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Knowledge Attitude And Practice On Food Labelling Among The Patients Visiting Cardiac Clinic At Tertiary Care Hospital.

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ABSTRACT

Food labels play an important role in communicating product information to buyers and manufacturers. It comprises information about the product's type, nutritional value, preparation methods and safety measures. Food labels are an important public health tool for encouraging a healthy diet. The study's goal is to assess cardiac patients' knowledge, attitudes, and practice regarding food labeling while attending a cardiac clinic at a tertiary care hospital. The study involved 370 male and female patients from Chennai SIMS Hospital's Cardiac Clinic. A structured validated questionnaire was used to collect demographic data, anthropometric data and questions of knowledge, attitude, and practice regarding food labelling. The Statistical results were analysed using the chi-square test. Overall, the KAP Score revealed that 64.6% of people use food labels moderately, 11.1% inadequately and 24.3% adequately. These findings highlight the significance of food labels in reducing noncommunicable diseases by promoting educated dietary choices. Improving food labeling education and understanding can boost its effectiveness in terms of public health and disease prevention. The findings revealed that area of residence has a borderline relationship with KAP Score, however education level and medical history are substantially associated with KAP Score.

Keywords: Food label, Knowledge, Attitude, Practice, Cardiac clinic, Structured questionnaire.

INTRODUCTION

India is the world's second largest food producer, after China, and has the potential to be the largest in the food and agricultural sectors. Food processing is one of the largest industries in India, ranking fifth in terms of output, consumption, export, and expected growth (1). In the past, most people ate fresh, unprocessed food. Today, as a result of development, eating patterns in both urban and rural regions are fast changing, with increased intake of fats, refined sugars, and salt, resulting in imbalance and over nutrition. (2) Processed and convenience meals, which are frequently heavy in harmful fats, additives, and refined carbs, have become more and more important in modern living. These are less nutrient-controlled than home-cooked meals and are linked to chronic illnesses and obesity. This change emphasizes the necessity of improved nutrition

management and eating behaviors. (3, 4) The study has shown that intake of ultra-processed products (processed meat and sugar sweetened beverages) and nutrients that are abundant in ultra-processed foods (Trans fats, sodium) enhance CVD risk (5). Food labels assist consumers in making educated decisions, and the food business today places a strong emphasis on consumer health. Information about ingredients, quality, origin, and processing is provided on labels. Making safer and healthier eating choices is facilitated by this clarity. (6) Labelling means any written, printed or graphic matter that is present on the label, accompanies the food or is displayed near the food (7). The ingredients, nutrients, and allergens listed on food labels are important sources of information for customers. Additionally, they serve as marketing tools, influencing eating choices and forming attitudes. As a result, more research is being done on how they affect consumers and the food sector (8). To prevent non-communicable diseases like cardiovascular disorders and to make healthy eating choices, it is essential to read food labels. (9) Making healthy food choices requires consumer awareness and comprehension of food labels. Labels give important details about ingredients and nutrition, which helps consumers make wiser choices (10). Labels are displayed on both the front (FOP) and back (BOP) of food packages. Front of Package (FOP) labels provide consumers with immediate, easily readable nutritional information, warning labels and multiple traffic lights to aid in their decision-making. They emphasize important information like calories, sugar, and fat using textual, numerical, or visual representations. Although consumption outcomes varied, interrupted time series (ITS) studies found that FOPL supported healthier purchasing decisions, hinting that it could improve public health. (11, 12, 13)). Back of Package (BOP) labels give important details regarding a product's nutritional value, including comprehensive ingredient lists and nutrition tables. For the purpose of transparency and consumer understanding, they show the macronutrients and other essential nutrients per 100 grams or serving size. (14) In 2011, the Indian government mandated that all processed food items be labeled as vegetarian (green) or non-vegetarian (brown). This act aimed to standardise food production procedures throughout the country. (15) Tsiros and Heilman (2005) claim that date labels such as "Sell By," "Best Before," and "Use By" imply quality and freshness rather than safety. "Best Before" indicates the highest quality, while "Sell By" directs retailers. To assist customers in making wise decisions, "Use By" provides the most recent suggested usage date. (16) Food labels are read for a variety of reasons. To get the benefits, they are interested in the ingredients and preparation methods. Popular factors include brand comparison and knowledge reinforcement. Consumers can make better and more informed food choices by reading labels, including those pertaining to nutrition, the environment, warnings, health claims, and so on. (17, 18, 19) Reading nutrition labels influences food selection and purchasing behavior, promoting healthier eating habits. Customers who read labels are more likely to select goods with less energy and sodium, making them healthier and more informed choices. (20) People who care about their health, eating habits, and food nutrition are more likely to use food labels on a frequent basis. (21) Education and gender were revealed to be major factors influencing the KAP's utilization of food labels. People with higher educational levels tend to employ nutrition labels due to their high understanding level, which subsequently assists in maintaining a good diet pattern. (22) Thus this study was designed to assess the Knowledge, attitude and practice (KAP) on food labels among cardiac patients.

METHODOLOGY

Study Design: This hospital-based, cross-sectional observational study conducted on 370 patients visiting the cardiac clinic at SIMS Hospital, Chennai, Tamil Nadu. Informed consent will be obtained from all participants. No interventions will be introduced during the study.

Inclusion Criteria:

- Patients diagnosed with cardiac conditions and attending the cardiac clinic at the tertiary care hospital.
- Both male and female patients.
- Age: Above 25 years.

Exclusion Criteria:

- Patients without a confirmed cardiac diagnosis.
- Non-Indian citizens.
- Patients not willing to participate.

Data collection

A structured and validated questionnaire was used to collect data, which was adapted and modified from previous studies. The questionnaire comprised two sections: Section 1 Socio- demographic data, Section 2 Knowledge, Attitude and Practice on food labels.

Section 1: Socio-demographic data collected information on age, gender (male/female), residential area (rural/urban), education level, occupation, type of diet (vegetarian/mixed/ovo-vegetarian), and physical activity (yes/no). **Anthropometric data** included measurements of height (in cm), weight (in kg), and body mass index (BMI) (kg/m²).

Section 2: Knowledge, Attitude, and Practice (KAP) Questionnaire consisted of 13 items, with four questions each for knowledge and attitude, and five questions for practice. Responses were measured using Likert scales appropriate for each domain.

The scoring of the questionnaire was conducted as follows: **Knowledge** was assessed using a three-point Likert scale with four items. Responses were scored as 0 for "NO" and “DON’T KNOW” and 1 score for "YES." **Attitude** was measured on a five-point Likert scale across four items, with scores ranging from 1 ("Strongly Disagree") to 5 ("Strongly Agree"). **Practice** was assessed using a four-point Likert scale for five items, with scores from 1 ("Never") to 4 ("Always"). The **overall Knowledge, Attitude, and Practice (KAP)** scores were also tabulated, with results classified into three categories: Inadequate (11-21), Moderate (22-31), Adequate (32 and above).

The study was conducted among cardiac patients aged 25 years and above, attending SIMS Hospital in Vadapalani. Ethical approval was obtained from the Institutional Ethics Committee of SIMS Hospital, and data collection was performed through face-to-face interviews after informed consent was secured. Patients were randomly selected using purposive sampling. Demographic data captured participants' age, gender, residential area, education, occupation, diet type, and physical activity, while anthropometric measurements followed World Health Organization (WHO) guidelines for height, weight, and BMI assessment.

A pilot study was conducted on 10% of the sample to evaluate the reliability of the questionnaire, resulting in a Cronbach's Alpha score of 0.671, which increased to 0.715 after standardization. This indicated moderate internal consistency, confirming the tool's reliability for use in the main study. After the initial data collection was done, the data was examined with SPSS software. Frequency distribution tables for all relevant variables were created. Proportions, averages, and standard deviations were determined according to the requirements, with a 95% confidence level.

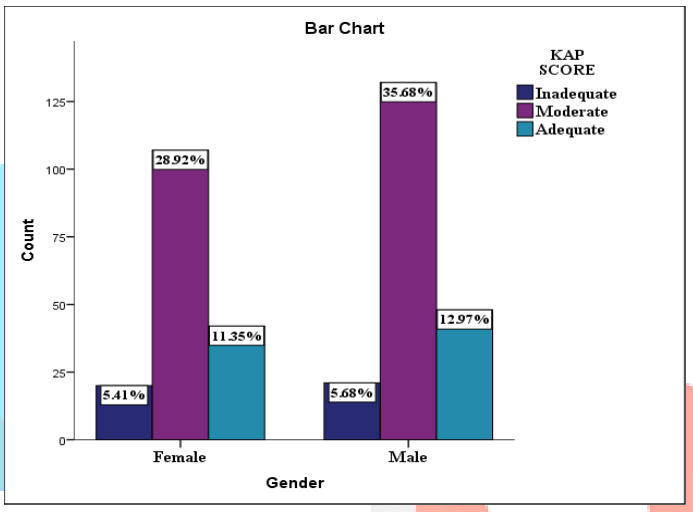
RESULTS

Table 1 :Cross tabulation for Gender and KAP score on food labeling

		KAP SCORE			Total
		Inadequate	Moderate	Adequate	
Gender	Female	20 (5.41%)	107 (28.92%)	42 (11.35%)	169
	Male	21 (5.68%)	132 (35.68%)	48 (12.97%)	201
Total		41	239	90	370

From the survey of 370 respondents, it was found that 201 (54%) were male, while 169 (46%) were female.

Figure 1: Cross tabulation for Gender and KAP score on food labeling



The cross tabulation of gender and KAP scores indicates that 45.7% (n=169) participants are female and 5.43% (n=201) are male.

Table 2: Chi-Square Tests for Gender and KAP score on food labeling

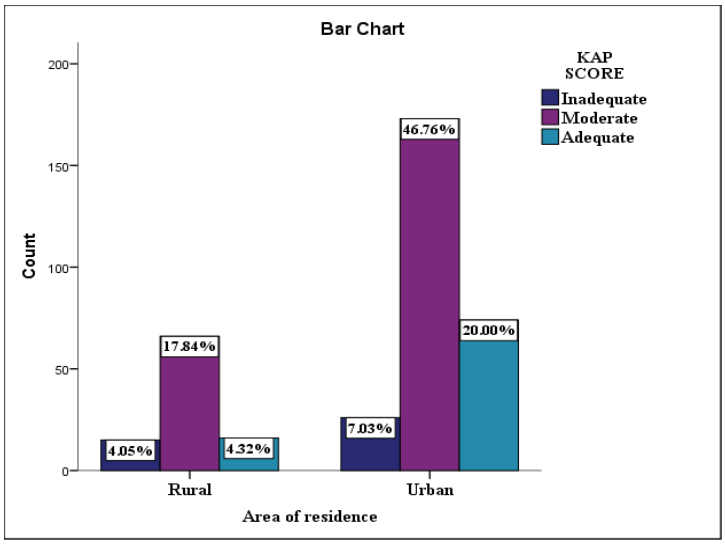
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.274[a]	2	.872
Likelihood Ratio	.274	2	.872
N of Valid Cases	370		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 18.73.			

The analysis of the relationship between gender and KAP score on food labels revealed a p-value of 0.872, which is greater than 0.05. This indicates that there is no significant association between gender and the usage of food labels.

Table 3: Cross Tabulation for Area of residence and KAP score

		KAP SCORE			Total
		Inadequate	Moderate	Adequate	
Area of residence	**Rural**	15 (4.05%)	66 (17.84%)	16 (4.32%)	97
	Urban	26 (7.03%)	173 (46.76%)	74 (20.00%)	273
Total		41	239	90	370

Figure 2: Cross Tabulation for Area of residence and KAP score



The distribution of KAP score between rural and urban areas shows a higher proportion of urban residents.

Table 4: Chi-Square Tests for Area of residence and KAP score

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.834[a]	2	.054
Likelihood Ratio	5.959	2	.051
N of Valid Cases	370		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 10.75.			

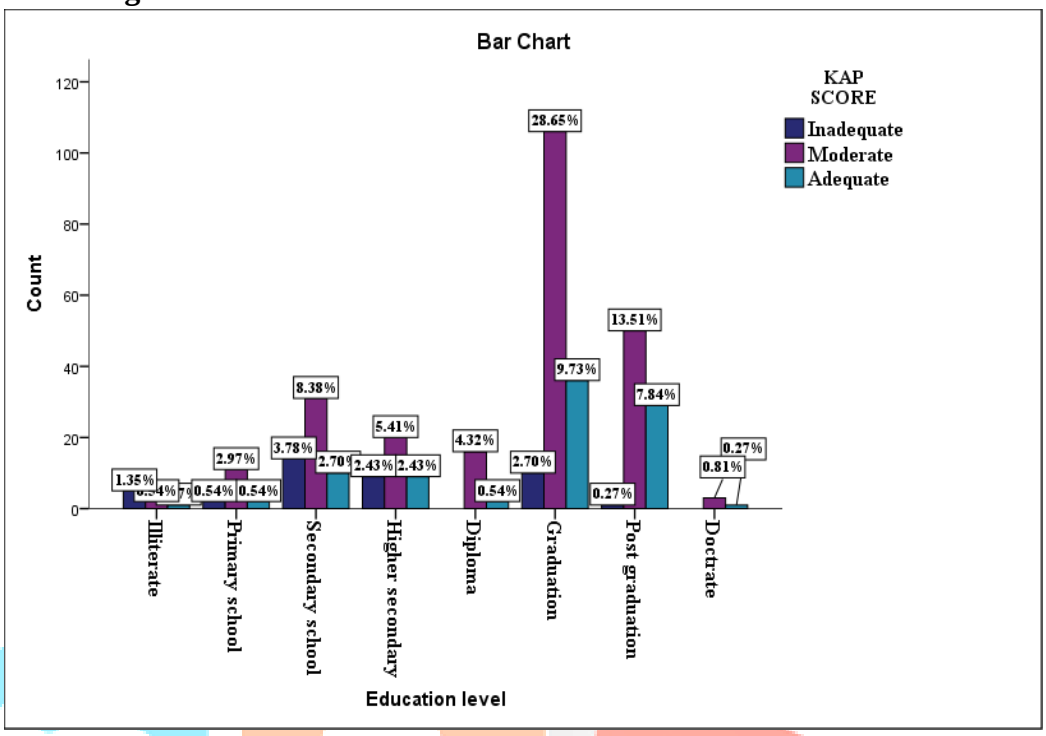
The analysis of the relationship between the area of residence and KAP scores revealed a p-value of 0.054, which is slightly above 0.05. This suggests that there is no statistically significant association between the area of residence and KAP scores.

A Similar study found, conducted a study on food label usage among Nigerian consumers and discovered that consumers who can read food labels live in cities and have access to radio, television, and other modern modes of communication have more knowledge and a positive attitude toward food labels. (23)

Table 5: Cross Tabulation for Education level and KAP score

		KAP SCORE			Total
		Inadequate	Moderate	Adequate	
Education level	Illiterate	5 (1.35%)	2 (0.54%)	1 (1.1%)	8
	Primary school	2 (0.54%)	11 (2.97%)	2 (0.54%)	15
	Secondary school	14 (3.78%)	31 (8.38%)	10 (2.70%)	55
	Higher secondary	9 (2.43%)	20 (5.41%)	9 (2.43%)	38
	Diploma	0	16 (4.32%)	2 (0.54%)	18
	Graduation	10 (2.70%)	106 (28.65%)	36 (9.73%)	152
	Post graduation	1 ((0.27%)	50 (13.51%)	29 (7.84%)	80
	Doctorate	0	3 (0.81%)	1 (0.27%)	4
Total		41	239	90	370

Figure 3: Cross Tabulation for Education level and KAP score



Education level shows a significant association with KAP score.

Table 6: Chi-Square Tests for Education level and KAP score

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	61.040[a]	14	.000
Likelihood Ratio	54.715	14	.000
N of Valid Cases	370		

a. 10 cells (41.7%) have expected count less than 5. The minimum expected count is .44.

The analysis of the relationship between education level and KAP scores revealed a p-value of 0.000, which is less than 0.05. This indicates a statistically significant association between education level and KAP scores. Previous research has discovered a substantial link between education level and food label usage higher levels of education linked to increased food label usage, implying that customers with more years of school may have more nutritional understanding. (24)

Knowledge level of respondents

Table 7: Knowledge level of respondents

Knowledge level of respondents		
	Frequency	Precent
Poor	56	15.1
Moderate	234	63.2
Good	80	21.6
Total	370	100.0

Table 7 indicates that the majority of the patients 63.2% (n=234) had a moderate understanding of food labelling, while a significant proportion 15.1% (n=56) had poor knowledge and 21.6% (n=80) had good level understanding of food labelling,

Attitude level of respondents

Table 8: Attitude level of respondents

Attitude level of respondents		
	Frequency	Precent
Negative	81	21.9
Neutral	216	58.4
Positive	73	19.7
Total	370	100.0

Table 8 shows the attitude level of respondents, where 21.9% (n=81) had a negative attitude, 58.4% (n=216) had a neutral attitude, and 19.7% (n=73) had a positive attitude.

Practice level of respondents

Table 9: Practice level of respondents

Practice level of respondents		
	Frequency	Precent
Poor	81	21.9
Moderate	219	59.2
Good	70	18.9
Total	370	100.0

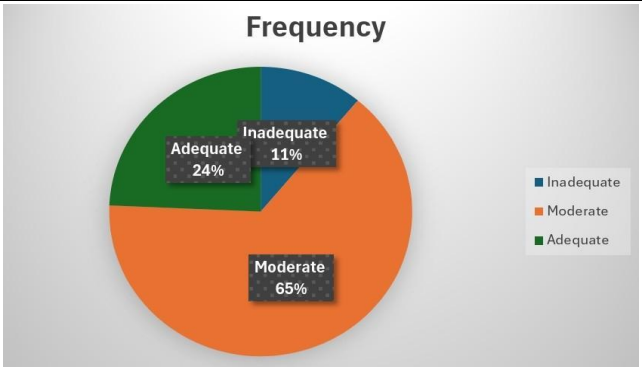
Table 9 showed among the respondents, 21.9% (n=81) demonstrated poor practice, 59.2% (n=219) had moderate practice, and 18.9% (n=70) showed good practice

KAP Score

Table 10: Results of KAP

KAP	**Frequency**	**%**
Inadequate	41	11.1
Moderate	239	64.6
Adequate	90	24.3

Figure 4: Results of KAP



The analysis of KAP scores among respondents showed that the majority had a moderate level of knowledge, attitude, and practice (64.6%). A smaller proportion (24.3%) demonstrated an adequate KAP score, while 11.1% had inadequate KAP scores. This indicates that while most individuals possess a moderate understanding and practice of the subject, there is still room for improvement, particularly in enhancing awareness and application of knowledge.

Study discovered that participants had good knowledge but poor practice when it came to food labeling. The gap between high knowledge and poor practice among chronic disease patients created by habitual behavior, a lack of desire, restricted accessibility, cultural variables, misunderstandings, and ineffective instructional efforts.(25) As a result, the current study indicated that consumers use food labels moderately.

DISCUSSION

The present study examined the knowledge, attitude, and practice (KAP) related to food labeling among cardiac patients at SIMS Hospital, Chennai. A total of 370 male and female participants were recruited, and data collection was carried out using a structured and validated questionnaire. This questionnaire captured demographic information, anthropometric data, and responses to KAP questions concerning food labeling. The data were analyzed using the chi-square test and SPSS software to identify significant associations between demographic and clinical variables and KAP scores. KAP scores were classified into three categories: 11–21 (inadequate), 22–31 (moderate), and >32 (adequate). The study findings revealed that 64.6% of participants demonstrated moderate use of food labels, 11.1% exhibited inadequate use, and only 24.3% showed adequate use. These results underscore the critical role of food labels in empowering cardiac patients to make informed dietary decisions, which are vital for the prevention and management of non-communicable diseases (NCDs). The moderate level of food label use among the majority of participants suggests that there is room for improvement in food label literacy and the practical application of this information in daily dietary choices. The use of food labels has been associated with healthier food selection and improved management of cardiovascular risk factors, making this an area of public health importance. A borderline significant relationship was observed between the place of residence and KAP scores, suggesting that geographical factors may influence patients' understanding and use of food labels. Potential explanations for this association include differences in access to nutrition education, variations in health literacy, and disparities in the availability of packaged and labeled food products. Urban residents may have greater exposure to nutrition information and food labeling practices compared to rural populations. This finding emphasizes the necessity for region-specific educational strategies that address the unique challenges faced by patients based on their geographical location. Enhancing access to nutrition education and resources in rural areas may help bridge the gap in food label literacy. Education level was significantly associated with KAP scores, indicating that higher educational attainment is a key determinant of food label comprehension and utilization. Participants with higher education levels were more likely to understand and use food labels effectively, a finding consistent with existing research highlighting the role of education in health literacy. Individuals with limited educational backgrounds may struggle to interpret nutritional information, underscoring the need for simplified food labeling formats and targeted educational interventions. Public health initiatives should aim to improve food label literacy across all education levels, with a focus on making nutrition information more

accessible and understandable. Medical history also showed a significant association with KAP scores, revealing that patients with certain medical conditions, such as hypertension or diabetes, were more likely to pay attention to and effectively use food labels. This finding suggests that individuals who are more aware of their health conditions may be more motivated to engage in health-promoting behaviors, including the use of food labels. The clinical implications of this finding are substantial, as personalized nutrition counseling for cardiac patients should emphasize the importance of food label literacy as a component of disease management. Healthcare providers should tailor educational messages to address the specific needs and concerns of patients based on their medical history. Overall, the results of this study highlight the need for comprehensive and tailored strategies to enhance food label literacy among cardiac patients. Interventions should consider

demographic and clinical factors, such as education level, medical history, and geographical location, to ensure effective communication of nutrition information. Future research should explore the barriers to adequate food label use and develop innovative approaches to improve the understanding and application of food labeling. Additionally, policy-level changes, such as revising food labeling regulations to ensure clarity and accessibility, may further support patients in making informed dietary choices, ultimately contributing to better cardiovascular health outcomes.

The limitations of this study The results cannot be generalised beyond the study population because the research was conducted in a single tertiary care hospital. The sample size was limited to 370 participants, which may not be representative of the broader population of cardiac patients. The study included a restricted age group, with participants being less than 25 years old.

Conclusion: The findings underscore the potential of targeted awareness programs to foster better dietary choices and promote mindful eating habits, contributing to disease prevention and overall health. Enhancing food label literacy through simplified labeling and accessible education could lead to healthier dietary behaviors and long-term health benefits, making this a crucial focus for public health interventions and future research.

REFERENCE

1. Kaur, S., & Singh, A. (2020). Assessment Of Knowledge, Attitude And Practice (Kap) Vis-A-Vis Food Labels. PUSA Journal of Hospitality and Applied Sciences, 6, 58-71.
2. Mahesh Jadapalli, Silpa Somavarapu. A Survey on Perception of Food Labels Among the Population of Nellore District. American Journal of Food Science and Nutrition. Vol. 5, No. 1, 2018, pp. 1-16.
3. Alkerwi, A., Crichton, G. E., & Hébert, J. R. (2015). The Observation of Cardiovascular chance Factors in Luxembourg (ORISCAV-LUX) study found that consuming ready-made meals increased the chance of becoming obese. The British Journal of Nutrition, 113(2), 270–277.
4. Kenneth, R. (2024). The effect of diet on cardiovascular disease and lipid and lipoprotein levels. Endotext [Internet].
5. Juul F., Vaidean G., Parekh N. Ultra-processed Foods and Cardiovascular Diseases: Potential Mechanisms of Action. Adv. Nutr. 2021;12:1673–1680. doi: 10.1093/advances/nmab049. [PMC free article][PubMed] [CrossRef] [Google Scholar]
6. Shangguan, S., Afshin, A., Shulkin, M., Ma, W., Marsden, D., Smith, J., ... & PRICE, F. (2019). A meta-analysis of food labeling impact on consumer diet behaviors and industry practices. American journal of preventive medicine, 56(2), 300-314.
7. Remya S. FSSAI regulations on packaging and labeling requirements. ICAR-Central Institute of Fisheries Technology.
8. Martini, D., & Menozzi, D. (2021). Food labeling: analysis, understanding, and perception. Nutrients, 13(1), 268.
9. Evelyn, H., Aziz, A. F., & Sariman, S. (2020). Associations of knowledge, attitude and practices of food label on cardiovascular diseases (CVD) risk among university students in Selangor, Malaysia.

Journal of nutritional science and vitaminology, 66(Supplement), S275-S282.

10. Mahdavi, A. M., Abdolahi, P., & Mahdavi, R. (2012). Knowledge, attitude and practice between medical and non-medical sciences students regarding food labeling. Health promotion perspectives, 2(2), 173.
11. Bhattacharya, S., Bera, O. P., & Shah, V. (2022). Consumer perception about front of package food labeling (FOPL) in India: A survey of 14 states. Frontiers in Public Health, 10, 936802.
12. Temple, N. J. (2020). Front-of-package food labels: A narrative review. Appetite, 144,104485.
13. Croker, H., Packer, J., Russell, S. J., Stansfield, C., & Viner, R. M. (2020). Front of pack nutritional labelling schemes: a systematic review and meta-analysis of recent evidence relating to objectively measured consumption and purchasing. Journal of human nutrition and dietetics, 33(4), 518-537.
14. Bryła, P. (2020). Who reads the food labels? Selected predictors of consumer interest in front-of-package and back-of-package labels during and after the purchase Nutrients, 12(9), 2605.
15. Fischer J. Green and/or brown: Governing food production in India. Research in Globalization. 2020 Dec 1;2:100017.
16. Tsiros M, Heilman CM. The effect of expiration dates and perceived risk on purchasing behavior in grocery store perishable categories. Journal of marketing. 2005 Apr;69(2):114-29.
17. Van Trijp, H. C., & Van der Lans, I. A. (2007). Consumer perceptions of nutrition and health claims. Appetite, 48(3), 305-324.
18. Grunert, K. G., Wills, J. M., & Fernández-Celemín, L. (2010). Nutrition knowledge, and use and understanding of nutrition information on food labels among consumers in the UK. Appetite, 55(2), 177-189.
19. Hall, C., & Osses, F. (2013). A review to help understand the use of food safety messages on food labels. International Journal of Consumer Studies, 37(4), 422-432.
20. Lim HJ, Kim MJ, Kim KW. Factors associated with nutrition label use among female college students using the theory of planned behavior. Nutrition research and practice 2015 Feb;9(1):63.
21. Hess, R.; Visschers, V.; Siegrist, M. The role of health-related, motivational and sociodemographic aspects in predicting food label use: A comprehensive study. Public Health Nutr. 2012, 15, 407–414. [Google Scholar] [CrossRef] [Green Version].
22. Norazlanshah, H., Muhammad, I., Hasmira, M. D., Mashita, M., Norfazilah, M. R., & Fazlyla Nadya, M. (2013). The use of nutrition label on food purchasing decision among university students in Kuantan, Malaysia. *Health and the Environment Journal*, *4*(1), 1-10.
23. Monye, F. N., Ezumah, N. N., Ani, J., Umezuruike, H., Ukwueze, F. O., & Okiche, E. L. (2020). Examining knowledge, attitude and practice towards food labels among consumers in Enugu State, Nigeria–a baseline survey. Int J Law Soc, 3, 221-231.
24. Bazhan M, Mirghotbi M, Amiri Z. Food labels: An analysis of the consumers' reasons for non-use. Archives of Advances in Biosciences. 2015 Jan 26;6(1)
25. Rabiei S, Ashouri A, Mahdavi-Roshan M. "Knowledge, Attitude and Practice Regarding Food Labeling in Patients with Chronic Diseases in Gilan Province. Journal of Community Health Research. 2022 Jul 6.