

LEVEL OF KNOWLEDGE ABOUT THE NEW LABELING OF FOOD AND DRINKS IN CONSUMERS OF THE CITY OF CHILPANCINGO, GUERRERO, MEXICO

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Abstract: In Mexico and other countries, new warning labeling has been implemented on prepackaged food and beverage packaging, with the aim of alerting consumers to excesses of critical nutrients. Objective: to know the level of knowledge that the population of Chilpancingo has, in relation to the new labeling of foods and beverages sold in supermarkets and commercial stores. The type of sampling is non-probabilistic for convenience. A questionnaire containing 24 questions related to the new labeling was applied to 317 people. The average age was 21.95 ± 7.9 SD. 54% are women. 27.2% check the labeling, 26% buy the product, even if it has the 5 warning seals. Conclusion: 10% of respondents are not aware of the new labeling and less than half (42%) understand the meaning of the warning octagons on the labels.

Keywords: New labeling, Level of knowledge, warning labeling, food labeling.

INTRODUCTION

Mexico is the largest consumer of ultra-processed products in Latin America and the fourth in the world, its consumption contributes greatly to the national epidemic of obesity and chronic diseases (PAHO/World Health Organization, 2015). It is estimated that 30% of the calories consumed come from ultra-processed foods and more than 40,000 deaths per year are attributable to the consumption of sugary drinks. Obesity represents 8.9% of health spending, which reduces 5.3% of Mexico's Gross Domestic Product (Munguía et al. 2021).

There is evidence between the consumption of processed and ultra-processed foods in relation to obesity and non-communicable diseases, such as cancer, type 2 diabetes, cardiovascular diseases, depression and mortality (Campos et al. 2022; De Amicci et al, 2022; Juul et al. 2021). Due to this,

different countries in Europe, Oceania, and Latin America, including Mexico, Uruguay, Chile, Colombia, Ecuador, and Brazil, have implemented new labeling with warning octagons (Meza-Hernández et al. 2020).

According to the National Health and Nutrition Survey (ENSANUT 2018), overweight, obesity and diabetes are increasing, they also report that 64.6% of children between 5 and 11 years consume snacks, sweets and desserts and 35.4% of people aged 20 or older consume these products daily; Likewise, the consumption of sweetened beverages is 85.7% for these same age groups, which increases the intake of calories, sodium, sugars and saturated fats in the diet. For the aforementioned, the Ministry of Health implemented strategies and lines of action aimed at the prevention and control of overweight and obesity in children, adolescents and the adult population; For this reason, in Mexico, the modification of the Official Mexican Standard NOM-051-SCFI/SSA1-2010, on labeling of prepackaged foods and non-alcoholic beverages, was approved and published on March 27, 2020, which will allow consumers to take informed decisions when choosing prepackaged foods and non-alcoholic beverages (COFEPRIS, 2020).

Due to the aforementioned, it is important to know if the population is informed about the content of the foods and beverages they consume in their daily diet. For this reason, the general objective of this research is to identify the level of knowledge that the population of Chilpancingo Guerrero has, in relation to the new labeling of prepackaged foods and beverages and as specific objectives: Identify whether the population understands the meaning of the warning octagons presented on product packaging, and estimate the percentage of people who review the labeling.

METHODOLOGY

The present research is observational and transversal, it was carried out in the population of Chilpancingo, Guerrero, Mexico, during the period from September 2022 to February 2023. The type of sampling is non-probabilistic for convenience. 317 people participated, to whom a questionnaire of 24 questions related to the new labeling of foods and beverages sold in supermarkets and commercial stores was applied. The questionnaire was applied to students and teachers of the Faculty of Natural Sciences, Faculty of Mathematics and the Faculty of Engineering of ``Universidad Autonoma de Guerrero`` and to the staff of the Health Center located in the San Antonio neighborhood. The participants' height was measured with a stadiometer and their body weight was measured with a tempered glass digital scale from 0 to 180 kg. Some sociodemographic data were also taken, such as: age, sex, marital status and educational level. The variables studied are: Level of knowledge about the new labeling, understanding of the warning octagons, label review and purchase decision.

After having applied the questionnaire, the data was captured in Epi-Data and analyzed in Stata, version 9.1. A univariate and bivariate analysis was performed, averages, standard deviations and tables are reported.

RESULTS

A total of 317 surveys were administered to students and teachers from different UAGro schools and health personnel (Table 1). The average age of the participants is 21.95 ± 7.9 SD, with a range of 16 to 69 years. 53.94% are female and 46.06% are male. In relation to marital status, 90.48% are single, 4.4% are married, 4.76% live in a common law union and 0.32% are widowed.

	Frequency	Percentage
Clinic	35	11.04
Faculty of Natural Sciences	176	55.52
Mathematics Faculty	54	17.03
Faculty of Engineering	52	16.40

Table 1: Sites where the survey was applied

Regarding the level of education, the highest percentage of participants are studying the first semester of their bachelor's degree (Table 2).

Level of education	Frequency	Percentage
Completed primary	2	0.63
Completed secondary school	3	0.95
First year of preparatory	2	0.63
Second year of Preparatory	1	0.32
Third year of Preparatory	6	1.89
Technical Career	1	0.32
First year of License's degree	147	46.37
2 License	39	12.30
3 License	1	0.32
4 License	59	18.61
5 License	49	15.46
Master	3	0.95
Doctorate	4	1.26

Table 2: Education level of the study population

A total of 8.8% are underweight, 57.5% are normal weight, 25.9% are overweight and 7.8% are obese. 66% do some physical activity; 35% do it 5 to 7 times a week, 34% 3 to 4 times a week and 29.4% one to two times a week.

Respondents were asked if they are aware of the new labeling of prepackaged foods and beverages. 92% responded that they do know the new labeling and 8% do not know it.

They were also asked if they have observed the warning octagons. 98.73% (321/316) answered yes and 1.27% (4/316) have not observed them. The four people who have not observed the warning octagons are three women aged 18, 21 and 55 years old and a 65-year-old man.

Regarding the meaning of the octagons, they were asked the following question: Do you understand or know the meaning of each of the octagons? Less than half of those surveyed understand the meaning of octagons (Table 3).

	Frequency	Percentage
Yes	132	41.77 %
No	37	11.71 %
Only some	147	46.52 %
Total	316	100%

Table 3: Do you understand or know the meaning of each of the warning octagons?

Level of knowledge that the interviewee has regarding the new labeling of pre-packaged foods and beverages. 9.52% reported having no knowledge, 77.5% had little knowledge, and 13% had a lot of knowledge about the new labeling. People who are not aware of the new labeling have a level of education from the 3rd year of high school to the fifth year of their university degree. And those who reported having little knowledge have a level of education from 6th grade to a master's degree.

Participants were asked if they checked the labeling when purchasing their products. 27.22% do check the labeling, 21.20% do not check and 51.60% sometimes.

The surveyed population of Chilpancingo, although they have a lot of knowledge about the new labeling, 17.7% of them do not check the label before purchasing or only sometimes check it (Table 4).

Reasons why participants do not check labels. 26% reported not checking the product labeling, because they only look at the price and 11% reported not having time to read the labels and 10% do not understand them (Table 5).

Reasons	Frequency
I do not understand it	22 (9.8%)
I only look at the price	58 (25.8%)
I trust the brands I always buy	24 (10.7%)
I don't have time to read them	24 (10.7%)
I don't think it's important to read it.	19 (8.4%)
Sometimes I am indifferent	73 (32.4%)
Only when I remember/buy for its flavor	5 (2.2%)
TOTAL	225

Table 5: Reasons why the participant does not check the labels

Participants were asked: Since the new octagon warning labeling on foods and beverages appeared, have you eliminated the consumption of certain foods? 32% (101/316) answered that they have eliminated the consumption of some foods and drinks, and 68% (215/316) have not eliminated them.

41.46% have maintained the consumption of certain foods since the new labeling with the warning octagons appeared, regardless of the number of stamps.

Regarding preferences for some foods with excess: 26.18% prefer foods with excess sugar due to craving or flavor, 14% prefer foods with excess sodium. They were also asked: If the product has excess calories, sugar, saturated fats, trans fats, do you buy it? 25.55% said they do buy it.

25.7% of people reported buying the product regardless of whether it has the stamps for excess calories, Sugars, Saturated and Trans Fat, Sodium (5 stamps on the front label). They make this decision, no matter whether they have much, little or no knowledge of the new labeling.

74.7% consider that the labeling is understandable for the consumer and 24.3% consider that it is not. Participants were asked what they would recommend to improve food and beverage labeling? 8% think the information that is currently placed on the products is good. 31.11% recommend

Check the warning label before purchasing	Level of knowledge that the interviewee has about the new labeling			
	Nothing	A little	Much	Total
Yes	6 (7%)	62 (72%)	18 (21%)	86 (100%)
No	7 (10.45%)	56 (83.6%)	4 (6%)	67 (100%)
Sometimes	17 (10.5%)	126 (77.8%)	19 (11.7%)	162 (100%)
Total	30 (9.5%)	244 (77.5%)	41(13%)	315*

Table 4: Check the warning label before purchasing and level of knowledge (n=315).

*Total of people

improving the new labeling, placing information on the label that more clearly illustrates the effects on health, if the product contains excess calories, sugars, saturated fats, trans fats and excess sodium. 9.5% suggest educating the population regarding the new labeling and healthy nutrition. 21.23% suggest placing large and visible seals on product packaging, with striking colors (phosphorescent colors), for example red. Only 5 people believe that manufacturers reduce the excesses in the products they offer.

DISCUSSION

According to the results obtained in this research, the level of knowledge that the surveyed population has of the new labeling of foods and beverages that present the warning seals, 10% reported having no knowledge and 78% has little knowledge, this It tells us that the population does not have enough knowledge to choose the products they consume in their daily diet. A similar study carried out by Ramírez-Noyola (2022) in a population of Nuevo León, in relation to the level of knowledge of warning seals, reported that 98.2% do not have sufficient knowledge and 1.8% do have the knowledge. enough. As mentioned by FAO (2016), it is important to recognize that the appropriate use of labels requires that public awareness and education campaigns be provided on an ongoing basis.

Considering that more than half of the surveyed population of Chilpancingo (58.23%) does not understand the meaning of the

warning octagons that contain the packaging of food and beverage products, and within this proportion are the students who are in the first year degree (n=18), therefore, the educational variable does not influence the understanding of the new labeling. This tells us that it is necessary to educate the population on this issue. As mentioned by Zhang et al. (2023) that the intention of the new labeling is for the consumer to identify critical ingredients that have exceeded recommended levels, and to alert the population about the negative health effects that these excessive nutrients can have. On the other hand, Mendivil-Apodaca and Abril-Valdez (2022) suggest that the implementation of Warning Seals as a public health policy must be accompanied by strategies that improve access to healthy foods, promote physical activity, and provide nutritional education to children. consumers.

Less than half (41.5%) of the population of Chilpancingo has maintained the consumption of some foods and beverages since the new labeling appeared, regardless of the number of warning seals contained on the packaging. Also Bablani et al. (2022) found similar behavior in a New Zealand population, in which they report that no solid evidence was observed that labeling changes consumers' purchasing behavior.

A total of 26% of the surveyed population of Chilpancingo reported buying the product regardless of whether it has the labels of excess Calories, Sugars, Saturated and Trans Fat, Sodium. They make this decision, no

matter whether they have much, little or no knowledge of New Labeling. Something similar is reported by Quintiliano et al. (2021), in which they analyzed purchasing habits, and reported that more than 60% of the subjects have no intention of changing their behavior in consuming labeled foods, especially sugary drinks, juices, cookies, sweet snacks, and potatoes. fried foods and mentions that 49.5% of the participants declared that they have stopped buying food because of the Warning Seals. On the other hand, Paredes-Arriaga et al. (2021) mentions that the presence of seals on products does not motivate consumers to stop buying them, they also mention that there is a positive effect of seals, in the sense that consumers have become aware that some products that they considered healthy, they really are not. Other authors such as Aguad et al. (2020) mentions that the pattern of food consumption or eating habits is not changing, that is, nutritional labeling has little influence on consumers' purchasing decisions.

Some authors suggest that reducing the intake of ultra-processed foods is a rational and effective way to improve the nutritional quality of diets, and the consumption of fresh or minimally processed foods must be promoted (Louzada et al. 2015 and Martínez-Steele et al, 2017).

21% of the population surveyed does not check the label and therefore does not read it; Also other authors such as Tolentino-Mayo et al. (2018) conducted a study in the Mexican Republic and reports that, at the national level, only 17.5% of the population reads the label and knows the amount of calories they must consume per day and that the percentage of the population that reads the label is 3.4 times higher in urban locations than in rural locations.

In relation to the drinks consumed by those surveyed in Chilpancingo, 81% consume one soft drink a day, 15% two soft drinks; Some

authors have reported the high consumption of soft drinks in our country, as mentioned in their study Cabeza-Zabala et al. (2016), that Mexico is the country that consumes the most sugary drinks (163.3 liters/person/year) compared to other countries in America and points out that the consumption of sugary drinks provides 220 to 400 extra calories per day, which increases the risk of obesity in children is 60%; In addition, it increases the probability of suffering from diabetes and obesity in adulthood. In the case of women, consuming one soft drink a day increases the risk of heart disease by 23% and this increases by 35% for those who consume two or more servings a day.

According to Díaz et al. (2017), having a single measure (use of warning labels) is not enough to discourage the consumption of unhealthy foods; The approach must be with the participation of citizens, the health sector and the product manufacturers, since any regulatory measure will face fierce opposition and pressure at all levels from the processed and ultra-processed food industry.

CONCLUSIONS

- The results show that 10% of those surveyed in the city of Chilpancingo do not have knowledge of the new labeling on prepackaged food and beverage packaging and less than half (42%) understand the meaning of the warning octagons. the labels of products sold in supermarkets and commercial stores.
- 27.2% of the population checks the label of products when purchasing them, and a high percentage does not check; Therefore, she is not informed about what she consumes in her daily diet.
- Regarding the purchasing decision, 26% of people said they would buy the product regardless of whether it has labels indicating excess calories, sugar,

saturated fat, trans fat and sodium (5 stamps on the front label). They make this decision, no matter whether they have much, little or no knowledge of New Labeling.

- Since the new labeling appeared, 32% of those surveyed have eliminated the consumption of some processed and/or ultra-processed foods. In order for there to be a change in the purchasing habits of consumers in the city of Chilpancingo, it is necessary to educate the population regarding the content of the products they purchase in supermarkets and for them to know the effects on human health.

LIMITATIONS

It is important to mention that the study was only carried out on the population that lives in urban areas and did not include the population of rural areas. In the future we can study both areas and compare the level of knowledge that these two populations have in relation to the new labeling.

RECOMMENDATIONS

It is suggested that awareness campaigns be carried out in relation to the new labeling at all educational levels in the city of Chilpancingo and subsequently throughout the State of Guerrero. These campaigns must be permanent, in which the Ministry of Health and the University Community are involved to educate the population on this issue.

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