MSI Journal of
Economics and Business Management (MSIJEBM)

Volume: 3, Issue: 9 (September-2026)
Published by *MSI Publishers*
ISSN 3049-141X (Online)

Received: 28-07-2026
Accepted: 04-09-2026
Published: 08-09-2026

Observed Hygiene Practices versus Staff-Perceived Compliance in University-Based Fast-Food Outlets: Evidence from the University of Calabar, Nigeria

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ABSTRACT: This study examined the extent of hygiene practices adopted by fast-food outlets serving academic and non-academic staff at the University of Calabar, Cross River State, Nigeria, and compared these practices with staff's own perception of hygiene compliance in the same outlets. Adopting a descriptive survey design, data were collected from 189 academic staff across the Faculties of Social Sciences and Environmental Sciences using a structured questionnaire administered at five major campus fast-food outlets. Results show that outlets consistently observed visible, appearance-related hygiene measures, notably covering hair with a cap or hairnet (28.6%) and wearing clean uniforms (20.1%), while technically critical but less visible measures, such as sanitizing preparation surfaces (3.2%), maintaining proper refrigeration (2.1%), and avoiding food handling

DOI: *10.5281/zenodo.22654585*

while ill (1.6%), were rarely reported. Staff perception of overall hygiene largely mirrored this pattern: hygiene was most often rated "good" (22.8%) or "fair" (15.9%), yet a meaningful minority described practices as inconsistent, hygienic only during inspections, or hygienic only in select outlets, suggesting that staff are alert to the gap between appearance-level compliance and substantive food-safety practice. The study argues that visible compliance can create an impression of adequate hygiene while masking weaknesses in the technical practices that most directly affect food safety, and recommends structured training, routine internal inspection, and improved sanitation infrastructure as priorities for campus food-service management.

Keywords: *Hygiene practices, Staff perception, Food safety compliance, Fast-food outlets, University campus, Nigeria*

Introduction

Fast-food outlets constitute an important component of contemporary institutional food-service systems, providing convenient and relatively affordable meals to staff and students. In university environments, their regular patronage makes food hygiene a significant public-health concern because inadequate food-handling and sanitation practices can facilitate food contamination and foodborne illness. Food safety consequently depends not only on the personal cleanliness of food handlers but also on effective environmental sanitation, appropriate food storage, temperature control, prevention of cross-contamination, and sustained compliance with established hygiene requirements (World Health Organization [WHO], 2022; Awubi et al., 2026).

Evidence from developing countries indicates that compliance with food hygiene requirements is often inconsistent despite general awareness of food-safety principles among food handlers. Knowledge of appropriate practices does not necessarily translate into consistent behaviour, particularly where food-service operators face inadequate facilities, weak monitoring, limited training, or operational constraints. This knowledge-practice gap has been identified as an important challenge in food-service environments, with hand hygiene, surface sanitation, food storage, and temperature control remaining areas of concern (Zanin et al., 2021). Similarly, food-safety behaviour is influenced by organisational conditions, managerial supervision, availability of facilities, and the extent

 DOI: *10.5281/zenodo.22654585*

to which hygiene requirements are integrated into routine food-service operations (Soon et al., 2020; Dan et al., 2025).

The issue is particularly relevant within university-based food outlets, where large numbers of consumers depend on these establishments for daily meals. While some hygiene practices are highly visible to customers, others are technical and less readily observable. Clean uniforms, hair covering, and general appearance, for example, can easily influence perceptions of cleanliness, whereas refrigeration temperatures, effective sanitisation of food-contact surfaces, and the exclusion of ill food handlers may remain largely unnoticed. Consequently, favourable perceptions of hygiene may not necessarily reflect the extent to which critical food-safety practices are actually implemented. This distinction is important because food handlers may demonstrate visible compliance while less visible practices remain inadequately implemented (Abdalla et al., 2023).

Perceived hygiene compliance is nevertheless an important dimension of food-service quality. Consumers' perceptions can influence their confidence in food outlets, willingness to patronise them, and expectations regarding hygiene standards. However, reliance exclusively on perception may provide an incomplete assessment of food-safety performance because perceptions are often shaped by readily observable cues rather than by technical indicators of compliance. A more comprehensive assessment should therefore consider both the hygiene practices adopted by food outlets and how those practices are perceived by their regular patrons.

Despite growing attention to food safety in food-service establishments, limited empirical attention has been given to the relationship between observed hygiene practices and staff-perceived compliance in university-based fast-food outlets, particularly within the Nigerian university context. This represents an important research gap because university staff are frequent patrons who regularly encounter these outlets, yet their perceptions may not correspond with the less visible practices that determine food safety. Examining both dimensions can therefore reveal whether favourable perceptions are supported by appropriate hygiene practices or whether a perception-practice gap exists.

Against this background, this study investigates observed hygiene practices versus staff-perceived compliance in university-based fast-food outlets at the University of Calabar,

 DOI: *10.5281/zenodo.22654585*

Nigeria. Specifically, it assesses the hygiene practices adopted by fast-food outlets serving University of Calabar staff and examines staff members' perceived level of hygiene compliance in these outlets. By comparing observed hygiene practices with staff perceptions, the study provides empirical evidence on areas of convergence and divergence between visible hygiene compliance and substantive food-safety practices, thereby contributing to the understanding and improvement of hygiene management in university-based food-service operations.

Literature Review

Hygiene Practices in Fast-Food and Institutional Food Settings

Food hygiene practices constitute a fundamental component of food-service operations because the safety of meals depends on the extent to which food handlers consistently prevent contamination throughout preparation, storage, and service. In fast-food and institutional settings, appropriate hygiene encompasses personal cleanliness, handwashing, use of protective clothing, sanitation of food-contact surfaces, safe storage, temperature control, waste disposal, and prevention of cross-contamination. The World Health Organization emphasises that effective food-safety systems require not only individual responsibility but also appropriate infrastructure, monitoring, training, and coordinated institutional action (World Health Organization [WHO], 2022). This is particularly important in university environments where food outlets serve substantial populations on a regular basis.

Evidence from Nigerian institutional settings suggests that food handlers demonstrate varying levels of compliance across different hygiene practices. A study among food vendors at the University of Nigeria, Nsukka, reported relatively high adoption of practices such as handwashing, hair covering, and protective clothing, although deficiencies remained in food storage and environmental health practices (Ofuebe, 2023; Victoria et al., 2026). Similarly, research among ready-to-eat food vendors at the same university highlights the continuing importance of examining both food-hygiene knowledge and practical implementation rather than assuming that awareness automatically results in safe behaviour (Oganah-Ikujenyo et al., 2026). More importantly, microbiological assessment in a Nigerian private university demonstrated that ready-to-eat foods, food-contact

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surfaces, and food handlers can present microbiological safety concerns, reinforcing the limitations of relying exclusively on self-reported hygiene behaviour (Oyedeji et al., 2023).

The knowledge-practice relationship is also influenced by access to information, training, and institutional support. Evidence from Nigeria's school-feeding programme indicates that education and access to food-safety information through media and inspection institutions are associated with better food-safety knowledge and attitudes among vendors (Journal of Consumer Protection and Food Safety study, 2023). However, knowledge alone may not guarantee consistent compliance when food handlers operate under inadequate infrastructural and supervisory conditions. In this regard, the WHO Global Strategy for Food Safety identifies adequate infrastructure, evidence-based monitoring, effective governance, and capacity development as essential components of stronger food-safety systems (WHO, 2022). Collectively, the literature indicates that hygiene compliance in institutional fast-food outlets is multidimensional and shaped by the interaction of individual knowledge, routine behaviour, supervision, infrastructure, and organisational culture. This provides a strong basis for examining not only what fast-food outlets report or appear to practise but also how consistently these practices are perceived and experienced by their regular patrons.

Staff and Consumer Perception of Hygiene Compliance

Perception of food hygiene is an important dimension of food-service quality because consumers often make judgements about safety before they can directly evaluate technical food-handling procedures. In fast-food and institutional environments, patrons commonly rely on observable indicators such as the cleanliness of premises, appearance of food handlers, protective clothing, presentation of food, and general orderliness. Evidence from Nigeria shows that consumers' understanding of food safety is strongly influenced by visible cleanliness and other immediately observable characteristics of vendors and their surroundings (Nordhagen et al., 2022). This suggests that perceived hygiene may represent an important basis upon which consumers evaluate whether a food outlet is safe, even when critical technical practices cannot be directly observed.

Research examining food-safety perceptions among consumers and vendors in urban Nigeria similarly demonstrates that visual assessment plays a significant role in identifying

 DOI: *10.5281/zenodo.22654585*

food-safety risks. Consumers frequently associate cleanliness with the appearance of vendors, stalls, and surrounding environments and use these cues when deciding whether food appears safe (Nordhagen et al., 2022; Mbia et al., 2026). Comparable evidence from fast-food restaurants in Zaria found that patrons were able to identify several personal hygiene characteristics of food handlers, including nail cleanliness, coughing or sneezing while handling food, and the use of bare hands when serving food (Sulaiman et al., 2022). These findings demonstrate that patrons actively observe hygiene-related behaviours, but they also indicate that perception is largely based on practices that are visible during food purchase and service.

The importance of perception, however, does not imply that perceived compliance necessarily corresponds with objective food-safety performance. Research conducted in Nigerian university settings has documented hygiene practices among food vendors while simultaneously identifying potential risks associated with food storage, water sources, and environmental contamination (Ofuebe, 2023). Microbiological evidence from a Nigerian private university further demonstrates that apparently acceptable food-service environments may still contain microbiological risks that are not readily detectable through visual inspection alone (Oyedeji et al., 2023). This distinction is important because positive perceptions may encourage patronage and confidence without necessarily confirming compliance with technically important procedures such as temperature control, surface sanitation, or prevention of cross-contamination. The literature therefore supports the need to distinguish perceived hygiene compliance from substantive hygiene compliance. For university-based fast-food outlets, comparing staff perceptions with observed or reported practices can reveal whether visible indicators of cleanliness accurately reflect broader food-safety performance. Such comparison is particularly relevant at the University of Calabar, where staff constitute a regular patron group whose repeated exposure to fast-food outlets provides an important basis for assessing perceived hygiene compliance.

Theoretical Framework

This study draws on the Health Belief Model (HBM), originally developed by Hochbaum, Rosenstock, and Kegels and later elaborated by Champion and Skinner (2008), to explain why staff compliance with, and perception of, hygiene standards may diverge from objective practice. The HBM holds that health-related behaviour is shaped by perceived

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susceptibility to harm, perceived severity of potential consequences, perceived benefits of preventive action, perceived barriers to that action, cues to action, and self-efficacy. Applied here, the model suggests that outlet staff who perceive a low personal risk from lapses in, for example, surface sanitation or refrigeration, may continue such lapses even while maintaining visible compliance measures that are more strongly cued by supervision or customer observation. Correspondingly, university staff who patronize these outlets form perceptions of hygiene compliance based substantially on visible cues, such as staff appearance and uniform cleanliness, which the HBM would predict to dominate perception even where less visible technical practices are deficient. The model has been criticized for underweighting organizational and structural determinants of behaviour, a limitation this study addresses by examining practice and perception alongside the infrastructural and supervisory context in which fast-food outlets operate.

Methodology

The study adopted a descriptive survey design considered appropriate for capturing both outlet hygiene practices and staff perception without manipulating either variable. The population comprised 415 academic and non-academic staff drawn from thirteen departments across the Faculty of Social Sciences and the Faculty of Environmental Sciences at the University of Calabar, together with five major campus fast-food outlets, including the Tourism Kitchen, Mma-Okon Kitchen, and outlets located in Hall Two and the Senior Establishment area. A sample of 212 staff was drawn using one-half of the departmental population as the sampling fraction, of which 189 valid, completed questionnaires were retrieved (an 89.2% return rate on the drawn sample), distributed across the two faculties in proportion to departmental population size.

Convenience sampling was used to administer the questionnaire to staff patronizing the selected outlets, while purposive sampling was used to select the outlets themselves, restricted to registered establishments within the study area. A structured questionnaire captured hygiene practices observed in the outlets and staff's own rating of overall hygiene compliance, administered with the assistance of trained field assistants over a one-month period. Ethical clearance and an official letter of introduction were obtained from the Department of Tourism Studies, University of Calabar, and informed verbal consent was secured from all participants, who were assured of anonymity and confidentiality. Data

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were analyzed descriptively using SPSS, with frequencies and percentages used to characterize both hygiene practices and staff perception.

Results

Respondent profile

Of the 189 respondents, 57.7% were male and 42.3% female; the overwhelming majority (81.5%) were aged 28 years or older, and respondents were drawn predominantly from the ranks of Lecturer II (31.2%), Assistant Lecturer (22.8%), and Graduate Assistant (17.5%). Respondents were fairly evenly split between the Faculty of Environmental Sciences (25.9%) and the Faculty of Social Sciences (24.3%), with the remainder drawn from other faculties represented in the sampling frame.

Hygiene practices adopted by fast-food outlets

Table 1 presents the hygiene practices reported as adopted by the surveyed outlets. Appearance-related measures dominated: covering hair with a cap or hairnet was the most frequently cited practice (28.6%), followed by wearing clean uniforms (20.1%). Practices requiring more deliberate procedural effort were adopted far less consistently: checking food expiry dates (13.8%) and using clean, sanitized utensils (11.6%) were moderately reported, while regular handwashing (4.8%), proper waste disposal (4.2%), sanitizing preparation surfaces (3.2%), keeping the dining area clean (2.7%), maintaining proper refrigeration (2.1%), and avoiding food handling when ill (1.6%) were among the least frequently reported practices.

Table 1. Hygiene practices adopted by fast-food outlets.

Hygiene practice	Frequency	Percentage
Covering hair with a cap or hairnet	54	28.57
Wearing clean uniforms while working	38	20.11
Checking food expiry date before use	26	13.76
Using clean and sanitized cooking utensils	22	11.64
Washing hands regularly before handling food	9	4.76
Disposing of waste properly and promptly	8	4.23
Using gloves when serving or preparing food	7	3.70
Any other (pest control, daily mopping)	7	3.70

DOI: *10.5281/zenodo.22654585*

Cleaning and sanitizing food preparation surfaces	6	3.17
Keeping the dining area clean at all times	5	2.65
Maintaining proper refrigeration for perishable foods	4	2.12
Avoiding handling food when sick	3	1.59
Total	189	100

Source: Field survey, 2026.

Staff-perceived level of hygiene compliance

Table 2 summarizes staff's own rating of overall hygiene in the outlets they patronize. The largest share of respondents rated hygiene as "good" (22.8%), followed by "fair" (15.9%) and "very good" (13.8%); 10.6% rated hygiene as "excellent". Notably, 8.5% described compliance as consistent but needing improvement, 6.4% described it as inconsistent, 5.3% reported outlets as hygienic only during inspection, and a further 3.7% considered hygiene maintained only in some outlets. A small minority (2.7% poor, 2.7% very poor, 1.1% not hygienic at all) held clearly negative assessments, while 2.7% were unsure.

Table 2. Staff-perceived level of hygiene practices around fast-food outlets.

Perceived hygiene level	Frequency	Percentage
Good	43	22.75
Fair	30	15.87
Very good	26	13.76
Excellent	20	10.58
Consistent but needs improvement	16	8.47
Poor	13	6.88
Inconsistent hygiene practices	12	6.35
Hygienic only during inspection	10	5.29
Hygienic only in some outlets	7	3.70
Very poor	5	2.65
I am not sure	5	2.65
Not hygienic at all	2	1.06
Total	189	100

Source: Field survey, 2026.

DOI: *10.5281/zenodo.22654585*

Discussion

The findings indicate a clear gap between observed hygiene practices and staff-perceived compliance in university-based fast-food outlets at the University of Calabar. Visible practices, particularly the use of hair coverings and clean uniforms, were more consistently observed, whereas less visible but technically important practices, such as surface sanitation, refrigeration control, and excluding sick workers from food handling, were less consistently implemented. This suggests that attention may be concentrated on practices that are easily noticed by customers rather than those that provide stronger protection against food contamination. Similar concerns have been reported in food-service settings, where personal hygiene practices are often better maintained than environmental sanitation and food-temperature controls (Abdalla et al., 2023; WHO, 2022).

Staff perceptions also showed a generally favourable assessment of hygiene, despite weaknesses in some observed practices. This indicates that employees may judge hygiene standards largely from visible cleanliness and staff appearance rather than from technical food-safety procedures. Previous studies have similarly noted that perceived hygiene does not always correspond with actual food-handling practices, making direct observation important in assessing food-safety compliance (Soon et al., 2020; Zanin et al., 2021). The minority of respondents who reported inconsistent hygiene or improvements occurring mainly during inspections further suggests that compliance may vary across outlets and over time. Sustainable food safety therefore requires continuous monitoring rather than temporary improvements prompted by inspection.

From the Health Belief Model (HBM) perspective, the findings suggest that visible supervision and inspection may function as important cues to action, while inadequate awareness of the health consequences of poor sanitation and temperature control may reduce attention to these less visible practices. Strengthening food handlers' understanding of susceptibility to foodborne illness, the severity of its consequences, and the benefits of proper hygiene can encourage more consistent compliance (Rosenstock et al., 1988). Overall, the findings demonstrate that improving hygiene in university-based fast-food outlets requires moving beyond appearance-based cleanliness towards consistent application of technical food-safety practices supported by training, supervision, and adequate facilities.

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Conclusion

This study found that fast-food outlets serving University of Calabar staff consistently adopt visible, appearance-related hygiene measures, while technically critical but less visible practices are comparatively under-adopted. Staff perceptions of hygiene compliance also largely, though not entirely, reflect this same visible dimension. The divergence between appearance and substance in both outlet practices and staff perceptions constitutes the central finding of the study. This suggests that visible cleanliness may create favourable impressions among patrons without necessarily indicating comprehensive compliance with food hygiene requirements. The findings therefore highlight the need for food-service hygiene assessment to extend beyond observable cleanliness to include critical technical practices that directly influence food safety. Strengthening these practices is essential for protecting the health of staff patrons and ensuring that fast-food outlets operating within and around the University of Calabar maintain consistent and comprehensive hygiene standards.

Recommendations

The study recommends that:

1. Fast-food staff should receive regular training on critical food hygiene practices.
2. Routine unannounced inspections should be conducted to ensure continuous compliance.
3. Operators should provide functional refrigeration and adequate sanitation supplies.
4. Actual hygiene performance should be communicated transparently to staff patrons.
5. Future studies should combine perception surveys with observational and microbiological assessments.

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