

Research Article

Knowledge, Awareness, and Factors Affecting Food Label Use among Caregivers in a Public Elementary School in Los Baños, Philippines

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ABSTRACT

The study assessed food label use among mothers and caregivers of school-aged children in a public elementary school and its association with socio-demographic and socio-economic factors, food label knowledge, and awareness. It also explored the motivations, barriers, and difficulties of use. A cross-sectional study of 281 respondents was conducted using a questionnaire and analyzed using Descriptive Statistics, Spearman Correlation, Chi-square Test, Fisher's Exact Test, and Binary Logistic Regression. Results revealed that most respondents had high awareness (70.5%), moderate knowledge (46.6%), and were users of food labels (92.9%), with 52.87% demonstrating good practices. Commonly read labels were the product name, expiration date, and trademark. Serving size, vitamins/minerals, and sugar were the most consulted nutrition facts. Ingredients, lot identification, dietary fiber, sodium, and % Daily Value (%DV) were the least checked. Label use predictors included packaging design, health consciousness, and interest in food characteristics, while price sensitivity and reliance on advertisements reduced usage. Difficulties in label reading were small fonts, poor layout, and unfamiliar language. Reliance on a trusted seller and familiar foods prevents use. Only age was significantly associated with use, with older individuals being more likely to utilize them ($p < 0.05$). In conclusion, most are users but lack sufficient knowledge for effective use, potentially leading to misinformed decisions and underutilization of food labels. Hence, targeted nutrition education should extend beyond mere label usage to improving knowledge on healthier food choices for their children and maximizing label information. Alongside this, improving access to food label nutrition information, advancing proposed bills, and developing policies that promote food label literacy are recommended to enhance effective use.

INTRODUCTION

Many commercially available children's foods are high in sugar, sodium, and unhealthy fats, which often exceed recommended levels. The promotion of such products influences children's eating habits, contributing to poor diets, increased risk of Non-Communicable Diseases (NCDs), and different forms of malnutrition (Gimenez *et al.* 2017; Poti *et al.* 2017). Concerningly, school-aged children were reported to frequently consume these foods, driven by inappropriate marketing, widespread availability, and increased ease of access (UNICEF 2019). In the Philippines,

UNICEF (2019) cited the worrying rate of Filipino children with poor diets and inadequate nutrition, which is coupled with a concerning increase in the consumption of unhealthy foods.

Food labels are a key component of product packaging and serve as a vital public health tool that helps consumers make informed and healthier food choices. However, their use remains limited among parents despite having a significant influence on children's food intake, which consequently impacts their nutritional status and eating habits (Capasso *et al.* 2023). In the Philippines, nearly half of Filipino adults do not read food labels (45.9%) and less than a fifth

used the Nutrition Facts Panel (NFP) (Javier *et al.* 2024).

The convenience, affordability, and accessibility of prepackaged foods make them a common choice for mothers purchasing food for their elementary school children. However, insufficient knowledge and awareness of food labels may prevent them to select optimal food choices for their children's nutrition, especially given the increasing availability of unhealthy processed foods. Studies also suggest that consumers, including parents, often judge a product's healthiness based only on superficial factors, such as nutrient claims and price, which can lead to unhealthy purchasing decisions (Machín *et al.* 2020; Velazquez *et al.* 2021; Mauludyani *et al.* 2021).

The school-age period (5–12 years old) offers the last significant chance to address nutritional deficiencies and prevent future health complications associated with malnutrition to achieve normal life course development (Saavedra & Prentice 2023). Given the importance of optimal nutrition during this critical age period and the influence of food label knowledge, awareness, and practice on purchasing decisions, research specifically exploring these variables among Filipino mothers and caregivers remains limited. To address this gap, the present study aimed to determine the factors affecting food label use among mothers and caregivers of elementary pupils in a public elementary school by: (1) Describing the respondents' socio-demographic and socio-economic characteristics; (2) Determining their level of food label knowledge and awareness knowledge and awareness; (3) Describing the frequency of use; and (4) Determining factors influencing food label use.

METHODS

Design, location, and time

The study employed a cross-sectional design, focusing on mothers and caregivers of Grades 1 to 6 pupils enrolled in the first quarter of School Year 2024–2025 at a public elementary school in Barangay Mayondon, Los Baños, Laguna. Data were collected from the 2nd week of October to the 3rd week of November 2024. Prior to participation, respondents completed an informed consent form to ensure voluntarily and informed participation. The

form consisted two parts: (1) an information sheet; and (2) a certificate of consent, which provided a brief description of food label, and the study's introduction, purpose, and selection criteria, including voluntary participation. It also included the procedures, duration, potential risks and benefits, confidentiality assurances, and the right to withdraw. The certificate of consent was obtained as proof of the participant's voluntary agreement to take part in the study after being fully informed. Researcher's contact details were also provided for any inquiries.

Sampling

Based on official enrollment records as of August 30, 2024, the selected public elementary school had 1,745 students. Stratified cluster sampling was used for participant selection, with grade levels as strata and sections as clusters. Two sections per grade were randomly selected using Microsoft Excel. A total of 281 respondents completed the questionnaire, resulting in a 5.37% margin of error at a 95% confidence level ($\alpha=0.05$). Due to data privacy restrictions, student population was used to estimate the sample size, and only eight respondents had more than one child included in the sample, which had a negligible effect, and only one response per parent was counted.

Data collection

Data were collected in two phases: (1) online through Google Forms (19 respondents) and (2) face-to-face using printed questionnaires (262 respondents), in compliance with the school principal's instructions. After the approval from the school principal in September 2024, the researcher coordinated with the advisers of the selected sections to facilitate participant contact and form distribution. Online respondents were given three weeks, then printed questionnaires were distributed to non-respondents for two weeks to accommodate those without internet access or electronic devices. A two-week delay occurred between the two phases because of typhoon-related class cancellations.

The questionnaire used was translated into the local language (Filipino) and was pre-tested among ten (10) mothers and caregivers. Feedback obtained was used for refinement and reliability of the survey tool indicated excellent reliability ($\alpha=0.945$). The questionnaire covered the following: (1) Socio-Demographic and

Socio-Economic Profile (7 items); (2) Level of Knowledge and Awareness of Food Label Information (23 items); (3) Frequency of Food Label and NF Use (23 items); and (4) Factors influencing food label use (Motivations for use, Circumstances preventing use, and Difficulties in use). Items were adapted from published studies. Knowledge and awareness questions were based on Food and Drug Administration (FDA) Administrative Order (AO) No. 2014-0030 and the approach to evaluate awareness was adapted from Mehanna *et al.* (2024). Food label and NF use were referenced from Rashaideh *et al.* (2023), while factors influencing food label use were adapted from Tumulak *et al.* (2015), Buzgeia *et al.* (2023), Dutta and Patel (2017), and Zaini *et al.* (2022).

Data analysis

Descriptive statistics were used to summarize the socio-demographic and socio-economic characteristics of the participants, classify food label users and non-users, identify factors influencing food label use, and categorize the level of awareness, knowledge, and practices related to food label use. Practice was scored on a 3-point ordinal scale for food label users (never=0, sometimes=1, always=2), which totaled 0–46 points. Scores were converted to percentages and categorized as poor (<33.3%), average (33.3–66.6%), or good (>66.6%), based on Mehanna *et al.* (2024). Awareness scores (0–11 points) were similarly converted and categorized as low (<50%), average (50–80%), or optimal (>80%), also based on Mehanna *et al.* (2024). Knowledge scores (0–12 points) were categorized as low (<56%), moderate (56–72%), or high (>72%) based on Zaini *et al.* (2022).

Omnibus Tests of Model Coefficients assessed the overall model significance. Data were analyzed using SPSS Version 27, with the following tests applied to assess relationships with food label use: (1) Spearman's Correlation: age, number of children; (2) Chi-Square Test: knowledge and awareness levels; (3) Fisher's Exact Test: sex, marital status, education, income, employment; and (4) Binary Logistic Regression: motivation for use.

RESULTS AND DISCUSSION

Among 281 mothers and caregivers, 84.30% were female, in the age groups 36–50

(48.40%) and 21–35 (43.77%), married (46.40%), high school graduates (31.70%), and had 1–3 children under their primary care (77.58%). The higher number of female respondents reflect the traditional role of women as primary caregivers in the Philippines, where they are mainly responsible for childcare, nutrition, and household management. Respondents' ages ranged from 18 to 72 years, with a mean age of 38 years, and despite 36.30% were full-time employees, high proportion belonged to the poor income (42.30%) and the low-income (but not poor) (39.90%) classifications based on the Philippine Institute for Development Studies (PIDS).

The findings indicate that most mothers and caregivers showed optimal awareness of food label information, with 70.50% were familiar with more than 9 out of the 11 mandated components. This aligns with Aquino *et al.* (2021), as their study reported high to moderate awareness levels in Cavite, Philippines. Tumulak *et al.* (2015), contrastingly found lower awareness among consumers in Digos City, Davao del Sur. The difference in results suggests improved awareness, possibly due to the implementation of AO No. 2014-0030, which clarified and expanded labeling requirements beyond AO No. 88-B s.1984, as well as recent efforts to promote use and improve regulatory compliance among food manufacturers.

As shown in Table 1, the product name (96.09%), expiration date and related terms (95.73%), ingredients list (95.37%), and Nutrition Facts (NF) (94.66%) had the highest awareness. This may be due to their prominent placement on packaging and the formatting requirements specified under AO No. 2014-0030. Similarly, Mauludyani *et al.* (2021) identified expiry date and ingredients list as the most known labels to consumers, but differed for the product name (30.3%). High awareness of expiration date and related terms may be attributed to the consumer's perceived importance of this specific label. Conversely, lot identification code (76.16%), storage condition (86.83%), and food allergen information (90.39%) had lower awareness. A lot identification code identifies a specific batch of products manufactured under similar conditions during the same period and helps trace their manufacturing and distribution processes. The conditional presence of storage condition and food allergen information on packaging based on AO No. 2014-0030, and challenges in regulatory

Table 1. Distribution and ranking of awareness on mandated food label information

Awareness of mandated food label	Responses n=281 n (%)	Rank
Product name	270 (96.09)	1
Expiration date/use-by date/consume-before date	269 (95.73)	2
Ingredients list	268 (95.37)	3
Direction(s) for use	266 (94.66)	4.5
Nutrition facts	266 (94.66)	4.5
Net contents and drained weight	264 (93.95)	6
Name and address of manufacturer, repacker, packer, importer, trader, and distributor	260 (92.53)	7
Brand name/trademark	256 (91.10)	8
Food allergy information	254 (90.39)	9
Storage condition	244 (86.83)	10
Lot identification code	214 (76.16)	11

enforcement and labeling compliance are factors that may have contributed to the reported low awareness. Notably, some products, even those for children, fail to fully adhere to food labeling standards. Wahab (2018) noted that exposure affects consumer's perceived importance of a specific label, implying the significance of complete labeling.

The highest proportion (46.60%) of the subjects had moderate food label knowledge, consistent with Rashaideh *et al.* (2023), who reported suboptimal food label knowledge among consumers. Considering that respondents generally had high awareness, the result suggests that many are familiar with label components, but some may lack knowledge of their purpose, correct usage, and interpretation. Thus, limiting their effectiveness in promoting healthier diets and combating nutrition-related health problems (Shireen *et al.* 2022; Rashaideh *et al.* 2023).

Respondents demonstrated the highest knowledge on the purpose of expiration dates (83.99%), which aligns with the reported high awareness of this label (95.73%). However, 64.77% struggled to differentiate expiration date, best-before dates, and other related terms, which may have food safety and food waste reduction implications. Understanding these terms may aid in a more cost-saving and efficient grocery shopping, particularly beneficial for lower-income households. Meanwhile, a lack of knowledge was observed for lot identification code (63.70%), highlighting the need for consumer education on its function. Additionally, while most understood the general purpose of the NF and ingredients list, some interchanged food additives with nutrients and vice versa, similar to the findings of Mauludyani *et al.* (2021). Also,

66.55% correctly identified that ingredients are listed in descending order by weight.

Regarding NF knowledge, most respondents correctly identified errors in the calories and carbohydrates estimations based on servings consumed. The method used in the study did not require detailed calculations, which likely aided comprehension. Many struggled with more complex components such as %DV and % Recommended Energy and Nutrient Intake (%RENI) (55.52%). This aligns with the locally conducted study of Lopez and Bullecer (2023), wherein only 8.87% were able to interpret this information, and emphasized that label interpretation improves if no complex computation or analysis is involved.

The majority of respondents were food label users (92.90%). The high number of users may likely be due to the accessibility and affordability of prepackaged foods, as well as their proximity to schools, which increases exposure of mothers and caregivers to food labels as primary food purchasers. This aligns with findings from UNICEF Philippines (UNICEF 2024), stating that 90% of mothers read labels on ready-to-eat meals for young children. Similarly, Javier *et al.* (2024) found that Filipino adult use food labels either “always” or “sometimes,” with the highest frequency of use observed among women aged 20–39 years, comparable to the study's predominantly female (84.30%) respondents aged 21–35 (43.77%). Alsini *et al.* (2023) and Bazhan *et al.* (2015) also support this trend.

Among food label users, 52.87% demonstrated good practices, while only 8.81% had poor practices, consistent with Mehanna *et al.* (2024), where Egyptian respondents, most of whom were female (71.8%) and parents (90.7%),

reported average to good label reading practices. Conversely, Mauludyani *et al.* (2021) reported rare usage of food labels in the majority of Indonesian consumers, and Capasso *et al.* (2023) found low information-seeking behavior among Italian mothers, stating that food label use is not prevalent among parents.

The practice classification was assessed based on the data in Tables 2 and Table 3, showing all mandated food label components was used (Table 2), with most respondents reported usage from "sometimes" to "always." For any label component, the "never" responses did not exceed 21%. The most frequently used components were expiration-related labels, product name, brand name/trademark, and direction for use, in descending order. This result is consistent with local studies (Tumulak *et al.* 2015; Javier *et al.* 2024) and international findings, particularly for expiration dates (Bazhan *et al.* 2015; Wahab 2018; Mehanna *et al.* 2024). Frequent use of expiration-related labels may reflect consumer's concerns about freshness and health risks associated with expired products (Bazhan *et al.* 2015; Mehanna *et al.* 2024).

Even if food label usage was generally high, components such as lot identification code and ingredients list were less frequently used (Table 2). This is consistent with Tumulak *et al.* (2015) that revealed lot identification code as the least sought-after and used label (37%). As the lowest-ranked component in both awareness and knowledge assessments, this suggests that many Filipino consumers may be unfamiliar with lot identification code and its purpose, affecting its usage.

The study also observed high NF use, with 55.94% reporting "always" and 29.89% "sometimes" using this label. This is consistent with local studies of Tumulak *et al.* (2015) and Sy & Bullecer (2020), but contrast with Javier *et al.* (2024) and some international studies. Concerns regarding NFs' interpretability, legibility, and placement were reported to decrease usage despite knowing their importance in making healthier choices (Bazhan *et al.* 2015; Mehanna *et al.* 2024). Overall, consumers recognize the safety importance of expiration dates, but underutilize other critical information, such as NF and ingredients list, which received lower usage scores.

Further, NF contents were generally used "sometimes" to "always," with serving size as the most frequently read, followed by vitamins and minerals, total sugar, servings per container, and protein (Table 3). Although 55.94% reported "always" reading the NF (Table 2), only serving size was "always" read by most of the respondents (50.96%). Most contents attained "sometimes" as the highest frequency of use, consistent with Sy and Bullecer (2020). They also identified vitamins and minerals, protein, and sugar as the most searched contents on NF. Similarly, Machin *et al.* (2016) revealed that low-income mothers used vitamin content to evaluate product healthiness. Conversely, Javier *et al.* (2024) reported serving size and protein were among the least frequently read content among Filipino adult.

The frequent use of serving size and number of servings may be due to their placement at the top of the NFP, based on the sample format in AO No. 2014-0030, which may capture consumer

Table 2. Frequency and ranking of use for each mandated food label information

Mandated food label information	Responses (n=261)			Rank
	Never/No answer n (%)	Sometimes n (%)	Always n (%)	
Expiration date/use-by date/consumer-before date	20 (7.66)	12 (4.60)	229 (87.74)	1
Product name	10 (3.83)	34 (13.03)	217 (83.14)	2
Brand name/trademark	15 (5.75)	55 (21.07)	191 (73.18)	3
Direction(s) for use	23 (8.81)	58 (22.22)	180 (68.97)	4
Storage condition	20 (7.66)	65 (24.90)	176 (67.43)	5
Food allergy information	24 (9.20)	66 (25.29)	171 (65.52)	6
Nutrition facts	37 (14.18)	78 (29.89)	146 (55.94)	7
Net contents and drained weight	22 (8.43)	104 (39.85)	135 (51.72)	8
Ingredients list	16 (6.13)	115 (44.06)	130 (49.81)	9
Name and address of manufacturer, repacker, packer, importer, trader, and distributor	25 (9.58)	118 (45.21)	118 (45.21)	10
Lot identification code	55 (21.07)	111 (42.53)	95 (36.40)	11

Table 3. Frequency and ranking of use for each content in the nutrition facts

Nutrition facts contents	Responses (n=261)			Rank
	Never/No answer n (%)	Sometimes n (%)	Always n (%)	
Serving size	29 (11.11)	99 (37.9)	133 (50.96)	1
Total vitamins and total minerals	30 (11.49)	102 (39.08)	129 (49.3)	2
Total sugar	29 (11.11)	106 (40.61)	126 (48.28)	3
No. of servings per container/pack	36 (13.79)	103 (39.46)	122 (46.74)	4
Total protein	32 (12.26)	114 (43.68)	115 (44.06)	5
Total fat	35 (13.41)	117 (44.83)	109 (41.76)	6
Total carbohydrates	35 (13.41)	121 (46.36)	105 (40.23)	7
Total calories	39 (14.94)	117 (44.83)	105 (40.23)	8
Calories from fat	40 (15.33)	116 (44.44)	105 (40.23)	9
Total dietary fiber	36 (13.79)	122 (46.74)	103 (39.46)	10
Total sodium	40 (15.33)	118 (45.21)	103 (39.46)	11
%RENI / %DV values	54 (20.69)	117 (44.83)	90 (34.48)	12

%RENI: % Recommended Energy and Nutrient Intake; %DV: % Daily Value

attention more than other contents. %RENI / % DV ranked last in the NF contents and had the highest “never” responses (Table 3). Despite prioritizing vitamins and minerals, low attention to %RENI / %DV values may hinder effective label interpretation, as these values facilitate easier understanding of how a food item, contributes to a child's daily dietary needs, highlighting the importance of fuller use of all NF contents.

Furthermore, total sodium and dietary fiber were among the least utilized NF contents (Table 3), raising concerns on the contents' role and use in making informed and healthier food choices among mothers and caregivers. This aligns with Sy and Bullecer (2020) and Mauludyani *et al.* (2021), who reported low use of fiber information and limited awareness of fiber as a nutrient. Given the generally high sodium content of many prepackaged foods and the benefits of fiber for school-age children, mothers and caregivers should be encouraged to consult these labels.

Results revealed that most identified motivations significantly predict food label use, except preference for certain ingredients, with health consciousness and price as the most influential factors among respondents. Similar findings have also been reported in multiple studies, wherein price or health consciousness was considered the main motivators for food label use (Cavaliere *et al.* 2016; Dutta & Patel 2017; Sy & Bullecer 2020; Aquino *et al.* 2021; Alsini *et al.* 2023; Buzgeia *et al.* 2023).

Results revealed that health-conscious mothers and caregivers were 9.1 times more likely to use food labels, supporting studies

revealing that less health-oriented consumers seek less information and Filipino consumers use labels to select healthier foods and avoid harmful nutrient content (Cavaliere *et al.* 2016; Aquino *et al.* 2021). Further, parents often consider healthfulness in making food choices and adjust their behavior to avoid unhealthy options, not all are willing to compromise health for affordability (Bopape *et al.* 2022; Alsini *et al.* 2023). This suggests that promoting the health benefits of food label use may encourage nutrition over cost among parents.

On the other hand, mothers and caregivers who prioritize price were 88.7% less likely to use food labels, suggesting that price-sensitive consumers may focus more on the affordability than the nutritional value of a product. This aligns with previous studies, which identified factors, such as limited label comprehension, urbanization, and socio-economic status as contributors to consumer price sensitivity, wherein low-income groups often choose cheaper, less nutritious alternatives, as micronutrient-dense diets are often more expensive (Tumulak *et al.* 2015; Shireen *et al.* 2022; Buzgeia *et al.* 2023). Further, Mauludyani *et al.* (2021) also identified price as a primary concern at the point of purchase, particularly observed among individuals from lower socio-economic backgrounds, a classification that applies to the majority of respondents in the study.

Other significant predictors of food label use included interest in food characteristics and importance of product appearance or packaging, which increased the likelihood of food label use

by 3.96 and 3.97 times, respectively. The result may be attributed to parents' interest in nutritional quality as a key factor when selecting food items for their children and the influence of Front-of-Pack Nutrition Labels (FoPLs) on consumers' perception of a product's healthiness, allowing quicker and simpler judgments (Velazquez *et al.* 2021; Machin *et al.* 2020; Tumulak *et al.* 2015). Conversely, exposure to advertisements or food promotions reduced the likelihood of food label use by 80.5%, as marketing strategies often emphasize price and marketing claims, influencing purchasing decisions based on promotions rather than the nutritional information.

Among other circumstances, purchasing routine or familiar food was one of the main reasons identified that prevents mothers and caregivers from using food labels (Figure 1), consistent with local and international studies (Tumulak *et al.* 2015; Dutta & Patel 2017; Aquino *et al.* 2021). Studies have shown that despite acknowledging the importance of nutritional values in making food choices, mothers often rely on habitual preferences due to lack of time and limited cognitive effort to understand labels (Machin *et al.* 2020; Velazquez *et al.* 2021). Further, the present study also revealed that a notable percentage of both food label users and non-users cited reliance on trusted sellers or brands and a focus on low price as reasons for not reading food labels (Figure 1), consistent with Tumulak *et al.* (2015).

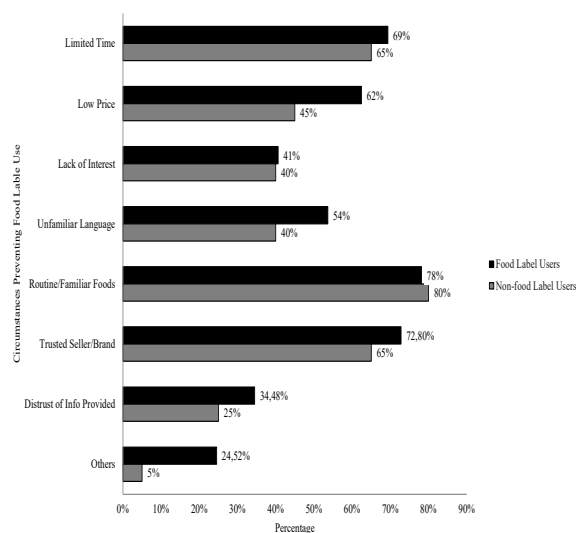


Figure 1. Circumstances preventing the use of food labels among users and non-users

Limited time was another circumstance that prevents mothers and caregivers from using food labels (Figure 1), hindering both users and non-users. This is a challenge observed not only in the Philippines but also in other countries (Tumulak *et al.* 2015; Dutta & Patel 2017; Jadapalli & Somavarapu 2018; Sy & Bullecer 2020; Aquino *et al.* 2021; Javier *et al.* 2024). Studies further show that consumers with sufficient or greater perceived time for grocery shopping were 2.16 times more likely to consult NF, read food labels, and choose healthier options (Sy & Bullecer 2020; Jadapalli & Somavarapu 2018).

The study suggests that reliance on routine products and trusted sellers may be explained by the convenience and reduced grocery time they offer to mothers and caregivers, who are often busy and tasked with multiple responsibilities. However, these prevent food label use and proper assessment of a product's nutritional quality. Thus, simpler, and more accessible labels, along with nutrition education that supports efficient label interpretation, are needed to encourage healthier choices over familiarity.

Unfamiliar language, distrust of information, and lack of interest were the least reported barriers, unlike other studies that identified these factors as major reasons for not reading food labels, particularly lack of interest among non-users (Bazhan *et al.* 2015; Aquino *et al.* 2021; Javier *et al.* 2024; Mehanna *et al.* 2024). This suggests that most mothers and caregivers are more hindered by practical barriers than by distrust or disinterest.

The primary difficulty mothers and caregivers encounter in using food labels is small font size (85%). Several studies similarly identified small font size as a major difficulty in reading labels, as it reduces visibility, consumer engagement, and comprehension, leading consumers to completely disregard labels (Tumulak *et al.* 2015; Bazhan *et al.* 2015; Dutta & Patel 2017; Buzgeia *et al.* 2023).

Another significant challenge reported is unfamiliar language (61.30%). Food labels in the Philippines are written in English rather than in Filipino, making it harder for parents and caregivers to understand labels (UNICEF 2024). Further, a higher proportion of respondents identified this factor as a difficulty rather than a complete circumstance that prevents food label use, as most respondents are high school

graduates with basic English proficiency. The reported difficulties in the study likely arise from unfamiliar technical terms on labels. Other difficulties in reading food labels identified in the study were poor layout/complex packaging design (55.17%) and lack of knowledge/use of difficult terms (48.28%), consistent with Tumulak *et al.* (2015) and Dutta & Patel (2017).

These difficulties reduce engagement and comprehension of food labels, highlighting the importance of simplified and accessible label cues among parents across various age and socio-economic groups, as also recommended by Velazquez *et al.* (2021). This also emphasizes the need for stronger support to advance pending local legislative proposals addressing these concerns, such as Senate Bill No. 576 and House Bill No. 1139.

The study found that among the socio-demographic and socio-economic factors analyzed, only age was significantly associated with food label use, exhibiting a weak positive correlation, as shown in Table 4 ($p < 0.05$). This indicates that as age increases, the likelihood of using food labels also slightly increases, suggesting that older mothers and caregivers are more likely to read or consult food labels. Similarly, studies by Bazhan *et al.* (2015), Javier *et al.* (2024), and Mehanna *et al.* (2024) also identified age as a significant predictor of food label use, but only the present study specified older mothers or caregivers as more likely to use food labels. This result may be attributed to increased health concerns related to aging, accumulated experience with age, improved

Table 4. Summary of p-value results for relationships between level of knowledge, awareness, socio-demographic and socio-economic profile, and food label use

Variables	Food label user	
	<i>p</i>	<i>r</i>
Age	*0.018	0.208
Sex	0.579	0.307
Marital status	0.77	1.128
Number of children	0.792	0.016
Level of education	0.844	3.418
Income level	0.511	4.274
Employment status	0.273	6.352
Level of awareness of food labels	0.448	1.604
Level of knowledge of food labels	0.369	1.994

*Spearman's rank correlation significant value at $p < 0.05$

functional health literacy over time, or greater exposure of older individuals to nutrition-related events. Older adults are also more accustomed to food shopping and reading food labels (Jackey *et al.* 2017).

Age being the only variable significantly correlated with label use may reflect participants' shared caregiving roles, as they are generally expected to provide healthy food for their children regardless of differences in their socio-demographic and socio-economic backgrounds. Food label use may therefore be driven by both this responsibility and social expectations to appear health-conscious providers (Velazquez *et al.* 2021; Capasso *et al.* 2023).

CONCLUSION

Mothers and caregivers, as primary household food decision-makers, play a crucial role in shaping family dietary habits. Strengthening food label literacy among them is essential, as food labels are accessible yet underutilized public health tool that can promotes healthier food choices, improve child nutrition, and foster lifelong healthy eating behaviors. This supports the goal of the Philippine Plan of Action for Nutrition (PPAN) 2023–2028, which is to eliminate all forms of malnutrition through healthier diets and better practices. While the study showed general positive food label use, gaps remain in consistent use and knowledge, particularly in interpreting technical information. Health consciousness was identified as the main motivation for use, while price sensitivity was found to decrease usage. Limited time, product familiarity, and trust in sellers also hinder engagement and proper understanding of labels. Thus, emphasizing the health importance of consulting food labels is recommended.

The results highlight the need for stronger implementation of mandatory food labeling regulations, as inconsistent labeling and weak enforcement remain prevalent, even among children's food products sold in local markets. This may contribute to uneven label awareness. Additionally, the study emphasizes the need for simplified and consumer-friendly labels accessible across all groups, as the challenges identified included poor layout, small font size, unfamiliar language, and difficulties in understanding technical information. Strengthening support for pending and existing front-of-pack labeling

policies, such as Senate Bill No. 576, House Bill No. 1139, FDA Circular No. 2021-015, and other mandatory regulations, is essential to improve compliance and make labels more visible and useful for Filipino consumers.

At the community level, food label nutrition education should be integrated into existing nutrition programs and initiatives in the Barangay Nutrition Action Plan (BNAP), such as Pabasa sa Nutrisyon, a maternal and child health initiative. Barangay-level nutrition implementers, including the Barangay Nutrition Committee (BNC) should receive training to strengthen their capacity to plan and implement food label literacy programs. Overall, effective collaboration among relevant governing agencies, such as DOH, DTI, NNC, FDA, DepEd, and local government units (LGUs), is essential to maximize food label as sustainable public health tool. Future research should identify effective label formats, compare self-reported and actual label use, and explore other factors influencing label use.

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DECLARATION OF CONFLICT OF INTEREST

The authors declare no conflict of interest.

DECLARATION OF GENERATIVE AI IN SCIENTIFIC WRITING

The authors declare that no Artificial Intelligence (AI) tools were used in the scientific writing.

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