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An Investigation into the Fast-Food Consumption Habits of Public Health and Nursing Students at the University of Sunderland in London, UK

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Abstract

Background It is generally believed that university students may consume nutritionally deprived foods, which can lead to weight gain and long-term health complications.
Aims This research aims to illustrate the fast-food consumption pattern of nursing and public health students at the University of Sunderland in London, United Kingdom.
Methods This cross-sectional study involved 235 nursing and public health students. The survey included a validated questionnaire, which provided insights into the general characteristics of the participants, their fast-food consumption patterns, reasons for fast-food consumption, and knowledge about fast food. The data was analyzed using SPSS version 21, chi-squared tests conducted to determine the significance of the relationships between different variables. Odds ratio (OR) was utilized to assess the association between two variables.
Results About 50.6% of the students were aged between 20 and 29 years, and 77.4% patients were female, 46.8% single, and 31.1% unemployed. About 26.4% of the students were overweight, and 14.5% were obese. Fast-food consumption occurred during lunchtime (48.1%), followed by evening (37.0%). OR for fast-food enjoyment decreased significantly with age (from 0.54 for the age group 30–39 years old to only 0.13 in the age group 50–59). Married individuals were less likely to enjoy fast food than single nurses (OR = 0.54). Body mass index (BMI) was positively and significantly associated with fast-food enjoyment, with the OR increasing significantly with increasing BMI (from 5.9 for the BMI 18–24 kg/m^2 up to 11.6 for BMI above 30 kg/m^2). Females were more likely to enjoy the taste of fast food than males (48.4 vs. 32.1%). Males were more likely to favor fast food than females due to lack of cooking skills (7.5 vs. 1.6%), to save time (47.2 vs. 30.2%), and to fulfill their basic needs (26.4 vs. 11%). About 96.2% of females and 92.5% of males acknowledged that excessive consumption of fast food could lead to health problems.
Conclusion Fast-food consumption exhibited variability among university students, with females being more inclined toward the taste and males toward convenience. Age

Keywords
- fast food
- consumption
- BMI
- university students
- factors
- London

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exhibited a negative association, while BMI displayed a positive association with fast-food enjoyment. Both genders acknowledged that excessive consumption of fast food could lead to health issues.

ملخص المقال باللغة العربية

دراسة عادات استهلاك الوجبات السريعة لدى طلاب الصحة العامة والتمريض في جامعة سندرلاند في لندن، المملكة المتحدة.

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الخلفية: يعتقد بشكل عام أن طلاب الجامعات قد يستهلكون الأطعمة غير الصحية من الناحية الغذائية، مما قد يؤدي إلى زيادة الوزن ومضاعفات صحية على المدى الطويل.

الأهداف: يهدف هذا البحث إلى توضيح نمط استهلاك الوجبات السريعة لدى طلاب التمريض والصحة العامة في جامعة سندرلاند في لندن بالمملكة المتحدة.

الطُرق: شملت هذه الدراسة المقطعية 235 طالباً من طلاب التمريض والصحة العامة. تضمن الاستطلاع استبياناً تم التحقق من فاعليته في تقديم نظرة ثاقبة للخصائص العامة للمشاركين وأنماط استهلاكهم للوجبات السريعة، وأسباب استهلاك الوجبات السريعة ومعرفتهم حول الوجبات السريعة. تم تحليل البيانات باستخدام برنامج SPSS الإصدار 21، استعمل اختبارات مربع كاي لتحديد أهمية العلاقة بين المتغيرات المختلفة. كما استخدمت نسبة الأرجحية (OR) لتقييم الارتباط بين متغيرين.

نتائج: تتراوح أعمار 50.6% من الطلاب بين 20-29 سنة، منهم 77.4% إناث، و46.8% أعزب، و31.1% عاطلون عن العمل. وكان 26.4% من الطلاب يعانون من زيادة الوزن، و14.5% يعانون من السمنة المفرطة. حدث استهلاك الوجبات السريعة خلال وقت الغداء (48.1%)، يليه المساء (37.0%). انخفضت نسبة الأرجحية للاستمتاع بالوجبات السريعة بشكل ملحوظ مع تقدم العمر (من 0.54 للفئة العمرية 30-39 سنة إلى 0.13 فقط للفئة العمرية 50-59). كان الأفراد المتزوجون أقل احتمالاً للاستمتاع بالوجبات السريعة مقارنة بالأفراد العزاب (نسبة الأرجحية = 0.54). ارتبط مؤشر كتلة الجسم (BMI) بشكل إيجابي وهام بالاستمتاع بالوجبات السريعة، مع زيادة نسبة الأرجحية بشكل ملحوظ مع زيادة مؤشر كتلة الجسم (من 5.9 لمؤشر كتلة الجسم 18-24 كجم/م2 إلى 11.6 لمؤشر كتلة الجسم فوق 30 كجم/م2). وكانت الإناث أكثر ميلاً إلى الاستمتاع بمذاق الوجبات السريعة مقارنة بالذكور (48.4% مقابل 32.1%). كان الذكور أكثر ميلا لتفضيل الوجبات السريعة من الإناث بسبب نقص مهارات الطبخ لديهم (7.5% مقابل 1.6%)، ولتوفير الوقت (47.2% مقابل 30.2%)، وكذلك لتلبية احتياجاتهم الأساسية من الغذاء (26.4% مقابل 11%). وأقر 96.2% من الإناث و92.5% من الذكور بأن الإفراط في تناول الوجبات السريعة قد يؤدي إلى مشاكل صحية.

خاتمة: أظهر استهلاك الوجبات السريعة تبايناً بين طلاب الجامعة، حيث كانت الإناث أكثر ميلاً نحو الطعم والذكور نحو الملائمة. أظهر العمر ارتباطًا سلبياً، بينما أظهر مؤشر كتلة الجسم ارتباطاً إيجابياً بالاستمتاع بالوجبات السريعة. واعترف كلا الجنسين بأن الاستهلاك المفرط للوجبات السريعة يمكن أن يؤدي إلى مشاكل صحية.

الكلمات الدالة: الوجبات السريعة، الاستهلاك، مؤشر كتلة الجسم، طلاب الجامعة، العوامل، لندن.

Introduction

Fast food has become the new norm and a fast option for a fast-paced urban life as eating out eliminates starvation, stipulates indulgence and enjoyment, and saves time. University students get incredibly captivated by unhealthy lifestyle activities, containing detrimental eating manners such as extreme ingestion of fast foods.[1] Continued fast-food consumption is associated with high body mass index (BMI). It causes more significant cardiovascular risks and noncommunicable diseases, such as high blood pressure, stroke, diabetes mellitus, and cancer.[2] The prerequisite spheres of fast-food consumption can be societal, environmental, biological, psychological, or demographical.[3] However, most students know that fast food is depraved for their health. They still ingest it to break the pressure of university life. They get quick service, low prices, and save time compared with home-cooked food.[4]

University education is vital in promoting healthy lifestyle behaviors.[5] Transitioning into university education is crucial as students experience more autonomy to mark their health and lifestyle choices during this phase.[6] Therefore, university students' health and lifestyle activities are of public health interest. The Nursing and Public Health students in this study are culturally diverse and derive from different parts of the world. Most of these students will have an impact on UK's socioeconomic structure. Therefore, it is vital to explore the ingestion habit of those learners. Hence, this study aims to assess the fast-food eating patterns among nursing and public health university students at the University of Sunderland in London (UOSIL), UK.

Methods

Design and Setting

This study is a cross-sectional study. This design is mainly steered to predict the prevalence of the outcome of interest for a particular population at a given time, usually for public health planning.[7] The study subjects are full and part-time male and female Nursing and Public Health students in UOSIL from August 2021 to August 2022.

Sample Size

The power calculation defines the sample size necessary for the study to have enough power and reduce errors.[8] The formula $n = N/(1 + Ne2)$ was used to calculate the sample

size power for this study. In this calculation, n = the number of sample size 235, N = the actual number of students, 467, and e = Margin of error 0.05. The answer is $467/(1+467\times0.05^2)=215.45$.

Data Collection and Questionnaire

A written questionnaire was developed using formerly dispensed results of Huang et al and Driskell et al.[9,10] Once the questionnaire was reviewed and approved by the supervisor, course lead and UOSIL ethical team, the final questionnaire was developed using Google Docs. The link to the questionnaire was distributed to 467 nursing and public health students at Sunderland University. A QR code was also created for easy distribution and quicker student access. The questionnaire was validated through a pilot study where the questionnaire was sent to five different healthcare students who have yet to participate in the data collection process. Subsequently obtaining their statements, essential revisions were operated in the study tool, and finally, the rationality of the study tool was confirmed. Initially, all questionnaires had multiple-choice answers. Then the 235 responses to the questionnaire are converted to a Comma-separated values (CSV) file and later transferred and analyzed operating the Statistical Processing for Social Sciences (SPSS) software. All questionnaire answers were then recoded into numerical form in SPSS to perform the statistical analysis of the answers. The present questionnaire consists of five sections. The first section contains subjective information such as age, gender, BMI, course subject, marital status, and income status. The second section contains patterns of fast-food consumption, for example, preferred fast-food, preferred beverages, favorite fast-food place, whether they enjoy fast food or not, frequency of fast-food consumption, and time of fast-food consumption. The third section includes questions about why they consume fast food. In the last section, the participants asked whether they consider the influence of nutritional information on the chosen fast food.

Data Analysis

All statistical analyses were incorporated using IBM SPSS version 28 software. Descriptive statistics (frequencies and percentages) were calculated to check the background characteristics of the respondents. The bivariate association was estimated by performing chi-square analyses. Binary Logistic regression analyses are done to check the connection between dependent and independent variables. The significance level was set at p-value less than 0.05 in all analyses.

Results

Background Characteristics (►Table 1)

Among all the students, 50.6% patients were 20 to 29 years old, 22.6% male, and 77.4% Female students. Among all the students, 47.7% are in nursing and 52.3% in Public Health. About 46.8% of the students were single, and 31.1% were unemployed. Among all the students, 26.4% of students' BMI was 25 to 29.99 Kg/m^2, and 14.5% of students' BMI were above 30 kg/m^2.

Table 1 Background characteristics of the respondents

Variables	Frequency	Percentage
Age		
20–29	120	51.6
30–39	80	34.5
40–49	20	8.5
50–59	15	6.4
Gender		
Male	52	22.6
Female	182	77.4
Course enrolled		
Nursing	112	47.7
Public Health	123	52.3
Marital status		
Married	119	50.6
Single	109	46.8
Separated	2	0.9
Divorced	4	1.7
Currently working		
Yes	159	68.9
No	73	31.1
BMI		
<18	7	3.0
18–24.99	132	56.2
25–29.99	62	26.4
> 30	34	14.4

Abbreviations: BMI, body mass index.

Food Consumption Pattern (►Table 2)

Among the favored cuisine, fried chicken was the preferred choice of 34% of respondents, followed by pizza (27.7%) and other options (26.4%). Regarding beverages, 32.8% opted for fruit juice, 23.0% chose tea or coffee, 23.8% preferred water, 10.2% selected fizzy drinks, and 10.2% preferred milkshakes. McDonald's emerged as the most popular fast-food restaurant among 39% of students, followed by Kentucky Fried Chicken (KFC; 32%) and local chicken and fish shops (20%). A total of 56% of students reported consuming fast food at least once a week, with 35% doing so at least twice a week. Fast-food consumption times included 5.1% during breakfast, 48.1% during lunchtime, 37.0% during the evening, and 9.8% during dinnertime. Roughly 70% of students reported enjoying fast food.

Fast-Food Enjoyment (►Table 3)

The enjoyment of fast food was associated significantly with age, marital state, and BMI. On the other hand, gender, course enrolled, or working status had no association with fast food enjoyment (►**Table 3**). Age had a highly significant effect on fast-food enjoyment ($p<0.001$), where fast-food enjoyment negatively correlated with advanced age as the odds ratio (OR) decreased significantly by increasing age (from 0.54 for

Table 2 Fast-food consumption of the respondents

Variables	Frequency	Percentage
Preferred fast food		
Pizza	65	27.7
Burger	28	11.9
Fried chicken	80	34.0
Others	62	26.4
Preferred beverage		
Fizzy drinks	24	10.2
Fruit juice	77	32.8
Milk shake	24	10.2
Tea/coffee	54	23.0
Water	56	23.8
Favorite fast-food place		
KFC	72	32.4
McDonald's	87	39.2
Burger King	17	7.7
Local chicken-chips shops	46	20.7
Frequency of fast-food consumption		
Less than 1 time/week	132	56.2
1–2 times/week	84	35.7
3–4 times/week	15	6.8
>5 times a week	3	1.3
Time of consumption of fast-food		
Breakfast	12	5.1
Lunch	108	48.1
Evening	87	37.0
Dinner	22	9.8
Do you enjoy fast food?		
Yes	162	69.79
No	70	30.21

the age group 30–39 years to only 0.13 in the age group 50–59) when compared with the youngest age group (20–29 years old). Similar results were obtained with marital status, where married couples are less likely to enjoy fast food (OR = 0.54, $p < 0.03$) than single nurses. On the other hand, BMI was positively and significantly associated with fast-food enjoyments, as the OR increased significantly by increasing BMI (from 5.9 for the BMI 18–24 kg/m^2 up to 11.6 for BMI above 30 kg/m^2) when compared with nurses with BMI less than 18 kg/m^2.

Reasons for Fast-Food Enjoyment (►Table 4)

When we looked for the reasons of fast-food enjoyments, we found that female differs significantly from male in four out of five reasons for fast-food enjoyments (►**Table 4**). Females are more likely to enjoy fast food taste than male (48.4% versus 32.1%). Males are more likely than female in favoring fast food because of a lack of cooking skills (7.5 vs. 1.6%), in saving time (47.2 vs. 30.2%) and in giving them their basic needs (26.4 vs. 11%). On the other hand, eating in a group was not a reason for enjoying fast food in majority of male (86.5%) and female (80.2%) with no significant differences between the two groups. Males are significantly different from female in their believe that fast food will provide them with their basic needs with a significant of OR 2.9.

Nutritional Information (►Table 5)

Upon analyzing the association between nurses' nutritional knowledge and their preference for fast food, we found that none of the proposed factors had a significant impact on their selection. Moreover, there were no noticeable differences in the responses of male and female participants (►**Table 5**). Among the students, 96.2% of female and 92.5% of male students have acknowledged the potential health hazards associated with excessive fast-food consumption.

Discussion

It is not surprising that the frequency of fast-food consumption has increased so much with the significant growth in the number of fast-food outlets over the years.[1] It is concerning, however, that this trend has led to a rise in health issues associated with fast food diet.[2] Therefore, it is important to prioritize our health and well-being by making conscious choices about what we eat. Hence, this study aims to assess the fast-food eating patterns among nursing and public health students at the UOSIL. Approximately 85% of respondents were under the age of 40, with 72% being female. Nearly half of the respondents were married, while 47% were single. The majority (79%) were employed. Additionally, around 40% of the respondents were classified as overweight or obese. It was reported that women with lower income had a higher mean BMI.[11]

Around 48% of responders ingest fast food during lunchtime, 37.0% during the evening, and 9.8% during dinner with a frequency of twice a week for more than 90% of the responders. Similar results were reported for college students at the Midwestern land-grant university, where most students eat fast food during lunchtime at least once per week.[10] The preferred fast food differ among our responders but fried chicken was the highest (34%) with burgers preferred only by 11.9% of responders. Among US college students, American burger/fries were the highest favored fast food (70%).[10] It goes to show how regional and cultural factors can influence food preferences. It is not surprising that lunchtime is the most popular time to eat fast food. It is also notable that there are differences in preferred fast food among responders, with fried chicken being the top choice. It is worth considering the impact of this type of diet on overall health and well-being. MacDonald was the preferred fast-food outlet for 39% of the participants, followed by KFC—32%, with only 8% preferring Burger King. This indicates again that regional and cultural factors can influence food preferences.

Table 3 The association of fast-food enjoyments with different variable

Variables	Do you enjoy fast food		Chi-square calculation		OR calculation with 95% CI		
	Frequency (percentage)		χ^2-Value	*p*-Value	OR	95% CI	*p*-Value
Age	**Yes**	**No**	16.68	<0.00			
20–29	94 (79)	25 (21.0)			Representative group		
30–39	54 (66.7)	27 (33.3)			0.54 (RR: 0.84)	0.28–1.11	NS
40–49	11 (55.0)	9 (45.0)			0.325 (RR: 0.70)	0.12–0.87	<0.03
50–59	5 (33.3)	10 (66.7)			0.13 (RR: 0.42)	0.64-3.21	< 0.01
Gender	**Yes**	**No**	1.83	<0.17	1.55	0.82–0.96	NS
Female	131 (72)	51 (28.0)					
Male	33 (62.3)	20 (37.7)					
Course enrolled	**Yes**	**No**	0.11	<0.74	0.91	0.52–1.59	NS
Nursing	77 (68.8)	35 (31.3)					
Public health	87 (70.7)	36 (29.3)					
Marital status	**Yes**	**No**					
Single	85 (77.3)	25 (22.7)	8.557	<0.03	Representative group		
Married	77 (64.7)	42 (35.3)			0.54 (RR: 0.84)	0.35–0.96	< 0.03
Separated	1 (50.0)	1 (50.0)			0.29 (RR: 0.65)	0.02–4.87	NS
Divorced	1 (25.0)	3 (75.0)			0.1 (RR: 0.32)	0.01–0.98	< 0.05
Currently working	**Yes**	**No**	2.41	<0.12	1.64	0.87–3.10	NS
No	56 (76.7)	17 (23.3)					
Yes	108 (66.7)	54 (33.3)					
BMI (kg/m^2)	**Yes**	**No**					
<18	2 (28.6)	5 (71.4)	8.6073	<0.03	Representative group		
18–24.99	93 (70.5)	39 (29.5)			5.96 (RR: 2.47)	1.11–32.05	< 0.03
25–29.99	41 (66.1)	21 (33.9)			4.89 (RR: 2.31)	0.87–27.31	NS
>30	28 (82.4)	6 (17.6)			11.67 (RR: 2.88)	1.81–75.08	< 0.01

Abbreviations: BMI, body mass index; CI, confidence interval; NS, non-significant; OR, odds ratio; RR, relative risk.

Table 4 Reasons for fast-food enjoyment

Variables	Female, frequency (percentage)		Male, frequency (percentage)		Chi-square calculation		OR 95% CI		
Reason	**Yes**	**No**	**Yes**	**No**	**X^2**	***p*-Values**	**OR**	**95% CI**	***p*-Values**
Eat in a group	36 (19.8)	146 (80.2)	7 (13.2)	45 (86.5)	1.07	N.S.	0.63	0.2627–1.5147	NS
Enjoy taste	88 (48.4)	94 (51.6)	17(32.1)	36 (67.9)	4.3993	<0.03	0.5044	0.2644–0.9623	<0.03
Lack of cooking skills	3 (1.6)	179 (98.4)	4 (7.5)	49 (92.5)	4.9421	<0.02	4.8707	1.0547–22.4932	<0.04
Saves time	55 (30.2)	127 (69.8)	25 (47.2)	28 (52.8)	5.2521	<0.02	2.0617	1.1032–3.8528	<0.02
Basic need	20 (11.0)	162 (89.0)	14 (26.4)	39 (73.6)	7.8932	<0.004	2.9077	1.3500–6.2628	<0.001

Abbreviations: CI, confidence interval; NS, non-significant; OR, odds ratio.

According to this study, 72% of female and 62.3% of male students enjoyed fast food, indicating that female students enjoy fast food more than male students with no significant differences between the two groups. However, other studies reported that male students often consume fast food more than female students.[11,12] In our sample, gender has no significant effect on fast-food consumption or enjoyment. On the other hand, there was a significant association between age and enjoyment of fast food, with enjoyment decreasing as age increases. This means that as people get older, they are less likely to enjoy fast food. Our data shows that the OR for fast food enjoyment decreases significantly

Table 5 The influence of nutritional information on the chosen fast food

Variables	Female, frequency (percentage)		Male, frequency (percentage)		Chi-square calculation		OR 95% CI		
Reason	Yes	No	Yes	No	X^2	*p*-Values	OR	95% CI	*p*-Values
Most of the times	1 (0.5)	181 (99.5)	0 (0.0)	53 (100)			1.1308	0.045–28.1	<0.94 NS
Not at all	50 (27.5)	132 (72.5)	11 (20.8)	42 (79.2)	0.9638	0.32 NS	0.69	0.33–1.45	<0.3 NS
Sometimes	50 (27.5)	132 (72.5)	18 (34.0)	35 (66)	0.8407	0.36 NS	1.35	0.70–2.6	<0.3 NS
Other	81 (44.5)	101 (55.5)	24 (45.3)	29 (54.7)	0.01	0.92 NS	1.03	0.56–1.9	<0.9 NS
Knowledge	175 (96.2)	7 (3.8)	49 (92.5)	4 (7.5)	1.2601	0.26 NS	0.49	0.14–1.74	<0.2 NS

Abbreviations: CI, confidence interval; NS, non-significant; OR, odds ratio.

with increasing age. Similar findings were reported in many other studies.[3,4,11] These results highlight the importance of considering age as a factor when studying consumer preferences and behaviors.

Another significant factor linked to the appreciation of fast food was the conjugal condition, as married nurses demonstrated a notably diminished proclivity toward enjoying fast food compared with their unmarried counterparts, with an OR of 0.54. Our findings validate prior reports indicating that individuals who are unmarried exhibit a greater inclination toward fast food in comparison to their married counterparts.[13]

Conversely, a highly significant positive correlation was found between BMI and fast-food enjoyment, with the degree of enjoyment escalating by the increase in BMI. This implies that individuals who are overweight or obese exhibit a greater degree of pleasure toward fast food in comparison to those with a normal or low body weight. These results was repeatedly reported in studies all over the world.[1,2,10] It is worth noting, however, that this study only examines the relationship between BMI and fast-food enjoyment, and does not necessarily imply causation. In other words, it is unclear whether individuals become overweight or obese because they enjoy fast food, or whether they enjoy fast food because they are already overweight or obese. Further research would be needed to explore this question in more detail. This knowledge could help healthcare professionals and policymakers develop better strategies for tackling obesity and related health problems. By identifying the factors that contribute to fast-food consumption, they can design interventions that target these factors and promote healthier eating habits.

When we looked for the reasons behind people's enjoyment of fast food, we found significant differences between males and females in terms of their reasons for enjoying fast food. Females were more likely to enjoy fast food for its taste, while males were more likely to enjoy it because it saved them time and fulfilled their basic needs. However, males were also more likely to enjoy fast food because of a lack of cooking skills. Interestingly, eating in a group was not a major reason for enjoying fast food for either males or females. This is not in agreement with a study done by Kim et al, where a significant proportion of women (34%) showed eating with family/friends is one of the main reasons to consume fast food compared with men (13%).[14] Overall, while there were some differences between the genders, our study suggests that there are varieties of reasons why people enjoy fast food beyond simply eating in a group.

The analysis conducted on nurses' nutritional knowledge and preference for fast food revealed that none of the proposed factors had a significant impact on their selection. Additionally, there were no significant differences between male and female participants. However, among the students, a vast majority of both male and female students acknowledged the potential health hazards associated with excessive fast-food consumption. The result indicates that although students know the inferior side of fast-food consumption, they still ingest it. It has been proposed that a person's intention influences behavior.[12] Assertiveness, knowledge, social pressure, and perceived behavioral control affect behavioral intent.[9,10] Food information affects consumers' thoughts and intentions about food. In addition, food information is significant for consumers during food choices.[15] Information about food and its ingredients helps customers progress in their food approaches.[16]

Conclusions

The high prevalence of overweight and obesity among students of medical specialization is alarming. Future studies should investigate the stimulus that influences fast-food consumption and eating patterns and identify the most appropriate way to unravel these problems. This study identified age, maternal status, and BMI being associated significantly with fast-food consumption. Although students were aware of the potential health hazards associated with excessive fast-food consumption, they still require more educative measures and training programs to make them conscious of mindful eating habits. Research can be expanded to improve the intermediation of the strategies to encourage healthy consumption practices among the students.

Limitations of the Study

This research used a cross-sectional study design; hence, the study does not have the capability to assess the cause-and-effect

associations among the variables. The study data are a self-report questionnaire; therefore, the respondents answers may have bias in completing the questionnaire, which can affect the study results. Many of the student's responses might differ from their best interest, and therefore, they might answer incorrectly, affecting the study results.

Ethical Consideration

After the questionnaire development, it was tested and revised by the student supervisor, course leaders, and the University of Sunderland's ethical team. Once the questionnaire was reviewed and approved by the supervisor, course lead, and UOSIL ethical team. Ethical clearance was acquired from the University of Sunderland, London's Ethical Committee. Participants were acquainted with the aims and objectives of the study. Consent was taken from the participants before they participated in the survey. Respondents without consent were excluded.

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Conflict of Interest

None declared.

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