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RELATIONSHIP BETWEEN LECTURERS' TRANSFORMATIONAL LEADERSHIP AND HIGHER EDUCATION STUDENTS' EATING BEHAVIOURS

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Abstract

The study of transformational leadership on students eating behaviours is rarely coupled in the body of knowledge. The study is based on the opinions of higher education students and involved 222 students who were enrolled in two public universities and two private universities and approached through quantitative research design. For data collection, the instrument was adapted to measure the lecturers' transformational leadership levels and students' eating behaviour. In terms of analysis, non-parametric statistics, descriptive statistics, the chi-square test, and the t-test were used. Findings showed that students believed their lecturers demonstrated transformational leadership overall and in each of the four leadership pillars—idealised influence, inspirational motivation, intellectual stimulation, and individualised consideration—and there are indicators that it is linked to their acceptable eating behaviours. As implications, this study supports the hypothesis that transformational leadership is essential in higher education institutions to shape students' eating behaviours positively.

Keywords: Transformational leadership, eating behaviour, higher education institutions, lecturers' leadership, university students

INTRODUCTION

Higher education institutions (HEIs) are currently undergoing widespread change, and some institutions have started to resemble one another (Marginson, 2010). Academic leadership is one of the most important factors when beginning and carrying out institutional progress or alteration processes (Panagiotis & Dimitra, 2009).

Academic leadership is the ability to impact students (Sabir, 2021). Transformational leadership is one of the elements that help make lecturers' practice effective. The relationship between superiors and subordinates is determined by transformational leadership (Surasni, 2018). This feature unquestionably leads to effective learning with transformative. Transformational leadership inspires people to grow and perform at a high level, above and beyond what they had previously anticipated (Andriani et al., 2018). According to Lai et al. (2020), transformational leaders that push their followers to meet expectations may change their followers' attitudes. A person with transformational leadership qualities is willing to accept change and demonstrates proactive behaviour (Zengtian & Xiuyuan, 2014). This notion signifies that a transformational leader is not bound by rigid rules and is more adaptable to changes in the environment (Ahmad & Rochimah, 2021).

It has been anticipated that applying the transformational leadership theory to education would be beneficial based on the promising outcomes in many industries. Understanding that educational institutions are also organisations is the foundation for the notion that transformational leadership practices used in organisations may be applied to the teaching environment (Yüner, 2020). Academic personnel like lecturers are positioned as leaders, and students are placed as followers when teaching settings are regarded as organisations. As a result, the concept of applying transformational leadership in HEIs has gained acceptance (Pounder, 2008). Typically, idealised influence, individual consideration, intellectual stimulation, and inspirational motivation are viewed as the four characteristics of transformational leadership (Bass & Riggio, 2006). It is crucial to answering the question of

how lecturers' transformational leadership benefits educational organisations like HEIs since they significantly influence the student experience.
Lecturers are crucial in delivering a course that transforms the students' attitudes and behaviours. Because they have the potential to serve as role models and impart these views to their students, lecturers also have a significant role to play in the prevention of eating disorders and diseases. According to Bandura's social learning theory (1986), lecturers have an enormous opportunity to indirectly influence student behaviour through role modelling, social support, and normative behaviours. As a result, there will be numerous health issues and, subsequently, additional problems like chronic diseases if there are no lecturers who are transformational. Additionally, despite the widespread use of transformational leadership research across a variety of human behaviour domains, researchers have not yet examined potential health-related ideas connected to lecturers' transformative behaviours in educational contexts, particularly regarding eating behaviour. Healthy eating behaviours are one area of student behaviour where HEIs can make a unique and essential contribution to addressing students' health-promoting behaviours (Condon et al., 2009).

Studies have discussed the students at HEIs who lead unhealthy lifestyles. Moreover, many HEI students who are knowledgeable about nutrition and food do not apply this knowledge to their eating behaviours. Since these behaviours persist throughout adulthood and can be very challenging to change once established, it is crucial to adopt healthy eating behaviours (Morse & Driskell, 2009; Inghram, 2019). Additionally, healthy eating behaviours positively impact students' academic performance. Conversely, academic performance may decrease if students do not get adequate daily nutrients (Abraham et al., 2018). As a result, altering students' eating behaviours in HEIs is crucial to improving academic performance. For this reason, the university years are also a potential intervention period (Amore et al., 2019). Lecturers at HEIs, particularly those who offer courses on nutrition and food, are crucial for positively influencing students' eating behaviours.

Based on earlier research, the researcher concluded that there were still a lot of issues in tertiary institutions, particularly those about eating behaviours. This study was motivated by a lack of literature on the connection between lecturers' transformational leadership and students' eating behaviours. The goal of this study is to determine whether lecturers' transformational leadership has an impact on their students' eating behaviours. It is directed at undergraduate students enrolled in food/nutrition science programs in Malaysian HEIs.

RESEARCH METHOD

This study is a quantitative correlational study with a survey-based design. The quantitative design chosen for the study allows the researcher can determine whether there is a connection between students' eating behaviours and transformational leadership strategies. This study gathered data from a questionnaire distributed to students at the selected HEIs using Google Forms.

Population and Sampling

In this case, undergraduate students from HEIs studying at the faculties/departments of food science or nutrition in the Klang Valley make up the research population. Eligibility criteria comprised participants had to be willing to contribute to the study regardless of gender, nation, ethnicity, or socioeconomic status to meet the inclusion criteria. Students who did not have a special diet or refused to continue participating in the study would be excluded.
Approximately 2,300 students studied food science/nutrition at four selected universities (two public and two private). Utilising Qualtrics statistical software, the suggested sample size needed for this study was 330 participants. The proposed sample size was based on a 95% confidence level. However, of the 246 returned, 24 students had a special diet removed, leaving 222 responses suitable for the final analysis.

Instrument

The three different subscales that make up the instrument used in this study were developed based on concepts from transformational leadership (Bass et al., 2003) and social cognitive (Bandura, 1978) theories. The subscales measure respondent demographics, lecturers' transformational leadership, and student eating behaviours. It was adapted and developed based on previous related studies and literature reviews. The domains of lecturers' transformational leadership, including idealised influence, inspirational motivation, individualised consideration, and intellectual stimulation, were selected based on the work by Beauchamp et al. (2010) and Mawn (2012) with some modifications. Additionally, the EAT-II and EAT-III instruments by Neumark-Sztainer et al. (2012) were chosen for the section on students' eating behaviour. The survey only included questions related to the study objectives.

A pilot study was conducted with 33 undergraduate students in the food science/nutrition department of a university in the Klang Valley before the primary data collection. Students who were like the sample in the final study were chosen to participate in the pilot study. The results of the data analysis for the pilot study (N=33) revealed that Cronbach's alpha for the students' eating behaviours was .784, and the lecturers' transformational leadership ranged from .820 to .883. The researcher concluded that the instrument created for this research displayed perfect internal consistency, considering the reliability test results.

Data Analysis

Descriptive statistics calculate each variable's response median, mode, means, and standard deviation. Additionally, Chi-Square tests were used to investigate the relationship between students' eating behaviours and lecturers' transformational leadership. Additionally, Chi-Square tests were used to analyse the associations between the students' eating behaviours and

the lecturers' transformational leadership domains. A T-test was done to determine whether lecturers' transformational leadership and students' eating behaviours differ between private and public universities.

RESULTS

Demographic Characteristics of Participants

The participants were undergraduate students studying food /nutrition sciences from two public and two private universities. The research sample comprised all genders (males and females), 13.51% were male, and 86.49% were female. Furthermore, the largest group of respondents was 21-25 years old (75.68%), followed by respondents 15-20 (23.87%) and respondents 26-30 (0.45%). Besides, 44.14% were Malay, 44.14% were Chinese, 2.25% were Indian, and 9.46% were from other ethnicities. Most participants were from the second year (33.78%); the other groups (first to the fourth year) made up 22.52%, 28.38%, and 13.96% of the participants, respectively. Finally, 1.35% of the participants held another year of study, namely more than the fourth year. Additionally, the respondents were asked to state their place of living; from the findings, the majority of the respondents (62.61%) were living off-campus with their parents/guardian/siblings, followed by On-campus (28.38%) and off-campus without their parents/guardian/siblings (8.56%) while only (0.45%) was living in other places. Tables 1 and 2 show the questionnaire used in this study.

Table 1
Lecturers' Transformational Leadership

Lecturers' transformational leadership	Items
Idealised influence	A1. My lecturers act as people that I look up to. A2. My lecturers treat me respectfully. A3. My lecturers talk about their personal values. A4. My lecturers provide examples of people for me to learn from. A5. My lecturers set an example for me to copy by working hard. A6. My lecturers set an example for me to follow.
Inspirational motivation	B1. My lecturers motivate me to try my hardest. B2. My lecturers show me how my work relates to the real world. B3. My lecturers talk enthusiastically about what my future career could be like. B4. My lecturers tell me inspirational stories. B5. My lecturers demonstrate that they believe in me. B6. My lecturers are enthusiastic about what I am capable of achieving. B7. My lecturers communicate an exciting vision that I can achieve.
Intellectual stimulation	C1. My lecturers break down complex ideas for me. C2. My lecturers challenge me to come up with new ideas. C3. My lecturers ask me questions that make me think. C4. My lecturers create subjects that encourage me to think. C5. My lecturers provide me with tasks and challenges that get me to think differently.
Individualised consideration	D1. My lecturers recognise the needs and abilities of each student in the class. D2. My lecturers are considerate towards me.

	D3. My lecturers show me that they care about me. D4. My lecturers try to help students who might be struggling.

Table 2
Students' Eating Behaviour

Students' behaviour	Items
Eating behaviour	E1. How often do you eat breakfast? E2. How often do you eat lunch? E3. How often do you eat dinner? E4. How often do you eat something from a fast-food restaurant (like McDonald's, Burger King, etc.)? E5. How often do you eat at least two servings of fruit? E6. How often do you eat at least three servings of vegetables? E7. How often do you eat at least three servings of dairy products (e.g., milk, cheese, yoghurt)? E8. How often do you eat at least three servings of whole grains (e.g., whole wheat bread, cereals, etc.)? E9. How often do you cook or eat a self-prepared meal? E10. How often do you eat regular meals (breakfast, lunch, and dinner) at about the same time? E11. How often do you eat snacks (e.g., Potato chips/other snack foods)? E12. How often do you drink soda drinks (e.g., Coke, etc.)? E13. How often do you drink 100% fruit juices such as orange juice, apple juice, etc. (Do not count sports drinks or other fruit-flavoured drinks.)? E14. How often do you eat processed foods?

Descriptive Statistics

The descriptive summary of the responses to the variable items is shown in Tables 3, 4, and 5.

Table 3
Descriptive Statistics of Transformational Leadership Domains

University	Idealised influence					Inspirational motivation					Intellectual stimulation					Individualised consideration				
	Item	Median	Mode	Mean	SD	Item	Median	Mode	Mean	SD	Item	Median	Mode	Mean	SD	Item	Median	Mode	Mean	SD
GU1 (N=98)	A1	2	2	2.09	0.94	B1	2	1	1.84	0.96	C1	2	2	2.26	0.90	D1	2.5	3	2.46	1.18
	A2	1	1	1.54	0.72	B2	2	1	1.89	0.99	C2	2	2	2.05	0.97	D2	2	2	2.13	0.96
	A3	2	3	2.42	1.04	B3	2	1	2.30	1.10	C3	2	1	1.81	0.87	D3	2	3	2.38	1.00
	A4	2	2	2.17	1.07	B4	3	3	2.53	1.16	C4	2	2	1.91	0.86	D4	2	1	1.96	0.95
	A5	2	2	2.28	1.13	B5	2	2	2.52	1.10	C5	2	1	1.84	0.81					
	A6	2	2	2.15	0.98	B6	2	2	2.48	1.05										
						B7	2	2	2.43	1.16										
PU1 (N=34)	A1	2	2	2.03	0.76	B1	2	1	1.91	0.93	C1	2	1	1.97	0.87	D1	2	1	1.85	0.89
	A2	1	1	1.26	0.45	B2	2	1	1.79	0.91	C2	2	2	2.15	0.82	D2	2	1	1.97	1.03
	A3	3	3	2.44	0.86	B3	2	2	2.06	0.95	C3	2	2	1.85	0.86	D3	2	1	2.09	1.06
	A4	2	2	2.24	1.07	B4	2	2	2.29	1.03	C4	2	1	1.82	1.00	D4	1	1	1.56	0.82
	A5	2	2	2.12	1.04	B5	2	1	2.09	1.06	C5	1.5	1	1.68	0.81					
	A6	2	1	2.00	1.13	B6	2	2	2.15	0.99										
						B7	2	2	2.06	0.95										
GU2 (N=55)	A1	2	2	2.00	0.90	B1	2	2	1.96	0.86	C1	2	2	2.40	0.93	D1	2	2	2.45	0.94
	A2	1	1	1.35	0.55	B2	2	1	2.04	0.92	C2	2	2	2.24	0.90	D2	2	2	2.05	0.85
	A3	2	2	2.22	0.85	B3	2	2	2.13	0.84	C3	2	1	1.75	0.75	D3	2	2	2.15	0.87
	A4	2	2	2.00	0.90	B4	2	2	2.42	0.90	C4	2	1	1.87	0.79	D4	1	1	1.55	0.63
	A5	2	2	2.25	1.04	B5	3	3	2.56	1.10	C5	2	2	1.85	0.80					
	A6	2	2	2.07	1.00	B6	2	2	2.44	0.96										
						B7	2	2	2.35	0.97										
PU2 (N=35)	A1	2	2	2.09	0.92	B1	2	1	1.80	0.83	C1	2	2	2.23	0.88	D1	2	2	2.14	0.97
	A2	1	1	1.37	0.55	B2	1	1	1.71	1.02	C2	2	2	2.03	0.89	D2	2	2	1.86	0.69
	A3	2	2	2.09	0.92	B3	2	1	1.83	0.89	C3	2	1	1.86	0.88	D3	2	2	2.03	0.98
	A4	2	2	2.09	0.95	B4	2	3	2.34	1.00	C4	2	2	1.94	0.87	D4	2	2	1.86	0.81
	A5	2	1	2.17	1.20	B5	2	2	2.26	1.04	C5	2	1	1.86	0.85					

	A6	2	2	2.09	1.01	B6	2	2	2.11	1.02
						B7	2	2	2.20	1.02

Note. GU1 and GU2: Public University; PU1 and PU2: Private University;

Table 4
D*escriptive Statistics of Transformational Leadership Domains (N=222)*

Leadership domains	Median	Mode	Mean	SD
Idealised influence	2	2.33	2.04	0.68
Inspirational motivation	2.14	1	2.20	0.82
Intellectual stimulation	2	2	1.97	0.70
Individualised consideration	2	1	2.09	0.81

Note. Likert Scale: 1: Frequently; 2: Fairy often; 3: Sometimes; 4: Once in a while; 5: Not at all

Table 5
Descriptive Statistics of Overall Transformational leadership (N=222)

Leadership	Median	Mode	Mean	SD
Transformational leadership	2.09	1.00[a]	2.09	0.67

Note. Likert Scale: 1: Frequently; 2: Fairy often; 3: Sometimes; 4: Once in a while; 5: Not at all
a: Multiple modes exist. The smallest value is shown

The findings are equivalent to responses of "Frequently" and "Fairly often" on the Likert scale in all universities, indicating that students believed their lecturers demonstrated idealised influence, inspirational motivation, intellectual stimulation, and individualised consideration (Table 3 and 4).

The results also indicate that students believed their lecturers displayed transformational leadership overall as they correspond to responses on the Likert scale of "Fairy often" in all four universities (Table 5).

The level of lecturers' transformational leadership domains at each of the four universities is shown in Table 6. The findings indicate that idealised influence, inspirational motivation, intellectual stimulation, and individual consideration are displayed ‟Fairy often″ followed by ‟Frequently″ and by the lecturers in four universities (Tables 6 - 9).

Table 6
The Level of Lecturer's Idealised Influence (%)

Idealised Influence						
Item	University	Frequently	Fairy often	Sometimes	Once in a while	Not at all
A1	GU1	31.6	35.7	24.5	8.2	0.00
	PU1	26.5	44.1	29.4	0.00	0.00
	GU2	32.7	40.0	23.6	1.8	1.8
	PU2	28.6	42.9	20.0	8.6	0.00
	Total	30.6	39.2	24.3	5.4	0.5
A2	GU1	57.1	33.7	7.1	2.0	0.00
	PU1	73.5	26.5	0.00	0.00	0.00
	GU2	69.1	27.3	3.6	0.00	0.00
	PU2	65.7	31.4	2.9	0.00	0.00
	Total	64.0	30.6	4.5	0.9	0.00
A3	GU1	21.4	30.6	37.8	5.1	5.1
	PU1	14.7	32.4	50.0	0.00	2.9
	GU2	20.0	45.5	27.3	7.3	0.00
	PU2	28.6	42.9	20.0	8.6	0.00
	Total	21.2	36.5	34.2	5.4	2.7
A4	GU1	29.6	38.8	21.4	5.1	5.1
	PU1	29.4	32.4	26.5	8.8	2.9
	GU2	32.7	40.0	23.6	1.8	1.8
	PU2	28.6	42.9	22.9	2.9	2.9
	Total	30.2	38.7	23.0	4.5	3.6
A5	GU1	26.5	39.8	19.4	8.2	6.1
	PU1	29.4	41.2	23.5	0.00	5.9
	GU2	25.5	38.2	25.5	7.3	3.6
	PU2	34.3	34.3	20.0	2.9	8.6
	Total	27.9	38.7	21.6	5.9	5.9
A6	GU1	27.6	40.8	22.4	7.1	2.0
	PU1	41.2	32.4	17.6	2.9	5.9
	GU2	30.9	41.8	20.0	3.6	3.6
	PU2	31.4	40.0	20.0	5.7	2.9
	Total	31.1	39.6	20.7	5.4	3.2

Table 7
The Level of Lecturers' Inspirational Motivation (%)

		Inspirational Motivation				
Item	University	Frequently	Fairy often	Sometimes	Once in a while	Not at all
B1	GU1	44.9	33.7	17.3	1.0	3.1
	PU1	41.2	32.4	20.6	5.9	0.00
	GU2	34.5	38.2	23.6	3.6	0.00
	PU2	42.9	37.1	17.1	2.9	0.00
	Total	41.4	35.1	19.4	2.7	1.4
B2	GU1	44.9	29.6	19.4	4.1	2.0
	PU1	47.1	32.4	14.7	5.9	0.00
	GU2	34.5	30.9	32.7	0.00	1.8
	PU2	60.0	17.1	14.3	8.6	0.00
	Total	45.0	28.4	21.2	4.1	1.4
B3	GU1	29.6	28.6	26.5	13.3	2.0
	PU1	32.4	38.2	20.6	8.8	0.00
	GU2	23.6	45.5	25.5	5.5	0.00
	PU2	42.9	37.1	14.3	5.7	0.00
	Total	30.6	35.6	23.4	9.5	0.9
B4	GU1	23.5	24.5	33.7	12.2	6.1
	PU1	23.5	38.2	26.5	8.8	2.9
	GU2	12.7	47.3	25.5	14.5	0.00
	PU2	25.7	25.7	37.1	11.4	0.00
	Total	21.2	32.4	31.1	12.2	3.2
B5	GU1	18.4	33.7	31.6	10.2	6.1
	PU1	35.3	35.3	14.7	14.7	0.00
	GU2	18.2	30.9	32.7	12.7	5.5
	PU2	25.7	37.1	25.7	8.6	2.9
	Total	22.1	33.8	28.4	11.3	4.5
B6	GU1	17.3	36.7	31.6	9.2	5.1
	PU1	26.5	44.1	20.6	5.9	2.9
	GU2	16.4	38.2	32.7	10.9	1.8
	PU2	25.7	51.4	14.3	2.9	5.7
	Total	19.8	40.5	27.5	8.1	4.1
B7	GU1	21.4	37.8	26.5	5.1	9.2
	PU1	32.4	38.2	20.6	8.8	0.00
	GU2	20.0	40.0	25.5	14.5	0.00
	PU2	22.9	48.6	20.0	2.9	5.7
	Total	23.0	40.1	24.3	7.7	5.0

Table 8
The Level of Lecturers' Intellectual Stimulation (%)

Intellectual Stimulation						
Item	University	Frequently	Fairy often	Sometimes	Once in a while	Not at all
C1	GU1	18.4	46.9	28.6	3.1	3.1
	PU1	35.3	35.3	26.5	2.9	0.00
	GU2	12.7	50.9	21.8	12.7	1.8
	PU2	22.9	37.1	34.3	5.7	0.00
	Total	20.3	44.6	27.5	5.9	1.8
C2	GU1	32.7	38.8	21.4	5.1	2.0
	PU1	20.6	50.0	23.5	5.9	0.00
	GU2	18.2	49.1	27.3	1.8	3.6
	PU2	25.7	54.3	14.3	2.9	2.9
	Total	26.1	45.5	22.1	4.1	2.3
C3	GU1	42.9	38.8	14.3	3.1	1.0
	PU1	38.2	44.1	11.8	5.9	0.00
	GU2	43.6	38.2	18.2	0.00	0.00
	PU2	40.0	40.0	14.3	5.7	0.00
	Total	41.9	39.6	14.9	3.2	0.5
C4	GU1	35.7	42.9	17.3	3.1	1.0
	PU1	47.1	32.4	14.7	2.9	2.9
	GU2	38.2	36.4	25.5	0.00	0.00
	PU2	34.3	42.9	17.1	5.7	0.00
	Total	37.8	39.6	18.9	2.7	0.9
C5	GU1	40.8	35.7	22.4	1.0	0.00
	PU1	50.0	35.3	11.8	2.9	0.00
	GU2	38.2	40.0	20.0	1.8	0.00
	PU2	40.0	37.1	20.0	2.9	0.00
	Total	41.4	36.9	19.8	1.8	0.00

Table 9
The Level of Lecturers' Individualised Consideration (%)

		Individualised Consideration				
Item	University	Frequently	Fairy often	Sometimes	Once in a while	Not at all
D1	GU1	27.6	22.4	31.6	13.3	5.1
	PU1	41.2	38.2	14.7	5.9	0.00
	GU2	16.4	36.4	32.7	14.5	0.00
	PU2	28.6	40.0	20.0	11.4	0.00
	Total	27.0	31.1	27.5	12.2	2.3
D2	GU1	30.6	33.7	28.6	6.1	1.0
	PU1	41.2	32.4	14.7	11.8	0.00
	GU2	27.3	45.5	21.8	5.5	0.00
	PU2	28.6	60.0	8.6	2.9	0.00
	Total	31.1	40.5	21.6	6.3	0.5
D3	GU1	23.5	28.6	35.7	11.2	1.0
	PU1	35.3	35.3	14.7	14.7	0.00
	GU2	25.5	40.0	29.1	5.5	0.00
	PU2	34.3	37.1	22.9	2.9	2.9
	Total	27.5	33.8	28.8	9.0	0.9
D4	GU1	39.8	31.6	21.4	7.1	0.00
	PU1	61.8	23.5	11.8	2.9	0.00
	GU2	52.7	40.0	7.3	0.00	0.00
	PU2	37.1	42.9	17.1	2.9	0.00
	Total	45.9	34.2	15.8	4.1	0.00

Students' Eating Behaviour

The results of the calculations used to determine the descriptive summary for the responses to the variable items are shown in Table 10. The results show that participants received an appropriate diet because they tended to consume more healthy foods than unhealthy ones. Based on a Likert scale, it displays "Always" and "Often" for healthy foods (Table 10).

Table 10
Descriptive Statistics of Students' Eating Behaviour

University	Item	Median	Mode	Mean	SD
GU1 (N=98)	E1	2	1	1.92	1.00
	E2	1	1	1.33	0.64
	E3	1	1	1.54	0.83
	E4	3	3	3.14	0.57
	E5	3	3	2.69	0.85
	E6	2	2	2.33	0.95
	E7	3	3	2.82	1.00
	E8	2	2	2.34	1.00
	E9	2	1.00[a]	2.49	1.15
	E10	2	2	2.32	1.06
	E11	3	3	3.05	0.84
	E12	4	4	3.76	0.76
	E13	4	4	3.49	0.79
	E14	3	3	2.83	0.77
PU1 (N=34)	E1	2	1.00[a]	2.18	1.03
	E2	1	1	1.26	0.57
	E3	1	1	1.59	0.96
	E4	3	3	3.35	0.69
	E5	3	3	2.68	0.98
	E6	3	3	2.50	0.83
	E7	3	3	2.53	0.86
	E8	2	2.00[a]	2.41	0.99
	E9	2	2	2.24	1.05
	E10	3	2	2.65	0.98
	E11	3	3	3.06	0.89
	E12	4	4	3.59	0.78
	E13	3	3	3.44	0.79
	E14	3	3	2.62	0.74
GU2 (N=55)	E1	2	1.00[a]	1.96	0.90
	E2	1	1	1.27	0.49
	E3	1	1	1.62	0.80
	E4	3	3	3.16	0.69
	E5	3	3	2.60	0.76
	E6	2	2	2.33	0.90
	E7	3	3	2.91	0.93
	E8	3	3	2.55	1.07
	E9	2	1	2.27	1.15
	E10	3	2	2.60	1.06
	E11	3	3	3.16	0.76
	E12	4	4	3.98	0.73
	E13	4	4	3.56	0.96
	E14	3	3	2.78	0.71
PU2 (N=35)	E1	2	1	1.89	0.96
	E2	1	1	1.23	0.55
	E3	1	1	1.34	0.59
	E4	3	3	3.34	0.54
	E5	2	3	2.29	0.96
	E6	2	2.00[a]	2.23	0.97

E7	3	3	2.74	1.04
E8	2	3	2.37	1.06
E9	2	2	2.23	1.06
E10	2	1.00[a]	2.23	1.14
E11	3	3	3.11	0.83
E12	4	4	3.94	0.80
E13	4	4	3.49	1.04
E14	3	3	3.09	0.70

Note. GU1 and GU2: Public University; PU1 and PU2: Private University
Likert Scale: 1: Always; 2: Often; 3: Sometimes; 4: Rarely; 5: Never
a: Multiple modes exist. The smallest value is shown

The State of Students' Eating Behaviours

The eating behaviours at each of the four universities are depicted in Figures 1-4. According to the Tables, students at four universities chose "Always" and "Often" when asked to choose healthy foods, indicating that they have acceptable eating behaviours.

Figure 1
The State of Students' Eating Behaviour of GU1 (%)

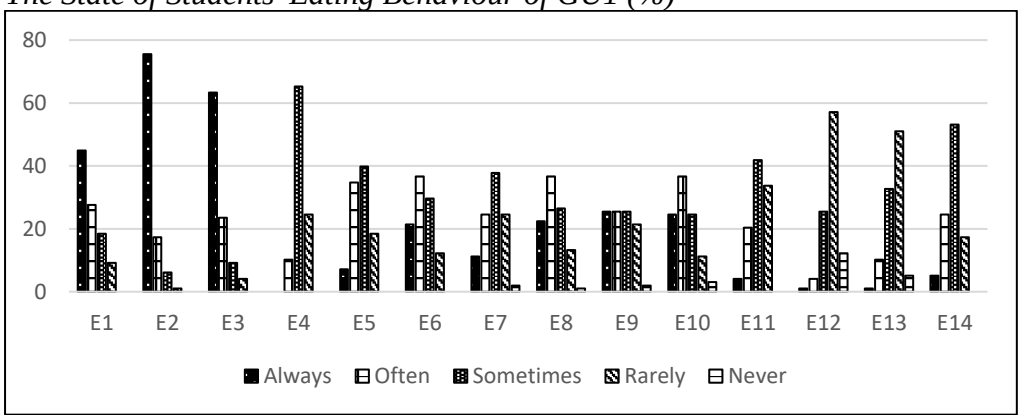


Figure 2
The State of Students' Eating Behaviour of PU1 (%)

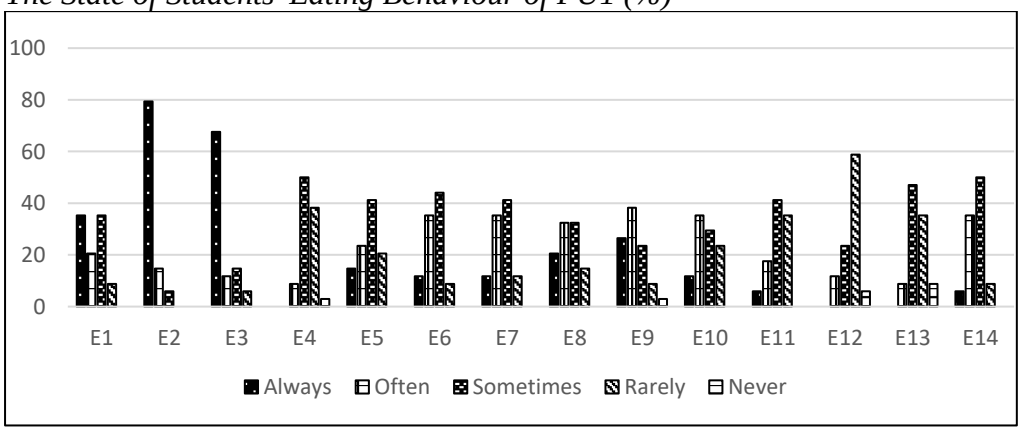


Figure 3
The State of Students' Eating Behaviour of GU2 (%)

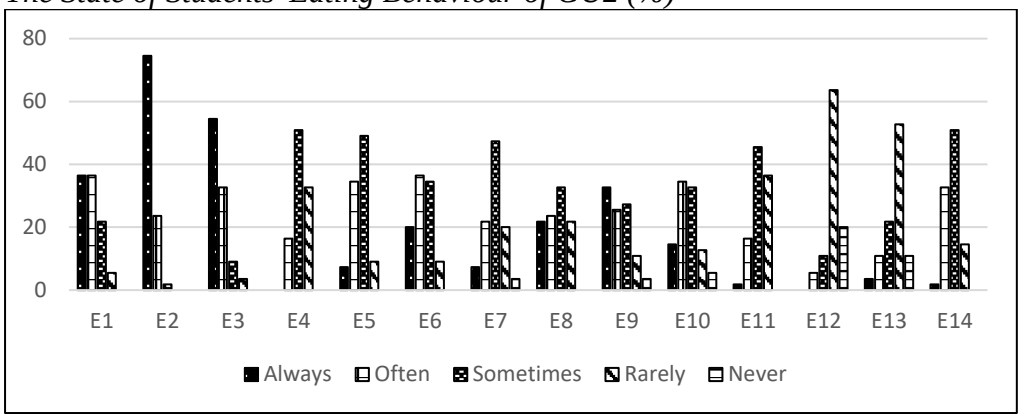
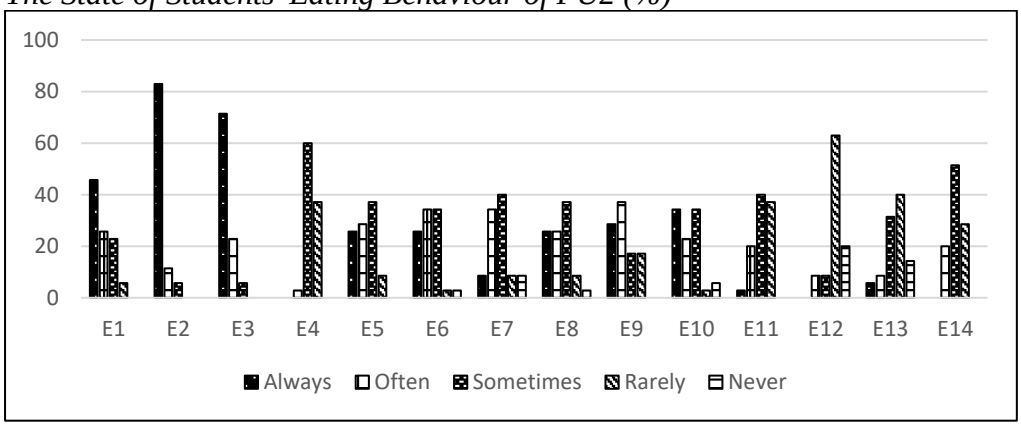


Figure 4
The State of Students' Eating Behaviour of PU2 (%)



Note: GU1 and GU2: Public University; PU1 and PU2: Private University

Normality Test

Normality tests also served as the prerequisite analysis test. The results are shown in Tables 11 and 12. The decision is made to reject the null hypothesis and conclude that the data do not follow a normal distribution when all the variables have a significance level of 5% (Table 11). Based on Table 12, the researcher rejects the hypothesis that these data are significantly different from normal because the probability in the SPSS output is less than 0.05 (the typical alpha level). The researcher chose to conduct a non-parametric Chi-Square test because of the normality test results.

Table 11

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Eating behaviour	.069	222	.011	.987	222	.044
Lecturer transformational leadership	.052	222	.200*	.975	222	.001
Idealised influence	.102	222	.000	.960	222	.000
Inspirational motivation	.080	222	.001	.962	222	.000
Intellectual stimulation	.107	222	.000	.945	222	.000
Individualised consideration	.103	222	.000	.945	222	.000

Note: This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Table 12
Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
log_ Eating behaviour	.074	222	.005	.991	222	.175
log_ Lecturer transformational leadership	.085	222	.001	.967	222	.000
log_ Idealised influence	.128	222	.000	.965	222	.000
log_ Inspirational motivation	.087	222	.000	.957	222	.000
log_ Intellectual stimulation	.151	222	.000	.954	222	.000
log_ Individualised consideration	.142	222	.000	.929	222	.000

Note: a. Lilliefors Significance Correction

The Relationship between Transformational Leadership and Eating Behaviour

The results of the correlation between lecturers' transformational leadership and students' eating behaviour are shown in Table 13. According to Table 13, there is a significant correlation between students' eating behaviour and lecturers' transformational leadership (p-value: 0.000 < 0.05).

Table 13
Results of *Chi-Square Tests*

	Value	df	Asymptotic significance (2-sided)
Pearson Chi-Square	1634.605[a]	1404	.000
Likelihood Ratio	730.244	1404	1.000
Linear-by-Linear Association	22.904	1	.000
N of Valid Cases	222		

Note: a. 1485 cells (100.0%) have an expected count of less than 5. The minimum expected count is .00.

The Relationship between each Domain of Lecturers' Transformational Leadership and Students' Eating Behaviour

The relationship between each aspect of the lecturers' transformational leadership and the students' eating behaviours was investigated using Chi-Square tests. The results are shown in Tables 14–17.

1. Idealised influence and eating behaviour

The relationship between idealised influence and eating behaviour is shown in Table 14.

Table 14
Results of Chi-Square Tests

	Value	df	Asymptotic significance (2-sided)
Pearson Chi-Square	552.413[a]	468	.004
Likelihood Ratio	327.256	468	1.000
Linear-by-Linear Association	16.494	1	.000
N of Valid Cases	222		

Note: a. 513 cells (100.0%) have an expected count of less than 5. The minimum expected count is .00.

2. Inspirational motivation and eating behaviour

Table 15 illustrates the association between inspirational motivation and eating behaviour.

Table 15
Results of Chi-Square Tests

	Value	df	Asymptotic significance (2-sided)
Pearson Chi-Square	604.856[a]	572	.165
Likelihood Ratio	403.993	572	1.000
Linear-by-Linear Association	15.312	1	.000
N of Valid Cases	222		

Note: a. 621 cells (100.0%) have an expected count of less than 5. The minimum expected count is .01.

3. Intellectual stimulation and eating behaviour

The association between intellectual stimulation and eating behaviour is displayed in Table 16.

Table 16
Results of Chi-Square Tests

	Value	df	Asymptotic significance (2-sided)
Pearson Chi-Square	453.917[a]	442	.337
Likelihood Ratio	290.900	442	1.000
Linear-by-Linear Association	22.904	1	.000
N of Valid Cases	222		

Note: a. 486 cells (100.0%) have an expected count of less than 5. The minimum expected count is .00.

4. Individualised consideration and eating behaviour

Table 17 shows the relationship between individualised consideration and eating behaviour.

Table 17
Chi-Square Tests

	Value	df	Asymptotic significance (2-sided)
Pearson Chi-Square	363.371[a]	338	.164
Likelihood Ratio	276.963	338	.993
Linear-by-Linear Association	20.040	1	.000
N of Valid Cases	222		

Note: a. 378 cells (100.0%) have an expected count of less than 5. The minimum expected count is .00.

A significant correlation between idealised influence and students' eating behaviour is shown in Table 14 (p-value: 0.004 < 0.05), but based on Tables 15, 16, and 17 there is no correlation between students' eating behaviour and inspirational motivation (p-value: 0.165 > 0.05), intellectual stimulation (p-value: 0.337 > 0.05), and individualised consideration (p-value: 164 > 0.05).

The Difference between Universities (Public and Private)

A T-test was done to see whether there was a difference between public and private universities regarding lecturers' transformational leadership. Tables 18 and 19 illustrate the results.

Table 18
Group Statistics of Lecturers' Transformational Leadership

	Type of University	N	Mean	Std. Deviation	Std. Error Mean
Transformational Leadership	Public Universities	153	2.1337	.67394	.05449
	Private Universities	69	1.9848	.65061	.07832

Table 19
Independent Samples Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	.013	.91	1.539	220	.125	.14884	.0967	-.04173	.33941
Equal variances not assumed			1.56	135.537	.121	.14884	.09541	-.03985	.33753

Based on Tables 18 and 19, the p-value of Levene's test was printed as ".91" ($p > 0.05$). Therefore, the researcher could not reject the null of Levene's test and concluded that the variance in lecturers' transformational leadership of public universities was not significantly different from that of private universities. The group means were also not statistically significant (0.125> 0.05).

Moreover, a T-test was done to see whether there was a difference between public and private universities regarding eating behaviour. Tables 20 and 21 show the results. The p-value for Levene's test is printed as ".565" ($p > 0.05$) based on Tables (20 and 21); therefore, the researcher cannot reject the null of Levene's test and conclude that the variance in eating behaviour between the Public and Private Universities is not significantly different. Also, the group means are not statistically significant (0.482>0.05).

Table 20
Group statistics

	Type of University	N	Mean	Std. Deviation	Std. Error Mean
Eating behaviour	Public Universities	153	2.5924	.34509	.02790
	Private Universities	69	2.5569	.35410	.04263

Table 21
Independent samples test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
								95% Confidence Interval of the Difference	
	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	.332	.565	.704	220	.482	.03550	.05045	-.06393	.13493
Equal variances not assumed			.697	128.203	.487	.03550	.05095	-.06530	.13631

DISCUSSION

According to higher education students, the goal of this study was to investigate the relationship between students' eating behaviours and the lecturers' levels of transformational leadership based on pertinent theories and the findings of this study.

The participants' responses from the quantitative data seemed to suggest that the students had positive perceptions about their lecturers' transformational leadership domains (idealised influence, inspirational motivation, intellectual stimulation, and individualised consideration). Thus, this study found that most lecturers' leadership strategies were supportive and transformative. First, this finding is consistent with earlier research showing that institutions of higher learning with transformational teaching methods have greater power to influence and satisfy their students' desire for high academic achievement (Zarraga-Rodriguez et al., 2015; Zuber-Skerritt & Louw, 2014; Gal & Gal, 2014). Second, it validates earlier research that claimed lecturers served as academic role models for their students (Marshall et al., 2007). This finding suggests that lecturers at the university engaged in transformational leadership practices because they were consistently ready to assist students in their academic and moral development. Four key themes also characterise the leadership styles of lecturers, and these themes have a favourable effect on students' learning experiences. Like this, Eker (2019) found that lecturers exhibit transformational leadership behaviours at a high level in her study on the behaviours they display according to university students' perspectives. The results of the current study also corroborated those of Greenier and Whitehead (2019), Harrison (2011), Bolkan and Goodboy (2009), and Harvey et al. (2003), which found that students had a favourable perception of their lecturer's teaching style.

The results of this study also corroborated earlier research by Slavich and Zimbardo (2012). They defined transformational teaching as having the explicit or implicit goal of improving students' mastery of essential course concepts while altering their learning-related values, attitudes, and skills. Therefore, lecturer leadership can transform students' perspectives on education and interest in learning and increase autonomy in addition to helping students achieve the goals of a course, as all effective teaching does.

The main goal of transformational leadership is to encourage, challenge, and empower people to reach their entire individual and group potential (Beauchamp & Morton, 2011). Students will have more opportunities to grow as individuals if lecturers work to make learning objectives increasingly challenging while also supporting them. Additionally, students will imitate their role models based on the academic staff's charisma, expertise in their fields, and openness to innovation and learning.

Additionally, in this study, the eating behaviours of university students studying food science/nutrition were analysed. The study also aimed to contribute to the quantitative body of literature on the eating behaviours of HEI students, notably those majoring in food science/nutrition. Eating behaviours were examined based on the frequency of meals, snacking, fast food consumption, and the different items from the dietary groups.

The current research found students at four universities have acceptable eating behaviours regarding healthy foods. Although students who received nutrition education had a satisfactory diet quality in terms of healthy foods, they still did not fall under the "good" grade for diet quality. They were still not meeting their recommended dietary intakes. Recent studies on

students studying nutrition and dietetics were done by Rusli and Harith (2020) and Güneş-Bayır and Alban (2020). In the initial investigation, they concluded that the dietetics students had poor eating behaviours, such as skipping breakfast, eating a lot of fast food, and not getting enough fruit and vegetables. According to the second study by Güneş-Bayır and Alban (2020), 19% of nutrition students skipped breakfast. They discovered that 21% of the students ate fast food thrice weekly. Other studies on university students in Turkey have found similar results (Güneş-Bayir & Güçlü, 2019; Ünal et al., 2017). The current study's findings show that 69.8% of the students always and often have breakfast, and none of the students skipped breakfast at all. This finding was lower than in both mentioned studies in 2020 regarding skipping breakfast. Besides, most of the students (94.6%) and (87%) having lunch and dinner on an always and often basis was consistent with the previous studies' findings.

As a result, the current research's conclusions regarding healthy foods were superior to those of the earlier studies. This may result from the students learning about the advantages of including nutritious foods in their diets, which may have given them the idea to increase their intake of these foods. The findings are consistent with the study of Yolcuoğlu and Kızıltan (2021), which noted that a healthy and balanced diet is associated with a higher average score for students in the Nutrition and Dietetics programme. The results indicated that nutrition education affects people's views toward nutrition. However, the results of this study agreed with others regarding unhealthy eating behaviour, such as eating fast food, snacks, and processed foods, showing that the students consumed fast foods, snacks, and processed foods (51.8%) on a sometimes basis.

There was only a significant correlation between idealised influence and eating behaviour when it came to the sub-dimension of lecturers' transformational leadership; however, there was no correlation between the students' eating behaviour and inspirational motivation, intellectual stimulation, or individualised consideration. There was no prior research that focuses on this construct (HEIs lecturers' transformational leadership and students' eating behaviour) that the researcher was aware of that would either support or refute the conclusions of this research. According to the study's findings, Harvey et al. (2003) discovered significant positive relationships between participant ratings of lecturer performance and student perceptions of the lecturer's use of the idealised influence factor of transformational leadership.

However, this study's findings showed a strong correlation between students' eating behaviours and the transformational leadership of their lecturers. These results were in line with research from Bogler et al. (2013), Bolkan and Goodboy (2009), and Harvey et al. (2003), which also found strong positive relationships between perceptions of lecturer use of transformational leadership and its factors and various student outcomes in higher education. Additionally, Peters (2014) found a link between teachers' transformational leadership behaviours and student achievement.

The study demonstrated that lectures as a method of delivering information may be a successful tool in modifying eating behaviours among university students. Overall, this study's findings were consistent with the notion that transformational leadership is a factor in improving student learning outcomes.

CONCLUSION

In the leadership literature, transformational leadership results have been thoroughly studied, and they have also gotten some attention in the literature on education (Hoehl, 2008). This research was conducted to determine how these behaviours might affect students' eating behaviours, considering that no research has been done on these concepts in an educational environment.

This study concluded that effective leadership and good teaching positively influence students' behaviour. The study illustrated how lecturers' ability to impart knowledge might have the potential to help students at universities improve their eating behaviours. The study's findings showed that transformational leadership was essential in HEIs. Another finding was that the nutritional status of the students was considered good. However, these notions are not always translated into their actual choices or practices, because students' eating practices include some unhealthy eating patterns, like snacking, fast-food consumption, and processed foods that can affect the health and well-being of individuals (Dalrymple, 2013). It could be attributed to some obstacles facing students. Students' lack of time to purchase food and prepare meals and financial constraints are obstacles to maintaining a healthy diet (Silliman et al., 2004). Thus, overcoming these obstacles and fulfilling nutritional needs continues to be difficult, even for students.

Lastly, the development of disorders or related health conditions in nutrition students and non-nutrition students may be treated and prevented by raising awareness and encouraging healthy eating behaviours through transformational lecturers. Leadership matters for lecturers to not just impart the content of their subjects but to stir positive actions in students. Ensuring a healthy diet and eating behaviours are essential for the person's holistic development throughout their lifetime, as every nation needs productive and healthy citizens (Webber & Robertson, 2003).

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