



Parent's Knowledge About the Nutritional Labelling of Snacks Consumed by Chilean Primary School Students: When Do We Start to Educate Parents?

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The alarming levels of overweight and obesity among children constitutes one of the main concerns of nutritional education in Chile. Figures suggest that about 24% of the population under 10 is overweight and 11% obese. The latter could be explained, among other factors, by children's inadequate food intake and the underlying unhealthy eating habits inherited from their familial context, as well as the high number of snacks consumed (mainly candies). Hence the need to provide parents or guardians with the tools and knowledge to properly supervise what their children are eating. The objective of this work was to assess the knowledge of parents of students attending two Chilean private-subsidized schools regarding nutritional labelling in their children's snacks. The methodology of this pilot study consisted in applying a survey to parents and guardians ($N = 118$) in the schools Colegio École Noel ($n = 85$) and Colegio Hispano Chileno ($n = 33$), located in the Metropolitan Region, Chile. The results of the study show that most respondents (58%) know what the labelling is, how to read and correctly interpret the food labelling. However, some (23%) face difficulties when choosing which product would be more beneficial or less unhealthy to their children. In conclusion, a higher proportion of parents know about food labelling; however, they fail to properly use label information in their choice of healthier snack for their children. In the future, a larger scale educational intervention is necessary for parents to understand the importance of examining food labelling to properly select food and snacks based on such information. These interventions would positively affect children feeding and decrease levels of child overweight and obesity.

Keywords: Children Obesity, Food Labels, Parents, Snacks, Students.

1. INTRODUCTION

As a consequence of social, economic and demographic changes, the Chilean population has experienced an epidemiological and nutritional transition characterized by high overweight and obesity rates which led to an increase in chronic non-communicable diseases (CNCDs).¹ Childhood overweight and obesity have increased dramatically over the past two decades, and currently approximately 24% of the Chilean children under 10 suffer from overweight, and 11% are obese;² these trend is not precisely decreasing.³

This scenario is worrying, considering that obesity and overweight are linked to CNCDs such as dyslipidemia, insulin resistance, diabetes, cardiovascular disorders and metabolic syndrome in later stages of life.^{2,4} Factors associated to child overweight include limited physical activity, family history of overweight,

genetic features and inherited unhealthy eating habits linked to socio-cultural and familial context—it evidenced in a popular saying that characterized Chile for decades, “the fatter, the healthier.”⁵

Inadequate children feeding is also the result of decreasing parental authority as to the amount and quality of food kids receive, as well as disinformation regarding the ingredients of their children's snacks. This is worsened if we consider that children constitute a fickle group, their food choice being easily influenced by advertising.⁶ In this regard, specialists claim that advertising and food marketing targeted children, together with inadequate food labelling constitute crucial factors when it comes to the obesity pandemic.⁷

As regards food intake, exposure to sweet foodstuffs with high-energy content in their life determine children's preferences for these kinds of food in later years.⁸ Snacks like candy deserve special attention since some of them are highly energetic and poor

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in nutrients, e.g., junk food consumed in between meals.⁸ The most predominant factors leading to inadequate children feeding include the high number of snacks, especially candy; besides, children consume the most snacks at school.

The US *Food and Drug Administration* has made remarkable progress in line with their constant effort to improve the information on food composition supplied to the consumers as a way to lower the risk of.⁹ Similarly, a new regulation came into force in the European Economic Community in January 2007 regarding Nutrition and Health Claims,¹⁰ updated in January 2013.¹¹ On the other hand, the *Food Standards* in Australia and New Zealand make it mandatory to include the list of ingredients and a nutritional information table on the packaging of most foodstuffs.^{12, 13} The Chilean government has implemented similar policies in this regard and, even though more detailed information has been included in the labelling of food in the recent decades, the Chilean Ministry of Health is currently working hard to educate the population on the importance of understanding and noticing the nutritional information of the products, especially those to be consumed by kids. Along the same line, the Bill on the Nutritional Composition of Food and its Advertising (N° 20.606) represents one of the strategies of the Chilean Government to face this situation. The Bill proposes, on the one hand, to offer clear and understandable information about the critical nutrient content of foodstuffs in order to guide the choice of purchase and consumption, and, on the other hand, to regulate the advertising and sales of food aimed at children under 14 years old.^{14, 15} Despite the current differences among countries regarding nutrition labelling, regulations should aim at providing effectively the information consumers require to make the best decision and consume good quality food, this improving their quality of life. Accurate food labelling can help guide parents and guardians in the choice and selection of school children snacks, making it easier for them to educate their kids on healthy eating,^{6, 15} however, further efforts should be made to educate families on the importance of nutrition labelling, since some studies show that for some families it has little salience.¹⁶

Considering the apparently deficient knowledge on the part of parents and guardians about nutritional labelling of their pupils' school-time snacks, the aim of this work was to assess such knowledge among parents with children attending two primary schools.

2. METHODOLOGY

A pilot research study, descriptive-exploratory in nature, was performed considering two private-subsidized schools: Colegio École Noel, in the district (*comuna*) of San Miguel and Colegio Hispano Chileno, located in the *comuna* of Santiago Centro, both in the Metropolitan Region, Chile. The choice of these educational institutions was determined by the interest shown by their respective administrations, as compared to the lack of support offered by other similar institutions that were also invited to participate. The population under study included a sample of both schools' parents and guardians, specifically with pupils in first and second year of primary school (6 and 7 years old). Families forming part of both educational communities represent Chilean middle-income households. The present study protocol was approved by the Ethics Committee, School of Nutrition and Dietetics, Universidad Iberoamericana de Ciencias y Tecnología

Table I. Questions included in the survey.

Question
1. Do you know what food labelling consists of?
2. Can you read and interpret food labelling?
3. Do you examine the elaboration and expiration dates of the food you buy?
4. Do you take the time to examine the list of ingredients and additives food contains?
5. Do you read the storage instructions of the food you buy?

(UIbero), Santiago, Chile. Each subject gave written, informed consent to participate in the study prior to screening.

The assessment instrument used was an anonymous personal and self-administered survey that made it possible to determine the knowledge of each parent and/or guardian in the families of the children of both schools that took part in this research. The survey included multiple-choice questions (Table I) according to Likert scale (Alternative A, totally disagree; B, disagree; C, neither agree or disagree; D, agree; E, totally agree), and was validated by a group of experts including school parents, health educators, a biostatistics and research methodology specialist, university professors in the field and registered dietitian nutritionists. Data was gathered by coordinating with the schools the distribution of the surveys so that the parents or guardians in the selected school classes could take them home to respond and later give them back at their pupil's school.

Finally, the total number of surveys completed, in both schools, was $N = 118$, out of which 85 corresponded to Colegio École Noel, and 33 to Colegio Hispano Chileno. As regards the power of the study, considering that the central limit theorem tell us that a sample size of $N \geq 30$ has a probability distribution close to a Gaussian distribution,¹⁷ the number of responded surveys ($N = 118$) seemed statistically relevant.

3. EXPERIMENTAL RESULTS

Results are shown as mean \pm standard deviation of the mean.

3.1. Results in Colegio École Noel

The ages of pupils whose parents or guardians were surveyed in this school was 6.8 ± 0.8 years old. Answers to the survey first question, aimed at identifying the proportion of parents who claimed to know what food labelling entails, show that 6% of the total chose alternative A, and 11%, B; 27% chose alternative C; on the other hand, 38% marked alternative D, and 18%, E (Table II). The second question, which focused on determining if the respondent could read and interpret food labelling, showed that 6% selected alternative A, marked alternative 9% B and 40% C. On the other hand, 34% favoured D and 11%, E (Table II). Regarding the third question, inquiring on the proportion of parents or guardians who check elaboration and expiration dates, 2% selected alternative C, 20% alternative D and 73% E, whereas only 4% chose A, and just 1%, B (Table II). In what refers to the fourth question, about the proportions of parents or guardians who take the time to check the list of ingredients and additives in the food they buy, worth mentioning, a 46% selected alternative D (Table II). Finally, the last question, about the understanding of storage instructions, a higher proportion of parents or guardians selected alternatives D (46%) and E (28%) than alternatives A and B (Table II).

Table II. Percentual frequency of parents or guardians responses in Colegio École Noel when surveyed.

Question number	A (TD)		B (D)		C (NAD)		D (A)		E (TA)	
	n	%	n	%	n	%	n	%	n	%
1	5	6	9	11	23	27	32	38	15	18
2	5	6	8	9	34	40	29	34	9	11
3	3	4	1	1	2	2	17	20	62	73
4	5	6	12	14	26	31	39	46	3	4
5	6	7	5	6	11	13	39	46	24	28

Notes: TD: totally disagree; D: disagree; NAD: neither agree or disagree; A: agree; TA: totally agree.

Table III. Percentual frequency of parents or guardians responses in Colegio Hispano Chileno when surveyed.

Question number	A (TD)		B (D)		C (NAD)		D (A)		E (TA)	
	n	%	n	%	n	%	n	%	n	%
1	1	3	1	3	10	31	11	33	10	30
2	4	12	2	6	4	12	17	52	6	18
3	1	3	0	0	1	3	4	12	27	82
4	2	6	1	3	5	15	23	70	2	6
5	4	13	0	0	1	3	13	39	15	45

Notes: TD: totally disagree; D: disagree; NAD: neither agree or disagree; A: agree; TA: totally agree.

3.2. Results in Colegio Hispano Chileno

The ages of students whose parents responded the survey in this school was 6.9 ± 0.7 years old. In the first question, 3% of the total respondents selected alternative A, the same proportion than B; 31% chose C, 30% chose D, and 33% selected alternative E (Table III). In the second question, 52% selected alternative D, and the others received lower percentages (Table III). In the third question, alternative E (82%) was the most favoured (Table III). Alternative D received 70% of preferences in the fourth question. Finally, in the fifth question, alternatives D and E were the most favoured, with 39% and 45% respectively (Table III).

4. DISCUSSION

The aim of this study was to assess the level of awareness of parents or guardians of pupils attending Colegio École Noel and Colegio Hispano Chileno regarding the labelling of their children's snacks.

The results obtained suggest that the majority of the people surveyed (56% in Colegio École Noel and 63% in Colegio Hispano Chileno) know about or are aware of what nutritional labelling is, but cannot correctly interpret the label informational content at the time of selecting their pupils' snacks. This could happen because the information on the label is not appealing enough for consumers, or even not clear enough, as some German researchers have argued.⁷ When buying the foodstuff, a higher proportion of people examine the date of elaboration and expiration of the kid's snacks (93% in Colegio École Noel and 94% in Colegio Hispano Chileno) than those who fail to do so (5% in Colegio École Noel and 3% in Colegio Hispano Chileno). Evidence also shows that most parents or guardians surveyed examine the list of ingredients and additives of the kid's snacks (51% in Colegio École Noel and 76% in Colegio Hispano Chileno), but a significant proportion claim that such information is irrelevant (51% in Colegio École Noel and 24%

in Colegio Hispano Chileno). The latter is in agreement with an Australian study showing that food labelling has low salience for many families, especially those with low income and overweight children;¹⁶ this is in line with the opinion of Wang and coworkers¹⁸ on the fact that family income and the level of education of the head of household, among others, constitute important determinants of the usage of food labels. The past decades have seen a world trend to reduce the intake of dairy, vegetables and fruit, and increase the intake of high energy foods and sugar-sweetened beverages,¹⁹ leading to huge nutrition gaps among children. In fact, low income families have favoured consumption of inexpensive foods with low nutritional content and insufficient amounts of vitamins and minerals, essential for children in constant growth and development.²⁰ We consider that both the wrong interpretation of food labelling and some parents' lack of interest on the information supplied by them must be due, at least in part, to their inability to identify ingredients, or to discriminate the permitted percentage of additives per portion of snack,⁶ a fact closely related to their limited knowledge about nutrition. Finally, regarding food storage, the study found that the vast majority of parents or guardians read each product's storage instructions.

Worth mentioning, while responding to the survey, some of them spontaneously expressed the need to understand each one of the elements addressed in the food nutritional label in order to choose the healthier foodstuffs for their children in the future.

5. CONCLUSIONS AND FUTURE PROJECTIONS

The results of the present work lead to the conclusion that most parents or guardians are aware of nutritional labelling, but lack the tools to interpret it at the moment of choosing the adequate snack for their children. The results of this pilot study may constitute the basis for further research involving families with children in pre-school, primary and secondary education, and comparing institutions according to how they are financed in Chile: private, state (public), and state subsidized educational institutions.

Nutrition facts labelling constitutes an educational and informational tool to help the population in the adequate choice of foods. In the future, strategies should be implemented to inform parents and guardians on what nutritional labelling is, the information labels must contain, and the maximum amount of ingredients and additives permitted. One of the biggest problems to be faced would be the consumers' low educational attainment and literacy levels preventing them from fully understanding and interpreting the information contained in nutrition labels. Hence the need to correctly educate parents so they can choose snacks based on energy content and nutritional value in order to avoid providing children with a higher amount of calories than required.⁶ Feeding the child a balanced diet will help maintain a normal nutritional state and prevent possible morbidity, whether for lack or excess of food intake. Along this line, and as way to support the parents, teachers should be trained to help teach students the importance of nutritional labelling. A study in South Korea²¹ has found that understanding food labelling helps children improve their nutrition and introduce positive changes in their eating habits and dietary behaviour. These researchers argue in favour of direct nutritional education, being more efficient than indirect methods, such as written messages sent to parents.

Therefore, they advise that systematic and constant ‘nutrition label education’ be performed by nutrition educators in primary schools in order to create healthy eating habits based on the selection of nutritive snacks and healthy processed food.²¹ The latter experience can help as guide to develop research programmes and policies in Chile and other countries with children evidencing high overweight and obesity rates in order to develop educational interventions aimed both at school children as on parents and teachers. Moreover, the campaigns should focus on the elements to be considered at the time of choosing healthy snacks for school breaks.⁶

Better nutrition labelling involves better standards in label designs. Research on nutrition fact tables should focus on how to make labels more attractive to customers, less complex to read, and more meaningful as regards nutrition facts and figures; food labels could include interpretive tables, simpler text, less percentages, and a more straightforward inclusion of serving-size information.²² The latter requires an adequate didactic transposition so that scholarly knowledge becomes accessible through simpler language, easy to interpret and apply by the general population, especially parents and guardians since, in the family, they represent the model of appropriate eating and healthy lifestyle for children. Acquired in childhood, these behaviours generally prevail in later stages of life.

By the other hand, from the public health point of view, it would be advisable to inform parents and relatives about nutritional labelling during the routine health check-ups provided by the Health Services, such as the routine well-child examination at the age of six. Precisely at this age children start taking snacks to school, and therefore, such occasions would be the right time for nutritional counselling on food labelling and related aspects in order to encourage parents to verify foodstuffs do not contain excessive amounts of sugar or fat, enabling them to choose the snack with the lowest calories, and energy content, and thus healthier for their kids.⁶ All the aforementioned strategies would decrease, at least partially, the alarming rates of child overweight and obesity in Chile and wherever they are implemented.

Conflict of Interest Statement

None to declare.

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