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Exploring the relationship between eating habits and academic performance among university students with disabilities: Evidences from Saudi Arabia

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ABSTRACT: Recently, there has been growing interest in dietary habits and behaviors owing to their influence on health and health-related aspects, such as cognition and learning. Cognition is fundamental to the learning process, and as such, students' performance in school is highly dependent on how well they can think. Thus, the purpose of this study is to assess and describe the four types of eating behaviors—fuel eating, fun eating, fog eating, and storm eating—and how they affect the academic performance of students with disabilities in Saudi Arabia. Out of 406 cases approached, 399 completed the survey, and these were analyzed. Microsoft Excel 2010 and SPSS 24 were used to perform descriptive and demographic data analyses, then the hypotheses were tested and relationships among the study variables were examined using PLS-SEM version 4.1.0.6 Structural Equation Modeling. The analysis indicated that fuel eating habits (FLEH) and fun eating habits (FNEH) positively and significantly contributed to the academic achievement (AC) of students with disabilities in Saudi Arabia: 0.381 (Std. Beta = 0.534, p = 0.000) and 0.071 (Std. Beta = 0.263, p = 0.000), respectively, thus confirming that H1 and H2 were supported.

On the other hand, fog eating habits (FGEH) and storm eating habits (SEH) have shown no significant impact on academic performance (FGEH: effect size = 0.000, Std. Beta = 0.018, p = 0.689; SEH: effect size = 0.004, Std. Beta = 0.065, p = 0.252), leading to H3 and H4's rejections. This highlights the impact of eating habits on success and general health. As a result, Saudi Arabian higher education institutions need to offer specific nutrition educational and health promotion activities to meet the health and nutrition needs of students with disabilities and to create a campus supporting their health.

1. INTRODUCTION

According to the UNCF, there are about 150 million children globally, under the age of 18, who have some type of disability (Adugna, Nabbouh, Shehata, & Ghahari, 2020; UNICEF, 2006). Despite the lack of thorough population-based research regarding children with disabilities, approximately 90 % of the 52.9 million children under age 5 with disabilities are from lower-middle income countries (Kamiya, 2021). Most of that population have commenced their journey attending university education. To address the issue of the children with disabilities, Aron and Loprest posit that the singular way to measure whether these students are receiving an education from the schools is through their educational outcomes (Aron & Loprest, 2012).

Globally, students with disabilities, such as physical disabilities, visual and hearing impairments, and self-care disabilities, have

had their educational development measured by educational outcome measurements (scores in reading, math, and writing). Research shows that students with hearing disabilities are more likely to have academic failures (Takeda & Lamichhane, 2018). The various factors such as the availability of assistive technology, inclusive teaching, and attributes such as life orientation, are factors that influence the academic achievement of students with disabilities. Research indicates that the development of such strategies is likely to improve the outcome of these students (Perdison, Anku, & Bright, 2024).

Different factors influence the academic achievement of students (Alhadabi & Karpinski, 2020).Factors such as social structures, economic conditions, and family dynamics, the skills of the teaching staff, and the engagement of the students. The understanding of these factors is the basis for the educators and policy makers in the creation of the supportive teaching and learning environment. The following sections describe the main factors that academic performance and success.

The phenomenon of underperformance in schooling is of concern as from research perspective is intriguing (Ayllon & Roberts, 1974). Poor mental health is one of the many other contributing factors to underperformance and the wider implications of this one (Bruffaerts et al., 2018). For example, prior studies show that there is a significant correlation between poverty and underperformance in academics and that there is a gradual increment in level of performance in relation to an increased income (Hungo et al., 2024).

Family composition can have a bearing on the cohesiveness and stability, and the learning environment is more favorable to be a nuclear family as opposed to an extended or single-parent family (Hungo et al., 2024). There is a teacher skill and student engagement related to the factors that contribute to the level of performance that are. There is, however, no such correlation that this research has found between those factors and the level of performance. A student's level of performance is determined by the attainment of credits, their grade point average and their gender as there are personal factors (motivation) and environmental factors (Kocsis & Molnár, 2024).

To date, there are no studies in Saudi Arabia assessing the relationships between eating habits and academic performance, particularly for university students with disabilities. Hence, regarding performance theory (Schechner, 2003; Sonnentag & Frese, 2002), this study would have considerable value for the educational development authorities. This study fills the gap in the existing literature by considering the eating habits of students with disabilities. Only a handful of other researchers have documented this issue. This study aims to investigate the impact of fuel eating, fun eating, fug eating, and storm eating, specifically on students with disabilities.

2. THEORETICAL BACKGROUND AND HYPOTHESIS DEVELOPMENT:

2.1 Fuel-eating habits and academic performance

"Fuel eating habits" refers to a reductionist perspective of food primarily as fuel for the body. Fuel-related eating habits are the product of a confluence of variables, particularly personal choice, social context, as well as the economic cost of energy (Ulijaszek, 2002). Healthy food habits revolve around eating well-balanced meals, moderation of salt and sugar, as well as carbohydrates, fats, and proteins (Leon, Tabares, Baile, Salazar, & Zepeda, 2024). The distribution of fuels, particularly from changes in the metabolism of fats and carbohydrates, drive changes in eating habits.

The brain's response to cues from fuel metabolism is vital to managing eating behaviors as it relates to changes in energy storage and energy usage (Mattes, Pierce, & Friedman, 1988). Scholarly work found a small but statistically significant positive relationship between diet associated with practices and achievements in school, including having breakfast, eating on a regular schedule, and following the Australian guidelines for the consumption of fruit (Burrows, Whatnall, Patterson, & Hutchesson, 2017). In the literature, the presence of undesirable eating habits is inversely proportional to academic performance, while the presence of positive eating habits enhances mental function and participation in academic work (Resimo, Rosa, Tesiorna, Guazon, & Ederio, 2024).

Egede considers that breakfast omission leads to shallow attention, poorer learning, and worsened academic results (Egede, 2021). Previous studies found a negative correlation that illustrates students engage in unhealthy eating habits and, along with that, poorer academic performance (Dodsworth, 2010; J. Resimo et al., 2024; Reuter, Forster, & Brister, 2021). Studies indicate that there is an issue with students who tend to be highly reward sensitive that are noted for their over-eating; that is, there are lower academic achievements with a higher Body Mass Index. It is certainly a question of vulnerable university students and a problem to be solved through programs to promote healthy eating (Jara, Pizarro-Díaz, Escudero-López, & Honores-Marín,

2018).

H1: Fuel eating habits have a direct significant impact on AP.

2.2 Fun Eating Habits and Academic Performance

The study located strong connections between academic achievement and the consumption of pasta, fruits, and meats. It was noted that students who practiced healthy dietary patterns, particularly the 5-meal plan, performed better academically, although no relation was established of vegetable consumption, gender, or Body Mass Index (Prieto Andreu, 2023). Engaging eating habits are promoted through technology, for example, smart dinner plates and systems (Zhao et al., 2021).

There is a definite relationship between the consumption of fruits and vegetables as well as well-balanced diets and the positive results in student performance. For example, students who have certain breakfasts and have been shown to include pasta and meat, on average, score higher on different assessments (Kim et al, 2016; Prieto Andreu, 2023).

There is, also, a strong relationship between nutritional practices and performance and this confirms the rejection of the null. It has been found that healthy diets, whether vegetarian or having some meat, results positively influences students' performance on assessments within a Seventh-Day Adventist educational framework (Esteban-Cornejo et al, 2016; Florence, Asbridge, and Veugelers, 2008). It is also shown that the consumption of certain foods such as breakfast, fruits and vegetables, and milk, positively correlates with students' performance, while consumption of foods such as soft drinks, fast foods, noodles, candy, and other sweets inversely correlates with performance within a demographic of teenagers (Kim et al, 2016).

H2: Fun eating habits have a direct significant impact on AP.

2.3 Fug Eating Habits and Academic Performance.

Several studies have demonstrated the important connection between the eating habits of students and their success in school. Teves and Narciso (2005), showed the positive relationship between the eating habits and the nutritional health of the students. Unhealthy eating habits have been shown to be negatively correlated with academic performance (Burrows et al., 2017). The nutritional awareness (or more importantly, lack of) of students demonstrates the need for more education on the subject. The positive relationship between education and students' food choices suggests that school feeding programs and the nutritional education of students could improve academic performance (Egede, 2021; Long, 2007). A study on 577 students in the first cycle of higher education shows that diet has an important on academic performance, and that students could contribute to the positive results of their education by improving their diet (Reuter et al., 2021).

H3 Fug eating habits have a direct significant impact on AP.

2.4 Storm Eating Habits and Academic Performance

Eating behavior patterns characterized by unorganized patterns of meal consumption, emotional triggers of food consumption, and impulsive, non-mindful eating are defined as "storm eating." It often involves the rapid consumption of large amounts of food, especially processed and unhealthy snacks. As the previous study found no significant correlation between students' academic performance and their nutritional status, it is recognized that eating habits do not affect academic performance (Teves & Narciso, 2005).

The presence of positive eating habits is an important predictor of students' success, as their benefits reflect positively on academic achievement. However, the absence of positive eating habits was not found to affect students' graduation rates, reflecting that there are many underlying factors that are equally as important in shaping students' educational outcomes as the quality of nutrition (Bonner & Davis, 2024). Healthy eating patterns and quality of food consumed demonstrate a positive relationship with academic success (Egede, 2021; Khan, Zada, & Ismael, 2022; Ramdial, 2022). The prevalence of snacking on unhealthy food gets worse from students. Inappropriate food choices have a correlation with lower performance in language and mathematics (Correa-Burrows, Burrows, Orellana, & Ivanovic, 2015).

H4: Storm Eating Habits have a direct significant impact on AP.

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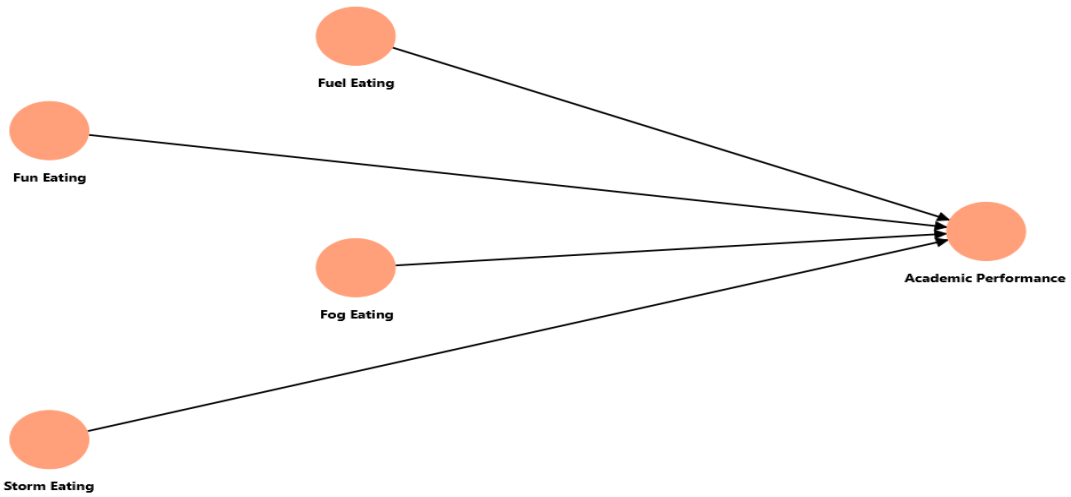

Figure 1. The Suggested Theoretical Model

3. METHODOLOGY: (MATERIALS AND METHODS)

3.1. The scale and the study constructs

For this measurement scale, the authors made use Deprez et al.'s (2021) validated measurement scale and Resimo et al.'s (2024) for some dimensions. The multi-dimensional construct for eating habits (Resimo et al.'s, 2024): fuel (7 items), fun (7 items), fog (5 items), and storm (6 items) eating habits. The evaluation of respondents' academic achievement was based on a four-item scale adaptation from Centers for Disease Control and Prevention (2014): "My eating habits have helped me understand the course content better," "My eating habits have made my study experience more beneficial," "My eating habits have helped me master the content," "My eating habits have made my university life more fulfilling." Originally, this measurement scale was selected due to the excellent reliability of the measurement where the respondents' data for each of the subscales had an excellent internal reliability record of 0.840 and above (Cronbach's Alpha).

3.2. Population and Sample Size

The study's target population consists of university students with disabilities. In light of the lack of official records and accurate statistical data concerning the number of students with disabilities enrolled in higher education institutions across Saudi Arabia, an estimated population size of 20,000 was adopted. This estimation follows the guidance provided by Veal (Veal, 2017; and Ayad,2022), who recommends assuming a notional population size in cases where the actual population is indeterminate. To calculate the required sample size, Stephen Sampson's formula was utilized (Ayad, Khalil, & Dwedar, 2024), yielding a minimum sample size of 372 respondents.

3.3. Data collection

The research design used in this study was quantitative. The researcher used a questionnaire to collect primary data from university students. The research instrument(s) was validated for clarity, relevance, and appropriateness, and was refined and reviewed by a panel of disability senior students and academic experts. The period of data collection spanned over two months from September to October 2024. A total of 406 questionnaires were given out. 399 were completed, returned and were used in the analysis, thus the response rate was 98.3%. The response rate was due to the participation of the researchers in the collaboration with disability support units which were located in different universities in Saudi Arabia. In order to obtain a sample of the participants, students from different fields of study were recruited. The research study was completed in accordance with research ethical standards. The participants were given informed consents prior to the survey and were informed that their participation was voluntary. Participants were kept anonymous and their data was self-reported to safeguard their privacy, and the researchers took all appropriate measures to ensure no harm or intimidation would come to the participants. The survey instrument was split into three sections to reflect the objectives of the study. The first part recorded participants' demographic information, while parts two and three focused on the key dependent variables (eating habits and academic achievement). All variables were operationalized using a five-option Likert scale.

3.4. Analysis Techniques

Descriptive statistics and analyses of the sample's demographic characteristics were performed using SPSS (Version 24) and Microsoft Excel (2010). To examine the relationships among the study variables and to test the proposed research hypotheses, structural equation modeling (SEM) was applied using the Partial Least Squares approach (PLS-SEM) with SmartPLS (Version 4.1.0.6).

4. ANALYSIS AND RESULTS

4.1. The respondents' characteristics

From the responses gathered, 399 data sets were considered valid. Out of these data sets, 219 were a male student (54.9%) and 180 were a female student (45.1%). Most of the respondents (89.2%) were under the age of 21. The universities were chosen based on their location so there would be a national representation of all the location in Saudi Arabia. The number of questionnaires assigned to each university was about the same, purposefully ensuring regional equity in the sample. The percentage of student responses from each university were 9.3% (Jazan University) which was the lowest, and 25.6% (King Faisal University) which was the highest (See Table 1). Measures of central tendency showed a moderate degree of dispersion of the data which centered around the mean, as evidenced by the mean scores of the data ranging from 3.42 to 3.86, and the standard deviation scores of the data ranging from 0.886 to 1.022. Moreover, all the variables across the data sets had a skewness and kurtosis values which were all acceptable (±2). This means the data is fit for the univariate normality (Bryman & Cramer, 2012).

Table 1. Demographic Features

Items		*N*	Occurrences	%
University	King Faisal University	399	102	%25.6
	Jazan University		37	%9.3
	King Abdulaziz University		77	%19.3
	Taibah University		58	%14.5
	King Saud University		77	%19.3
	University of Tabuk		48	%12
Disciplines	Computer Sciences	399	56	%12
	Pharmacy		42	%9
	Engineering		47	%10
	Medicine		48	%10.3
	Education		47	%10
	Business		52	%11.1
	Arts		36	%7.7
	Law		42	%9
	Tourism		54	%11.5
	Agricultural and Food Sciences		44	%9.4
Gender	Male	399	219	%54.9
	Female		180	%45.1
Age	Below Twenty One Years	399	356	%89.2
	Twenty One - below Twenty Five Years		24	%6
	Twenty Five Years and above		19	%4.8

4.2. Measurement Model (Outer Model)

4.2.1. Constructs Validity

In order to ascertain reliability and validity of the constructs in the model, an analysis of convergent validity was performed. All the item reliability coefficients were in excess of the 0.70 benchmark in line with the norms established by Hair et al. (2021). Furthermore, the composite reliability (CR) measures of each construct were in excess of 0.70 in agreement with the

recommendations by Bryman and Cramer (2012) and Hair et al. (2017). All constructs also had an Average Variance Extracted (AVE) of more than 0.50, which is the criterion put forth by Fornell and Larcker (1981). All these results lead to the conclusion that the measurement model had sufficient reliability and convergent validity. See Table 2 for the exact figures.

Table 2. Convergent Validity

Variables	Item	Λ	α	AVE	rho_a
Fuel Eating Habits "FLEH" (J. Resimo et al., 2024)	FLEH-1	0.724	0.885	0.597	0.911
	FLEH-2	0.823			
	FLEH-3	0.831			
	FLEH-4	0.805			
	FLEH-5	0.799			
	FLEH-6	0.825			
	FLEH-7	0.712			
Fun Eating Habits "FNEH" (J. Resimo et al., 2024)	FNEH-1	0.827	0.841	0.513	0.879
	FNEH-2	0.827			
	FNEH-3	0.734			
	FNEH-4	0.819			
	FNEH-5	0.739			
	FNEH-6	0.827			
	FNEH-7	0.712			
Fog Eating Habits "FGEH" (J. Resimo et al., 2024)	FGEH-1	0.865	0.859	0.609	0.885
	FGEH-2	0.736			
	FGEH-3	0.871			
	FGEH-4	0.758			
	FGEH-5	0.712			
Storm Eating Habits "SEH" (J. Resimo et al., 2024)	SEH-1	0.712	0.840	0.554	0.881
	SEH-2	0.822			
	SEH-3	0.858			
	SEH-4	0.735			
	SEH-5	0.712			
	SEH-6	0.712			
Academic Performance "AC" (Centers for Disease Control and Prevention, 2014)	AC-1	0.827	0.896	0.763	0.928
	AC-2	0.929			
	AC-3	0.860			
	AC-4	0.875			

4.2.2. Discriminant Validity

In order to further fortify the validity of the model and the conclusions drawn, the constructs were analyzed to ascertain the existence of the discriminant validity of each construct separately (Kock, 2020). Adopting the Fornell and Larcker approach and model cross-loadings, as suggested by Fornell and Larcker (1981), establishes discriminant validity applicability. This information is available in Table 3 and Figure 2.

Table 3. Fornell-Larcker criterion

Variables	FLEH	FNEH	FGEH	SEH	AC
FLEH	**0.773**				
FNEH	0.659	**0.716**			

FGEH	0.386	0.470	**0.780**		
SEH	0.446	0.689	0.655	**0.744**	
AC	0.564	0.651	0.354	0.536	**0.873**

The results in Table 3 demonstrate that each of the constructs explains a greater proportion of the variance in their corresponding measurement items than in those of any other construct, thus confirming the model's discriminant validity. These findings demonstrate satisfaction of the criteria defined by Fornell and Larcker (1981) and Hair et al. (2017). In addition, the results of the factor loading analysis show that each of the items load more strongly onto their assigned constructs than any other constructs, thus confirming discriminant validity in concordance with the criteria proposed by Chin (2009).

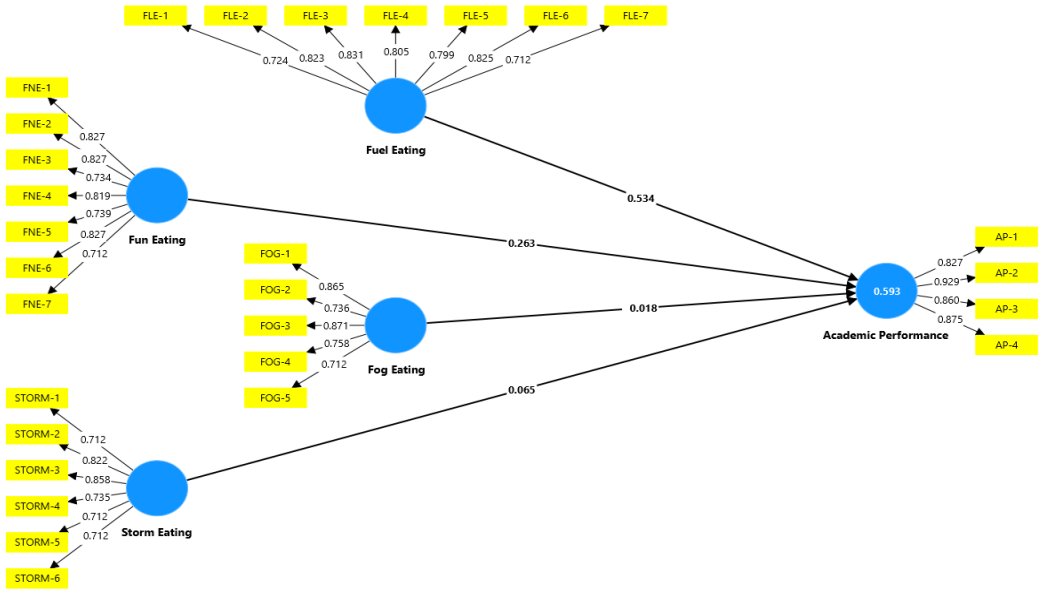

Figure 2. Measurement Model (Outer Model)

4.3. Structural Model (Inner Model)

4.3.1. Coefficient of determination (R^2)

The model was evaluated on the basis of the R^2 value to show how the independent variables affect the dependent values to see how much power the model has of prediction. As illustrated in Table 4, the independent variables such as Fuel Eating Habits (FLEH), Fun Eating Habits (FNEH), Fog Eating Habits (FGEH), and Storm Eating Habits (SEH) moderately have explanatory power towards the dependent variable, Academic Performance (AC). This proves that the model made prediction for the variable, which corresponds to partial prediction of the model, to the value of the variable as per the guidelines of interpretation provided in the work of Ozili (2023).

Table 4. R^2 Test Results

Variable	R^2	Level
Academic Performance	0.593	Moderate

4.3.2. Effect size (f^2)

In order to determine how much each exogenous latent variable individually contributes to the endogenous latent variable, effect size (f2) was calculated. From Table 5, the effect sizes of the exogenous variables FLEH, FNEH, FGEH, and SEH on the endogenous AC variable was characterized as ranging from no effect to small and large effect. These results were analyzed

based on Cohen's guidelines on effect size (Cohen, 2013).

Table 5. Effect Size Results (f^2)

Variables	AC	Effect
FLEH	0.381	Large
FNEH	0.071	Small
FGEH	0.000	No Effect
SEH	0.004	No Effect

Table 5 presents the estimated effect size (f^2) on the relationship between dietary habits and academic performance among Saudi Arabian university students with impairments. The findings indicate that Fuel Eating Habits "FLEH" significantly influence academic performance achievement (f^2 = 0.381). This indicates that nutrition-driven eating habits significantly influence student's academic performance. Conversely, Fun Eating Habits "FNEH" show a minor influence on academic performance (f^2 = 0.071), indicating that the effect, while tiny, remains perceptible. In contrast, Fog Eating Habits "FGEH" (f^2 = 0.000) and Storm Eating Habits "SEH" (f^2 = 0.004) exhibit no significant correlation with academic performance, indicating that unstructured or emotionally influenced eating practices do not substantially hinder academic achievement in this group. These findings underscore the diverse impacts of dietary habit characteristics, particularly the significance of health-oriented eating practices in enhancing academic performance among university students with disabilities.

4.3.3. Examination of "GoF"

Goodness-of-fit (Chin, 2009) was done to confirm that the study's proposed model shows satisfactory global fit in measurement, structure and overall model quality.

$$GoF = \sqrt{R^2 x\ AVE}$$

$$GoF = 0.56$$

Considering the criteria proposed by Wetzels et al. (2009) and the results of the GoF test, one can say that the goodness of fit for the model in this paper is, indeed, large enough to be accepted as warranted for a global PLS model.

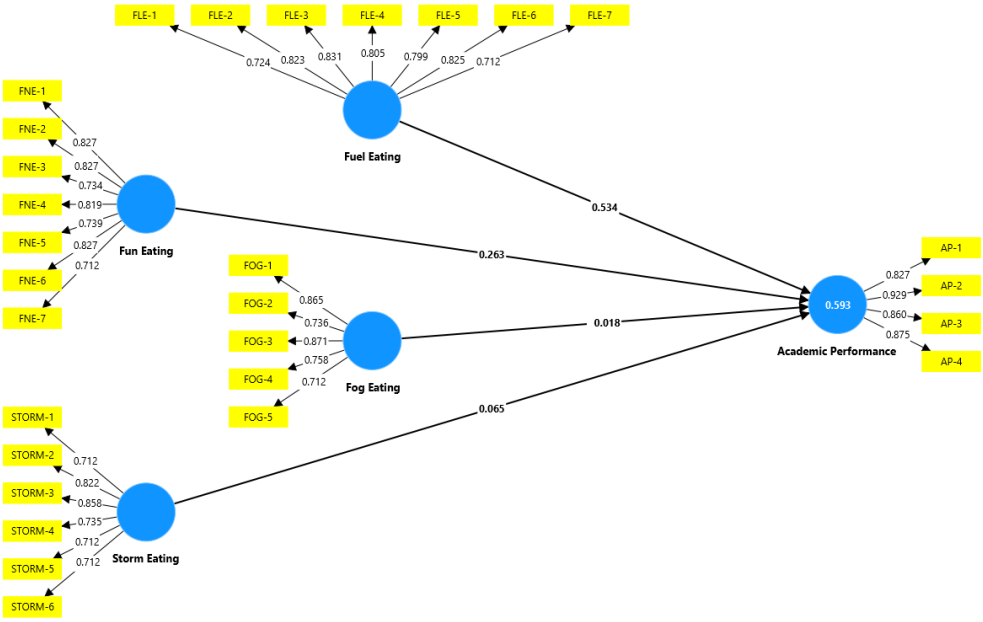

Figure 3. The Proposed Structural Equation Model

4.3.4. Hypotheses assessment

To evaluate the extent to which the proposed theoretical model corresponds with the empirical data, a significance analysis of the path coefficients was conducted. A summary of the hypothesis testing outcomes is presented below, with detailed results available in Table 6 and Figure 4.

Table 6. Hypotheses Assessment

Hypothesis (Paths)	Effect	Std. Beta	Std. Error	T Value	P values	Results
H1: Fuel Eating Habits -> Academic Performance	Direct	0.534	0.039	13.692	0.000	Supported
H2: Fun Eating Habits ->Academic Performance	Direct	0.263	0.046	5.705	0.000	Supported
H3: Fog Eating Habits ->Academic Performance	Direct	0.018	0.046	0.401	0.689	Not Supported
H4: Storm Eating Habits ->Academic Performance	Direct	0.065	0.057	1.145	0.252	Not Supported

The study's design included four hypotheses, as shown in Figure 1. The results from structural equation modeling, see Tables 5 and 6, Figures 3 and 4, showed that Fuel Eating Habits (FLEH) had positive and statistically significant direct effects on Academic Performance (AC) (effect size 0.381, standardized beta 0.534, p 0.000). Also, Fun Eating Habits (FNEH) contributed positively and statistically significant direct effects on AC (effect size 0.071, standardized beta 0.263, p 0.000). These results supported Hypotheses H1 and H2. In stark contrast, Fog Eating Habits (FGEH) had no impact on AC (effect size 0.000, standardized beta 0.018, p 0.689). In addition, Storm Eating Habits (SEH) had no impact (effect size 0.004, standardized beta 0.065, p 0.252). Thus, Hypotheses H3 and H4 were not supported.

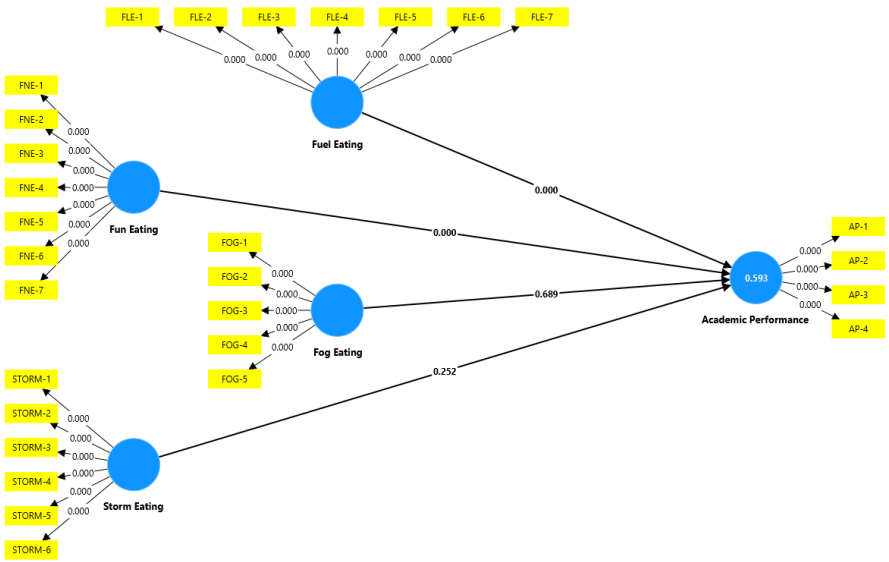

Figure 4. Significance of Path Coefficients

5. DISCUSSION AND IMPLICATIONS

The purpose of this study was to determine the key factors influencing Saudi university students with impairments' academic

success. The study focuses on four aspects of the relationships: the direct correlation between Fuel Eating Habits (FLEH) and Academic Performance (AC); Fun Eating (FNEH) and Academic Performance (AC); Fog Eating Habits (FGEH) and Academic Performance (AC); Storm Eating Habits (SHE) and Academic Performance (AC).

The major finding of this research is the indication of the robust positive correlation between fuel eating habits and AC, backing the long-recognized connection between the quality of food and the level of one's cognitive ability. This has also been noted by other researchers who pointed out the importance of the balance of food, the moderation of sugar and salt, and the level of other nutrients in the food composition as important factors in positive eating habits (Leon et al., 2024; Ulijaszek, 2002). Supporting Burrows et al., 2017, our research also noted the positive association between some eating behaviors, mainly the consumption of some food items (i.e., breakfast, fruits), and attainment of education level. In addition, our research does confirm some researchers' negative association between the level of one's poor eating habits and academic performance (Dodsworth, 2010; Resimo et al., 2024; Reuter et al., 2021). In particular, it was the FLEH that was mainly documented, supporting the direction of Egede (2021) who noted the poor level of learning and attention due mainly to the omission of breakfast. The degree to which FLEH has an effect on one's AC requires advocacy to promote healthy eating on University students with disabilities as that is a group that tends to face a multitude of problematic eating patterns (Zuniga-Jara et al., 2018).

Moreover, the results showed a positive connection between FNEH and AC, showing the same as previous research which showed the same positive relationship between FNEH when FNEH meant occasional mini binges or eating in company (Prieto Andreu, 2023; Zhao et al., 2021). Such activities, FNEH, could probably help relieve stress or foster some social ties, and thus they may affect AC positively. Such findings coincide with the data showing importance of social and overall well-being for educational accomplishments. AC performed by individuals with Fun FNEH who eat pasta, fruit and meat is better, thus showing that not all foods categorized as 'fun' are detrimental (Kim et al., 2016; Prieto Andreu, 2023). FNEH necessitate further research in order to untangle the social and other variables which may be designing a mediating role.

Based on the research results, it cannot be conclusively stated that there exists a relationship between FGEH, SEH, AC, and grade performance. The results from Burrows et al. (2017) indicated that there is a negative relationship between academic achievement and the 'Fuel, Fun, Fog, and Storm' approach which did not exactly align with our results. The results do suggest that FGEH and SEH could be affecting AC in other ways. Irregular forms of FGEH have been shown to have adverse health outcomes and poorer nutritional status which could indirectly affect academic achievement (Teves & Narciso, 2005). For SEH which is offset by emotional distress, there is a body of research that has shown negative impacts on mental health and well-being which could in turn indirectly affect academic performance (Bonner & Davis, 2024). The cross-sectional design of the study may have overlooked these indirect or long-term impacts of the variables of interest. The study also focused more on nutritional status which, as Teves & Narciso (2005) posited, may have overshadowed the potential variations that stem from emotional and irregular forms of eating and how they pertain to academic performance.

Universities in Saudi Arabia need to create nutrition education programs that respond to the unique nutritional needs of students with impairments. Additionally, by expanding the availability and affordability of nutritious snacks and meals on campus, colleges might provide these students with easily accessible and reasonably priced healthy food options. Universities should also implement wellness programs to foster a campus culture that promotes the general wellbeing of students with disabilities.

6. CONCLUSION, LIMITATIONS, AND FUTURE RESEARCH

This study examined one of the many correlations between dietary practices and educational performance. The health-related literature frequently indicates the protective nature of fruit and vegetable consumption, and healthful dietary practices. However, the impact of "fun," "fog," and "storm" eating patterns among students with disabilities is indeterminate.

There is a need to build the excess of such research to identify possible moderators like stress and social situation, and the correlation of the slightly varied dietary practices on academic performance with its consequences. Increased knowledge in the field of practice is focused on the gap to formulate effective measures for the enhancement of health and academic outcomes of students with disabilities.

Author Contributions

Conceptualization, THA; MAZ; MAM and ME; methodology, THA; software, THA; validation, THA, MAZ; MAM; H.H.A and ME; formal analysis, THA; investigation, THA, MAZ, MAM, H.H.A and ME; data curation, THA; writing—original draft

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Informed consent was obtained from all subjects involved in the study. Participation was voluntary, and all respondents were informed about the purpose of the research, confidentiality of their responses, and their right to withdraw at any time without any consequence.

Conflict of interest:

The authors declare no conflict of interest.

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