Who Do Not Read and Understand Food Label in Malaysia? Findings from a Population Study

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Abstract

Objective: This study determined the prevalence of food label reading and understanding among the Malaysian adults, types of labels being read and factors associated with not reading labels.

Methods: Malaysian Adult Nutrition Survey 2014 was a cross-sectional and applied a multistage stratified cluster sampling of living quarters. A total of 4044 adults aged 18-59 years were randomly chosen in selected households to represent the Malaysian adult's population. Data collection was carried out between March to June 2014. Trained data collectors conducted interview using a validated food label questionnaire to obtain information on whether the respondents read labels (every time they bought or received food) and types of information being read. Complex sample analysis was applied to describe the findings.

Result: A total of 2992 respondents (1382 men and 1610 women) answered the questionnaire. About 55.0% of the respondents reported never read labels, sometimes read labels was 22.0% and always read labels was 23.0%. Male sex, lower education, being single (not married/divorced/ widow/widower) and normal weight respondents were significantly less likely to read food label information. Among those who read labels, the expiry date was the most common label information being read (91.8%), followed by the precautionary statement (65.9%). Nutrient information being read was carbohydrate and sugar (21.5%), fat (20.0%) and total energy (14.4%). Non-working respondents and primary school attainers were significantly less likely not to understand label information.

Conclusion: Only half of Malaysian adults read the label when buying or receiving food. Expiry date was the most frequently read information and the prevalence of reading the nutrient information was low. These findings provide useful evidence for the health authorities to plan for nutrition intervention programs in order to increase the food label usage among the relevant target groups.

Keywords: Food label; Label read; Nutrient information; Malaysian Adult Nutrition Survey 2014

Introduction

Reading the food label is vital to help us choose healthier foods. Food labelling includes any written, printed or graphic matter that is present on the label, accompanies the food, or is displayed near the food, including that for the purpose of promoting its sale. Food labels carry different types of information and the main things to look at are the nutrition information panel. It offers the easiest way to choose foods with less saturated fat, salt (sodium), added sugars, calories, and more fibre. Reading food labels takes some practice to do it and knowing what we are looking for is greatly important. The Third National Health and Morbidity Survey 2006 (NHMS 2006) reported a substantial proportion (19.3%) of Malaysian adults aged 18 years and above for not reading the nutritional label [1]. Studies showed that factors related to consumers not reading and using food labelling information in purchasing food were due to low awareness on importance of food labelling, difficulty in understanding the label information, and

low health consciousness [2-4]. With respect to education level, The NHMS 2006 reported that those with tertiary education level (74.5%) were more likely to read the nutritional information that reflected their health concern and ability to understand terminology used in the food label [1].

Malaysian consumer was becoming more aware of their dietary intake, hence nutritional information on the nutritional value of a food helps consumers to make healthier food choices and achieve overall good health. A study conducted among the elderly population shown that its use was significantly associated with age, formal education, higher household income levels and marital status [5]. Comprehension of food labels can be important for the population, including those with chronic illness, to help them follow dietary recommendations. A survey among the Malaysian obese adult population revealed that as high as 75.3% of the population understand the food label and significantly associated with age, race, education and marital status [6]. Studies reported the most common reasons for reading labels were to find a product's expiration date and price [7,8].

Food labelling is an important tool of communication between consumers and food manufacture. According to Drichoutis et al. various factors, ranging from demographic to attitudinal and product related, affect food label use [4]. Hence, this study shall provide insights in terms of consumers' ability to read and understand information on a food label. We will also explore on the types of information read in the food label.

Materials and Methods

Study design and sampling

This publication is part of the Malaysian Adult Nutrition Survey, a nationwide cross-sectional survey. Target population was respondents aged 18 to 59 years old, who stayed in non-institutionalized living quarters for at least two weeks from data collection day. A total of 4044 living quarters was sampled and proportionately allocated to all states and federal territories in Malaysia, based on their population densities. A multistage stratified cluster sampling of the living quarters was applied following from a primary sampling unit, living quarter, eligible respondents and a sampled person. Respondents on a specific diet due to illness or religious, postpartum, and with communication barrier due to disability were excluded from the survey. If there was more than one respondent eligible, a modified Kish Grid Selection Method was used to select a respondent [9].

Data collection

Data collection was conducted from March to May 2014. Data collectors of nutritionists, field supervisors and research assistants were trained before commencement of the data collection. They explained on the study background and obtained informed consent from the respondents prior to conducting the interview. Questionnaires on socio-

demography (socio-demographic characteristics as gender, age, ethnicity, marital status, occupation, monthly income, educational attainment, residential area and nutritional status) and food label were pre-tested before finalizing and interviewing the respondents.

Food label information on reading and understanding was gathered based on the previous National Health and Morbidity Survey questionnaire [10]. It was slightly adapted to include information on reading the precautionary statement. The questionnaire was administered to provide information on whether the respondents read the label, what types of nutrition label being read, reading of expiry dates and precautionary label, and did they understand the label. Respondents who answered "yes, always" and "yes, sometimes" were defined as read labels and understand food labels.

Nutritional status was determined using body mass index. Body weight was measured in light indoor clothing without shoes using Tanita weight scale (TANITA 318, Japan). Height was measured without shoes using a SECA portable meter (SECA 206, Germany). All measurements were taken twice and the mean value was used for data analysis. Body mass index (BMI) was calculated as weight (kg) divided by the square of the height in meters (kg/m^2). BMI classification was referred as underweight (<18.5 kg/m^2), normal weight (18.5 – 24.9 kg/m^2), overweight (25.0 – 29.9 kg/m^2) and obese (>=30 kg/m^2) WHO [10].

The Malaysian Adult Nutrition Survey 2014 was accomplished with budget support from the Ministry of Health Malaysia. Ethical clearance was authorized by the Medical Research and Ethics Committee, Ministry of Health.

Statistical analysis

Statistical analysis was performed using IBM SPSS Statistics version 20. The findings were reported as weighted prevalence (percentage and 95% confidence interval). The association between socio-demographic variables (age, gender, race, education, marital status, residence and nutritional status) were determined using multiple logistic regression analysis. The estimate was presented as odds ratio (OR), applying a 95% confidence interval (95% CI).

Results

Out of 4044 respondents sampled, the study team managed to interview 3000 respondents on the food label module (74.0% response rate). The majority consisted of 56.4% of the urban, 59.0% female, 52.7% Malay, 31.6% aged 30 – 39 years old, 49.8% secondary school attainers, 71.5% married, 77.2% working and 41.2% with normal weight **(Table 1)**.

Reading label

A total of 1283 respondents answered that they read the food label (45.0%). About 56.0% urbanites read the label, and lesser among the rural population (43.6%). Males significantly did not read label (41.0%) compared to females (59.0%). There

was no significant difference in the prevalence of reading labels in other socio-demographic criteria studied **(Table 1)**.

According to the multiple logistic regression analysis **(Table 2)**, gender, education level and marital status were significantly associated with not reading the label. Males were 1.52 times more likely not to read labels. The primary school and below education attainers were 4.62 times more likely not to read labels, followed by the secondary school education attainers 2.04 times, when adjusted to the tertiary education attainers. Those who were single (not married/divorced/widow/widower) were 1.35 times more likely not to read labels.

Table 1 Responses on reading and understanding of food label according to socio-demographic characteristic and nutritional status.

Characteristics	Total response	Estimated population	Read label (Always and Sometimes)			Total response	Estimated population	Understand label (Always and Sometimes)		
			Prevalence (%)	95% CI[a]				Prevalence (%)	95% CI[a]	
				Lower	Upper	Lower	Upper		Lower	Upper
Malaysia	1283	8744476	45.0	42.1	47.9	1108	7715101	89.5	87.0	91.5
Strata										
Urban	724	6349219	47.2	43.3	51.1	639	5686459	90.7	87.5	93.1
Rural	559	2395257	40.2	36.8	43.8	469	2028641	86.2	82.6	89.2
Gender										
Male	526	4090712	40.4	36.7	44.2	441	3574652	88.9	85.3	91.7
Female	757	4653764	50.1	46.7	53.4	667	4140449	90.0	86.9	92.4
Age (year)										
18 – 29	379	3029300	47.0	42.3	51.7	337	2766406	91.6	87.7	94.4
30 – 39	405	2361479	49.2	44.6	53.9	348	2048088	89.0	84.8	92.1
40 – 49	299	2026636	44.2	39.5	49	257	1779480	88.7	83.8	92.3
50 – 59	200	1327061	37.0	31.3	43.1	166	1121127	86.4	79.0	91.5
Ethnicity										
Malay	676	4985655	47.6	43.9	51.2	577	4326505	88.5	84.7	91.5
Chinese	202	1554980	41.0	35.3	47	182	1436633	93.2	88.5	96.1
Other	405	2203841	42.8	38.1	47.7	349	1951963	88.9	84.9	92.0
Education										
Primary and below	163	933859	26.3	22.1	30.9	121	690870	74.5	64.9	82.2
Secondary	639	4365235	45.0	41.1	49.0	556	3881828	90.7	87.8	92.9
Tertiary	453	3323293	60.1	55.4	64.6	408	3035365	92.2	88.4	94.8
Marital status										
Married	917	6199343	47.4	44.1	50.6	790	5426118	89.0	86.2	91.3
Not married/ divorcee/ widow/ widowee	364	2528132	40.0	35.5	44.7	316	2271982	90.5	86.9	93.2
Work status										
Working[b]	983	6949637	45.6	42.2	49.0	839	6090849	89.1	86.6	91.2

Not working[c]	291	1750406	43.5	38.5	48.7	261	1582072	90.7	85.7	94.1
Nutritional Status[d]									
Underweight	63	500337	42.2	31.7	53.5	54.0	455226	94.2	86.0	97.8
Normal	510	3413628	42.2	38.2	46.4	437	3028541	89.6	86.2	92.2
Overweight	413	2875445	47.1	42.8	51.5	352	2485500	88.2	84.3	91.2
Obese	253	1638609	47.1	41.9	52.3	229	1473710	90.7	83.7	94.8

[a]CI=Cinfidence Interval

[b]Working is defined as government staffs, semi-government staffs, private companiesor self-employed

[c]Not working is defined as not working, retiree or students

[d]Nutritional status refers to WHO Guideline (1998)

Table 2 Estimated crude and adjusted odds ratio for not reading and not understanding of food label (FL).

Variables	Not reading FLs				Not understanding FLs			
	Crude OR (95%CI)	p- value	Adjusted OR (95%CI)	p- value[a]	Crude OR (95%CI)	p- value	Adjusted OR (95%CI)	p-value[a]
Strata								
Urban	1		1		1		1	
Rural	1.29 (1.12, 1.49)	0.001	1.05 (0.89, 1.25)	0.565	1.47 (1.05,2.07)	0.025	1.21 (0.82, 1.77)	0.333
Gender								
Male	1.46 (1.26, 1.69)	0.001	1.52 (1.28, 1.80)	0.001	1.51 (1.08, 2.12)	0.016	1.38 (0.94, 2.03)	0.098
Female	1		1		1		1	
Age (year)								
18 – 29	1		1		1		1	
30 – 39	0.91 (0.75, 1.11)	0.34	0.94 (0.75, 1.19)	0.629	1.14 (0.73, 1.80)	0.564	1.22 (0.73, 2.06)	0.449
40 – 49	1.32 (1.08, 1.62)	0.006	1.18 (0.93, 1.52)	0.174	1.28 (0.79, 2.06)	0.312	1.25 (0.71, 2.19)	0.446
50 – 59	1.69 (1.35, 2.09)	0.001	1.23 (0.93, 1.61)	0.144	1.61 (0.97, 2.68)	0.064	1.49 (0.81, 2.73)	0.203
Race								
Malay	1		1		1		1	
Chinese	1.32 (1.07, 1.61)	0.009	1.26 (1.00, 1.59)	0.054	0.64 (0.37, 1.11)	0.112	0.66 (0.36, 1.20)	0.173
Other	1.23 (1.05, 1.45)	0.012	0.83 (0.69, 1.00)	0.053	1.04 (0.72, 1.51)	0.822	0.80 (0.53, 1.20)	0.277
Education								
Primary and below	4.37 (3.47, 5.51)	0.001	4.62 (3.55, 6.00)	0.001	3.55 (2.18,5.78)	0.001	4.00 (2.31, 6.93)	0.001
Secondary	1.98 (1.66, 2.38)	0.001	2.04 (1.68, 2.47)	0.001	1.37 (0.91, 2.08)	0.135	1.48 (0.95, 2.30)	0.083
Tertiary	1		1		1		1	
Marital status								
Married	1		1		1		1	

Not married / divorcee/widow/ widower	1.25 (1.07, 1.46)	0.006	1.35 (1.10, 1.64)	0.003	0.97 (0.67, 1.41)	0.867	1.11 (0.71, 1.74)	0.64
Work status								
Working[b]	0.99 (0.83, 1.18)	0.919	0.95 (0.77, 1.17)	0.613	0.72 (0.47, 1.11)	0.137	0.58 (0.34, 0.97)	0.039
Not working[c]	1		1		1		1	
Nutritional Status[d]								
Underweight	1.09 (0.77, 1.52)	0.637	1.04 (0.72, 1.49)	0.852	0.74 (0.30, 1.78)	0.495	0.96 (0.39, 2.38)	0.924
Normal	1		1		1		1	
Overweight	0.90 (0.76, 1.07)	0.24	0.87 (0.72, 1.05)	0.133	1.02 (0.69, 1.49)	0.937	1.05 (0.69, 1.58)	0.83
Obese	0.79 (0.65, 0.97)	0.024	0.83 (0.67, 1.04)	0.105	0.61 (0.36, 1.02)	0.058	0.65 (0.37, 1.11)	0.113

[a]p-value significant at <0.05

[b]Working is defined as government staffs, semi-government staffs, private companies or self-employed

[c]Not working is defined as not working, retiree or students

[d]Nutritional status refers to WHO Guideline (1998)

Understanding label

Overall, among those who reported reading labels, 89.5% of them claimed that they understood the information that they read. Those with tertiary and secondary education significantly understood label more than the primary and below education achievers. There was no significant difference in understanding the label of other socio-demographic variables studied **(Table 1)**.

Multiple logistic regression analysis showed that not understanding the label was associated with working status and education level. Working respondents were less likely not to understand the label by 0.58 times when adjusted to the non-working respondents. The respondents who completed primary school or below were more likely not to understand label by 4.00 times, when adjusted to the tertiary education achievers **(Figure 1)**.
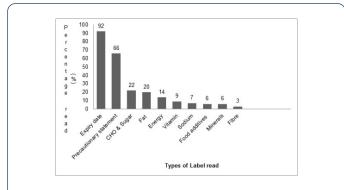

Figure 1 Types of food label read by respondents.

Types of label

Figure 1 shows the prevalence in reading by types of label. Most of the respondents focused to read expiry date (91.8%), followed by a precautionary statement (65.9%). Respondents did not put attention to read essential information related to health, such as macro and micronutrients of carbohydrate/sugar (21.5%), fat (19.9%) and total energy (14.4%). Less than 10% of the respondent read information on vitamin, sodium, food additives, minerals and fibre.

Discussion

Reading label

This study highlighted that Malaysian adults scored a low prevalence in reading the food label, compared to other population studies. Only 4 out of 10 Malaysian adults reported to read labels, while other population studies dictated a higher reading as 52% in the UK [11], 65% in Irish [12] and 80% in the USA [13]. However, Turkey reported an averagely lower rate of reading food label of 15% [14]. A bigger scale of population study in Malaysia (NHMS) targeted respondents aged 18 years and above found that food label reading was significantly associated with Malays, tertiary education achievers, single respondents, and employed [15]. NHMS 2006 also concluded that female and tertiary academic achievers significantly read the food label [15]. In contrast, the present study found that single respondents was significantly associated with not reading food label. Another study reported no significant difference between male and female in reading the food labels [16].

This study presents that males were less likely to report reading food labels compared to females, as reported

elsewhere [17,18]. A sub-analysis of the NHMS 2006 reported a higher rate of reading food label among the Malaysia obese male [19]. This might be contributed by their knowledge and nutrition education they received from healthcare personnel at the clinics or hospital when seeking treatment. The motivation to reduce weight and to decrease the risk of obesity also drive them to seek information from the food label. Another study also highlighted on the food label awareness among those who were diagnosed with chronic diseases [20]. They usually were more aware on the nutrient guidelines and dietary guidelines, as compared to healthy individuals with the motivation to control their disease. But in general, healthy males ignore the importance of food label information towards health, perceived reading food label as time consuming, do not understand the food label information and complaint on the small printed labels [21].

Respondents with lower educational level were more likely not to read food labels, as highlighted in most studies. This could be due to the less educated respondents were not familiar with the terminology used and need some form of mathematical calculation to interpret the nutrient requirement and intake [22]. In contrast, higher education achievements gained health and nutrition knowledge from academic experiences and reading exposures. Hence, they had the intellectual capability to read and understand food label information. Consequently, they significantly reported to read labels compared to their counterpart [23,24].

Those who were single did not pay attention to read food labels compared to their married counterpart. This finding is in contrast to the NHMS 2006 finding, which single respondents were more likely to read food labels [16]. The difference in findings may be due to the definition of 'single' status in the NHMS 2006 as 'not married', while MANS 2014 has grouped 'single' as a combination of not married, divorced, widow and widower due to analysis purpose (small sample size).

Food label understanding

Only 10% of the Malaysian adults who read label reported not likely to understand the food label information. The figure should be interpreted with caution, as this survey implemented a self-reporting feedback. We did not objectively measure the real understanding of food label at the point of purchasing. The prevalence was based on the respondent's interpretation of their label reading experience, and prone to over-reporting. Those who were jobless and primary school leavers and below were significantly associated with not understanding the food label information. A smaller study conducted in Malaysia studying the understanding of the Malaysian Dietary Guideline found that the understanding score was 60%, lower compared to the present prevalence [25]. Another study on understandable assessment of the current nutrient label format among females in the Klang Valley (an urban area in Malaysia) revealed a good level of understanding. Half of the respondents were able to extract and understand the nutrient information label [26].

This study highlighted that non-working respondents and those completed primary school or below did not understand the information on the food label. Non-working respondents are generally associated with lower academic achievement and low income. Most studies reported a similar low understanding of food label in those groups. Difficulty in understanding the terms, interpreting and perform some calculations on the nutrient requirement hinders them from reading the food label [27].

By types of label information, expiry date was the most popular information read, followed by the precautionary statement. This is a common finding as presented in other studies [2,28,29]. Expiry date provides information on a determined date the food or drink should be consumed, and not guiding consumers on healthier sources. Some possible causes for this situation are the lack of knowledge on the technical terms and negligence of certain nutrient information that they perceive as not important to their health [24].

Generally, consumers read labels in order to avoid 'negative' nutrients in packaged food. This situation was shown among the European consumers who looked in detail for fat, calories, protein, cholesterol and carbohydrate information before purchasing packaged foods [2,28,29]. While in Malaysia, macronutrients of total energy, fat and carbohydrate information was the least common label being read by the respondents, followed by vitamins and minerals. Hence, the information was not used by the respondents in aiding them to correctly select the right food.

The findings on reading food label have to be interpreted cautiously, since this study applied self-reported responses. The responses may differ from how respondents act in a real situation during purchase. Level of nutrition knowledge and capability in understanding label information were not evaluated. Hence, responses may not reflect the actual understanding and may influence by social desirability.

Conclusion

We found that most of the Malaysian adults reported to read the food label and they claimed to understand the label information. Respondents who were male, lower academic achievement (primary and secondary school leavers) and single were significantly less likely to read food label information. Primary school leavers and jobless respondents significantly reported did not understand the food label information that they read. Those who read food labels mostly targeted expiry date and precautionary statement information, and showed not much interest to read nutrient information on the label. There was no significant association of other socio-demographic characteristics with reading and understanding of the food label. By identifying the target groups as above, it will assist the stakeholders and policy makers in designing interventions to those groups. Future studies should focus to observational study approach in order to determine the actual readers, level and problems in understanding the food label.

Acknowledgement

Conflict of Interest

The authors declare no conflict of interest.

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