

Original Article

The Effects of Carbon Footprint Awareness and Sustainable Nutrition on Eating Motivations and Health Perception

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Abstract

Aim: This study was conducted to examine the effects of carbon footprint awareness and sustainable nutrition on eating motivations and health perception.

Methods: Conducted using a cross-sectional descriptive research design, the study included 981 participants (age: 20.64 ± 2.35 years) from the Faculty of Health Sciences and the Faculty of Medicine at Gaziantep Islam Science and Technology University, Turkey during the 2024–2025 academic year. Data were collected using a sociodemographic form and four scales: Carbon Footprint, Sustainable Eating Behavior, Eating Motivation Survey Short Form (TEMS-KF), and Health Perception Scale (HPS).

Results: Of the participants, 74.9% were female and 25.1% were male. In terms of marital status, the vast majority of participants were single (97.7%), with only 2.3% being married. Participants' Carbon Footprint Awareness score averaged 64.01 ± 12.95 , ranging from 19 to 95. The average score on the Sustainable Eating Behavior scale was found to be 96.48 ± 16.67 . The score range varies between 30 and 132. Looking at the subscales of the Eating Motivations Scale, all scores fall within the range of 1–7. The sub-dimension with the highest average was Sociability (4.69 ± 1.46), followed by Enjoyment (4.63 ± 1.33), Pleasure (4.54 ± 1.36), and Naturalness (4.50 ± 1.31). Relatively lower averages were observed in the sub-dimensions of Habit (3.95 ± 1.36), Emotion (4.17 ± 1.24), and Price (4.28 ± 1.21). The Health Perception Total Score was found to be 40.96 ± 7.29 on average (min=21, max=70).

Conclusion: In conclusion, carbon awareness among university students shapes sustainable eating behaviors not directly, but largely through psychosocial factors. In particular, social norms and social interaction elements play a key role in transforming individuals' environmental awareness into behavioral levels. This result shows that individuals with a high level of environmental awareness develop more sustainable eating preferences through social acceptance and social approval mechanisms. Therefore, in order to increase sustainable eating behaviors, motivational factors such as social influence, visibility, and social belonging must also be taken into account, not just environmental awareness.

Keywords: Carbon Footprint, Sustainable Nutrition, Eating Motivations, Health Perception.

Introduction

Today, the increase in global environmental problems and the rapid depletion of natural resources make it imperative to adopt sustainable lifestyles (Diamond et al., 2007;

Ustgorul et al., 2024). Food production and consumption, in particular, have a significant impact on environmental sustainability. Food systems account for 26% of global greenhouse gas emissions, 70% of freshwater use, and 50% of land use (Garnett, 2011;

Poore & Nemecek, 2018). In this context, raising individuals' awareness of their carbon footprint and encouraging sustainable eating behaviors play a critical role in reducing environmental impacts (Poore & Nemecek, 2018; Garnett, 2011).

Carbon footprint awareness enables individuals to understand how their daily choices impact the environment, while sustainable eating behaviors involve choosing foods with lower environmental impacts (Ustgorul et al., 2024; Garnett, 2011). However, the underlying psychological motivations for these behaviors and their relationship with health perception have not yet been sufficiently researched. Eating motivations encompass the emotional, social, and psychological factors that influence individuals' eating behaviors, while health perception refers to how individuals perceive their own health status and their attitudes toward health (Renner et al., 2012; Diamond et al., 2007).

The literature shows that carbon footprint awareness affects individuals' environmental sustainability behaviors, but the relationship between this effect and eating motivations and health perception has been addressed only to a limited extent (Ustgorul et al., 2024; Poore & Nemecek, 2018). Although food consumption has a significant impact on the carbon footprint, there is a gap in the literature regarding the motivations that shape sustainable eating behaviors (Garnett, 2011; Poore & Nemecek, 2018). Sustainable eating behaviors can contribute to environmental sustainability while also positively influencing perceptions of health (Garnett, 2011). For example, plant-based diets offer both environmental and health benefits because they have a lower carbon footprint and reduce the risk of chronic diseases (Poore & Nemecek, 2018). However, there is insufficient evidence on how eating motivations (e.g., health, pleasure, habits) and perceptions of health play a role in individuals adopting such dietary habits (Renner et al., 2012). Furthermore, it is thought that perceptions of health may mediate individuals' adoption of sustainable eating behaviors. For example, individuals who

perceive their health more positively are more likely to choose healthier and more sustainable foods (Diamond et al., 2007; Kadioglu & Yildiz, 2012). Therefore, the purpose of this study is to examine the effects of carbon footprint awareness and sustainable nutrition on eating motivations and health perception.

Methods

Research population and sample: The population of this descriptive and cross-sectional study consisted of students enrolled at the Faculty of Health Sciences and the Faculty of Medicine at Gaziantep Islamic Science and Technology University during the 2024-2025 academic year. The sample of the study consists of students from the Faculty of Health Sciences and the Faculty of Medicine at Gaziantep Islamic Science and Technology University who were reached during the specified dates and agreed to participate in the study (n=981). The study was approved by the Ethics Committee of Gaziantep Islamic Science and Technology University (Date: 12.03.2025; Ethics Committee Approval No: 565.44.18) and the necessary permissions were obtained from the Deans of the Faculty of Medicine and the Faculty of Health Sciences of the university. Inclusion criteria for the study:

- Being a student at the Faculty of Health Sciences and the Faculty of Medicine at Gaziantep Islamic Science and Technology University
- Being 18 years of age or older,
- Volunteering to participate in the study.

Exclusion criteria for the study;

- Individuals who are not students of the Faculty of Health Sciences and Faculty of Medicine at Gaziantep Islamic Science and Technology University,
- Individuals under the age of 18,
- Those who did not wish to participate in the study were excluded from the research.

Data collection tools: Individuals were interviewed once for this study. Research data were collected by the researcher through face-to-face interviews and a prepared questionnaire. The questionnaire and assessment information administered to

individuals are presented in detail below.

Personal Information Form: The personal information form was prepared by the researchers in line with the literature. The form assessed the sociodemographic characteristics of the individuals included in the study. In addition, participants were asked to declare their body weight (kg) and height (cm). Body Mass Index (BMI) was calculated using these data. BMI was calculated by dividing body weight (kg) by height (m) squared, and the results were classified according to the World Health Organization (WHO) classification as Obese ($\text{BMI} \geq 30 \text{ kg/m}^2$), Overweight ($25.0 \leq \text{BMI} < 30.0 \text{ kg/m}^2$), Normal ($18.5 \leq \text{BMI} < 25.0 \text{ kg/m}^2$), and Underweight ($\text{BMI} < 18.5 \text{ kg/m}^2$) categories.

Carbon Footprint Scale: The Carbon Footprint Scale is a comprehensive measure developed to assess individuals' carbon footprint awareness and environmental sustainability behaviors. The scale was prepared by Ustgorul, Akkaya, Palazzo, and Micozzi (2024). The study was conducted on 500 university students, and the scale's total Cronbach's alpha value was found to be 0.87, and the test-retest reliability coefficient was determined to be 0.91. These reliability coefficients confirm that the scale has high internal consistency and stability.

The scale consists of a total of 19 items, with a minimum score of 19 and a maximum score of 95. Higher scores indicate greater carbon footprint awareness and sustainable behaviors. Subscale scores are obtained by dividing the total of the scores given to the items in the subscale by the number of items in the subscale. This method increases the ability of the subscales to reflect overall carbon footprint awareness.

Sustainable Eating Behavior Scale: This scale consists of four sub-dimensions and contains a total of 29 items. Each sub-dimension evaluates different components of sustainable eating behaviors, and the item distributions are as follows:

- **Food Choice:** Measures the extent to which participants make food choices considering environmental impacts. This sub-dimension covers Items 1-6.
- **Reducing Food Waste:** Assesses

behaviors related to preventing food waste and reducing food scraps. This sub-dimension includes items 7-15.

- **Seasonal and Local Nutrition:** Measures sustainable nutrition behaviors such as choosing foods that are in season and supporting local producers. This sub-dimension consists of items 16-23.

- **Food Purchasing:** Assesses behaviors such as making environmentally friendly choices when purchasing food, avoiding unnecessary consumption, and reducing plastic waste. This sub-dimension consists of items 24-29.

The scale is answered using a 5-point Likert-type scoring system, with the following response options: 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Always

The minimum score that can be obtained from the scale, which consists of a total of 29 items, is 29, and the maximum score is 145, with higher scores indicating higher sustainable nutrition behaviors.

Subscale scores are obtained by dividing the total of the scores given to the items in the subscale by the number of items in the subscale. This method increases the ability of the subscales to reflect overall sustainable eating behaviors. The scale was developed by Garipoglu, Koc, and Ozlu (2023) and has a Cronbach Alpha value of 0.92. In addition, the test-retest reliability coefficient was found to be 0.96. These reliability coefficients confirm that the scale has high internal consistency and stability.

The Eating Motivation Questionnaire Short Form (TEMS-KF): A comprehensive and multifaceted measurement tool developed to determine individuals' reasons for eating and food choices. The scale was adapted from the original form developed by Renner et al.

(2012) and translated into Turkish by Rabia Melda Karaagac and Serap Andac Ozturk (2022). Validity and reliability studies show that TEMS-KF is a valid and reliable measurement tool for adults in Turkey. The Cronbach's Alpha value of the scale was found to be 0.952, and its test-retest reliability was determined to be high. TEMS-KF consists of 15 subscales and 45 items.

The scale is answered using a 7-point Likert-type scoring system, with the following

response options: 1 = Never, 2 = Rarely, 3 = Occasionally, 4 = Often, 5 = Most of the time, 6 = Almost always, 7 = Always. The minimum score that can be obtained from the 45-item scale is 45, and the maximum score is 315, with higher scores indicating higher eating motivation. Subscale scores are obtained by calculating the averages of the items in the relevant subscale. Validity and reliability analyses were conducted using . The Cronbach's Alpha coefficient for the scale was found to be 0.952, and the Cronbach's Alpha values for the subscales ranged from 0.754 to 0.859. This scale holds an important place in the literature as a reliable and valid tool that can be used in academic studies to understand eating behaviors, assess food choice motivations, and examine factors related to eating disorders.

Health Perception Scale (HPS): This is a reliable measurement tool developed to assess individuals' perceptions of health in a multidimensional and comprehensive manner. Originally developed by Diamond and colleagues (2007), this scale was adapted into Turkish, and its validity and reliability studies were conducted by Kadioglu and Yildiz (2012). As a result of the validity and reliability analyses, the Cronbach's Alpha coefficient of the HPS was found to be 0.77 for nursing students and 0.70 for the students' families, confirming that it has a good level of reliability in both groups. The Health Perception Scale is a 5-point Likert-type measure consisting of 15 items and four subfactors. The subfactors of the scale are defined as: Control Center (Items 1-4), Self-Awareness (Items 5-7), Certainty (Items 8-11), and Importance of Health (Items 12-15). Each sub-factor assesses different dimensions of health perception. This scale holds an important place in the literature as a comprehensive and reliable measurement tool that can be used in academic studies to understand individuals' perceptions of health, evaluate health behaviors, and examine factors related to health beliefs. Furthermore, it can form a strong basis for multidimensional research by linking sustainable eating behaviors, emotional eating, and perceptions of health.

Data analysis: Data analyses were performed using SPSS (Statistical Package for the Social Sciences, version 26.0) and AMOS software. Before starting the analysis process, the data set was checked for missing values, outliers, and normality assumptions. The assumption of normal distribution was met because the skewness and kurtosis values of all variables were within the ± 1 range. The internal consistency of the scales was assessed using Cronbach's alpha coefficient, and it was determined that the reliability levels of all scales were above acceptable limits ($\alpha > 0.70$). First, the participants' sociodemographic characteristics (age, gender, department, class, BMI, etc.) and scale score distributions were presented using descriptive statistics (mean, standard deviation, frequency, percentage). An independent samples t-test was used to determine whether the scale scores differed according to participants' carbon footprint awareness levels, and the assumption of variance homogeneity was assessed using the Levene test. Welch's t-test results were reported when variances were unequal. Pearson correlation analysis was applied to examine the relationships between variables. Stepwise (hierarchical) multiple linear regression analysis was performed to determine the predictive effects of the variables on sustainable eating behavior. Finally, a mediation analysis was performed. The direct and indirect effects of carbon footprint awareness on sustainable nutrition were tested with the mediating role of social norms, social interaction, social image, visual content, health perception, and emotion regulation variables. The analysis was performed using the Bootstrap method (B=200 resampling), and 95% confidence intervals (CI) were calculated. A statistical significance level of $p < 0.05$ was accepted in all analyses.

Results

A total of 981 university students participated in the study. The mean age of the participants was 20.64 ± 2.35 years. Regarding gender distribution, 74.9% of the participants were female ($n=735$) and 25.1% were male ($n=246$). In terms of marital status, the vast majority of participants were single (97.7%),

with only 2.3% being married. When examining the department distribution, it was determined that 41.9% of the students were studying Nursing, 23.2% Midwifery, 20.7% Medicine, and 14.2% Physical Therapy and Rehabilitation. When examined by class level, first-year students (39.3%) constituted the largest portion of participants. Second-year (28.6%) and third-year (19.2%) students were moderately represented, while fourth-year students constituted the lowest proportion (12.8%). The average Body Mass Index (BMI) of the participants was determined to be $23.03 \pm 3.81 \text{ kg/m}^2$. When the distribution according to BMI classes was examined, 58.9% of the participants were classified as normal weight, 29.0% as overweight, 7.4% as underweight, and 4.7% as obese. This finding reveals that the majority of students are within a healthy weight range, but approximately one-third are at risk of being overweight.

Participants' Carbon Footprint Awareness score averaged 64.01 ± 12.95 , ranging from 19 to 95. The average score on the Sustainable Eating Behavior scale was found to be 96.48 ± 16.67 . The score range varies between 30 and 132. When examining the sub-dimensions;

- Food Waste Reduction (3.37 ± 0.72),
- Seasonal and Local Nutrition (3.51 ± 0.54), and
- Food Purchasing (3.20 ± 0.73) subdimensions were found to be in the medium-high trend range between 1 and 5.

Looking at the subscales of the Eating Motivations Scale, all scores fall within the range of 1–7. The subdimension with the highest average is Sociability (4.69 ± 1.46), followed by Enjoyment (4.63 ± 1.33), Pleasure (4.54 ± 1.36), and Naturalness (4.50 ± 1.31).

lower averages were observed in the sub-dimensions of Habit (3.95 ± 1.36), Emotion (4.17 ± 1.24), and Price (4.28 ± 1.21). The Health Perception Total Score was found to be 40.96 ± 7.29 on average (min=21, max=70). Participants were divided into two groups based on their level of carbon

footprint awareness: low awareness group (n=247) and high awareness group (n=734). The sustainable nutrition score of the high awareness group (100.29 ± 14.72) was significantly higher than that of the low awareness group (85.08 ± 17.01) ($t=-12.58$, $p<0.001$). The difference in health perception scores was not statistically significant ($p=0.864$). Significant differences were observed among the eating motivation subdimensions: The mean for the Need and Hunger dimension was lower in the high awareness group ($t=-1.99$, $p=0.048$). Health ($t=-21.29$, $p<0.001$), Suitability ($t=-21.49$, $p<0.001$), Natural Content ($t=-21.81$, $p<0.001$), Visual Content ($t=-3.28$, $p=0.001$), Weight Control ($t=-22.66$, $p<0.001$), Social Norm ($t=-16.16$, $p<0.001$), Social Image ($t=-11.55$, $p<0.001$), and Social Interaction ($t=-16.08$, $p<0.001$) subscales.

The relationships between the variables included in this study were examined using Pearson correlation analysis. The analysis results showed that there were significant relationships between carbon footprint awareness, sustainable eating behaviors, health perception, and various subdimensions of eating motivation. The findings reveal that individuals' environmental and health-based eating attitudes support each other within a multidimensional psychosocial structure.

First, carbon footprint awareness was strongly positively correlated with sustainable nutrition ($r=0.52$, $p<0.01$), health perception ($r=0.80$, $p<0.01$), natural content ($r=0.80$, $p<0.01$), social norms ($r=0.64$, $p<0.01$), social interaction ($r=0.60$, $p<0.01$), and social image ($r=0.59$, $p<0.01$). Similarly, the sustainable nutrition behavior score showed strong positive relationships with health perception ($r=0.89$, $p<0.01$), natural content ($r=0.89$, $p<0.01$), social norm ($r=0.71$, $p<0.01$), social image ($r=0.65$, $p<0.01$), and social interaction ($r=0.65$, $p<0.01$). Health perception was one of the variables showing the strongest relationships in this study. Very strong positive relationships were found between health perception and natural content

($r=0.94$, $p<0.01$), body weight control ($r=0.93$, $p<0.01$), social norm ($r=0.70$, $p<0.01$), and social image ($r=0.70$, $p<0.01$). The relationships between the subdimensions of eating motivation are also noteworthy. Naturalness–health ($r=0.74$, $p<0.01$), social norm–social interaction ($r=0.74$, $p<0.01$), and social image–social interaction ($r=0.52$, $p<0.01$) indicate that

individuals shape their dietary preferences based on both naturalness and health motivations and motivations to be accepted in a social context. In contrast, no significant relationship was found between carbon awareness and sustainable nutrition in terms of sub-dimensions such as price, habit, liking, and emotion regulation ($p>0.05$).

Table 1. General Characteristics of Participants

Characteristic	Value
Age (Mean $\pm$ SD)	20.64 $\pm$ 2.35
Gender n (%)	
Male	246 (25.1%)
Female	735 (74.9%)
Marital Status n (%)	
Single	958 (97.7%)
Married	23 (2.3%)
Section n (%)	
Medicine	203 (20.7%)
Physical Therapy and Rehabilitation	139 (14.2%)
Nursing	411 (41.9%)
Midwifery	228 (23.2%)
Grade n (%)	
1st Class	386 (39.3%)
2nd Grade	281 (28.6%)
3rd Grade	188 (19.2%)
4th Grade	126 (12.8%)
Weight (Mean $\pm$ SD)	63.98 $\pm$ 12.86
Body Mass Index (BMI) (Mean $\pm$ SD)	23.03 $\pm$ 3.81
BMI Class n (%)	
Underweight	73 (7.4%)
Normal	578 (58.9%)
Overweight	284 (29.0%)
Obese	46 (4.7%)

Table 2. Mean, Standard Deviation, and Minimum–Maximum Values of Scale and Subscale Scores

Scale / Subscale	Mean $\pm$ SD	Min–Max
Carbon Footprint Awareness	64.01 $\pm$ 12.95	19–95
Sustainable Nutrition	96.48 $\pm$ 16.67	30–132
Reducing Food Waste	3.37 $\pm$ 0.72	1–5
Seasonal and Local Nutrition	3.51 $\pm$ 0.54	1.1–4.4
Food Purchasing	3.20 $\pm$ 0.73	1–5

Eating Motivations		
Enjoyment	4.63 ± 1.33	1–7
Habit	3.95 ± 1.36	1–7
Need and Hunger	4.59 ± 1.34	1–7
Health	4.38 ± 1.27	1–7
Suitability	4.44 ± 1.27	1–7
Pleasure	4.54 ± 1.36	1–7
Tradition	4.14 ± 1.23	1–7
Naturalness	4.50 ± 1.31	1–7
Price	4.28 ± 1.21	1.3–7
Visuality	4.26 ± 1.23	1–7
Body Weight Control	4.33 ± 1.27	1–7
Emotionality	4.17 ± 1.24	1–7
Sociality	4.69 ± 1.46	1–7
Socialization	4.38 ± 1.26	1–7
Health Perception Total Score	40.96 ± 7.29	21–70

*Avg: Average, SD: Standard Deviation, Min–Max: Minimum–Maximum Values.

Table 3. Comparison of Scale and Subscale Scores According to Carbon Awareness Class

Variable	Low Level (n=247) Mean ± SD	High Level (n=734) Mean ± SD	t	p
Sustainable total nutrition score	85.08 ± 17.01	100.29 ± 14.72	-12.58	<0.001
Health perception (total)	41.59 ± 7.26	41.68 ± 6.38	-0.17	0.864
Liking	3.66 ± 0.61	3.71 ± 0.58	-1.02	0.309
Habit	3.61 ± 0.71	3.59 ± 0.68	0.41	0.680
Need and hunger	3.44 ± 0.72	3.52 ± 0.67	-1.99	0.048
Health	3.59 ± 0.45	4.26 ± 0.38	-21.29	<0.001
Suitability	2.76 ± 0.55	3.62 ± 0.52	-21.49	<0.001
Pleasure	3.79 ± 0.49	3.73 ± 0.56	1.51	0.133
Traditional meal	3.12 ± 0.74	3.09 ± 0.75	0.53	0.594
Natural content	3.39 ± 0.48	4.13 ± 0.42	-21.81	0.000
Price	2.73 ± 0.74	2.69 ± 0.81	0.58	0.565
Visual content	3.18 ± 0.67	3.34 ± 0.64	-3.28	0.001
Body weight control	3.28 ± 0.47	4.04 ± 0.43	-22.66	<0.001
Emotionality regulation	3.47 ± 0.70	3.44 ± 0.70	0.53	0.598
Social norm	3.11 ± 0.56	3.76 ± 0.52	-16.16	<0.001
Social image	2.68 ± 0.66	3.24 ± 0.65	-11.55	<0.001
Social interaction	3.09 ± 0.58	3.77 ± 0.57	-16.08	<0.001

*Mean: Mean, SD: Standard Deviation. Welch's t-test was used (variances were not assumed to be equal). $p < 0.05$ was considered significant.

Table 4. Pearson Correlation Coefficients Between Variables (Carbon Footprint Awareness, Sustainable Nutrition, Health Perception, and Eating Motivations)

		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1.	Carbon awareness	r	0.524**	0.06	0.802**	0.798**	0.636**	0.451**	-0.079*	-0.04	0.769**	-0.04	-0.091**	0.01	0.145**	0.085**	0.596**	-0.01	0.805**
		p	<0.01	0.08	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	0.22	<0.01	0.19	<0.01	0.83	<0.01	0.01	<0.01	0.75
2.	Sustainable nutrition	r	1.00	0.138**	0.887**	0.884**	0.706**	0.493**	-0.108**	-0.03	0.890**	0.00	-0.082**	0.04	0.144**	0.04	0.651**	-0.04	0.871**
		p		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.39	<0.01	0.98	0.01	0.25	<0.01	0.24	<0.01	0.22
3.	Health perception	r		1.00	0.117**	0.115**	.069*	0.108**	-0.03	-0.086**	0.129**	0.00	-0.04	-0.03	0.05	<0.01	0.05	-0.02	0.106**
		p			<0.01	<0.01	0.03	<0.01	0.27	0.01	<0.01	0.92	0.21	0.29	0.10	0.99	0.09	0.55	<0.01
4	Health	r			1.00	0.940**	0.747**	0.527**	-0.102**	-0.03	0.931**	-0.02	-0.094**	0.02	0.157**	0.06	0.701**	-0.05	0.934**
		p				<0.01	<0.01	<0.01	<0.01	0.38	<0.01	0.62	<0.01	0.60	0<0.01	0.07	<0.01	0.15	<0.01
5	Natural content	r				1.00	0.744**	0.521**	-0.096**	-0.03	0.928**	-0.02	-0.090**	0.02	0.159**	0.072*	0.700**	-0.03	0.934**
		p					<0.01	<0.01	<0.01	0.31	<0.01	0.49	<0.01	0.54	<0.01	0.02	<0.01	0.30	<0.01
6.	Social norm	r					1.00	0.408**	-0.06	-0.06	0.738**	-0.087**	-0.074*	0.02	0.078*	0.063*	0.552**	0.01	0.744**
		p						<0.01	0.06	0.08	<0.01	0.01	0.02	0.63	0.01	0.05	<0.01	0.87	<0.01
7	Social image	r						1.00	-0.03	0.00	0.517**	0.03	-0.068*	0.01	0.087**	-0.01	0.400**	0.01	0.516**
		p							0.38	0.94	<0.01	0.42	0.03	0.78	0.01	0.87	<0.01	0.82	<0.01
8.	Pleasure	r							1.00	-0.03	-0.103**	-0.02	-0.03	0.02	-0.02	0.00	-0.116**	0.02	-0.105**
		p								0.34	<0.01	0.46	0.28	0.50	0.58	0.95	<0.01	0.44	<0.01
9.	Liking	r								1.00	-0.04	-0.04	-0.03	-0.01	0.02	0.01	-0.03	-0.03	-0.03
		p									0.18	0.19	0.34	0.76	0.53	0.86	0.28	0.28	0.28
10.	Suitability	r									1.00	-0.03	-0.100**	0.03	0.160**	0.06	0.683**	-0.04	0.920**
		p										0.39	0.00	0.40	<0.01	0.06	<0.01	0.26	<0.01
11.	Emotional Regulation regulation	r										1.00	0.04	0.04	<0.01	0.06	-0.05	<0.01	-0.02
		p											0.27	0.17	0.89	0.08	0.15	0.99	0.52
12.	Price	r											1.00	0.00	0.02	-0.03	-0.073*	-0.02	-0.101**
		p												0.92	0.48	0.33	0.02	0.50	<0.01
13.	Habit	r												1.00	.087**	-0.02	0.04	0.01	0.01
		p													0.01	0.62	0.24	0.80	0.80
14.	Visual content	r													1.00	0.05	0.122**	-0.06	.153**
		p														0.15	<0.01	0.06	<0.01
15.	Need and hunger	r														1.00	.068*	0.01	0.069*
		p															0.03	0.68	0.03
16.	Social interaction	r															1.00	-0.01	.686**
		p																0.67	<0.01
17.	Traditional meal	r																1.00	-0.04
		p																	0.21
18.	Body weight control	r																	1.00
		p																	

Discussion

This study reveals the effects of carbon footprint awareness and sustainable nutrition on eating motivations and health perception. The findings reveal that carbon awareness shapes sustainable eating behaviors not directly, but largely through psychosocial factors. In particular, social norms and social interaction elements play a key role in transforming individuals' environmental awareness into behavioral change. This result shows that individuals with high levels of environmental awareness develop more sustainable eating preferences through social acceptance and social approval mechanisms.

These findings contribute significantly to the literature by revealing that individuals with high levels of environmental awareness develop more sustainable eating preferences through social acceptance and social approval mechanisms.

The concept of carbon footprint refers to the measurement of greenhouse gas emissions from human activities in terms of carbon dioxide equivalents (Wiedmann et al., 2008). This measurement covers carbon dioxide and similar gases released into the atmosphere as a result of fossil fuel use, electricity consumption, food production, transportation, and other activities (Akçay & Pekel, 2017). The participants' Carbon Footprint Awareness score averaged 64.01 ± 12.95 , ranging from 19 to 95.

There are a limited number of studies in the scientific literature in Turkey on the concept of sustainability and sustainable nutrition. In our study, the average score on the Sustainable Nutrition Behavior scale was found to be 96.48 ± 16.67 . The score range varies between 30 and 132. When the sub-dimensions are examined;

- Food Waste Reduction (3.37 ± 0.72),
- Seasonal and Local Nutrition (3.51 ± 0.54), and
- Food Purchasing (3.20 ± 0.73) sub-dimensions were found to be in the medium-high trend range between 1 and 5. Similar studies exist in the literature (Kaya et al., 2009; Cabuk &

Karacaoglu, 2003; Arık & Yılmaz 2017; Senyurt et al., 2011).

Eating disorders are chronic diseases that begin with inadequate or excessive food intake, subsequently causing persistent disturbances in eating attitudes and behaviors, and posing a threat to life with high morbidity and mortality rates (APA, 2013). In addition to their negative clinical picture, success rates in the treatment of eating disorders are also low (Fairburn and Harrison, 2003). In a study conducted by Smink et al. (2013), the five-year recovery rates for anorexia nervosa (AN) and bulimia nervosa (BN) were reported to be 69% and 55%, respectively.

Additionally, eating disorders have the highest mortality rate among all psychiatric disorders (Arcelus et al., 2011). Given the acceptance that prevention is the best form of treatment, identifying the cognitive and behavioral factors associated with binge eating becomes crucial. Eating behavior consists of a combination of many factors that affect individuals' health and nutrition (Marcone, Madan, & Grodzinski, 2020). Eating motivations are the factors that guide individuals' eating behaviors and food choices. Since eating motivations are reported to be related to healthy eating behaviors, it is crucial to understand why consumed foods are eaten. In our study, when examining the subscales of the Eating Motivations Scale, all scores fall within the range of 1–7. The subscale with the highest mean was Sociability (4.69 ± 1.46), followed by Enjoyment (4.63 ± 1.33), Pleasure (4.54 ± 1.36), and Naturalness (4.50 ± 1.31). Relatively lower averages were observed in the sub-dimensions of Habit (3.95 ± 1.36), Emotion (4.17 ± 1.24), and Price (4.28 ± 1.21).

The concept of health perception is defined as the totality of an individual's feelings and thoughts about their own health (Soysal & Yigit, 2021). Having positive thoughts about one's own health is defined as "good health perception," while having negative thoughts is defined as "poor health perception" (94). There is a positive correlation between the development of healthy lifestyle habits and having a

positive health perception (Tosunoz, 2021). One of the most important opportunities that can be provided for workers, who constitute the majority of people in our country, is to encourage them to acquire and maintain healthy lifestyle behaviors and to improve their health perceptions (Kolac et al., 2018). When creating programs aimed at improving public health, workplaces where private sector employees and public personnel are located, which are environments where people gather, create an efficient area for reaching as many people as possible at the same time (Agacdiken et al., 2017). In our study, the average Health Perception Total Score was found to be 40.96 ± 7.29 (min=21, max=70).

Additionally, carbon footprint awareness showed strong positive correlations with sustainable nutrition ($r=0.52$, $p<0.01$), health perception ($r=0.80$, $p<0.01$), natural content ($r=0.80$, $p<0.01$), social norms ($r=0.64$, $p<0.01$), social interaction ($r=0.60$, $p<0.01$), and social image ($r=0.59$, $p<0.01$). Similarly, the sustainable nutrition behavior score showed strong positive correlations with health perception ($r=0.89$, $p<0.01$), natural content ($r=0.89$, $p<0.01$), social norm ($r=0.71$, $p<0.01$), social image ($r=0.65$, $p<0.01$), and social interaction ($r=0.65$, $p<0.01$). Health perception was one of the variables that showed the strongest relationship in this study. Health perception showed strong positive relationships with natural content ($r=0.94$, $p<0.01$), body weight control ($r=0.93$, $p<0.01$), social norm ($r=0.70$, $p<0.01$), and social.

Strong positive correlations were found between image ($r=0.70$, $p<0.01$). The relationships between the sub-dimensions of eating motivation are also noteworthy. High positive correlations such as naturalness–health ($r=0.74$, $p<0.01$), social norm–social interaction ($r=0.74$, $p<0.01$), and social image–social interaction ($r=0.52$, $p<0.01$) indicate that individuals shape their dietary preferences based on both naturalness and health motivations and motivations related to social acceptance. In contrast, no significant relationship was found between carbon awareness and

sustainable nutrition and sub-dimensions such as price, habit, liking, and emotion regulation ($p>0.05$). A review of the literature reveals that studies explaining the effects of Carbon Footprint Awareness and Sustainable Nutrition on Eating Motivations and Health Perception are limited.

Conclusion and Recommendations:

These findings reveal that carbon awareness shapes sustainable eating behaviors not directly, but largely through psychosocial factors. In particular, social norms and social interaction elements play a key role in translating individuals' environmental awareness into behavioral levels. This result shows that individuals with a high level of environmental awareness develop more sustainable eating preferences through social acceptance and social approval mechanisms. Therefore, in order to increase sustainable eating behaviors, motivational factors such as social influence, visibility, and social belonging must be taken into account, not just environmental awareness.

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