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ANALYSIS OF GASTROINTESTINAL TRACT RESPONSES TO NUTRITIONAL ENVIRONMENTS AMONG STUDENTS IN CAMPUS AND HOME SETTINGS: A CROSS-SECTIONAL STUDY AT RHEMA UNIVERSITY, ABA, NIGERIA.

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BACKGROUND: The transition between home-cooked meals and institutional campus meals represents a significant but understudied nutritional sector in the lives of university students in sub-Saharan Africa. Despite growing interest in student health, comparative evidence on the gastrointestinal (GIT) consequences of this dietary transition remains scarce in Nigerian literature. This study analyzed dietary patterns, nutritional quality perceptions, and compared self-reported digestive health outcomes of undergraduate students at Rhema University, Aba, Nigeria, under two nutritional environments: campus-provided meals and home-cooked meals, and identified associated patterns of physiological GIT adaptations.

METHODS: A descriptive cross-sectional study conducted among 312 undergraduate students using electronic self-designed structured questionnaires. Qualified participants were undergraduates with at least one full semester on campus, consumed school meals at least once daily, and had no pre-existing diagnosed gastrointestinal disorder. Data were collected on dietary patterns, meal quality perception, self-reported GIT symptoms, bowel habit changes, appetite regulation, and adaptive responses across both nutritional environments.

RESULTS: Among 312 participants (predominantly aged 16–20 years), 56.2% were MBBS students, 38.4% Nursing, 5.4% Medical Laboratory Science, and 0.6% Health Sciences students. Carbohydrates were identified as the predominant meal class consumed on campus by 99.0% of respondents. Feeding frequency on campus showed that 32.8% ate once daily, 56.0% ate twice daily, while only 6.7% reported eating three times daily. Additionally, 70.4% reported rarely or never consuming balanced meals on campus, with snacks serving as a major dietary supplement.

Perceived meal quality was generally poor, with 74.9% rating campus meal nutritional quality between 1 and 2 on a 5-point scale. Nearly all respondents (96.5%) perceived a marked difference between home-cooked and campus meals, while 74.0% described the transition to campus feeding as nutritionally worse.

Gastrointestinal disturbances associated with campus feeding were common. Using the Gastrointestinal Symptom Rating Scale (GSRS), 54.5% of respondents reported increased digestive symptoms while on campus, whereas 74.3% reported noticeable gastrointestinal changes following resumption to campus meals. Appetite decline was reported by 62.4% of students, while 81.7% experienced alterations in bowel habits, including constipation, diarrhea, reduced stool volume, bloating, abdominal discomfort, and, in some cases, ulcer-like symptoms.

Upon returning home, 72.3% of respondents reported symptomatic improvement, including increased appetite and reduced incidence of heartburn and bowel discomfort. Some respondents also described an initial increase in stool volume and

passage of poorly digested food particles after returning home. These observations may reflect gastrointestinal adjustment following prolonged exposure to nutritionally limited campus diets and subsequent dietary improvement in home meals.

Overall, 50.2% of students perceived clear differences in gastrointestinal health between home and campus environments, with the adaptive gastrointestinal responses summarized in Table 1.

CONCLUSION: Nutritional conditions at Rhema University are associated with widespread adverse changes in student digestive health, bowel function, and appetite regulation. The varied responsiveness of the GIT across the home and campus environments suggests dynamic physiological adaptation. These findings establish a critical baseline for a planned longitudinal cohort study and highlight the urgent need for improvements in students' nutrition and provision of varieties of affordable meals in Nigerian higher institutions

Key Words: Cross-sectional, GIT, Nutritional, Analysis. (Source: MeSH-NLM).

Figure or Table:

Table 1. Self-Reported Gastrointestinal Adaptations: Home vs Campus Nutritional Conditions

(N = 311)

Rhema University, Aba, Nigeria | Data derived from self-reported questionnaire responses

Adaptation	At Home	On Campus	Physiological Basis
Appetite	Restored; increased appetite: **n=48 (15.4%)**	Suppressed; definite decline: **n=194 (62.4%)**	Monotonous carbohydrate-dominant diet reduces meal palatability and blunts appetite-stimulating gut hormone signaling (CCK, GLP-1)
Bowel habit	Normalized; improved frequency: **n=39 (12.5%)**	Altered; significant/mild changes: **n=254 (81.7%)**	Low dietary fibre reduces colonic transit and stool bulk; students reported direct normalization on return to home meals
Diarrhoea / stooling	Resolved on home return: **n=12 (3.9%)**	Most common initial symptom: **n=23 (7.4%)**	Osmotic / secretory diarrhoea from poorly digested campus food; students named specific trigger foods (beans, moi moi, jollof rice)
Heartburn / indigestion	Reduced heartburn: **n=13 (4.2%)**; improved digestion: **n=9 (2.9%)**	Heartburn: **n=15 (4.8%)**; indigestion: **n=15 (4.8%)**	High dietary fat in campus meals reduces lower oesophageal sphincter tone and delays gastric emptying; absent in home diet
GIT changes on resuming school meals	72.3% noticed positive changes on return: **n=225**	Significant: **n=128 (41.2%)**; mild: **n=103 (33.1%)**	Cumulative effect of fibre deficiency and macronutrient imbalance on enteric nervous system and mucosal homeostasis; worsens with school year (H=21.3, p=0.0003)
Healthcare burden	No medical visits attributed to home diet	Sought medical care/meds: **n=119 (38.3%)**; on GIT medication: **n=19 (6.1%)**	Campus dietary inadequacy generates measurable GIT morbidity requiring pharmaceutical intervention (antacids, omeprazole, metronidazole)

GIT = gastrointestinal tract. CCK = cholecystokinin. GLP-1 = glucagon-like peptide-1. n = subgroup count; N = 311 (total cohort). All percentages relative to N. Physiological basis inferred from student-reported responses and established GIT physiology; no biomarkers were directly measured.