THE OPINION OF THE FAMILY ABOUT THE PERFORMANCE OF THE SCHOOLCHILD BRINGING KNOWLEDGE TO HIS/HER OWN FAMILY: STATISTICS ON PREVENTION OF MOUTH CANCER

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The "Statute of the Child and Adolescent", 8.069 Federal Law of 1990, ensures that children and adolescents should have basic rights to health care and they should have some participation in decisions of their interest. This research aims to verify whether the schoolchildren are capable of transmitting some knowledge of statistics and health to their families. It was a non-probabilistic and intentional sampling of very low socio-economic public school. A questionnaire was answered by the schoolchildren. Lectures using data in a real context in order to improve the planning on the family budget and good habits were carried out. The schoolchildren were provided with educational materials to use them with their family. The schoolchildren were assessed again and the parents were interviewed. The result showed that there was improvement in the number of the schoolchildren's right answers and the families confirmed that the students spread this knowledge to their home.

INTRODUCTION

The Statute of the Child and Adolescent (ECA), 8.069 FEDERAL LAW OF 13 JULY 1990, Brazil, treats of their full protection in which they are regarded as people in the peculiar situation of development, subject to rights and recipients of the highest priority in the formulation of public policies. Due to their peculiar condition of people in development the family, community and the public authority involved in the operationalization of these policies are responsible for their formulation, implementation, monitoring and supervision. Taking the articles of the ECA into consideration, we believe that children and adolescents should participate in their family lives as well as be stimulated to act as disseminators of knowledge within their own families.

The subject matter is oral cancer which although not one of the most frequent, ranks eighth cause of death among the different types of cancer in the world. Research shows that at least 75% of patients diagnosed with oral cancer are smokers (Sundefeld et al., 2001). Still, when there is a combination of cigarette and alcohol, the risk of developing this type of cancer can increase considerably. (Vasconcellos & Silva, 2000).

In a second study, the researchers found that most people have no knowledge about oral cancer and are unaware of the risk factors for this disease (Sundefeld et al., 2002). The study also found out the lack of knowledge about percentage, means, chart and some simple indices of health.

This research aims to check whether a teenager who is aware of the value of self-examination and the risk of factors for oral cancer is able to disseminate the acquired information to their family members bringing basic notions of oral cancer prevention as well as basic notions of statistics.

MATERIALS AND METHODS

Target population: The sample, non-probabilistic and intentional, was drawn from very low socio-economic sixth graders of a public school, who live in a poor neighborhood of Araçatuba, SP, Brazil and their parents or guardians in 2008 and 2009. A questionnaire of multiple choice questions was applied to all of the sixth graders of a selected school and their families. Those selected for this study were the ones who showed the lowest levels of knowledge. In 2008 and 2009 two Biostatics trainees went to the school once a week for three months, giving lectures to the students.

The methodology sequence was: 1- It was applied a questionnaire to assess the students` level of knowledge and their families; 2- There were lectures to the students about concepts of health with emphasis on oral cancer, and basic notions of applied statistics for this area of health; 3- Educational materials were distributed to the students to facilitate the transmission of

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knowledge; 4- There was re-evaluation using the same questionnaire on knowledge acquired by the students; 5- The comparison of the data in both stages was made applying the qui-square test; 6- The families were interviewed. All this study was developed under the terms of consent and acceptance of participation in the research.

RESULTS AND DISCUSSION

The questionnaire given to sixth graders of a public school consisted of 30 items. Four of them investigated their experience on living with people with cancer. The other items were on knowledge about cancer, risk factors, type of treatment and basic notions of statistics. Some items of these areas of knowledge are presented in this paper. In all the tables the significant statistical level was 5% represented by the symbol *.

Table 1 shows the number and percentage of correct answers to the six questions below, in two consecutive years of this research and the p value of the test applied. The questions are:

1- What is oral cancer?
2- Can mouth cancer be cured?
3- What do you think mouth cancer looks like?
4- What kind of skin do you think most influences the onset of lip and face cancer?
5- Which or what symptom(s) do you think has/have to do with mouth cancer?
6 -Which gender does oral cancer affect more frequently?

Table 1. Correct answers of the items related to cancer knowledge in the first and last application of the questionnaire in 2008 and 2009, and the results of the qui-square test

Items	2008			2009		
	First application	Last application	χ^2 test p value	First application	Last application	χ^2 test p value
1	7 (14.0%)	11 (34.4%)	χ^2=4.73 p=0.0297*	8 (14.0%)	26 (53.1%)	χ^2=18.42 P<0.0001*
2	27 (54.0%)	27 (84.4%)	χ^2=8.01 p=0.0046*	32 (56.1%)	43 (87.8%)	χ^2=16.45 P<0.0001*
3	17 (34.0%)	18 (56.2%)	χ^2=3.95 p=0.0469*	15 (26.3%)	26 (53.1%)	χ^2=7.62 p=0.0057*
4	7 (14.0%)	11 (34.4%)	χ^2=4.73 p=0.297	14 (24.6%)	18 (36.7%)	χ^2=1.85 p=0.1735
5	6 (12.0%	4 (12.5%)	χ^2=0.08 p=0.7807	10 (17.5%)	24 (49.0%)	χ^2=11.95 p=0.0005*
6	17 (34.0%)	14 (43.8%)	χ^2=0.79 p=0.3744	11 (19.6%)	42 (85.7%)	χ^2=46.000 p<0.0001*
Total	n=50	n=32		n=57	n=49	

Based on this subject, the lectures showed charts according to the data from the Instituto Nacional do Câncer (INCA) from Brazil using the frequency and the percentage.

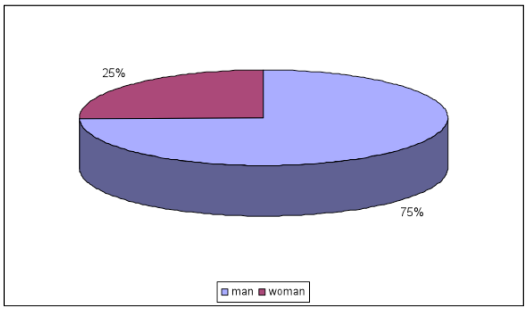

Figure 1. Percentage of oral cancer in Brazil according to gender (2006)

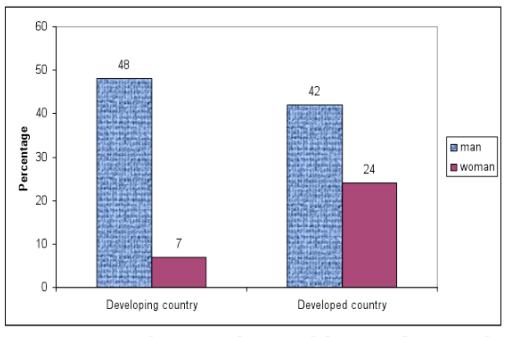

Figure 2. Smoking in the world according to the development level of the country (2006)

Several pie and column charts, such as the ones above (figure 1 and figure 2), were presented to the students. Before the presentation of those charts, we asked what they read the most in newspapers and magazines. In the first questionnaire, 7.8% answered they look at the charts; in the last questionnaire the percentage of looking at the charts increased by 18.8% as a result of students' interest during the lectures. We asked if the students were interested in understanding some charts. In the first questionnaire, 58.8% said yes and in the last questionnaire, 75% confirmed this interest.

The basic notions of percentage were introduced using the information about knowledge of cancer, as the following example: "In a city of 40,000 inhabitants 4 people have mouth cancer. What is the percentage of this disease in this city?"

In table 2, the questions related to risk factor asking about smoking and alcohol.

1- Can smoking cause oral cancer?

2- Can smoking associated with the consumption of alcohol cause mouth cancer?

Table 2. Correct answers of the items concerning risk factor, number and percentage in the first and last application of the questionnaire in 2008 and 2009

Items	2008			2009		
	First application	Last application	χ^2 test p value	First application	Last application	χ^2 test p value
1	10 (20.0)	5 (15.6)	χ^2=0.250 p=0.6171	14 (24.6)	31 (63.3)	χ^2=16.16 P<0.0001*
2	12 (24.0)	7 (21.9)	χ^2=0.05 p=0.824	10 (17.5)	24 (49.0)	χ^2=11.95 p=0.0005*
Total	n=50	n=32		n=57	n=49	

Although the two items didn't have statistically significant differences in 2008, they did in 2009. We notice that the trainees were able to transmit knowledge to more students.

The educational materials applied were developed using real situations of their lives. An example:

"A pack costing $2,00 has 20 cigarettes. If an adult smokes 5 cigarettes a day: how much does he spend a day?; how much does he spend a week?; how much does he spend a month?"

"Instead of buying 1 pack of cigarettes a day, what could a person buy with the same amount of money a month? Type the amount in the boxes completing this value with things that may help to prevent cancer: Tomato $1.20 ( ); Apple $0.90 ( ); Carrot $ 0.50 ( ); Tooth paste $ 1.00 ( ); Orange $1.00 ( ); Broccoli $ 0.60 ( ); Banana $ 0.80 ( ); Dental floss $ 4.00 ( )."

Table 3 shows the items related to the statistics calculation. The percentage of correct answer in 2008 and 2009 were different in all items. In 2009 the schoolchildren learned more than in 2008 since in the proportion test, the p values were all less than 0.05. The questions are:

1- If 4 people have mouth cancer in a city of 20,000 inhabitants, what is the percentage of this disease?

2- If 2 people have lip cancer in a city of 20,000 inhabitants, what is the percentage of this disease?

3- Calculate the average age of three people: One is 10 years old, another 12 and the other 8.

4- If a class has 30 boys and 50 girls, calculate the percentage of the girls.

5- If a class has 30 boys and 50 girls, calculate the percentage of the boys.

After the end of each year, one parent or guardian of each family was interviewed to give his/her opinion about the behavior of the schoolchild at home. In 2008, only 14 families were interviewed and in 2009, 30 families. When they were asked "what do you think about this project?" some parents expressed literally the following: "I thought it cool, because I have always smoked, and he gets this information at school and tells me about it. It is good for me to stop smoking."; "I think that the subjects I didn't have the chance to learn, my son is teaching me now."; "I liked her commenting it with me. I learned a lot."; "It is a very good initiative."; "It was

very good, as we didn't have any knowledge of it."; "It is an important initiative for the knowledge of my nephew."; "It is very good. He brings knowledge home."; "Good, because it brings knowledge to prevent cancer"; "We are always commenting on the lectures." Although few parents answered the items concerning basic notions of statistics correctly, they showed great enthusiasm in learning them.

Table 3. Correct answers of the items concerning basic notions of statistics, number and percentage in the first and last application of the questionnaire in 2008 and 2009

Item	2008			2009		
	First application	Last application	χ^2 test p value	First application	Last application	χ^2 test p value
1	9 (25.0)	17 (56.7)	χ^2=8.75 p=0.003*	8 (23.5)	42 (85.7)	χ^2=41.77 p<0.0001*
2	13 (34.2)	14 (46.7)	χ^2=1.36 p=0.243	11 (34.4)	45 (91.8)	χ^2=35.78 p<0.0001*
3	8 (29.6)	22 (75.9)	χ^2=15.84 p<0.0001*	2 (7.1)	43 (93.5)	χ^2=79.77 p<0.0001*
4	0 (0.0)	15 (60.0)	χ^2=41.33 p<0.0001*	0 (0.0)	36 (97.3)	χ^2=102.05 p<0.0001*
5	0 (0.0)	16 (61.5)	χ^2=41.33 p<0.0001*	0 (0.0)	36 (97.3)	χ^2=102.05 p<0.0001*
Total	n=50	n=32		n=57	n=49	

CONCLUSION

Raising the awareness of the parents to the notions of statistics on health was a great initiative proposed by this project. The interrelationship between school and the schoolchildren's families could have been higher, as long as we had extended the time preparing the students to be the diffusers of knowledge within their own families.

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