

Dietary Habits Fluctuations after Immigration: A Focus on University Students Immigrants in the United Kingdom

Waithaka Eva Njambi¹

¹University of Chester, Department of Clinical Sciences and Nutrition

Abstract

As a result to the students' migration to foreign countries, they are forced to adjust to the new host's environment, culture and tradition. One major adjustment required is their diet. This study assesses actual dietary intake changes after students' immigration to the UK. This study adopted the approach of a cross-sectional study design to collect quantitative data using a questionnaire. A sample size of 99 international students was selected. Snowball sampling was used in selecting the study's participants. All data was quantitative hence analysed using the software Statistical Package for Social Sciences (version 26.0). Differences in consumption of the food items pre and post immigration were evaluated using t-test for related samples. The findings show that intake of foods perceived to be non-western such as nuts, fruits and vegetables, proteins such as beans, meat soup, fish and sausages decreased while intake of fat rich highly processed foods perceived to be western such as chips, cheese, bacon, sausages and ham increased after immigration to the UK.

Keywords: dietary, fluctuations, habits, immigrants

Introduction

There has been a consistent rise in university admissions for international students in developed nations [1]. For instance, statistics by the Higher Education Statistics Agency noted that the population of international students enrolling in United Kingdom (UK) universities had increased by 12.3% for academic year 2022/2023 as compared to 2021/2022 [2]. Asian countries such as china and Singapore have been the leading contributors for the increase, with other developing countries such as those of Africa also contributing significantly to the number of international students in the UK [3].

As a result to the students' migration to foreign countries, they are forced to adjust to the new host's environment, culture and tradition. One major adjustment required is their diet. Dietary practices change due to several factors such as time available to cook, familiar foods' availability and nutritional knowledge [4]. These changes among the international students could be either unhealthy or healthy [5]. Although the students may adopt healthy dietary practices, numerous studies (for instance, [4], [6]) have documented a negative change in the dietary practices. Most diet changes by international students are characterized by increased consumption of foods with high fat and sugar concentration, commonly regarded as the western diet [7]. With researchers such as [8] terming these dietary behaviours as temporary due to the short phase experienced in universities, the unhealthy dietary habits picked up among the students may be difficult to drop and thus persist in adulthood [9]. Poor dietary practices have been reported to be a major public health concern especially among young adults transition to university life in foreign countries.

Research has demonstrated that diets with high fat and sugar concentration predispose consumers to excessive weight gain and development of non-communicable diseases (NCDs) such as Type 2 diabetes, cardiovascular diseases (CVDs) and some forms of cancer. These diseases reduce quality of life and are also economically strenuous especially during treatment. As a result, healthy dietary intake among international students is paramount for current and future optimal status in health and nutrition [10].

This study assesses actual dietary intake changes after students' immigration to the UK. The study is thus important since it makes a contribution in dietary literature by providing information on intake of specific foods among international students in relation to nutrition and health. The study also highlights the need for

nutrition guidance material for international students and health promotion so as to help them maintain or adopt healthy diets after immigration.

Methods

This study adopted the approach of a cross-sectional study design to collect quantitative data using a questionnaire. A sample size of 99 international students was selected based on [11] table for sample sizes at a precision level of 10%. The sample size involved male and female international students aged 18 years and above at the University of Chester, Parkgate Campus. Snowball sampling was used in selecting the study's participants. All data was quantitative hence analysed using the software Statistical Package for Social Sciences (Version 26.0). All data variables were assessed for normal distribution using the Shapiro-Wilk test and also checked if they qualified for parametric tests. Differences in consumption of the food items pre and post immigration were evaluated using t-test for related samples. Descriptive statistics was conducted on the participants socio-demographic data collected.

Results

According to Table 1, majority of the participants were female (59.6%). Most of the respondents (62.6%) were aged 21-25 years. The findings also show that 70.7% of the respondents had lived in the UK for less than 1 year and 96.0% were married. Majority of the respondents (92.9%) did not live with their children in the UK. The findings further illustrate that 62.6% of the respondents were at college/bachelors level while a total of 51.6% of the respondents had some form of weekly interaction with British friends. Based on 57.6% of the participants, familiar foods were accessible within a reasonable distance; 59.6% of the respondents had some form of income. Majority of the international students were drawn from Asia (44.4%) and Africa (31.3%) continents.

Table 1: Socio-Demographic Characteristics of the Participants

Characteristic	Number (%)	
Gender	Male	40 (40.4)
	Female	59 (59.6)
Age (years)	18-20 years	15 (15.2)
	21-25 years	62 (62.6)
	26-30 years	20 (20.2)
	31-35 years	2 (2.0)
Duration of residence (years)	<1 year	70 (70.7)
	1-2 years	16 (16.2)
	3-4 years	11 (11.1)
	5 years and above	2 (2.0)
Marital status	Married	95 (96.0)
	Not married	4 (4.0)
Living with child(ren)	Yes	7 (7.1)
	No	92 (92.9)
Education Level	College/University	62 (62.6)
	Post graduate education	37 (37.4)
Frequency of socialization with British friends	Daily	29 (29.3)
	Once a week	15 (15.2)
	Twice a week	7 (7.1)
	Never	48 (48.5)
Accessibility to familiar foods	Nearby	13 (13.1)
	Within reasonable distance	57 (57.6)
	Too far away	29 (29.3)
Student's income	<£50	2 (2.0)
	£51-100	13 (13.1)

	£101-150	31 (31.3)
	£151-200	9 (9.1)
	£201-250	4 (4.0)
	Not working	40 (40.4)
Continent of origin	Asia	44 (44.4)
	Africa	31 (31.3)
	Europe	18 (18.2)
	Others	6 (6.1)

Through percentages and Wilcoxon tests, change in consumption of select foods was assessed. The foods were categorized into select fruits and vegetables, select starchy carbohydrates, select plant and animal proteins, select dairy products, water/beverages and select snacks. Statistically significant decrease in consumption of select vegetables was notable among the following: pears (-48.9%, p-value=.002), oranges (-40.0%, p-value=.012), melons (-40.0, p-value=.004), cabbage (-44.4%, p-value=.002), green salad (-40.0, p-value=.006), avocado (-44.4%, p-value=.026), tofu (-42.2%, p-value<.0001) and vegetable soup (-55.6%, p-value<.0001). Therefore, the null hypotheses that “immigration does not affect the select fruits and vegetables” were rejected for pears, oranges, melons, cabbage, green salad, avocado, tofu and vegetable soup (see Table 2).

For the select starchy carbohydrates, statistically significant increases was noted in chips (+46.7%, p-value=.002) while statistically significant decreases were noted in porridge (-46.7%, p-value=.004) and white rice (-55.6%, p-value<.0001). The increase in white bread (+46.7%) was not statistically significant (p-value=.087). it can therefore be concluded that immigration affects intake of chips and porridge. For the select proteins, a statistically significant increase was notable in bacon (+42.2%, p-value=.001) while a statistically significant decrease in consumption was notable in meat soup (-51.1%, p-value=.001), fish (-66.0%, p-value=.001), sausages (-42.2%, p-value=.049), liver (-44.4%, p-value=.001), fried fish (-42.2%, p-value=.014) and beans (-40.0%, p-value=.013). Based on these results, it can be concluded that immigration affect consumption of bacon, meat soup, sausages, liver, fried fish and beans (see Table 2).

In Dairy products, a statistically significant increase was notable in cheese (+40.0%, p-value=.004). Therefore, it can be concluded that immigration affect intake of cheese among student immigrants. For the select snacks, a statistically significant decrease was notable in nuts (-42.2%, p-value=.003). Thus, immigration affects intake of nuts. No statistically significant change (increase/decrease) was found in the consumption of select water/beverages (see Table 2).

Table 2: Changes in Select Foods intake after Immigration

H₀: Immigration does not affect intake of:	%change (“+”increase, “-“ decrease)	p-value	Accept H₀	Reject H₀
Fruits and vegetables				
Pears	-48.9	.002		√
Oranges	-40.0	.012		√
Melons	-40.0	.004		√
Cabbage	-44.4	.002		√
Green salad	-40.0	.006		√
Avocado	-44.4	.026		√
Tofu	-42.2	.000		√
Vegetable soup	-55.6	.000		√
Potato, bread, rice, pasta and other starchy carbohydrates				
White bread	+46.7	.087	√	

Chips	+46.7	.002		√
Porridge	-46.7	.004		√
White rice	-55.6	.000		√
Beans, pulses, fish, eggs, meat and other proteins				
Bacon	+42.2	.001		√
Ham	+40.0	.311	√	
Meat soup	-51.1	.001		√
Fish	-66.0	.001		√
Sausages	-42.2	.049		√
liver	-44.4	.001		√
Fried fish	-42.2	.014		√
Beans	-40.0	.013		√
Dairy and alternatives				
Cheese	+40.0	.004		√
Milk	-42.2	.649	√	
Water				
Instant coffee	+42.2	.281	√	
Sauce, sweets and snacks				
Nuts	-42.2	.003		√

Discussion

The study found changes in dietary practices among student immigrants after immigration to the UK; results that are consistent with the findings by [12] who demonstrated that immigrants significantly increased the consumption of foods in low nutrients but energy-dense affiliated to the western culture. The study revealed a significant decline in select fruits and vegetables consumption after immigration. These findings contradicted [12] who found a significant increase in vegetables consumption among Arab immigrants in Western societies. The findings are consistent with [13] where students immigrants from Gulf countries to the USA reported a significant decline in fruits and vegetables intake after arriving to the USA.

Interestingly, while majority (44.4%) of the participants were from Asia, consumption of white rice still decreased by 55.6% even though rice is a staple dish for Asians [14]. Intake of white rice may have been substituted with fast food items in this food category, notably chips, whose consumption increased by 46.7% after immigration. Chips is considered as a fast food [15]. A cross-sectional study by [16] noted that students' immigrants in Dublin, Ireland, had more fast/junk foods changes in their diet as compared to other types of foods. Further, the study's findings revealed a statistically significant decline in the consumption of proteins that are perceived to be non-western such as meat soup, sausages, liver, fried fish and beans and a statistically significant increase in proteins perceived to be more western such as bacon. The findings agreed with [16] who demonstrated that consumption of ethnic proteins such as beans declined among students' immigrants in Ireland.

International students in this study significantly increased consumption of cheese. On the other, a decline in milk consumption (though not significant) was also noted. The increase in cheese intake could be argued to compensate for the milk intake decline. Further, several factors result to students preferring cheese over milk such as cheese having a longer shelf life than milk and being fairly priced in the western nations as compared to the students' native [17]. Despite coming with health benefits such as reduced CVD and diabetes events [18], nuts intake significantly reduced.

Conclusion

This paper opens a window onto the effect on immigration on the dietary practices of international students in the UK. The study has shown that intake of foods perceived to be non-western such as nuts, fruits and vegetables, proteins such as beans, meat soup, fish and sausages decreased while intake of fat rich highly

processed foods perceived to be western such as chips, cheese, bacon, sausages and ham increased after immigration to the UK.

References

1. Yang P. China in the global field of international student mobility: An analysis of economic, human and symbolic capitals. *Compare: A Journal of Comparative and International Education*. 2022 Feb 17;52(2):308-26.
2. Ferrario C. Finding Common Ground: International Students in UPO and their Academic Experiences. *J-READING Journal of Research and Didactics in Geography*. 2023 Mar 31.
3. Tight M. Internationalisation of higher education beyond the West: challenges and opportunities—the research evidence. *Educational Research and Evaluation*. 2022 May 19;27(3-4):239-59.
4. Du C, Luo N, Wu L, Gadd S, Zhang X, Tucker RM. Health behavior changes associated with weight gain among first-year international students studying at an American university. *Journal of American College Health*. 2023 Jan 2;71(1):300-9.
5. Osei-Kwasi H, Boateng D, Asamane EA, Akparibo R, Holdsworth M. Transitioning food environments and diets of African migrants: implications for non-communicable diseases. *Proceedings of the Nutrition Society*. 2023 Feb;82(1):69-79.
6. Alzain HM, Leavey C, Mitchell G, Gee I, Hall J, Al-Subaie AS. Exploration of changes in health-related behaviours among Saudi Arabian undergraduates in the UK. *Health Promotion International*. 2022 Feb;37(1):daab055.
7. Romualdo GR, Valente LC, Sprocatti AC, Bacil GP, de Souza IP, Rodrigues J, Rodrigues MA, Vinken M, Cogliati B, Barbisan LF. Western diet-induced mouse model of non-alcoholic fatty liver disease associated with metabolic outcomes: Features of gut microbiome–liver–adipose tissue axis. *Nutrition*. 2022 Nov 1;103:111836.
8. Shi Y, Hayba N, Allman-Farinelli M. International tertiary education students experienced difficulties in dietary transitions in Australia: a qualitative study. *Health Promotion Journal of Australia*. 2023 Apr 7.
9. Li X, Braakhuis A, Li Z, Roy R. How Does the University Food Environment Impact Student Dietary Behaviors? A Systematic Review. *Frontiers in Nutrition*. 2022;9.
10. Fedacko J, Takahashi T, Singh RB, Pella D, Chibisov S, Hristova K, Pella D, Elkilany GN, Juneja LR, Behl S, Singh J. Western diets and risk of non-communicable diseases. In *Functional Foods and Nutraceuticals in Metabolic and Non-communicable diseases* 2022 Jan 1 (pp. 3-21). Academic Press.
11. Yamane T. *Statistics, An Introductory Analysis*, 1967. New York Harper and Row CO. USA. 1967;213:25.
12. Elshahat S, Moffat T. Dietary practices among Arabic-speaking immigrants and refugees in Western societies: A scoping review. *Appetite*. 2020 Nov 1;154:104753.
13. Alyousif Z, Mathews AE. Impact of migration on diet, physical activity, and body weight among international students moving from the Gulf Countries to the United States. *Case Rep. J*. 2018;2(7).
14. Bays HE, Ng J, Sicat J, Look M. Obesity pillars roundtable: obesity and East Asians. *Obesity Pillars*. 2022 Jun 1;2:100011.
15. Khan A, Uddin R. Is consumption of fast-food and carbonated soft drink associated with anxiety-induced sleep disturbance among adolescents? A population-based study. *Clinical nutrition ESPEN*. 2020 Apr 1;36:162-5.
16. Liu X, Chen H, Zhou Q, Zhang H, Asawasirisap P, Kearney J. Knowledge, attitude and practices (KAP) towards diet and health among international students in Dublin: a cross-sectional study. *International journal of environmental research and public health*. 2020 May;17(9):3182.
17. Jeong S, Lee J. Effects of cultural background on consumer perception and acceptability of foods and drinks: A review of latest cross-cultural studies. *Current Opinion in Food Science*. 2021 Dec 1;42:248-56.
18. Mitchell EA, Stewart AW, Braithwaite I, Murphy R, Hancox RJ, Wall C, Beasley R, ISAAC Phase Three Study Group. Factors associated with body mass index in children and adolescents: An international cross-sectional study. *PLoS One*. 2018 May 2;13(5):e0196221.