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THE DOUBLE-EDGED SWORD: SWIPE, ORDER, REGRET? THE HIDDEN TOLL OF FOOD DELIVERY APPS ON STUDENT HEALTH AND GRADES

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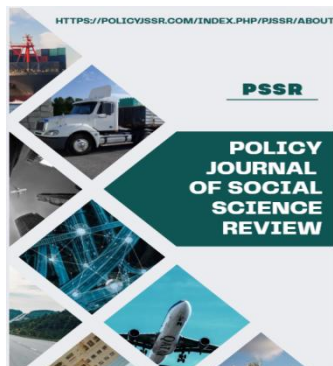
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ABSTRACT

The proliferation of Online Food Delivery (OFD) applications has redefined the consumer landscape within university campuses. While offering unprecedented convenience, these platforms present a "double-edged sword" for students balancing tight budgets and academic pressures. This study investigates the socio-demographic determinants and perceived outcomes of OFD app usage among 200 stratified hostel residents at the University of Agriculture, Faisalabad (UAF). Using a quantitative descriptive design and Chi-square bivariate analysis, the research identifies significant associations between gender, education level, and the perceived impact on budget and physical health. Results indicate that female students and Bachelor-level students are significantly more likely to perceive a negative impact on their financial stability ($p < 0.05$). Furthermore, a statistically significant association was found between education level and perceived physical health outcomes ($p = 0.003$), suggesting that higher awareness among advanced-degree students correlates with greater concern regarding dietary quality. Conversely, the field of study showed no significant bearing on health perceptions ($p = 0.860$). These findings highlight the need for targeted interventions that address the socio-economic vulnerabilities of the student populace within digital food environments.

Keywords: Online Food Delivery; University Students; Socioeconomic Factors; Perceived Health; Consumer Behavior; Pakistan.



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1. Introduction

The digital transformation of the food service industry has been particularly acute in higher education settings. University students represent a "digital-native" demographic, highly susceptible to the convenience of on-demand services (Wang et al., 2020). At the University of Agriculture, Faisalabad—Pakistan's premier agricultural institution—the residential hostel system houses approximately 9,000 students. Within this unique ecosystem, the reliance on OFD apps has shifted from a luxury to a routine coping mechanism for managing hectic academic schedules (Pelletier & Laska, 2013).

However, this convenience often masks underlying trade-offs. Prior research suggests that the frequent use of these apps is linked to increased consumption of energy-dense, nutrient-poor foods, potentially impairing cognitive function and academic performance (Kim et al., 2013). Moreover, the "swipe-and-order" culture introduces financial strain, as promotional offers often lead to impulsive overspending (Thomas & Subhashree, 2016). While global studies have explored these dynamics, there is a paucity of research examining how socioeconomic factors—such as gender and academic seniority—moderate these outcomes within the specific context of Pakistani public-sector universities. This study aims to fill this gap by exploring the drivers and

outcomes of OFD usage, specifically focusing on the perceived financial and health tolls among UAF students.

2. Materials and Methods

2.1 Study Design and Setting

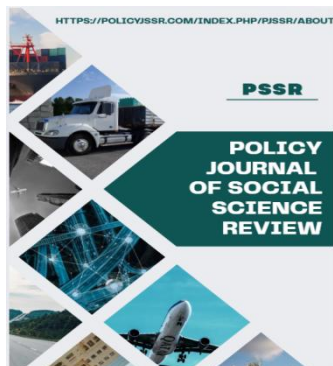
A quantitative, cross-sectional survey design was employed. The study was conducted at the University of Agriculture, Faisalabad (UAF), a public sector university established in 1906. The campus comprises 22 residential halls (10 male, 12 female) spread over 2,550 acres.

2.2 Sampling and Data Collection

The target population consisted of hostel residents. A sample size of 200 students was determined using a stratified sampling technique to ensure equal representation. Four hostels (two male, two female) were randomly selected. From each hostel, 50 students were chosen via simple random sampling using the official list obtained from the Office of the Hall Warden. Primary data was collected through a structured questionnaire featuring close-ended questions during May 2024. The instrument was pre-tested to ensure content validity and reliability, avoiding jargon and double-barreled questions (Foddy & Mantle, 1994).

2.3 Variables and Measurement

The independent variables included demographic indicators: **Age** (18-22, 23-27, 28+), **Gender** (Male/Female), **Education Level** (Associate/Bachelor's, Master's, M.Phil.), and **Field of Study**



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(Sciences vs. Social Sciences). The dependent variables were perceptions regarding the **impact on budget** and **physical health** measured on a 5-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree."

2.4 Statistical Analysis

Data was coded and edited for consistency before analysis using SPSS Version 22. Descriptive statistics (frequency and percentage) were computed. To test the hypotheses regarding associations between categorical variables, the **Pearson Chi-Square Test** was utilized. A p-value of less than 0.05 was considered statistically significant.

Table 1

Association between Gender and Impact on Budget

Gender	Disagree	Neutral	Agree	Strongly Agree	Total	χ^2	df	p-value
Male	9	36	46	9	100	23.564	3	0.000**
Female	32	27	24	17	100			

*Note: * $p < 0.01$. Significant association exists.

The data reveals a stark gender divide. While 55% of males agreed/strongly agreed that OFD apps impacted their budget, only 41% of females shared this

Table 2

Association between Gender and Physical Health

Gender	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total	χ^2	df	p-value
Male	19	21	30	24	6	100	10.927	4	0.027*
Female	37	12	24	25	2	100			

Note: * $p < 0.05$. Significant association exists.

3. Results

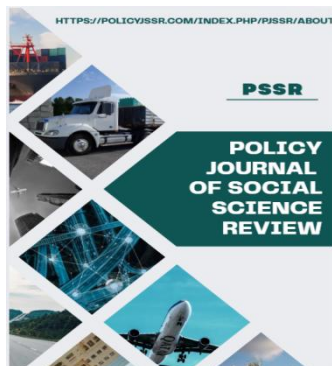
3.1 Demographic Profile

The sample comprised 100 male and 100 female students. The majority (48.5%) fell within the 18–22 age bracket. Regarding education, 97 respondents were Bachelor's students, 84 were Master's students, and 19 were M.Phil. scholars. A large proportion (84.5%) belonged to the Sciences (including Agriculture and Animal Sciences).

3.2 Association between Gender and Perceived Outcomes

Two hypotheses were tested to determine if gender influenced perceptions of budget and health.

view. Conversely, 32% of females strongly disagreed, compared to only 9% of males. This suggests females may exercise stricter financial restraint or possess heightened sensitivity to budgetary constraints.



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Female students reported significantly higher levels of disagreement regarding negative health impacts (49% Strongly Disagree/Disagree) compared to males

(40%). This may reflect differing dietary priorities or a perception that home-delivered food is safer than campus alternatives.

3.3 Association between Education Level and Perceived Outcomes

Table 3

Association between Education Level and Impact on Budget

Education Level	Disagree	Neutral	Agree	Strongly Agree	Total	χ^2	df	p-value
Bachelor's	11	32	36	18	97	20.602	6	0.002**
Master's	24	28	29	3	84			

*Note: * $p < 0.01$. Significant association exists.

Bachelor's students exhibited the highest tendency to agree that OFD usage strains their budget (55.6%), whereas Master's students were more likely to disagree

(28.5%). This aligns with Keeble et al. (2021), suggesting that as students progress academically, they adapt better financial management strategies or become more selective users.

Table 4

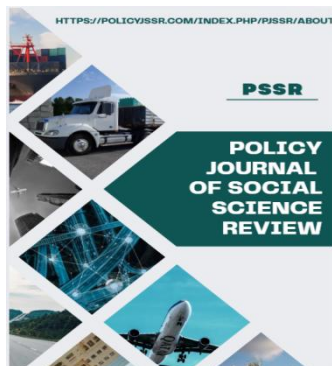
Association between Education Level and Physical Health

Education Level	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Total	χ^2	df	p-value
Bachelor's	21	50	17	8	1	97	23.457	8	0.003**
Master's	21	43	11	9	0	84			
M.Phil.	6	6	2	2	3	19			

*Note: * $p < 0.01$. Significant association exists.

Notably, M.Phil. students recorded the highest rate of "Strongly Agree" (15.8%) regarding negative health impacts. This

suggests that higher education levels correlate with greater nutritional literacy and awareness of the risks associated with frequent fast-food consumption (Ronto et al., 2017).



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3.4 Association between Field of Study and Perceived Outcomes

Table 5

Association between Field of Study and Impact on Budget

Field	Disagree	Neutral	Agree	Strongly Agree	Total	χ^2	df	p-value
Sciences	36	56	57	20	169	8.197	3	0.042*
Social Sciences	12	4	9	6	31			

Note: * $p < 0.05$. Significant association exists regarding budget impacts compared to Science students (45.5%).

Students in the Social Sciences were more likely to "Agree" or "Strongly Agree" (48.3%)

Table 6

Association between Field of Study and Physical Health

Field	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Total	χ^2	df	p-value
Sciences	49	26	46	41	7	169	1.307	4	0.860ns
Social Sciences	7	7	8	8	1	31			

Note: ns = Not Significant.

Unlike other variables, the field of study showed no statistically significant association with health perceptions ($p=0.860$). This implies that concerns about diet-related health issues transcend disciplinary boundaries on campus.

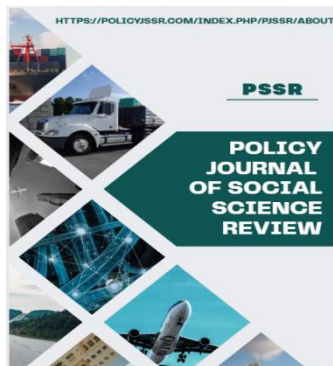
4. Discussion

The findings of this study confirm that OFD apps are a double-edged sword for university students. The "convenience" touted by platforms like Food Panda and Uber Eats (Bihade & Karande, 2010) comes at a measurable social cost.

The significant association between **gender and budget impact** suggests that female students at UAF face unique financial stressors. This could be attributed to the

"pink tax" or the need for specific dietary requirements not met by standard hostel mess facilities. However, the data showing females being less concerned about physical health impacts is intriguing. It may indicate that female students perceive OFD food as a safer alternative to uncertain hostel kitchen hygiene, a hypothesis worth exploring in future qualitative research.

The results concerning **education level** provide the most critical insight for policymakers. Bachelor's students are the most vulnerable group, struggling with both budget management and health perceptions. As students advance to M.Phil. levels, their concerns shift; while they manage their finances better, their heightened awareness of nutritional



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science (given UAF's focus on Agriculture/Sciences) makes them more critical of the food quality, leading to higher "Strongly Agree" responses on health impacts. This reflects a transition from "financial naivety" to "nutritional anxiety."

The lack of significance regarding the **field of study** on health outcomes reinforces the idea that the digital food environment is a universal challenge. Whether studying Business or Animal Sciences, the allure of convenience overrides discipline-specific knowledge when hunger strikes during intense academic sessions.

5. Conclusion and Recommendations

This study concludes that the usage of online food delivery apps among UAF students is significantly shaped by socioeconomic factors. The "Hidden Toll" is most acutely felt by female and undergraduate students who face disproportionate budgetary pressures.

To mitigate these issues, the following measures are recommended for the Office of the Hall Warden and University Administration:

1. **Nutritional Subsidies:** Introduce subsidized healthy meal options within hostels to compete with the convenience of OFD apps.
2. **Financial Literacy:** Integrate budgeting workshops into the Character Building Society initiatives to educate

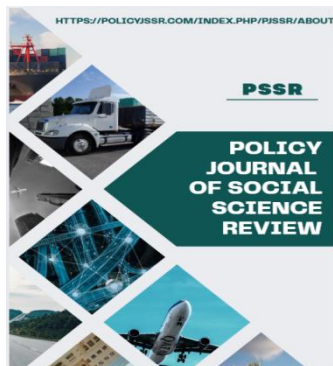
undergraduate students on managing digital spending.

3. **App Integration:** Encourage the university's own dining services to develop a simplified app for hostel meal bookings, providing the same convenience without the premium pricing.

4. **Awareness Campaigns:** Leverage the high nutritional awareness among M.Phil. students to mentor undergraduates on making healthier choices when using third-party delivery services.

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