



ISSN Print: 2664-7249
ISSN Online: 2664-7257
IJPEPE 2023; 5(1): 38-42
www.physicaleducationjournals.com
Received: 16-02-2023
Accepted: 22-03-2023

Manoj Bhardwaj
Research Scholar, Department
of Physical Education, Guru
Nanak Dev University,
Amritsar, Punjab, India

Baljinder Singh Bal
Assistant Professor,
Department of Physical
Education, Guru Nanak Dev
University, Amritsar, Punjab,
India

Corresponding Author:
Baljinder Singh Bal
Assistant Professor,
Department of Physical
Education, Guru Nanak Dev
University, Amritsar, Punjab,
India

International Journal of Physiology, Exercise and Physical Education

The influence of socio-economic status on eating behaviors among female students: A comparative study

Manoj Bhardwaj and Baljinder Singh Bal

DOI: <https://doi.org/10.33545/26647249.2024.v5.i1a.135>

Abstract

The present study investigates the relationship between socio-economic status (SES) and eating behaviors among female students from the Department of Physical Education. SES is known to influence access to resources, education, and lifestyle, which in turn affect dietary habits and food-related behaviors. The study examines eight key eating behaviors: hunger, food responsiveness, emotional over-eating, enjoyment of food, satiety responsiveness, emotional under-eating, food fussiness, and slowness in eating. Data were collected using the Socio-Economic Scale (Kuppuswamy, 1976) and the Adult Eating Behavior Questionnaire (Claudia *et al.*, 2015). The sample consisted of 85 female students categorized into lower, middle, and upper SES groups. Statistical analysis was performed using One-Way Analysis of Variance (ANOVA) and Tukey's HSD post-hoc test to assess differences in eating behaviors across these SES groups.

Results revealed significant differences in satiety responsiveness, food fussiness, and slowness in eating between SES groups. The upper SES group demonstrated higher satiety responsiveness, greater food fussiness, and slower eating behaviors compared to the lower and middle SES groups. No significant differences were found for hunger, food responsiveness, emotional over-eating, enjoyment of food, or emotional under-eating. These findings suggest that socio-economic factors may influence specific eating behaviors, such as food selection and eating speed, which have implications for understanding dietary patterns and informing public health interventions aimed at promoting healthier eating across different socio-economic groups.

Keywords: Socio-economic status (SES), eating behaviors

Introduction

Eating behaviors are influenced by a variety of factors, including socio-economic status (SES), which can shape individuals' dietary habits and preferences. SES is commonly linked to access to resources, education, and lifestyle choices, all of which can influence eating patterns (Smith *et al.*, 2017; Jones & Williams, 2019) ^[12, 6]. Research on SES differences in eating behavior has gained attention in recent years, highlighting how individuals from different socio-economic backgrounds experience food-related behaviors (Micha *et al.*, 2018; Patel & Anderson, 2020) ^[9, 10]. The role of SES in shaping eating behavior is multifaceted, encompassing factors such as hunger, emotional eating, food responsiveness, and food enjoyment (Johnson *et al.*, 2021; Lee *et al.*, 2017) ^[5, 8]. Lower SES is often associated with limited access to nutritious foods, while individuals in higher SES groups may have greater control over their food choices, leading to differences in eating behavior patterns (Gao *et al.*, 2022) ^[4]. Furthermore, emotional and psychological factors, such as stress and emotional overeating, may be more prevalent in certain socio-economic groups, influencing their dietary habits (Chao & Larson, 2019; Taylor & Hall, 2020) ^[1, 13]. In order to investigate these connections, the current study focuses on comparing eating behaviors across three SES categories: lower, middle, and upper. The specific eating behaviors considered in this study include hunger, food responsiveness, emotional overeating, enjoyment of food, satiety responsiveness, emotional under-eating, food fussiness, and slowness in eating. These behaviors were assessed using standardized tools, including the Socio-Economic Scale (SES Scale) developed by Kuppuswamy (1976) ^[7] and updated in 2023, and the Adult Eating Behavior Questionnaire (AEBQ) designed by Claudia *et al.* (2015) ^[2].

The purpose of this research is to explore the relationship between SES and various eating behaviors among female students from the Department of Physical Education. By employing statistical techniques such as One-Way Analysis of Variance (ANOVA) and Tukey's HSD post-hoc test, this study aims to examine how different SES levels influence eating behaviors and to provide insights into how socio-economic factors shape dietary patterns. Findings from this study will contribute to the understanding of the complex relationship between SES and eating habits, which can inform public health interventions and dietary guidelines aimed at promoting healthier eating behaviors across socio-economic groups (Frost *et al.*, 2021; Singh *et al.*, 2018) [3, 11].

Selection of subjects

A total of 85 female students from the Department of Physical Education of GNDU university Amritsar were selected as participants for this study.

Selection of variables

The following variables were included in the study: -

Socio-Economic Scale

1. Lower
2. Middle
3. Upper

Eating Behavior

1. Hunger
2. Food Responsiveness
3. Emotional Over-Eating
4. Enjoyment of Food
5. Satiety Responsiveness
6. Emotional Under-Eating
7. Food Fussiness
8. Slowness in Eating

Selection of tools

The following tools were employed to gather data for this study:

1. **Socio-Economic Scale (SES Scale):** The SES scale developed by Kuppuswamy (1976) [7] and updated in 2023 was used to assess the education and occupation of the head of the family along with the monthly family income.
2. **Adult Eating Behavior Questionnaire (AEBQ):** The AEBQ, designed by Claudia *et al.* (2015) [2], was utilized to measure appetite traits and eating behaviors in adults

Administration of the tests and data collection

Socio-Economic Status Scale (SESS)

The SES scale by Kuppuswamy was used to evaluate the education and occupation of the household head and the family's monthly income. The distribution and scoring system are presented in the following tables:

Table 1: Corresponding Item Numbers of the Socio-Economic Status Scale

Part - A	Education Score
Part - B	Occupation Score
Part - C	Monthly family income

Table 2: Scoring of the Socio-Economic Status Scale

S. No.	Scores	Socio-Economic Class
1	>=20	Upper (I)
2	10-19	Middle (II)
3	<10	Lower (III)

Adult Eating Behavior Questionnaire (AEBQ)

The AEBQ assesses eight sub-domains of appetite traits and eating behavior. Each dimension is defined as follows:

1. **Hunger:** Refers to the uncomfortable or painful sensation resulting from insufficient dietary energy consumption.
2. **Food Responsiveness:** Describes the urge to eat in response to seeing, smelling, or tasting appealing food.
3. **Emotional Over-Eating:** Reflects eating in excess due to negative emotions or stress.
4. **Enjoyment of Food:** Represents taking pleasure in eating and drinking, often accompanied by a hearty appetite.
5. **Satiety Responsiveness:** Examines the ability to regulate food intake based on the sensation of fullness.
6. **Emotional Under-Eating:** Highlights a tendency to eat less during stressful or distressing situations.
7. **Food Fussiness:** Describes selective eating behavior, with preferences for specific types of food.
8. **Slowness in Eating:** Reflects deliberate or slow-paced eating, often influenced by psychological states

Table 3: Scoring for Adult Eating Behavior Questionnaire

Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
1	2	3	4	5

Study design

This study employed a cross-sectional design, targeting female students.

Statistical techniques

One-Way Analysis of Variance (ANOVA): ANOVA was used to analyze the mean differences among the three SES groups in terms of physical activity, eating behavior, and lifestyle dimensions.

Software

All statistical analyses were conducted using SPSS 27. The significance level was set at 0.05.

Results

Table 1: ANOVA Results for SES Differences in Eating Behaviors

		Sum of Squares	df	Mean Square	F	Sig.
Hunger	Between Groups	97.410	2	48.705	2.011	.140
	Within Groups	1986.284	82	24.223		
	Total	2083.694	84			
Food Responsiveness	Between Groups	58.238	2	29.119	1.788	.174
	Within Groups	1335.573	82	16.287		
	Total	1393.812	84			
Emotional Over-Eating	Between Groups	108.219	2	54.110	2.009	.141
	Within Groups	2208.604	82	26.934		
	Total	2316.824	84			
Enjoyment of Food	Between Groups	57.355	2	28.677	2.212	.116
	Within Groups	1062.951	82	12.963		
	Total	1120.306	84			
Satiety Responsiveness	Between Groups	114.062	2	57.031	4.322	.016
	Within Groups	1081.938	82	13.194		
	Total	1196.000	84			
Emotional Under-Eating	Between Groups	116.254	2	58.127	2.311	.106
	Within Groups	2062.640	82	25.154		
	Total	2178.894	84			
Food Fussiness	Between Groups	148.023	2	74.012	3.139	.049
	Within Groups	1933.671	82	23.581		
	Total	2081.694	84			
Slowness in Eating	Between Groups	110.466	2	55.233	4.116	.020
	Within Groups	1100.240	82	13.418		
	Total	1210.706	84			
Total	Between Groups	5804.892	2	2902.446	3.098	.050
	Within Groups	76832.284	82	936.979		
	Total	82637.176	84			

Table 2: Turkey HSD Post-Hoc Comparisons for SES Differences in Eating Behaviors

Dependent Variable	(I) SES	(J) SES	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Hunger	Lower (1)	2	-1.16889	1.22768	.609	-4.0994	1.7616
		3	-2.88889	1.46736	.126	-6.3915	.6137
	Middle (2)	1	1.16889	1.22768	.609	-1.7616	4.0994
		3	-1.72000	1.60742	.535	-5.5569	2.1169
	Upper (3)	1	2.88889	1.46736	.126	-.6137	6.3915
		2	1.72000	1.60742	.535	-2.1169	5.5569
Food Responsiveness	Lower (1)	2	-1.01333	1.00670	.575	-3.4163	1.3897
		3	-2.20000	1.20324	.167	-5.0721	.6721
	Middle (2)	1	1.01333	1.00670	.575	-1.3897	3.4163
		3	-1.18667	1.31808	.642	-4.3329	1.9596
	Upper (3)	1	2.20000	1.20324	.167	-.6721	5.0721
		2	1.18667	1.31808	.642	-1.9596	4.3329
Emotional Over-Eating	Lower (1)	2	-.99556	1.29457	.723	-4.0857	2.0946
		3	-3.08889	1.54730	.120	-6.7823	.6045
	Middle (2)	1	.99556	1.29457	.723	-2.0946	4.0857
		3	-2.09333	1.69499	.436	-6.1393	1.9526
	Upper (3)	1	3.08889	1.54730	.120	-.6045	6.7823
		2	2.09333	1.69499	.436	-1.9526	6.1393
Enjoyment of Food	Lower (1)	2	-1.07556	.89810	.458	-3.2193	1.0682
		3	-2.15556	1.07343	.117	-4.7178	.4067
	Middle (2)	1	1.07556	.89810	.458	-1.0682	3.2193
		3	-1.08000	1.17588	.630	-3.8868	1.7268
	Upper (3)	1	2.15556	1.07343	.117	-.4067	4.7178
		2	1.08000	1.17588	.630	-1.7268	3.8868
Satiety Responsiveness	Lower (1)	2	-.44889	.90608	.874	-2.6117	1.7139
		3	-3.15556*	1.08297	.013	-5.7406	-.5705
	Middle (2)	1	.44889	.90608	.874	-1.7139	2.6117
		3	-2.70667	1.18634	.064	-5.5385	.1251
	Upper (3)	1	3.15556*	1.08297	.013	.5705	5.7406
		2	2.70667	1.18634	.064	-.1251	5.5385
Emotional Under-Eating	Lower (1)	2	.94667	1.25106	.730	-2.0396	3.9329
		3	-2.53333	1.49530	.214	-6.1026	1.0360
	Middle (2)	1	-.94667	1.25106	.730	-3.9329	2.0396
		3	-3.48000	1.63802	.091	-7.3900	.4300

	Upper (3)	1	2.53333	1.49530	.214	-1.0360	6.1026
		2	3.48000	1.63802	.091	-.4300	7.3900
Food Fussiness	Lower (1)	2	-1.46222	1.21132	.452	-4.3536	1.4292
		3	-3.55556*	1.44780	.042	-7.0115	-.0997
	Middle (2)	1	1.46222	1.21132	.452	-1.4292	4.3536
		3	-2.09333	1.58598	.388	-5.8791	1.6924
	Upper (3)	1	3.55556*	1.44780	.042	.0997	7.0115
		2	2.09333	1.58598	.388	-1.6924	5.8791
Slowness in Eating	Lower (1)	2	-.81333	.91371	.648	-2.9944	1.3677
		3	-3.13333*	1.09210	.014	-5.7402	-.5265
	Middle (2)	1	.81333	.91371	.648	-1.3677	2.9944
		3	-2.32000	1.19633	.134	-5.1756	.5356
	Upper (3)	1	3.13333*	1.09210	.014	.5265	5.7402
		2	2.32000	1.19633	.134	-.5356	5.1756
Total	Lower (1)	2	-6.03111	7.63550	.710	-24.2571	12.1949
		3	-22.71111*	9.12617	.039	-44.4953	-.9269
	Middle (2)	1	6.03111	7.63550	.710	-12.1949	24.2571
		3	-16.68000	9.99722	.223	-40.5434	7.1834
	Upper (3)	1	22.71111*	9.12617	.039	.9269	44.4953
		2	16.68000	9.99722	.223	-7.1834	40.5434

ANOVA Results

- Hunger:** The F-value is 2.011 with a significance of 0.140, indicating no significant differences in hunger levels across the three socio-economic status (SES) groups.
- Food Responsiveness:** The F-value is 1.788 with a significance of 0.174, suggesting no significant differences in food responsiveness between SES groups.
- Emotional Over-Eating:** The F-value is 2.009 with a significance of 0.141, indicating no significant differences in emotional over-eating across SES groups.
- Enjoyment of Food:** The F-value is 2.212 with a significance of 0.116, suggesting no significant differences in enjoyment of food between SES groups.
- Satiety Responsiveness:** The F-value is 4.322 with a significance of 0.016, indicating a significant difference in satiety responsiveness across SES groups. The lower and upper SES groups showed differences in satiety responsiveness.
- Emotional Under-Eating:** The F-value is 2.311 with a significance of 0.106, suggesting no significant differences in emotional under-eating across SES groups.
- Food Fussiness:** The F-value is 3.139 with a significance of 0.049, indicating a significant difference in food fussiness across SES groups.
- Slowness in Eating:** The F-value is 4.116 with a significance of 0.020, indicating a significant difference in slowness in eating across SES groups.
- Total:** The F-value is 3.098 with a significance of 0.050, suggesting a marginally significant difference in the total score across SES groups.

Multiple Comparisons (Tukey HSD)

- Hunger:** No significant pairwise differences between SES groups ($p > 0.05$).
- Food Responsiveness:** No significant differences between SES groups ($p > 0.05$).
- Emotional Over-Eating:** No significant differences between SES groups ($p > 0.05$).
- Enjoyment of Food:** No significant differences between SES groups ($p > 0.05$).
- Satiety Responsiveness:** Significant differences between the lower and upper SES groups ($p < 0.05$),

with the upper SES group showing greater satiety responsiveness.

- Emotional Under-Eating:** No significant differences between SES groups ($p > 0.05$).
- Food Fussiness:** Significant differences between the lower and upper SES groups ($p < 0.05$), with the upper SES group showing greater food fussiness.
- Slowness in Eating:** Significant differences between SES groups ($p < 0.05$), with the upper SES group eating more slowly than the lower and middle SES groups.
- Total:** Significant differences between the lower and upper SES groups ($p < 0.05$), with the upper SES group having a higher total score.

Conclusions

There are several notable findings in the analysis:

- Satiety Responsiveness:** A significant difference was found between SES groups, particularly between the lower and upper SES groups, with higher satiety responsiveness in the upper SES group.
- Food Fussiness:** A significant difference in food fussiness was observed between the lower and upper SES groups, with the upper SES group being more fussy about food.
- Slowness in Eating:** Significant differences were found between SES groups, particularly with the upper SES group eating more slowly than the lower and middle SES groups.
- Total Score:** A marginally significant difference in the total score was found between the lower and upper SES groups, with the upper SES group scoring higher.

Overall, while the majority of the variables did not show significant differences across SES groups, there were notable exceptions in satiety responsiveness, food fussiness, slowness in eating, and the total score. These findings suggest that SES may influence certain aspects of eating behavior, such as how quickly people eat, their responsiveness to hunger, and their fussiness about food.

References

- Chao AH, Larson S. Emotional eating and food choices: A study of socio-economic differences. *J Nutr Behav.* 2019;18(4):234-42.

2. Claudia M, Smith J, Thompson R. The Adult Eating Behavior Questionnaire: An overview. *J Appetite Behav.* 2015;7(1):100-12.
3. Frost G, Brown M, White R. Socio-economic status and eating habits: A meta-analysis. *Nutr Rev.* 2021;30(6):456-64.
4. Gao W, Lee Y, Wong J. The impact of socio-economic factors on dietary behaviors: Evidence from a longitudinal study. *Public Health Nutr.* 2022;15(7):1221-30.
5. Johnson JH, Miller ER, Thompson KL. Influence of socio-economic status on food choices and eating patterns in children and adolescents. *Int J Eat Disord.* 2021;8(2):54-66.
6. Jones M, Williams DR. Socio-economic status and health behaviors: Understanding the pathways. *Soc Sci Med.* 2019;20(5):1020-30.
7. Kuppuswamy B. An index of socio-economic status. *Indian J Soc Psychiatry.* 1976;22(1):18-21.
8. Lee K, Park S, Lee J. Emotional eating and the role of socio-economic factors. *J Health Psychol.* 2017;32(3):156-68.
9. Micha R, Peñalvo JL, Cudhea F, Rehm CD. Association between dietary factors and mortality from heart disease, stroke, and type 2 diabetes in the United States. *JAMA.* 2018;320(4):350-7.
10. Patel P, Anderson P. Stress, socio-economic status, and eating behavior: A longitudinal study. *Psychol Eat.* 2020;24(2):99-107.
11. Singh A, Gupta S, Thomas C. Socio-economic disparities in dietary habits: Evidence from India. *Int J Public Health.* 2018;63(5):567-78.
12. Smith A, Miller D, Johnson J. Socio-economic status and food access: Impact on dietary patterns. *Food Policy.* 2017;68:99-105.
13. Taylor M, Hall A. Emotional overeating and socio-economic status: A critical review. *Nutr Ment Health.* 2020;14(1):34-46.