

Relationship between Information Deprivation on Food Security and Health Risks during Food Consumption in the Population of Piura (2018)

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Introduction

The present research work is entitled "Relationship between information deprivation on food security and health risks during food consumption in the population of Piura (2018)." The report has been made due to the growing statistics of coronary metabolic diseases that are registered in Peru, and especially Piura, due to the deficient patterns of food consumption. It is for this reason that the perception of the risk that consumers have about food and the knowledge associated with the potential danger of developing diseases was analyzed.

Another of the justifying reasons for the development of this report is the scarce coverage of the media on food security, considering that more than fifty percent of the causes of death in Peru are due to diabetes and cardiovascular afflictions.

This thesis should take into account some fundamental principles such as innocuity, consumer trends, theories about cognitive deficit, risk communication, the rate of scientific literacy, the manipulation of neurointelligence in the labeling of food packaging as a means of confusion to the consumer for the adequate nutritional information interpretation of the food; coinciding with the proposal of the "Public Understanding of Science" the need of citizenship to have a wide range of understanding of terms and constructs sufficient to understand a significant number of events in daily life, including reading and understanding the label of a food package.

The methodology applied was observation; To take a close look at the most common and frequent eating habits of the Piura population during their visits to the main supermarkets in the city. Correlatively, a questionnaire was executed by means of a "survey" file to contrast the similarity between what was observed and what was answered in the interviews. Finally, in order to demonstrate the omissions on nutritional information in food labels, a metabolic analysis has been applied by high efficiency liquid chromatography to quantify the metabolites with genotoxic potential not declared in the foods sold by the companies.

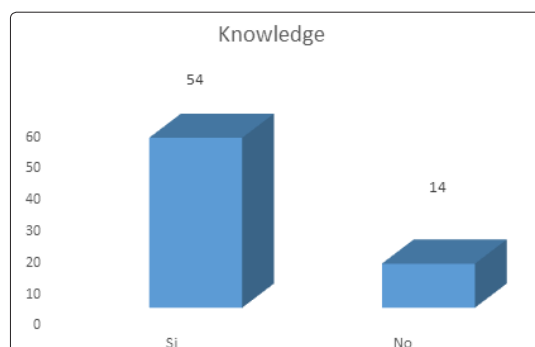
The results shows that 39.7% and 14.7% of the asked participants

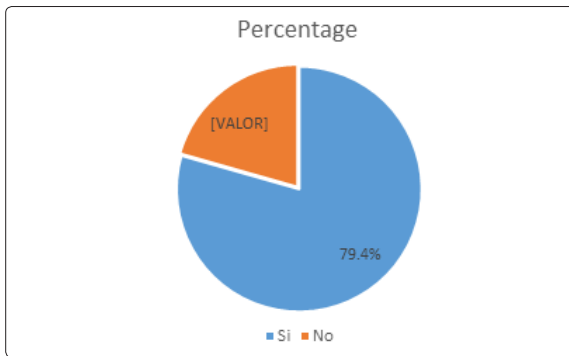
answer that the frequent consume of high carbohydrates (rice, yucca, potatoes) do not constituted a cardio metabolic (diabetes) risk for the health. The first one percentage answer with a categorical denial and the second one affirms that it is a myth. Correlatively, this result is related to the 4442 kilocalories average consumed per day of piuran population, specifically the low physical activity index, in numbers, 270.39 kcal per day burning average plus 1572.74 kcal of basal metabolism give a daily spend of 1843.13 kcal. The present quantity associated with the daily 4442 kcal consumption manifest an excess of 2578, 87 non- burned kcal that is going to be transformed in fats and glucose in the blood; which is a cardiovascular risk factor for piuran people. Finally, it was found 9mg/kg of hydroxymethylfurfural (carcinogenic substance) in chocolate bars samples which are not declared as a quality and innocuous standard at the nutrition facts.

The main conclusions of the study show that the relationship between information deprivation on food security and health risks during food consumption in the Piura population is deficient, mainly due to the little or no perception of the risk of the population surveyed during the feeding. Sequentially, it has been concluded that the excess of kilocalories consumed by the abundant intake of foods rich in carbohydrates, starch, sugar, lack of knowledge about the development of metabolic diseases due to the repetitive consumption of rice, cassava coincides with the scarce and confusing nutritional information in food labels and the high death rate from diabetes and other coronary diseases.

Question No: 1

Do you know what the nutritional table is?





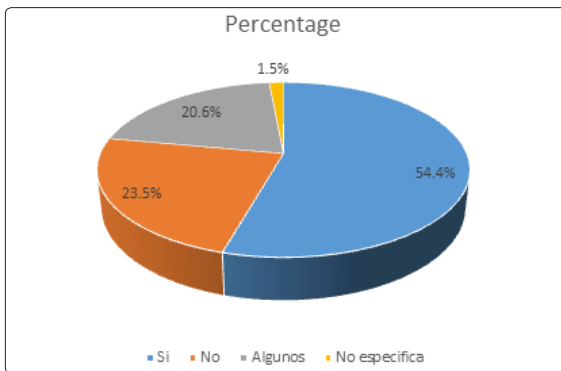
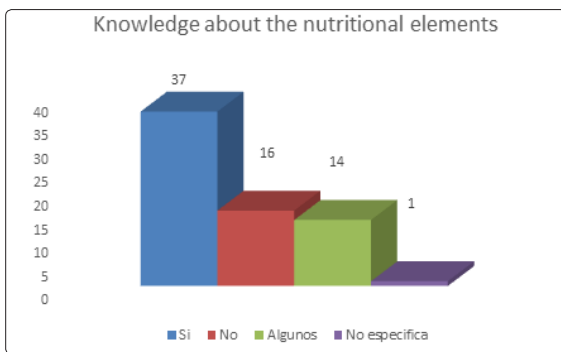
Source: Own Elaboration

Interpretation

In question No. 01, in its dimension of lack of information protection, it is observed that 79.4% of the 68 people surveyed; in numbers, equivalent to 54 users of the studied population, knows the nutritional table. In contrast, only 20.6% (14 people surveyed) of the users reported not knowing about the nutritional labels in the food.

Question No: 2

Do you know what the nutritional table is?



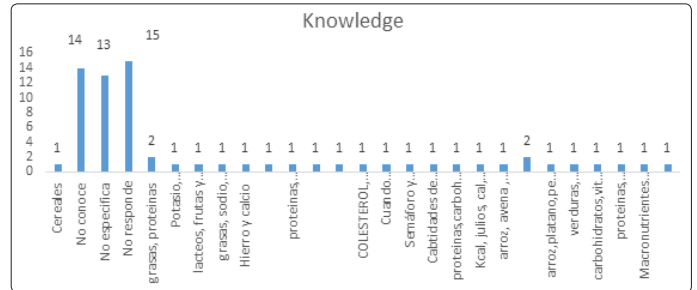
Source: Own Elaboration

Interpretation

In question no 2, with respect to the general knowledge about the nutritional elements present in food packaging, there are 37 interviewees who claim to know most of the nutrients that the food contains in its composition. In percentage terms, it represents 54.4% of the simple surveyed; compared to 23.5% (16) that does not know any ingredient at all, followed by 20.6% (14) that shows knowledge on some and finally 1.5% (1) of the survey edpopulation that does not specify, does not comment.

Question No: 3

In case Your answer is some, mention what you know?



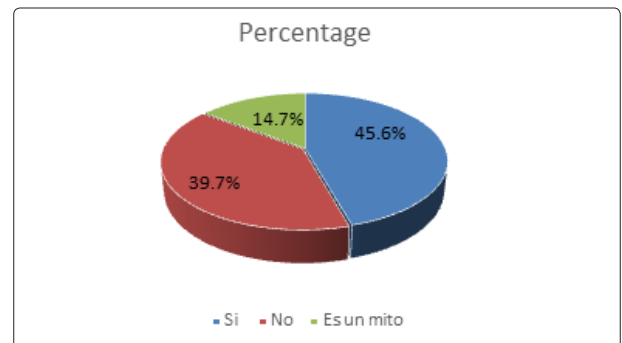
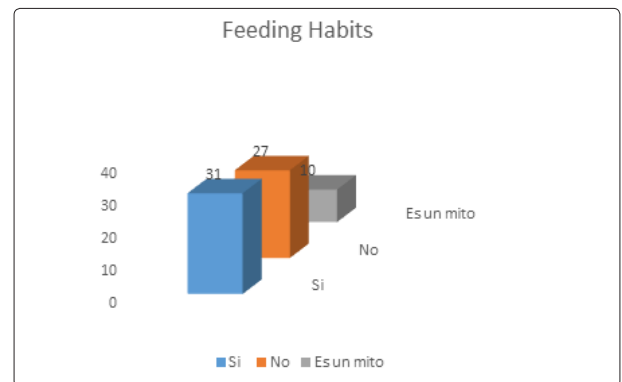
Source: Own Elaboration

Interpretation

Regarding the detailed question about the knowledge of some nutritional substances, it is observed that 15 people did not respond properly to the question, followed by 14 and 13 respondents who do not know or do not specify despite having answered affirmatively to the question "some". Correlatively, in hierarchical order you have 2 people who know the groups "carbohydrates, proteins, calcium", two others who have cognition about fats and proteins. Finally, the rest of the participants present dissimilar responses to the conventionally accepted group of nutrients: proteins, carbohydrates, fats and minerals.

Question No: 4

Do you think that by the repetitive consumption of rice, potato cassava, sweet potato, foods rich in carbohydrates can develop metabolic diseases such as diabetes?

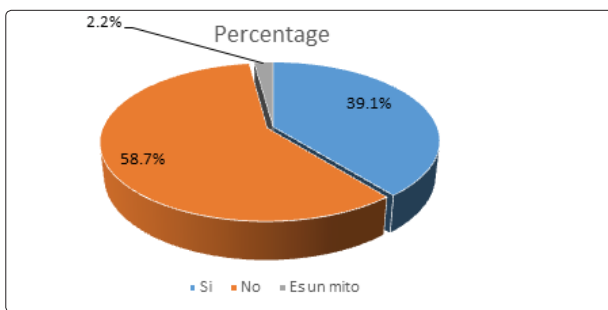
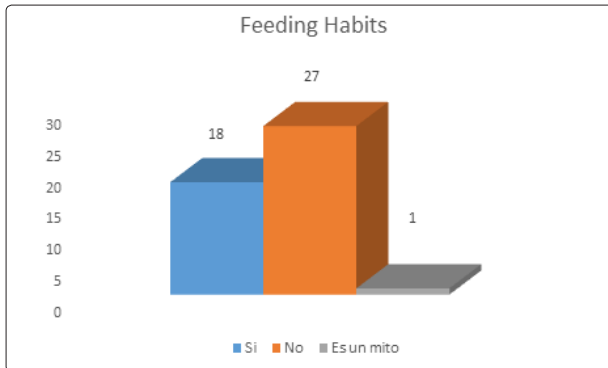


Source: Own Elaboration

Interpretation: In question no 4, in its dimension risks to health, there are 31 participant equivalent to 45.6% who are convinced that the reiterative consumption of foods rich in sugars, starch, carbohydrates constitutes a risk in the development of metabolic diseases such as diabetes. In contrast, we have 39.7% equivalent to 27 participants who affirm the opposite; finally it is observed that 10 people, whose percentage value represents 14.7% who believe that it is a myth.

Question No: 5

Do you think that low fat food (eg Yogurt Light) prevents coronary heart disease?



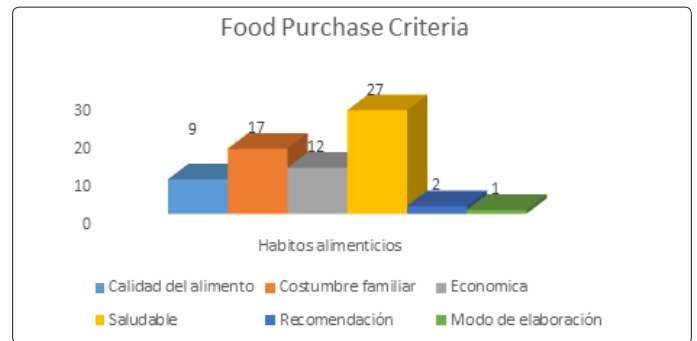
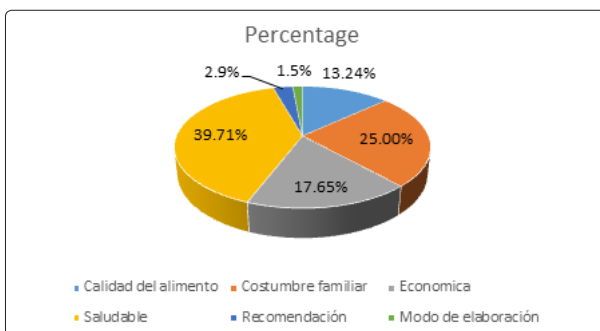
Source: Own Elaboration

Interpretation

In which concerns the question about the low fat foods as a preventive measure of coronary heart disease; it is observed that 27 of the people surveyed think that it doesnot prevent cardiovascular diseases in front of 18 participants that is a prophylactic measure. Finally 1 interviewee thinks it is a myth. In percentage terms it is distributed in a negative 58.7%, an affirmative 39.1% and a 2.2% rejection.

Question No: 6

What are your criteria for the selection of the food you eat?

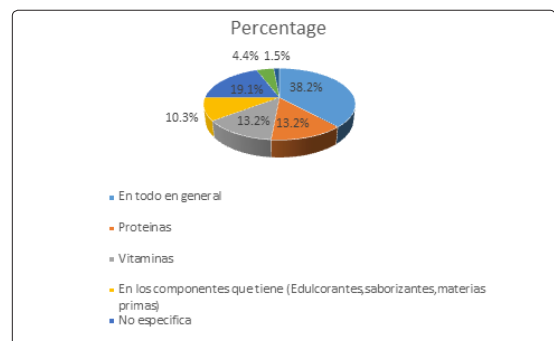
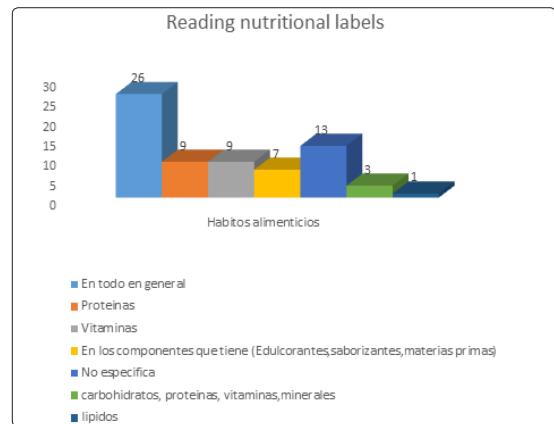


Interpretation

Referring to patterns of food consumption, it is observed that the main purchasing criteria are based on the healthy aspect with 39.71%, followed by a 25.00% "family custom", 17.65% for economic reasons, correlatively 13.24% "quality of the food", 2.9% by recommendation and finally 1.5% due to the ease of preparation.

Question No: 7

In case you have chosen the first option, what data is set to know that the food is healthy?



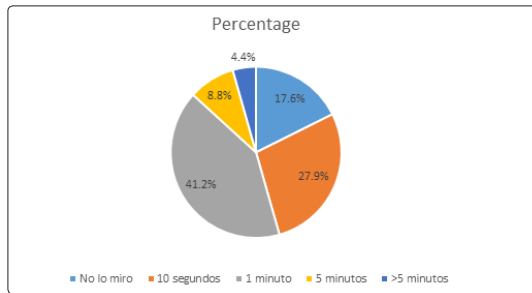
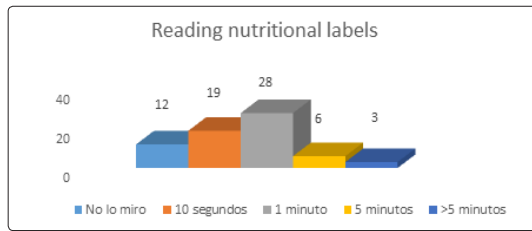
Source: OwnElaboration

Interpretation

Regarding the reading of the nutritional labels in the "food consumption" dimension, it is observed that to determine the healthy criterion, 38.2% of the participants look at everything in general, 19.1% do not specify reasons, 13.2% in vitamins and proteins respectively, 10.3% is fixed in the components it has (sweeteners, flavorings, raw materials), 4.4% in carbohydrates, proteins, vitamins and minerals; while 1.5% is fixed in the lipids.

Question No: 8

How much time do you spend for reading the nutritional label of the product before the purchase decision?



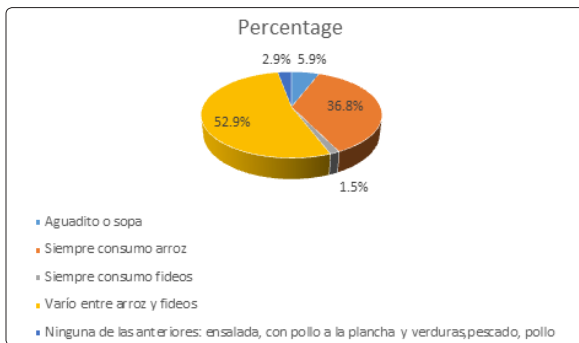
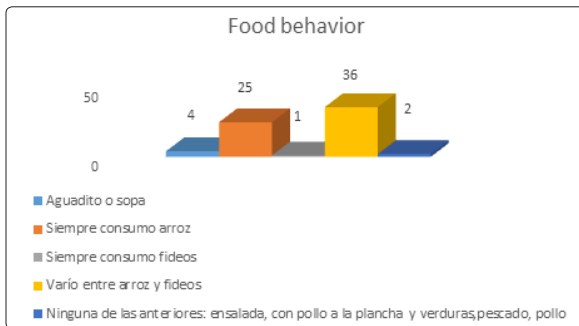
Source: Own Elaboration

Interpretation

Regarding the time devoted to reading the nutritional labels, it is envisaged that 41.2%, in numerical figures, 28 participants take 1 minute of time to interpret the nutrients and ingredients of the nutritional table, a 27.9 % (19 users) only 10 seconds, followed by 17.6% (12) not looking at the labeling of the container, 8.8% (6) 5 minutes and finally 3 consumers (4.4%) who stop more of five minutes to analyze it.

Question No: 9

With what food do you usually accompany lunch?



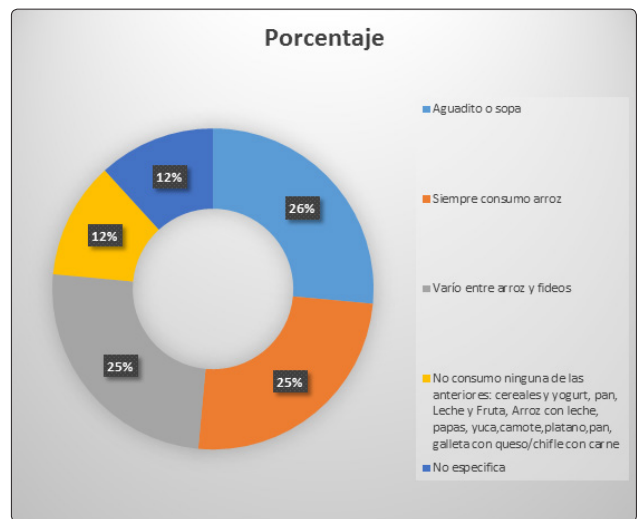
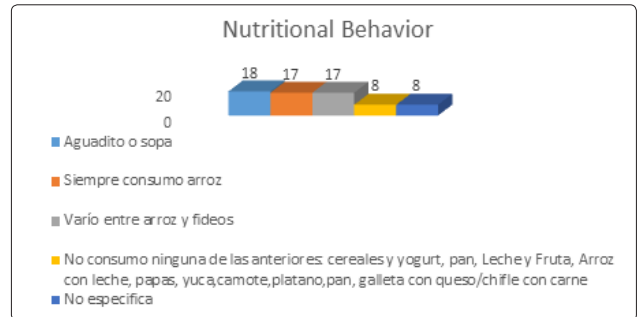
Source: Own Elaboration

Interpretation

In the field of eating habits of the target sample, it is appreciated that the vast majority of participants have the habit of varying between rice and noodles to accompany the daily lunch. Sequentially, in percentage and numerical figures it represents 52.9% and 36 consumers, all followed by 36.8% (25) of the population interviewed who always consume rice, 5.9% (4) eat aguadito or soup, 2.9% (2) marks the option "none of the above: salad with grilled chicken and vegetables, fish and chicken". Finally, 1.5% (1) always consumes noodles.

Question No: 10

With what food do you usually accompany for dinner?



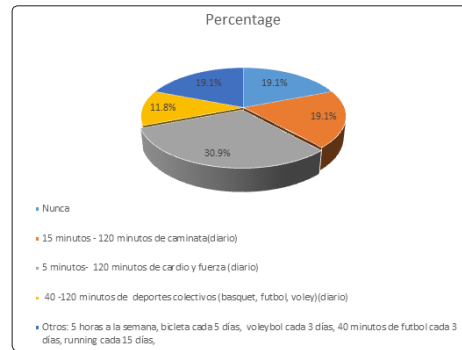
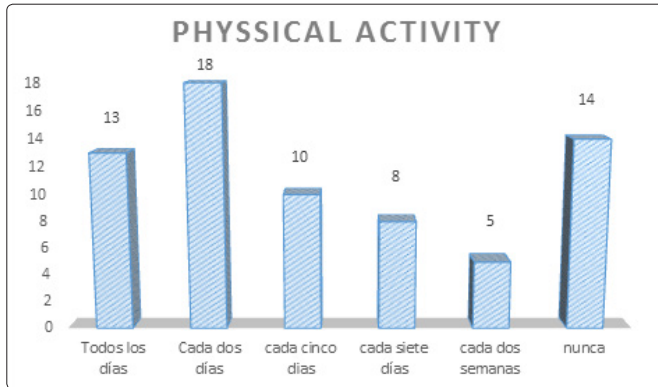
Source: Own Elaboration

Interpretation

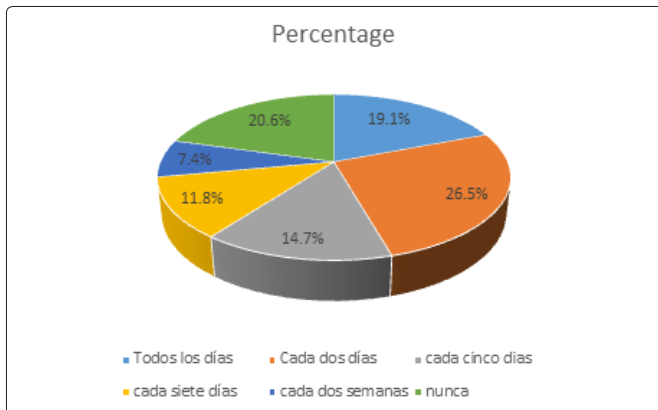
Continuing with the dimension "alimentary custom", it is known that most of them spend on the same accompaniment of the lunch during the dinner; 26% equivalent to 18 participants eat aguadito or soup, followed by 25% (17) repeated that always ingests rice and varies between rice and noodles, finally a repeated 12% (8) does not specify orders no teatany of the above : cereals with yogurt, bread, milk and fruit, rice with milk, potatoes, yucca, sweet potato, banana, bread, biscuit with cheese / chifle with meat.

Question No: 11

How often do you make exercise?



Source: Own elaboration



Source: Own Elaboration

Interpretation

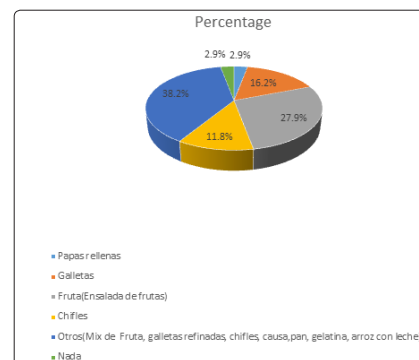
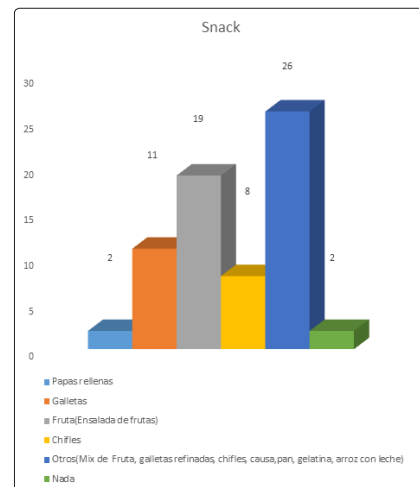
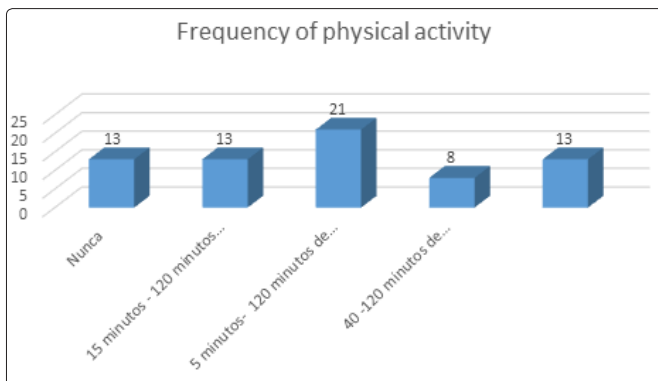
Referring to the physical activity, it is identified that the frequency with which participants perform physical exercise is very variable, establishing very long time ranges that start from a minimum of 5 minutes to every 15 days. Percentage and numerically are ordered as follows: 30.9% (21) performed between 5 to 120 minutes of cardio and strength on a daily basis, followed by a triple 19.1% (13) that never exercised, which allocates 15 minutes to 120 minutes of daily walking, and others that perform 5 hours a week, bike every 5 days, volleyball every 3 days, 40 minutes of soccer every 3 days and finally running every 15 days.

Interpretation

In reference to the "healthrisks" dimension related to physical activity, of the total of 68 respondents, it is identified that 18 participants (26.5%) perform physical exercise every two days a week, followed by 14 users (20.6%) that have a sedentary behavior, 19.1% (13) that practices portsdaily, 14, 7% (10) every five days, 11.8% (8) performed every 7 days and lastly 7, 4% (5) every two weeks

Question No: 12

How many minutes do you exercise? What exercises do you do?



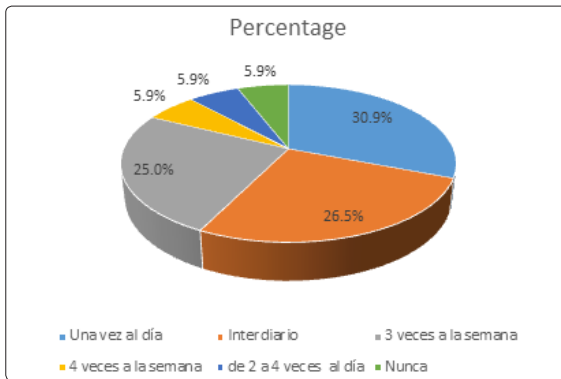
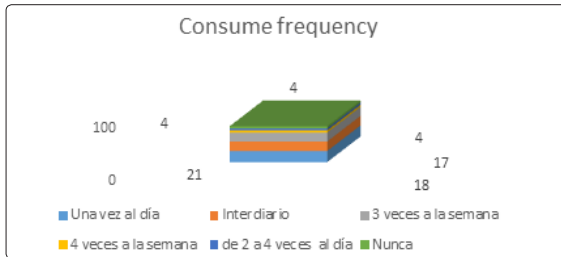
Source: Own Elaboration

Interpretation

Regarding the foods that consumers frequently ingest during the snack time, under the dimension of the alimentary habits, they are ordered hierarchically in the following way: 27.9% consume a mix of fruits, refined crackers, chifles, cause, bread, gelatin, rice pudding, preceded by 27.9% who eat simple fruit or fruit salads, 16.2% eat biscuits, 11.8% chifles, and 2.9% repeat that they eat nothing at all during the halftime.

Question No. 14

How often do you consume the snacks during the break time?



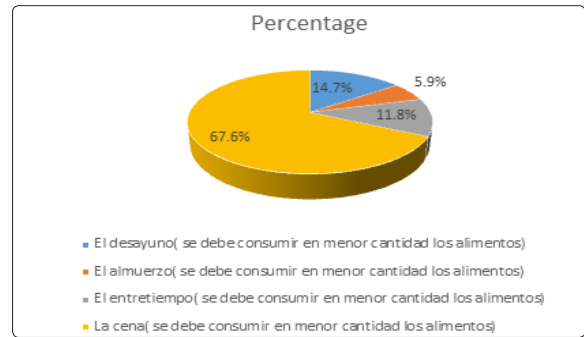
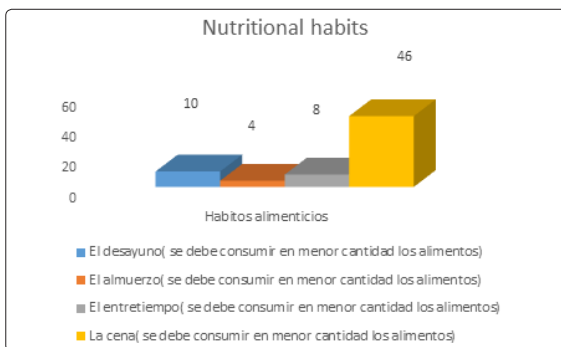
Source: Own Elaboration

Interpretation

In the figure no 14 shows that the frequency of consumption is very varied, whose periodicity ranges from once a day, Interlay, 3 times a week, 4 times a week, 2 to 4 times a day and never. Perceptually, it can be seen that 26.5% consume food interdiarily during the break, 30.9% eat daily, 25.0% 3 times a week and finally a repeated 5.9% eat snacks 4 times a day. Week, 2 to 4 times a day and never.

Question No. 15

What time do you think is most critical when it comes to consuming food?



Source: Own Elaboration

Interpretation

Regarding the question about the hierarchical categorization of diets, the major participants considered the dinner as the most critical time to eat (you must consume less). In order, 67.6% (46) preceded by 14.7% (10) indicating the breakfast option, 11.8% (8) indicates the halftime as the most important. Finally a 5.9% (4) opts for the lunch option.

Metabolic analysis of chocolate, chifle and carobsyrup

Analysis of acrilamde in carobsyrup

Figure No: 1

Maximum daily intake recommended for adults, when carob syrup is consumed with acrylamide						
		Male	Recommendeddaily Maximumintake			
		Moisture gr	42	42	42	42
		mg/kg	0.303	0.25	0.083	0.02
		mg	0.012726	0.0105	0.003486	0.00084
*Age	*Weight	IDA	MaximumAmmount to consume daily			
Years	Kg	mg				
23	45	0.225	17.68	21.43	64.54	267.86
24	45	0.225	17.68	21.43	64.54	267.86
65	47	0.235	18.47	22.38	67.41	279.76
28	48	0.24	18.86	22.86	68.85	285.71
24	48	0.24	18.86	22.86	68.85	285.71
55	50	0.25	19.64	23.81	71.72	297.62
23	50	0.25	19.64	23.81	71.72	297.62
56	50	0.25	19.64	23.81	71.72	297.62
64	50	0.25	19.64	23.81	71.72	297.62
27	50	0.25	19.64	23.81	71.72	297.62
51	50	0.25	19.64	23.81	71.72	297.62
23	51	0.255	20.04	24.29	73.15	303.57
23	55	0.275	21.61	26.19	78.89	327.38
28	55	0.275	21.61	26.19	78.89	327.38
28	55	0.275	21.61	26.19	78.89	327.38
22	55	0.275	21.61	26.19	78.89	327.38
24	55	0.275	21.61	26.19	78.89	327.38
20	56	0.28	22.00	26.67	80.32	333.33
22	57	0.285	22.40	27.14	81.76	339.29
21	58	0.29	22.79	27.62	83.19	345.24
21	58	0.29	22.79	27.62	83.19	345.24
20	59	0.295	23.18	28.10	84.62	351.19

43	60	0.3	23.57	28.57	86.06	357.14
22	60	0.3	23.57	28.57	86.06	357.14
31	60	0.3	23.57	28.57	86.06	357.14
20	60	0.3	23.57	28.57	86.06	357.14
24	62.5	0.3125	24.56	29.76	89.64	372.02
21	63	0.315	24.75	30.00	90.36	375.00
25	64	0.32	25.15	30.48	91.80	380.95
15	64	0.32	25.15	30.48	91.80	380.95
20	64	0.32	25.15	30.48	91.80	380.95
35	65	0.325	25.54	30.95	93.23	386.90
29	65	0.325	25.54	30.95	93.23	386.90
25	65	0.325	25.54	30.95	93.23	386.90
19	65	0.325	25.54	30.95	93.23	386.90
22	65	0.325	25.54	30.95	93.23	386.90
26	66	0.33	25.93	31.43	94.66	392.86
20	67	0.335	26.32	31.90	96.10	398.81
23	68	0.34	26.72	32.38	97.53	404.76
23	69	0.345	27.11	32.86	98.97	410.71
21	69	0.345	27.11	32.86	98.97	410.71
21	70	0.35	27.50	33.33	100.40	416.67
21	70	0.35	27.50	33.33	100.40	416.67
23	70	0.35	27.50	33.33	100.40	416.67
21	70	0.35	27.50	33.33	100.40	416.67
20	72	0.36	28.29	34.29	103.27	428.57
21	73	0.365	28.68	34.76	104.70	434.52
21	73	0.365	28.68	34.76	104.70	434.52
27	74	0.37	29.07	35.24	106.14	440.48
21	74	0.37	29.07	35.24	106.14	440.48
21	74	0.37	29.07	35.24	106.14	440.48
19	75	0.375	29.47	35.71	107.57	446.43
26	75	0.375	29.47	35.71	107.57	446.43
22	75	0.375	29.47	35.71	107.57	446.43
22	76	0.38	29.86	36.19	109.01	452.38
19	77.8	0.389	30.57	37.05	111.59	463.10
18	80	0.4	31.43	38.10	114.74	476.19
43	80	0.4	31.43	38.10	114.74	476.19
19	80	0.4	31.43	38.10	114.74	476.19
19	80	0.4	31.43	38.10	114.74	476.19

19	82	0.41	32.22	39.05	117.61	488.10
0	82	0.41	32.22	39.05	117.61	488.10
24	82	0.41	32.22	39.05	117.61	488.10
23	83	0.415	32.61	39.52	119.05	494.05
22	90	0.45	35.36	42.86	129.09	535.71
23	90	0.45	35.36	42.86	129.09	535.71
28	95	0.475	37.33	45.24	136.26	565.48
33	100	0.5	39.29	47.62	143.43	595.24

Source: Own Elaboration

Used Formula: COAA=CAA (ug/Kg)*KgCA/Kg * person * day

Interpretation

Table 1 shows the 42 gram portions of carob syrup, which indicates that the greater portions of carob syrup to be consumed the lower the amount of acrylamide found in the carob; Indicating that its manufacturing processes are the best favored by the company with greater purchase because the information that companies hide in Peru is due to their poor manufacturing practices. As the weight of the consumer increases, the portions to be consumed of carob syrup are increasing, which is why the quantification of acrylamide should be reported on the label as a quality parameter for the consumer's food safety guarantee. No company in Peru shows on its labels or labeling the acrylamide content nor is it present in Peruvian Technical Standard 209.600.

Chocolate and Chifle Analysis

Figure No: 2 Chemical Essay Chifle

Essay	Results
Hidroximetilfurfural(mg/kg)	0.2

Picture No: 03 Chocolate Chemical Essay

Essay	Results
Hidroximetilfurfural(mg/kg)	9.10

Interpretation

In the sample of chocolate milk with peanutsonits label does not mention any quantifiable content of substances that are presumed to be toxic. According to Table 02, it is shown that milk chocolate with peanuts has a hydroxymethylfurfural content of 9.10 mg / kg (See Annex 01). Similarly, in the sample of chifles (fried plantains)

Average daily Intake

STANDARD BREAKFAST	CHOS	kcal	SATURED FATS	POLIN FATS	MONOSAT FATS	COLEST	Na	K	FATS	PROT	IDR
100 OAT GRAMS	66.27	389	1.217	2.535	2.178	0	2	429	6.9	16.89	19
2 FRIED EGGS	0.86	180	3.6	2.4	5.4	420	476	134	12.5	12.48	8
1 MILK CUP	11	146	4.5	0.5	2	24	98	359	7.93	7.86	7
STANDARD LUNCH	CHOS	kcal	SATURED FATS	POLIN FATS	MONOSAT FATS	COLEST	Na	K	FATS	PROT	IDR
250 RICE GRAMS	200	912.5	0.45	0.4425	0.515	0	12.5	287.5	1.65	15.3295	45
113 FRIED CHICKEN GRAMS	0	220	2.5	1.86	3.4	94	444	275	8.72	33.39	11
1 FRIED PLANTAIN	80.44	562	4	14	9.8	0	11	1133	29.6	3.3	28
3 INKA COLA GLASS	105	400	0	0	0	0	45	21	0.21	0.75	21
STANDARD DINNER	CHOS	kcal	SATURED FATS	POLIN FATS	MONOSAT FATS	COLEST	Na	K	FATS	PROT	IDR
250 RICE GRAMS	200	912.5	0.45	0.4425	0.515	0	12.5	287.5	1.65	15.3295	45
100 SWEETBREAD GRAMS	0.6	116	0.7	1	1.7	239	157	214	4.2	18.2	6
1 FRIED PLANTAIN	80.44	562	4	14	9.8	0	11	1133	29.6	3.3	28
50 MENESTRA GRAMS	3.6	22	0.07	0.07	0.2	0.5	70	85	0.38	1.13	1
TOTAL	748.21	4422	21.487	37.25	35.508	777.5	1339	4358	103.34	127.959	219

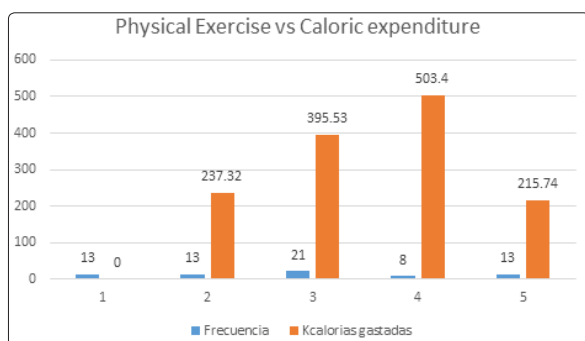
Source: Data obtained from standard nutritional surveys and tables

Interpretation

In the present table Nr 03 it is observed that the amount of grams of carbohydrates consumed daily is 648 of the total 979,509 contemplated in the sum of the macromolecules (proteins, fats, carbohydrates). Also the WHO is considered to be consumed 55 at 75% average daily carbohydrates; in the Piuran community, this recommendation is exceeded since the percentage consumed is 76.38%, which affects the health of the population, causing possible chronic diseases such as diabetes. Mainly the causative factors are the high intake of rice during all the diets of the day. On the other hand, it is recommended that the percentage of proteins with respect to calories be between 10-15% according to WHO. Similarly, 11.55% of the established range has been obtained. As for fats, it is between 15% and 30%, specifically at a value of 10.55%, well below the percentage set by the World Health Organization. The average kilocalories ingested by the surveyed population is 4422 kilocalories per day, however WHO establishes a range of 2250 to 3800 kilocalories per day according to the TMB factor (average energy needs according to physical activity).

Relationship between metabolic index activity and average daily intake

Picture Number 1



Picture No: 05 Question about frequency and type of physical activity

Options	Frecuency	Percentage	Mets	Kcalories consumed
Never	13	19.1%	0	0
15 minutes – 120 minutes walking (daily)	13	19.1%	3.3	237.32
5 minutes- 120 minutes de cardio and strength (daily)	21	30.9%	5.5	395.53
40 -120 minutes of collective (vóley, footballl, basketball)(daily)	8	11.8%	7	503.4
Others: 5 Hours per week, bicycle every 5 days, voleyball every 3 days, 40 minutes of football every 3 days, running every 15 days.,	13	19.1%	3	215.74
Total	68	100.0%	3.76	270.39

Source: Data obtained from the WHO and Own Elaboration

Formula Used: Kcal/min = MET x 0,0175 x weight (kg)

Interpretation

Referring to the graph, the frequency and type of physical activity it is observed that the majority of respondents spend 395.53 kcal per day. However, the total average of the whole population consumes 270.39 kcal during the day. If to these 270.39 kcal (average) is added 1572.74 kcal of basal metabolism (See Table 05) results in 1843.13 kcal of daily expenditure. Correlatively, the present figure correlated with the 4422 kcal (see table nr 03) ingested daily, manifesting an excess of 2578.87 kcal unspent which will be transformed into fats and blood glucose. This factor will produce a high percentage of people at risk of suffering from metabolic diseases.

Figure No 6: Metabolic Basal Tax

Sexo	Tamaño (cm)	Peso(kg)	Edad (años)	TMB
Man	179	64	23	1648.75
Woeman	160	65	24	1535
Man	166	90	65	1617.5
Man	168	73	28	1645
Man	165	70	24	1616.25
Man	167	66	55	1433.75
Man	174	90	23	1877.5
Woeman	168	60	56	1375
Man	170	80	64	1547.5
Woeman	163	58	27	1468.75
Man	182	82	51	1707.5
Man	160	50	23	1390
Man	165	45	23	1371.25
Man	180	70	28	1690
Woeman	175	75	28	1708.75
Woeman	162	67	22	1577.5
Woeman	170	64	24	1587.5
Woeman	146	47	20	1287.5
Woeman	165	69	22	1616.25
Man	167	80	21	1743.75
Woeman	160	55	21	1450
Man	172	69	20	1670
Woeman	160	75	43	1540
Man	168	95	22	1895
Woeman	175	59	31	1533.75
Woeman	153	55	20	1411.25
Man	170	60	24	1547.5
Woeman	168	55	21	1500
Man	164	65	25	1555
Woeman	162	57	15	1512.5
Man	170	60	20	1567.5
Man	174	80	35	1717.5
Woeman	164	82	29	1705
Man	171	74	25	1688.75
Woeman	150	48	19	1327.5
Woeman	154	56	22	1417.5
Man	162	80	26	1687.5
Man	183	72	20	1768.75
Man	168	65	23	1590
Man	190	65	23	1727.5
Woeman	145	55	21	1356.25
Man	156	55	21	1425
Woeman	160	60	21	1500
Woeman	162	64	23	1542.5

Woeman	150	50	21	1337.5
Woeman	147	45	20	1273.75
Man	163	73	21	1648.75
Woeman	188	75	21	1825
Man	178	83	27	1812.5
Man	185	70	21	1756.25
Man	170	65	21	1612.5
Woeman	152	50	19	1360
Man	172	76	26	1710
Man	169	63	22	1581.25
Woeman	162	74	22	1647.5
Man	155	50	0	1473.75
Man	169	70	0	1761.25
Man	168	77.8	43	1618
Woeman	150	48	19	1327.5
Woeman	151	50	19	1353.75
Woeman	152	51	19	1370
Woeman	157	74	0	1726.25
Woeman	153	62.5	24	1466.25
Woeman	167	58	23	1513.75
Man	162	55	22	1457.5
Man	173	82	23	1791.25
Woeman	160	68	28	1545
Man	169	100	33	1896.25
AverageTax of basal Metabolism (TMB)				1572.74

Source: Own Elaboration

Used Formula: Mifflin y StJeor TMB= (10 x Weight in Kg) + (6,25 x Heightin cm) – (5 x agein years) + 5

Conclusions

Conclusion 01: The relationship between information deprivation on food security and health risks during the consumption of food in the Piura population is deficient, while the consumer perceives the food habit as a nonexistent risk to his health, even though there are statistical data of high rates of metabolic diseases associated with the traditional diet.

Conclusion 02: The population of Piura manifests a deficient scientific literacy rate in terms of the adequate interpretation of the nutritional table and therefore does not know the handling and treatment of the foods that it selects for its consumption. The consumer is based more on a family habit for food purchase and therefore does not present a technical criterion according to what is required by the basal metabolism.

Conclusion 03: The most common dietary diet in Piurans is based on a high-calorie diet with a high glycemic value that is caused by the high percentage of population from the mountains whose diet was based on twelve hours of heavy agricultural workday. This custom has been maintained in a sedentary society that is only able to burn a daily average of 220 kcal caused by the low exercise activity. This diet rich in carbohydrates is the cause of several metabolic diseases associated with a deficient diet, in this case in excess. No

behavior of rejection to this food habit is perceived despite the existence of studies that demonstrate the presence of metabolites harmful to health.

Conclusion 04: It is identified an carbohydrates excess and kilocalories consumption by the person due to cultural factors such as sedentary lifestyle, overweight, excessive alcohol, tobacco and poor diet; and a high concentration of carcinogenic metabolites with genotoxic potential such as hydroxymethylfurfural and acrylamide found in products of the Piuran family basic basket such as chifle, carob and sublime chocolate. In figures, the excess of carbohydrates of 423.21 grams, of 4422 kilocalories and the presence of one thousand six hundred times more of acrylamide (83-303 ug / kg) over the maximum limit established by the WHO (0.004ug / kg-0.05 ug / kg), not officially declared by the companies in their nutritional labels, are due to the use of the low level of popular cognition about the nutritional technical language present in the food information for the concealment of these potentially harmful substances in public health. Consequently, nutritional labeling is obviating the acceptable daily intake of these foods considering the presence of the aforementioned metabolites [1-7].

Future directions

Recommendation 01: Implement education and food security campaigns that provide citizens with the necessary tools to differentiate between a harmful food and a healthy one. The proposal is aimed at an "upstream engagement" of the layman with participation in public policies related to food safety.

Recommendation 02: Develop a virtual labeling attached to the food packaging that reports the potential damage of an excessive consumption of nutrients as well as the benefits that this provides. Implement a section that stipulates the exact grams by weight, age, height, sex, metabolic activity recommended for each food as well as the maximum daily allowable intake for the purpose of an agreement between the basal metabolism and daily caloric expenditure. Likewise, deploy a three-dimensional pentagon on the labeling, pointing out the excesses of each product in a very visual and clear way (See Annex 1).

Recommendation 03: Establish healthy eating campaigns that encourage the incursion into a new diet adapted to the cosmopolitan

quality adopted by the Piuran citizen of the sierra; so that the consumption is in order to its daily activity.

Recommendation 04: Establish a new legislation in Indecopi (National Institute for the Defense of Competition and Protection of Intellectual Property) that requires food companies to quantify carcinogenic metabolites with genotoxic potential as a quality parameter in the Peruvian Technical Standard as a warning and precaution for the protection of the citizen. Likewise, indicate the ways of conservation, preparation and storage of the food that is appropriate to its stability and safety so that it does not cause health problems for the consumer. In addition to declare mandatory that nutrients are in large proportions in that food so that the consumer can have informed food consumption.

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