Do adverts on billboards, television, radio or magazines and flyers result in your buying fast foods?'	**n = 341 (%)**	**LSEG n = 117 (%) [A]**	**MSEG n = 106 (%) [A]**	**HSEG n = 118 (%) [A]**	**Male n = 161 (%) [B]**	**Female n = 180 (%) [B]**
Always	67 (19.6)	31 (26.5)	22 (20.8)	14 (11.9)	30 (18.6)	37 (20.6)
Sometimes	100 (29.3)	31 (26.5)	40 (37.7)	29 (24.6)	41 (25.5)	59 (32.8)
Seldom	44 (12.9)	7 (6.0)	13 (12.3)	24 (20.3)	20 (12.4)	24 (13.3)
Never	130 (38.1)	48 (41.0)	31 (29.2)	51 (43.2)	70 (43.5)	60 (33.3)
'Which type of media communication/announcement encourages you the most to buy fast foods?'	**n = 211 (%)**	**LSEG n = 70 (%) [B]**	**MSEG n = 75 (%) [B]**	**HSEG n = 66 (%) [B]**	**Male n = 92 (%) [B]**	**Female n = 119 (%) [B]**
TV	170 (80.6)	60 (85.7)	57 (76.0)	53 (80.3)	71 (77.2)	99 (83.2)
Radio	12 (5.7)	4 (5.7)	3 (4.0)	5 (7.6)	7 (7.6)	5 (4.2)
Billboards	13 (6.2)	2 (2.9)	8 (10.7)	3 (4.5)	5 (5.4)	8 (6.7)
Magazine adverts	12 (5.7)	4 (5.7)	5 (6.7)	3 (4.5)	8 (8.7)	4 (3.4)
Flyers or handouts	4 (1.9)	0 (0.0)	2 (2.7)	2 (3.0)	1 (1.1)	3 (2.5)

[A] Pearson's chi-square and likelihood ratio: $p < 0.001$ [B] Pearson's chi-squire test and/or linear by linear association and/or likelihood ratio: $p > 0.05$

Table V: Attitudes towards health

Question	Category socio-economic group (SEG)			Gender	
'How concerned are you about health?'	**LSEG n = 117 (%) [A]**	**MSEG n = 106 (%) [A]**	**HSEG n = 118 (%) [A]**	**Male n = 161 (%)**	**Female n = 180 (%)**
Never concerned	9 (7.7)	8 (7.5)	6 (5.1)	12 (7.5) [A]	11 (6.1) [A]
Seldom concerned	11 (9.4)	3 (2.8)	5 (4.2)	14 (8.7) [A]	5 (2.8) [A]
Sometimes concerned	34 (29.1)	54 (50.9)	42 (35.6)	60 (37.3) [A]	70 (38.9) [A]
Always concerned	63 (53.8)	41 (38.7)	65 (55.1)	75 (46.6) [B]	94 (52.2) [B]
'What do you worry about most when you think of health'	**LSEG n = 108 (%) [A]**	**MSEG n = 98 (%) [A]**	**HSEG n = 112 (%) [A]**	**Male n = 156 (%) [B]**	**Female n = 177 (%) [B]**
Cancer	19 (17.6)	18 (18.4)	22 (19.6)	32 (20.5)	29 (16.4)
Diabetes	5 (4.6)	8 (8.2)	19 (17.0)	16 (10.3)	17 (9.6)
Heart disease	25 (23.1)	19 (19.4)	17 (15.2)	33 (21.2)	32 (18.1)
Overweight/obesity	51 (47.2)	46 (46.9)	44 (39.3)	50 (32.1)	91 (51.4)
Other	8 (7.1)	7 (7.1)	10 (8.9)	25 (16.0)	8 (4.5)
'Would you choose a healthier meal option'	**LSEG n = 117 (%) [A]**	**MSEG n = 106 (%) [A]**	**HSEG n = 118 (%) [A]**	**Male n = 161 (%) [A]**	**Female n = 180 (%) [A]**
Yes	95 (81.2)	77 (72.6)	93 (78.8)	118 (73.3)	147 (81.7)
No	22 (18.8)	29 (27.4)	25 (21.2)	43 (26.7)	33 (18.3)

[A] Pearson's chi-squire test and/or linear by linear association and/or likelihood ratio: $p > 0.05$ [B] Pearson's chi-squire test and/or linear by linear association: $p < 0.05$

Attitude towards healthier meal options

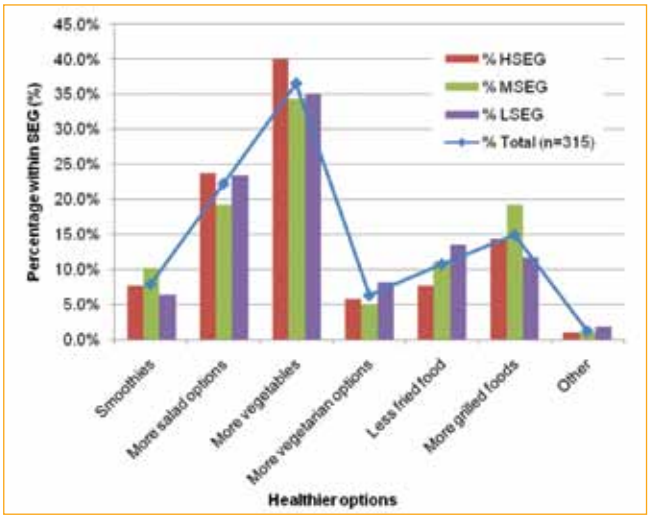
Seventy-eight per cent of the total sample indicated that they would choose a healthier option if it was available on a fast food menu. More females (81.7%, n = 147) than males (73.3%, n = 118) indicated that they would choose a healthier meal if it were available, but this was not significant (p = 0.09).

A highly significant relationship was found between choosing a healthier meal option and level of health concern (p = 0.0001). Of interest was the fact that of the majority of participants who indicated that they would not choose a healthier option if it were available on a fast food menu (n = 315), only 15.8% (n = 12) were *never concerned* about their health, while the majority were concerned about their health [*sometimes* (44.7%, n = 34) and *always* (31.6%, n = 24)]. The main reasons for participants not choosing a healthier option was that they did not like the taste or that they went to a specific fast food restaurant to eat a specific fast food meal (73.0%).

Types of healthier options consumers would like to see more often on the menus of fast food outlets

The three most popular options that the participants (n = 315) would like to see more often on fast food menus were *more vegetable options* (36.5%, n = 115), *more salad options* (22.2%, n = 70) and *more grilled foods* (14.9%, n = 47) (Figure 3). When asked whether they believed that fast food could be part of a healthy lifestyle, 49% of the total sample indicated that it could ('Yes'), while 39.0% of the sample indicated that it could not ('No'). Twelve per cent indicated that it depended on the choice of fast food, that it could only sometimes be part of a healthier lifestyle or that they were unsure whether it could.

Figure 3: Healthier meal options consumers would like to see on fast food menus (n = 315)



Discussion

The purpose of the study was to determine the factors that impact on the intake of fast food by young adults in Gauteng. The sample consisted predominantly of young working adults with at least secondary education, within low, medium and high socio-economic groups.

The majority of the participants in the current study had fast food at least once per week or more. Similarly, in a recent South African study, almost all the participants out of a group of 655 adolescents indicated that they ate more than one fast food item per week.[17] Another study, conducted in India, presented similar findings in a study of 120 adolescents and young adults, where it was reported that 63% of the participants consumed fast food moderately and 21% were 'high fast food eaters'.[18]

In this study, SEG was significantly associated with fast food consumption, with a larger proportion of participants in the LSEG showing more frequent use than participants in the HSEG. In the current study, participants from the MSEG displayed less frequent fast food consumption than those from the HSEG and LSEG. This group also spent less money on fast food per month than the HSEG and LSEG, but this finding was not significant.

Higher household income, living in a suburban area and being of African American race were associated with fast food intake in a study done by Bowman and Vinyard.[7] Some studies have shown the opposite with regard to income, with subjects from lower income neighbourhoods and lower monthly income consuming fast food more often.[19,20] This may explain in part why the prevalence of overweight in the USA is higher in lower socio-economic groups than in the HSEG.[21,22]

In the current study, males consumed fast food significantly more frequently than females. More than double the number of males compared to females had fast food daily. These results are consistent with the findings of other studies.[4,8] In a study done on American students, a greater proportion of males than females reported visiting a fast food restaurant more than or equal to three times in the preceding week.[8] This may be due to convenience and/or a lack knowledge and skills regarding food preparation.

In the current study, the top five fast foods consumed by the participants, in descending order, were burgers, pizza, fried chicken, fries and grilled chicken. These findings coincide with findings globally, with the exception of fried chicken, which has been shown to be a popular item of choice in the South African population.[17] Mahna et al found that the most popular food items consumed by adolescents and young adults in New Delhi were pizza, burgers, ice-cream, French fries and sandwiches.[18] There were similar findings in an American study, with Mexican food also being a popular choice.[23] The finding that fries (potato chips) were not often chosen by individuals in the LSEG and MSEG in the current study may be due to the participants in this group not viewing fries as a separate entity when buying fast foods. Fast food items like burgers or fried chicken are often served as part of a value meal or a so-called 'combo' meal, and therefore the participants might not have selected it as a separate option.

The choice of beverage consumed at fast food outlets in the current study was consistent with the findings of previous international studies.[23,24,25] Soft drinks were the most popular beverage chosen by more than half of the study population. These findings are of concern because of the association of soft drink consumption with increased energy and lower calcium intake.[24,26,27]

Various factors affect food choice, including economic, psychological, environmental and cultural factors. In the current study, the main reasons for choosing fast food were taste, mood, price and appearance. Health, hunger and convenience were chosen by less than a quarter of the study sample. These findings are similar to those of a study done on a nationally representative sample of adults in the European Union, showing that the five most important factors influencing consumers' food choice were quality and freshness, price, taste, 'trying to eat healthy' and family preference.[28]

The main reasons for choosing a fast food in the current study differed from the general reasons for choosing food or a meal, with time limitations scoring highest, followed by convenience and taste. A study by O'Dougherty et al on the practices of fast food consumers rendered similar results, but with taste and convenience scoring highest.[29] Perceived time constraints and convenience strongly influence adolescent food choices.[30] In adolescents from low-income families in California, convenience was a major driving factor determining food choices. Adolescents also indicated that they would rather eat at fast food restaurants because the food was served quickly.[30] In the current study the highest percentage of participants of the LSEG selected "taste" as a reason for choosing a fast food, which concurs with this group's reason for choosing *any* food. The converse has been found in the UK, with sensory appeal rated as less important by the low-income compared to either of the medium- or high-income groups.[31]

Environmental variables, including media messages, can influence fast food intake. A large proportion of participants in the current study indicated that media messages never or only sometimes influenced their fast food purchases. Upon further investigation it

became evident that a highly significant difference existed between the SEGs and influence of media messages, with more than 50% of the participants in the LSEG and MSEG indicating that media messages at least "sometimes" resulted in fast food purchases ($p < 0.005$). The implication of this is that lower socio-economic groups may be more vulnerable to advertising through the media than those in higher socio-economic classes. To a certain degree it is probable that economic group is also a proxy for education.

Television viewing was shown to be the media communication that most often resulted in fast food purchases. Previous studies, more specifically in children and adolescents, have found that television and video viewing influence fast food intake and that the children and parents' television viewing practices are similar,[32,33] which therefore is of interest to the current study. In a study by French et al, weekday television viewing was significantly positively associated with fast food intake.[8] The latter illustrates the potential harm that television advertising has on the dietary habits of children, and reinforces the view that certain types of snack foods should not be advertised during times when children watch television.

The majority of participants in the current study indicated that they were most concerned about overweight and obesity when considering health issues. Considering the high frequency of fast food intake in this group, this is interesting and a possible indication that the participants do not realise that there is a relationship between fast food intake, increased energy intake and obesity.[11,27] The same may apply to the participants' knowledge of other health consequences related to a high fast food intake. Considering the large percentage of participants being concerned about health, their positive attitude toward healthier options was no surprise. Seventy-eight per cent of the total sample indicated that they would choose a healthier option if available.

The three most popular healthier items that the participants indicated they would like to see on fast food menus were more vegetables, salads and grilled foods. Although there was no significant relationship with regard to gender, more males than females indicated that they would not choose a healthier option. Social stereotyping can dictate food choice and studies have found that 'lower fat' diets are associated with 'females', while 'higher fat' diets are associated with 'males'.[34] Males and subjects with lower levels of education also appeared more likely to resist dietary changes, as has been found in previous studies.[35]

Conclusion

This study is the first to present findings on the fast food intake of a group of young adults shopping at malls in three different socio-economic areas in Johannesburg, South Africa. Overall it appears that the majority of adults are frequent users of fast foods, and this usage appears to be higher in males than in females and in the HSEG and LSEG than in the MSEG. The most common food items consumed were burgers, pizza, fried chicken and fries. Soft drinks were the most common beverages consumed. The majority of participants were concerned about health and indicated concern about becoming overweight or obese. Three-quarters of the participants would choose a healthier food option if it were available at fast food outlets. Television was identified as the most effective medium influencing food choices.

Various factors that influence fast food intake were identified that could provide health educators and policy makers with useful information to use in health promotion.

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