ASSESSING THE KNOWLEDGE AND READING PRACTICE OF FOOD LABEL AMONG COLLEGE STUDENTS.

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ABSTRACT

Back ground: *Food labels serve as a vital tool in promoting healthy eating habits by providing essential information about the nutritional content of food products. They offer insights into calories, macronutrients, vitamins, minerals, and other ingredients, enabling consumers to make informed decisions that align with their dietary needs and health goals. Despite the availability of this information, numerous studies have indicated that many individuals, particularly young adults, do not consistently read or understand food labels.*
College students, in particular, face unique challenges that may affect their engagement with food Labels. These challenges include time constraints, limited budgets, and a lack of nutritional education. Additionally, the university environment often exposes students to a variety of food options, including fast food and convenience items, which may not always prioritize nutritional value. As a result, there is a pressing need to assess the knowledge and reading practices of food labels among this demographic to identify gaps and develop strategies to improve their nutritional Literacy.

Objective: *To assess how many participants have knowledge of reading the food label. To assess how many participants read the food label. To assess the reason behind participants reading the food Label. To assess which aspect of the food label do participants read the most (Nutritional label, expiry date, allergens).*

Methodology: *Data collection involved personal interviews conducted with participants using a structured questionnaire to elicit information on their familiarity with and habits of reading food labels. The questionnaire covered demographic details, including age, gender, and academic major, as well as Inquiries into participants' understanding of food labels and their frequency of utilization. To delve into secondary objectives, further questioning aimed to uncover the motivations behind participants' food label reading habits and which aspects of the label they prioritize most, whether it be the nutritional information, expiry dates, allergens, or other factors. It aimed to provide a comprehensive understanding of college students' knowledge and practices regarding food label reading, essential for informing future nutritional interventions and education initiatives.*

Result: *The findings of this study showed that maximum number of participants included in the study were female (62.5%) as compared to male (37.5%). All participants reported consuming packaged food items, highlighting the ubiquity of this behavior within the demographic. Taste was identified as the predominant factor influencing food choices, with (69.2%) of participants citing it as significant, followed by brand loyalty at (19.2%). Interestingly, only (4.8%) considered the food Label when making selections, price and packaging design rank a lower in importance of (3.8%) and (2.9%) suggesting a gap in food label literacy. Despite this, (91.3%) preferred purchasing labelled food*

items, reflecting a recognition of the importance of food label information. Approximately half (51.0%) actively read food labels, with the other half citing lack of knowledge(56.9%) , interest (23.5%) , or time as barriers. The most commonly checked label aspects were Expiry date (87.5%) and ingredients (78.8%), followed by MRP (74%) expiry date (87.5%) manufacturing date (61.5%), and nutritional facts(46.2%) . Total fat(73.1%) , calories (61.5%), sugar, protein, and sodium were the most frequently checked nutritional components. Health concern was the primary motivator for reading nutritional labels (82.7%), indicating a strong awareness of the impact of diet on health. Remarkably, all participants (100.0%) acknowledge the role of food labels in aiding them to make healthier.

Conclusion:
The study concluded that while a slight majority of students demonstrated good knowledge of nutrition labels, there remains a significant portion with low understanding. Additionally, it was observed that educational level influenced the likelihood of understanding nutrition labels. however, gender did not significantly impact this knowledge. The findings highlight the Importance of targeted educational initiatives to improve food label literacy among students, especially those with lower educational backgrounds and incomes. This could ultimately lead to more informed food choices and better health outcomes.
The findings from this study provide valuable Insights into the nutritional literacy and behaviors Of college students. Results indicated varying levels of knowledge and reading practices among participants, with a notable portion demonstrating familiarity with food labels but not consistently engaging with them. Reasons for reading labels ranged from dietary restrictions to health consciousness, highlighting the diverse motivations behind this behavior. Additionally, nutritional information emerged as the most frequently accessed aspect of food labels, indicating a prioritization of understanding the nutritional content of food products. Overall, the study underscores the importance of targeted educational interventions to enhance food label literacy among college students and promote healthier dietary choices.

Keyword: - *Food Label , Reading Practice, College Students*

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1. INTRODUCTION

A food label is any printed material attached to packaging that provides essential information about the food product. Food labels must include the kind and amount of nutritional information, usage recommendations, and the shelf life of the nutritionally prepared food. All information needed to be clearly visible on the product's packaging.[1]

Nutritional labels were initially introduced to the public by the Nutrition Labeling and Education Act of 1990 (NLEA), which required the provision of accurate and user-friendly dietary details for consumers. Following this legislation, the Food and Drug Administration (FDA) began furnishing guidance to assist the populace in selecting nutritious food items and, as anticipated, in transitioning towards a healthier way of life (Taylor & Wilkening, 2008)[2]

Food labels provided consumers with information that helped them evaluate the nutritional values of similar food products, better comprehend the nutritional value of food, and make informed, healthy eating choices. It was crucial to evaluate consumers' attitudes towards choosing healthier foods as well as their level of nutritional knowledge on dietary sugars, fats, And cholesterol. A review of consumer studies on food labeling emphasized whether consumers read the labels carefully when purchasing pre-packaged food and whether they made use of this information.[3]

When it came to promoting healthier and more appropriate choices for the population's nutrition education, food labeling was a useful instrument that could be used both independently and autonomously to help prevent nutritional illnesses and diseases[4]. Consumers' education level was found to be positively associated with their knowledge and attitudes, suggesting that individuals with higher education tended to be more open to nutrition and health education.[3]

Research indicated a connection between the increased prevalence of diet-related public health problems and illnesses such as obesity, hypertension, diabetes, cancer, osteoporosis, and cardiovascular diseases, and the high intake of packaged foods and poor nutrition label reading habits.[5]

Teaching consumers the value of nutrition was one of the most crucial tactics for persuading them to make healthier decisions. The goal of food labeling was to encourage healthier eating by providing information on nutrient content and improving the context for making food choices[6] Consuming processed foods like bread, biscuits, soft drinks, ice cream, canned sausage, and cheese regularly increased the risk of obesity for consumers.[7]

When purchasing packaged foods, it was imperative that consumers carefully read and utilize the information on the labels. This was because the contents, source, expiration date, and suggested storage conditions were only a few of the important pieces of information these labels provided about a product's attributes.[5] Merely 40% of consumers worldwide verified the production and expiration dates on food labels prior to purchase, compared to 60% in Asia, 50% in Europe, and 45% in Latin America who comprehended the nutritional labels on food. [2] A sizable fraction of people globally, between 27.0 and 97.47 percent, were not used to reading food labels on packaged goods. [5]

The knowledge and application of food labels on prepackaged goods by consumers were not well documented. [5] There hadn't been any prior research on consumer understanding, reading proficiency, or association variables of nutrition information on food labels published in the Literature.[2]

The purpose of this study is to evaluate how well college students understand and use food labels, aiming to inform future use of food label interventions for promoting healthier eating habits and advocating for clearer food labeling policies.

2. METHODOLOGY

2.1. Study Design - The study was an cross sectional observational study.

2.2. Study Setting - The study was conducted in D.Y.Patil College Nerul, Navi Mumbai.

2.3. **Study Duration**- The study was for 6 Months.

2.4. **Sample Size**-The study duration was for 3 months whichever general participants from DY Patil College Comes within 3 months and fulfills the inclusion criteria.

2.5.Sampling Method - Simple Random Sampling.

2.6. Selection Criteria – Inclusion Criteria: College students age group between 18-25 years.
Exclusion Criteria: College Students below 18-25 years.

2.7. Development of Tools-
Developing the questionnaire to assess the knowledge and reading practices of food labels among college students, careful consideration was given to comprehensively capture relevant information.
The questionnaire was designed to gather data on multiple aspects, including participants' awareness of food label reading, frequency of reading labels, reasons behind label reading habits, and preferences regarding specific label aspects.
Additionally, open-ended questions were incorporated to allow participants to provide detailed Insights into their motivations and behaviors related to food label reading.

2.8. Method of data collection-
1. The study was carried out in D.Y. Patil College Nerul, Navi Mumbai.
2. Participants who met the inclusion and exclusion criteria was included in the study.
3. All the participants were given consent forms, and a model information sheet and
4. Explained about the study, subject of the study, study duration etc.
5. The data was collected by the investigator by using a questionnaire.
6. All the data that was collected were coded and analyzed using SPSS.
7. The result and outcome were discussed to arrive at a conclusion.
8. The final report was prepared.

2.9. Method of data collection relevant to the objective-
Data collection involved personal interviews conducted with participants using a structured questionnaire to elicit information on their familiarity with and habits of reading food labels. The Questionnaire covered demographic details, including age, gender, and academic major, as well as inquiries into participants' understanding of food labels and their frequency of utilization. To delve into secondary objectives, further questioning aimed to uncover the motivations behind participants food label reading habits and which aspects of the label they prioritize most, whethe**r** It be the nutritional information, expiry dates, allergens, or other factors. It aimed to provide a comprehensive understanding of college students knowledge and practices regarding food label Reading, essential for informing future nutritional interventions and education initiatives.

2.10. Data analysis plan and method –
A questionnaires were included in the study, therefore ,104 questionnaires were included in the data analysis. Statistical analysis was conducted to derive meaningful insights from the data. Descriptive statistics such as means, standard deviations, frequencies, and percentages were calculated to summarize the participants knowledge and reading habits regarding food labels. The analysis was carried out Using Microsoft Excel Windows 10 Software for basic calculations and IBM SPSS Software (version 4).

3.RESULT AND DISCUSSION

Table 3.1: Age group of pateints (n=104)

	Age (Yrs.)
Mean	104
SD.	21.35
Min.	2.09
Max.	18
	25

N: No of pateints ;Min: Minimum;Max: Maximum;Sd: Standard deviation

The table provides demographic information on the age distribution of the participants, with a total sample size (n) of 104. The mean age of the participants is 21.35 years, with a standard deviation (SD) of 2.09 years. The youngest participant is 18 years old, while the oldest is 25 years Old. This suggests that the sample primarily consists of college-aged individuals, which aligns with the study's focus on college student.

Table3. 2: Gender distribution of the patient (n=104)

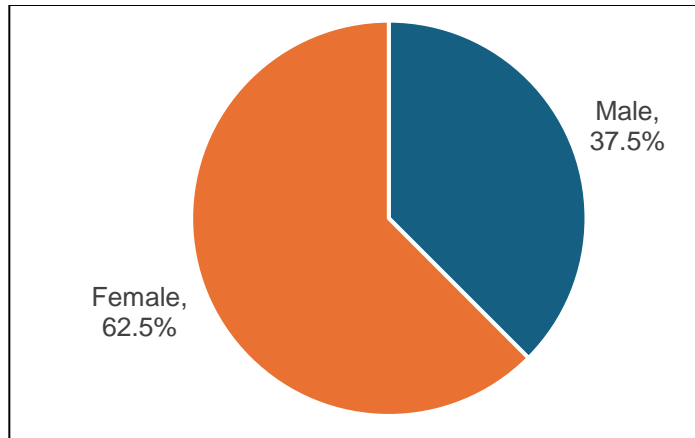|	NO.	%
• Male	39	37.5%
• Female	65	62.5%
Total	104	100.0%

No:No of count

Chart 1 Gender wise distribution of participants

The table presents the gender distribution of the participants In the study, with a total sample Size(n) of 104. Out of the total participants, 39 are male, constituting 37.5% of the sample, While 65 Are female, making up 62.5% of the sample. This indicates that the study sample Consists of a Higher proportion of female participants compared to male participants.

Table 3.3: Year of studying group (n=104)

	No.	*%*
• High school certificate	16	15.4%
• Intermediate or diploma	1	1.0%
• Graduate	59	56.7%
• Post graduate	28	26.9%
Total	104	100.0%

No:No of count
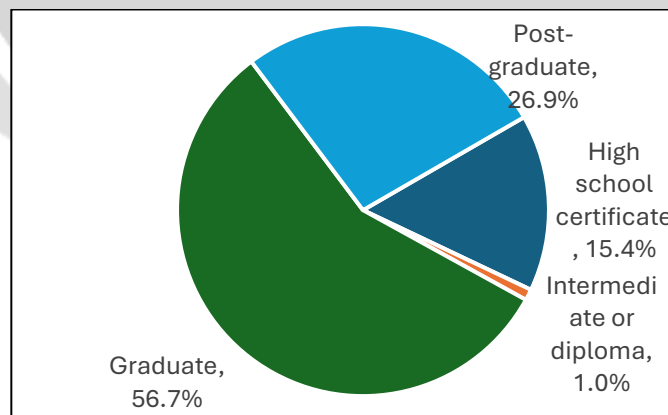
Chart 2 Year of studying group

This breakdown indicates that the majority of participants are either graduates or post-graduates, Suggesting that the study predominantly includes college students who are doing their undergraduate or higher education. Understanding the educational background of the participants Is crucial for analyzing how knowledge and practices regarding food label reading may vary across different levels of education.

Table 3.4 Packaged food items by participants (n=104)

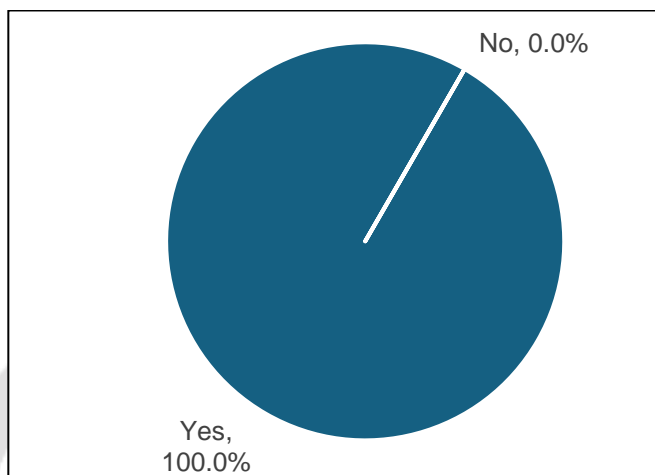|	*No.*	*%*
• Yes	104	100.0%
• No	0	0.0%
Total	104	100.0%

No: No of count

Chart 3 Buy packaged food items by participants

The table presents a comprehensive view of the participants' consumption behavior regarding packaged food Items in the study, with a total sample size of 104 college students. Notably, 100% Of the participants reported consuming packaged food items, indicating a universal practice within This demographic with all participants engaging in this behavior, the study can provide valuable insights into the prevalence of food label reading and the factors influencing it within this Population. This high level of engagement with packaged foods suggests a significant opportunity for interventions aimed at improving food label literacy and promoting Healthier consumption Habits among college students.

Table 3.5 Factors influence on participants choice of packed foods (n=104)

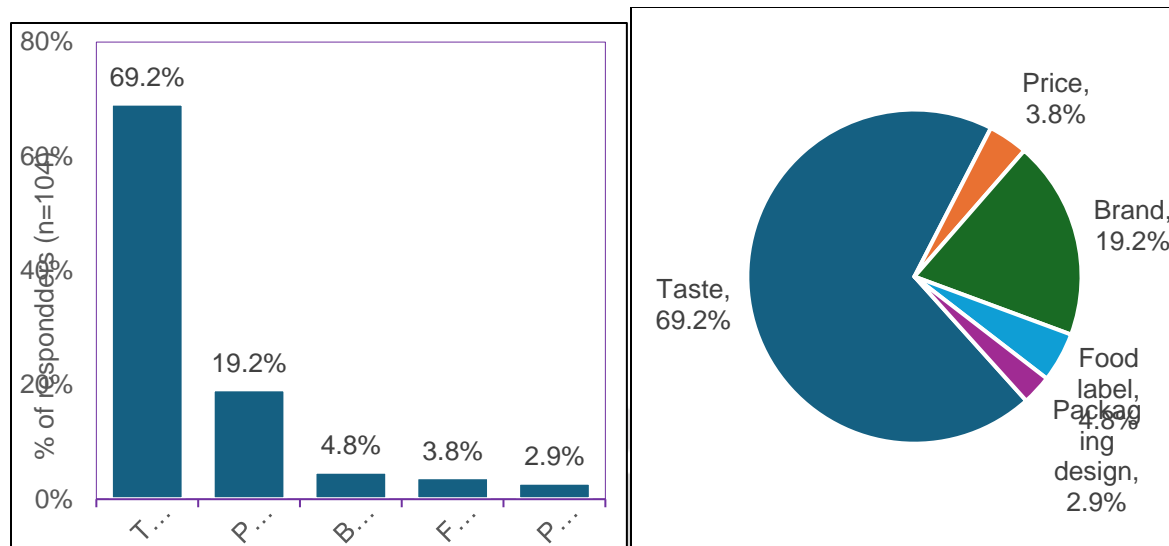|	*No.*	*%*
• Taste	72	69.2%
• Brand	20	19.2%
• Food label	5	4.8%
• Price	4	3.8%
• Packaging design	3	2.9%
Total	104	100.0%

No : No of count

Chart 4 Factors influence on participants choice of packed food

The table illustrates the various factors influencing college students' choices of packaged foods in the study, encompassing a sample size of 104 participants. Among the factors identified, taste emerges as the predominant influencer, with 69.2% of participants citing it as a significant determinant in their food choices. Brand loyalty also holds sway for a notable portion, with 19.2% of participants indicating it as a deciding Factor. Interestingly, a smaller proportion of participants, 4.8%, specifically consider the food label when making their selections, suggesting a potential gap in food label literacy or awareness among college students. Price and packaging design rank lower in importance, at 3.8% and 2.9%, respectively.

Table 3.6: Participants preference of food product while purchasing the food item (n=104)

	No.	*%*
• With label	95	91.3%
• Without label	2	1.9%
• Doesn't matter	7	6.7%
Total	104	100.0%

No: No of count
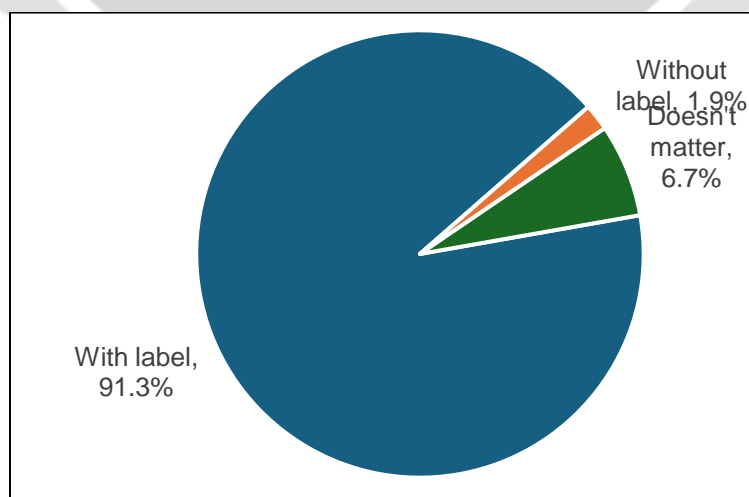
Chart 5 Participants preference of food product while purchasing the food item

The table presents insights into the preferences of college students regarding food product labels during food purchases, based on a sample size of 104 participants. The overwhelming majority, comprising 91.3% of participants, express a preference for purchasing food items with labels. This strong inclination toward labeled products suggests a recognition of the importance of food label Information among college students, Possibly reflecting a desire for transparency and informed decision-making regarding their dietary choices. Only a negligible proportion, 1.9% of participants, indicate a preference for purchasing items without labels, While 6.7% express that the presence or absence of labels doesn't influence their purchasing decisions.

Table 3.7 : Participants read food label while buying packaged foods (n=104)

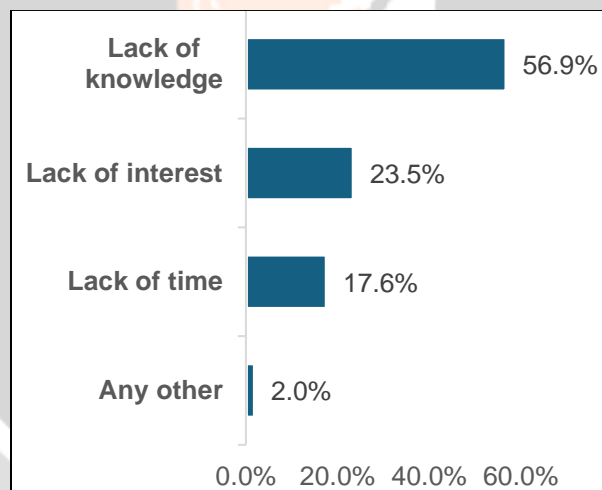|	*No.*	*%*
Yes, they read	53	51.0%
No, they do not read	51	49.0%
Reason for not reading label (n=51)		
Lack of knowledge	29	56.9%
Lack of interest	12	23.5%
Lack of time	9	17.6%
Anytime	1	20.0%

No. : No   of count

Chart 6 Reason for participants not reading food label while buying packaged food

The table provides valuable insights into the food label reading practices among college students, Based on a sample size of 104 participants. Approximately half of the participants, constituting 51.0%, report actively reading food labels while purchasing packaged foods, indicating a moderate level of engagement with label information. Conversely, an almost equal proportion, 49.0%, indicate that they do not read food labels during their purchases. Among the participants who do not read labels, the primary reasons cited include lack of knowledge about label interpretation, which is the most prevalent reason at 56.9%, followed by lack of Interest and lack of time at 23.5% and 17.6%, respectively.

Table 3.8:Food label information read by participants (n=104)

	No.	*%*
• Expiry date	91	87.5%
• Ingredients	82	78.8%
• MRP	77	74.0%
• Manufacturing date	64	61.%
• Nutritional facts	48	46.25
• Net content	41	39.4%
• Allergens	38	36.5%
• Preservatives	37	35.6%
• Vegetarian mark	36	34.6%
• Logo	33	31.7%
• Additives	32	30.8%
• Non vegetarian mark	41	13.5%

No: No of count
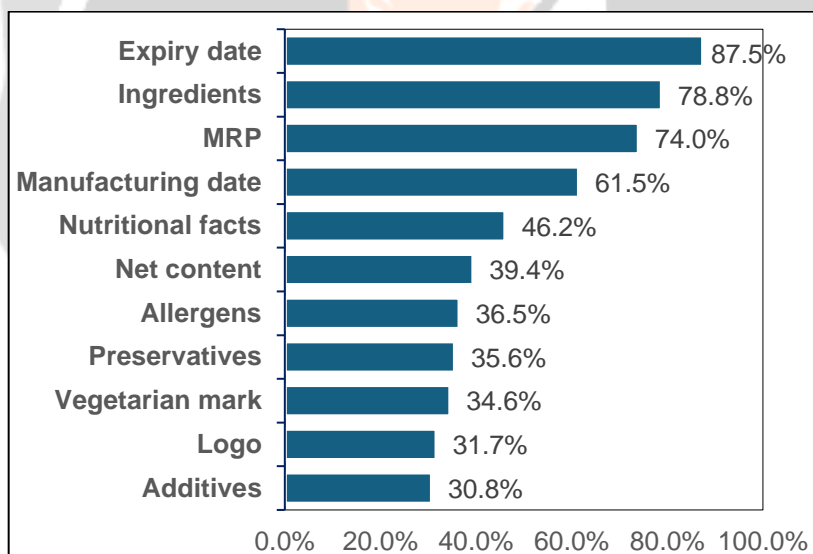
Chart 7 Food label information read by participants

The table offers Insights into the specific aspects of food labels that college students prioritize When making purchasing decisions, based on a sample size of 104 participants. Expiry date emerges as the most commonly checked information, with 87.5% of participants indicating that they read this aspect of the label. Ingredients follow closely, with 78.8% of participants paying attention to this information. Other frequently checked details Include MRP (Maximum Retail Price) at 74.0%, manufacturing date at 61.5%, and nutritional facts at 46.2%. Interestingly, allergens, preservatives, and vegetarian/non-vegetarian marks also receive notable attention from participants, suggesting a growing awareness and concern for dietary preferences and allergen avoidance.

Table 3.9 :Nutritional label information read by participants (n=104)

	No.	*%*
• Total fat	76	73.1%
• Calories	64	61.5%
• Sugar	60	57.7%
• Protein	55	47.1%
• Sodium	49	39.4%
• Serving size	41	38.5%
• Vitamin	40	26.0%
• Total carb	27	23.1%
• Mineral	24	1.0%
• Other	1	

No : No of count
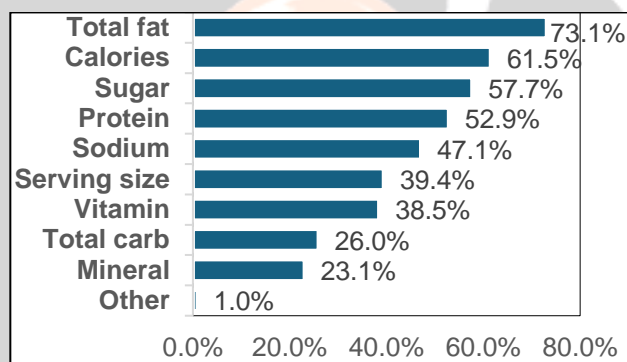
Chart 8 Nutritional label information read by participants

The table provides insights into the specific nutritional information that college students prioritize when reading food labels, based on a sample size of 104 participants. Total fat emerges as the most commonly checked nutritional component, with 73.1% of participants indicating that they read this information. Calories, sugar, protein, and sodium follow closely, with significant proportions of participants paying attention to these details. Other nutritional components such as serving size, vitamins, total carbohydrates, and minerals also receive attention from participants, albeit to a lesser extent.

Table 3.10: Factors influence on participants choice for reading the nutritional label (n=104)

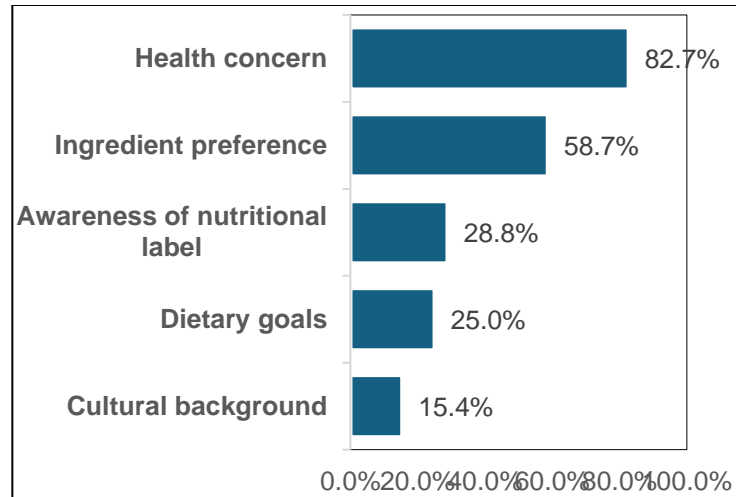|	*No.*	*%*
• Health concern	86	82.7%
• Ingredient preference	61	58.7%
• Awareness of nutritional label	30	28.8%
• Dietary goal	26	25.0%
• Cultural background	16	15.4%

No : No of count

Chart 9 Factors influence on participants choice for reading the nutritional label.

The table sheds light on the factors influencing college students' decisions to read nutritional labels when purchasing food items, based on a sample size of 104 participants. Health concern emerges as the most prominent motivator, with a significant majority of participants (82.7%) indicating that Their concern for health prompts them to read nutritional labels. This underscores a commendable level of awareness among college students regarding the impact of diet on health outcomes and reflects a proactive approach toward making healthier food choices. Ingredient preference follows closely, with 58.7% of participants indicating that their preference for specific ingredients influences their decision to read nutritional labels. Other factors influencing label reading include awareness of nutritional labels, dietary goals, and cultural background, Though to a lesser extent.

Table 3.11 : Food label help you to make health choice (n=104)

	No.	*%*
• Yes	104	100.0%
• No	0	0.0%
Total	104	100.0%

No: No of count
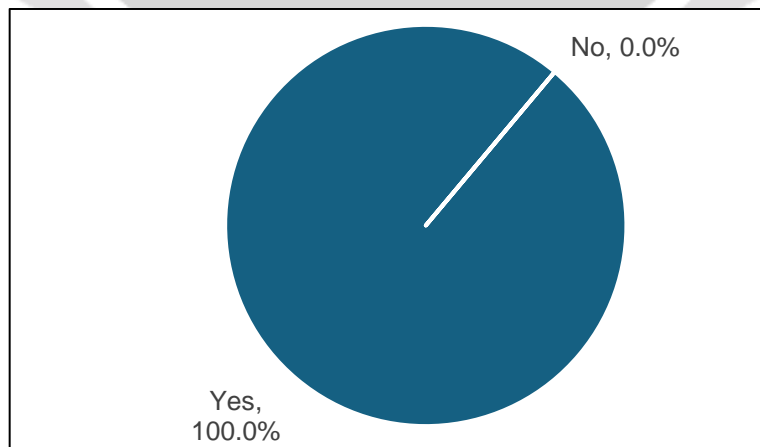
Chart 10 Food label help participants to make healthy choices

The table underscores the unanimous perception among college students regarding the utility of food labels In facilitating healthy dietary choices, based on a sample size of 104 participants. Remarkably, all participants (100.0%) acknowledge the role of food labels in aiding them to make healthier selections. This resounding consensus underscores the recognized importance of food label information as a tool for informed decision making regarding dietary intake among college students.

4. CONCLUSIONS

The study concluded that while a slight majority of students demonstrated good knowledge of nutrition labels, there remains a significant portion with low understanding. Additionally, it was observed that educational level influenced the likelihood of understanding nutrition labels. However, gender did not significantly impact this knowledge. The findings highlight the importance of targeted educational initiatives to improve food label literacy among students, especially those with lower educational backgrounds. This could ultimately lead to more informed food choices and better health outcomes.

The findings from this study provide valuable insights into the nutritional literacy and behaviors of college students. Results indicated varying levels of knowledge and reading practices among participants, with a notable portion demonstrating familiarity with food labels but not consistently engaging with them. Reasons for reading labels ranged from dietary restrictions to health consciousness, highlighting the diverse motivations behind this behavior. Additionally, nutritional information emerged as the most frequently accessed aspect of food labels, indicating a prioritization of understanding the nutritional content of food products. Overall, the study underscores the importance of targeted educational interventions to enhance food label literacy among college students and promote healthier dietary choices.

5. ACKNOWLEDGEMENT

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