

Health Education for Children
Developing a New Strategy

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Summary

The present status of health education in the first level schools has been investigated in Rio de Janeiro. Emphasis was given to the teachers' and students' concepts of health. The data was used as a basis to develop instructional materials in order to improve the health education for young children. The strategy consists in using a story format combining literature and didactic contents to present different aspects of the health information. Preliminary results show that the instructional material is serving its purpose.

Introduction

Systematic research about health has been recommended by the World Health Organization (1969) in order to improve the educational programs and the relationship of health behavior for a person's beliefs and attitudes. According to

Gochman (1971) "If health educators knew more about the 'organization' of various health beliefs at different ages, they might plan programs with optimally effective content and timing." The importance of identifying students' conceptual knowledge and beliefs and the use of this information in planning the materials and strategies for learning was also pointed out by Novak (1977).

Kalmins and Love (1982) emphasized that researches on children's health beliefs from the cognitive developmental perspective, had demonstrated that the quality of children's thoughts about health changes as a function of cognitive development. In this way, the study of Bibace and Walsh (1980) described three major types of explanation consonant with Piagetian stages of cognitive development. The authors found two kinds of prelogical explanation of illness: phenomism and contagion, that reflect children being overly swayed by the immediacy of some aspects of their perceptual experiences. The concrete logical reasoning is manifested in children between 7-10 years of age and reflects an accentuation of the differentiation between what is internal and what is external to the self. The authors also pointed out two explanations of illness characteristic of this age group as: contamination, and internalization. From these results the authors commented that children's books on illness most often are based on adult's construction of how children must think about such phenomena rather than on empirical data revealing how children actually think. They also observed that educational materials are usually written without taking into consideration specific

variations in understanding among children at different levels of cognitive development. Researchers who had investigated the formation of health concepts suggested that the understanding of children's health concepts is a prerequisite for health education programs for children. Blos (1978) has affirmed that it is necessary for adults to comprehend how children think so that they can elicit information about children's way of thinking and correct any wrong conclusions.

Several studies have demonstrated that the younger children need some concrete external cues in order to understand what is happening to them when they are ill (Neuhauser et al, 1978). Kalmins and Love (1982) also mentioned that children can judge from other people only by external cues. Bibace and Walsh (1982) suggested that the younger children would focus primarily on external observable events. The latter authors concluded through their studies that the degree of personal control one perceives is directly related to his cognitive developmental status. So, children's sense of personal control increases with the degree of development. Neuhauser indicated that the personality factor of locus of control influenced the children's responses to the more abstract situation. Besides this, Gochman (1972) commented that health motivation plays a role in organizing health relevant beliefs. In his opinion, health behavior must be viewed as an interaction of three determinants of a person's perception: perceived vulnerability, perceived seriousness and perceived benefits. The perception of vulnerability refers to a person's expectancy of being susceptible to some health problems. The seriousness perception denotes the degree to which

he believes that encountering this problem will have severe consequences for him. Perceived benefits refers to the expectancy that certain behaviors will lead to desired health outcomes. According to Gochman (1972) high levels of perceived vulnerability, seriousness and benefits presumably interact to increase the likelihood of a person taking or intending to take some health action. Then, he emphasizes that teaching might be geared more towards increasing the children's perception of vulnerability to health problems to some level that might affect their behavior rather than toward teaching particular facts about diseases. But, Kalmins and Love (1982) commented that these suggestions raise some serious ethical questions for health education. It may be justifiable to increase an individual's perception of vulnerability when there is data based in reasons to suspect risk and when there are specific recommendations which will reduce the vulnerability.

In this way, research might be undertaken to determine whether some high risk groups have low expectancies of encountering a variety of health difficulties, and if those perceptions act as a barrier to preventive or adaptive health behavior.

It is important to take into consideration that no evidence was found that the acquired knowledge may be translated into health behavior actions among children. Rothman and Byrne (1982) pointed out that the experience of health educators have been that the knowledge of health or health practices can be increased but the translation of such knowledge into attitude and behavior has been difficult and mostly unsuccessful.

All the studies recommend the necessity of beginning health education in earlier grades in order to obtain some improvement. Gochman demonstrated that a general concept of health may be too abstract for the young child to grasp. According to him, "because specific illness or accidents (for example, cut fingers and colds) are concrete, tangible components of the child's experience, they are more readily integrated into his perceptual system." He pointed out that longitudinal research has confirmed the stability of a person's expectancies of illnesses and accidents, then attempts to change the level of a perceived vulnerability conceivably might begin far earlier in the person's life. This affirmative can be reinforced if it is considered the relatively lower degree of consistency observed in children under ten years as commented by Gochman (1972) and then, they might be more receptive than older ones to educational programs designed to change these expectancies. The author recommended that health education programs for children in the fourth grade or below oriented to a variety of specific diseases or health difficulties might be more effective than programs geared to a concept of health as something above or beyond the absence of disease.

From these perspectives, the objective of this project has been to survey the present status of health education in both public and private first level schools of Rio de Janeiro. Emphasis was given to teachers' and students' concepts of health and illness for the development of health education materials proper to primary schools.

Method

The plan consisted of interviewing teachers and students from a total of 30 schools in Rio, 15 of which are private, and 15 of which are public. Additionally, the schools were subdivided into three 10 school groups, each one representing one of the city regions: North, South and East. So far, only results from the Northern area have been compiled and analyzed. The sample of teachers included 98 from primary schools and 23 from junior high schools and 398 students from all grades (first to eight grade) of the first level schools (196 from private and 197 from public schools).

The students' age ranged from 7 to 18 and they came from all social classes. They were chosen by a random way in each school, and the public and private schools were matched by the social-economic conditions and locations.

The first and the second grade students were interviewed informally, whereas the other students and teachers completed a questionnaire that included questions concerning basic knowledge about health, opinions and attitudes. (Table I)

The teachers and students were assured of anonymity and confidentiality, and were also allowed to decline participation whenever they wished.

One of the questions about health asked to teachers and students was: "In your opinion, what is health?" The total of answers from the sample was organized into categories in order to obtain a quantitative analysis about the way teachers and students describe health and the cognitive

elements they use in their description of health. Each category was defined in an operational way, so as to guarantee the objectivity of the analysis. To define the categories, it was taken into consideration not only their contents but also the form, so that both the meaning and the richness of the answers were not lost.

Every answer from each person could be included in more than one category, if there was more than one kind of idea presented in it. Thus, the total number of answers could be more numerous than the total number of subjects interviewed.

To explain the categorization process, it is important to exemplify each step of the work. All the answers were listed (some examples - Table II). Then, each answer was analyzed and divided into categories if there was more than one idea presented in it. All the categories were defined operationally (some examples - Table III). Some categories were divided into sub-categories.

Results

Information so far obtained through the questionnaires and interviews with teachers and first-level students were quantitatively and qualitatively analyzed. (Boruchovitch et al, 1987; Rozemberg et al, 1987; Schall et al, 1987) and have indicated that:

(1) The teachers have little knowledge of the programme of health studies stipulated by Educational authorities.

(2) Health studies are poorly related with other disciplines, as well as with the student's age.

(3) The subjects taught bear little relation to the community health problems.

(4) Teachers and other school staff are usually unaware of the student's health conditions, thus tending to neglect problems which need medical assistance.

(5) Teachers and students have a poor knowledge of important health issues, such as the dynamics of transmission of endemic parasitic diseases which are common in Brazil. (Schall et al, 1987).

Teachers' Concepts of Health

The teachers' answers were divided into seven categories (Table IV). The most frequent descriptions were : " well-being " (40.3 %), " good equilibrium or good physical conditions " (23.4 %), and taking care of one's health " (14.5 %). The most common answer was " Health is the mental and physical well-being. " Only six individuals out of 98 (roughly 5%) emphasized the social aspect of health in their concepts of health.

Students' Concepts of Health

The students' answers were divided into eleven categories and thirty-seven sub-categories (Table V). Although there was a great number of qualitative categories, the quantitative analysis (Table VI) demonstrated that the students concentrated their answers in three main categories: " Health as values or qualities " (22.6 %). " Health as feeling or sensation " (13.9 %) and " Health as doing or taking care " (38.9 %). The first category implies the idea of a

774

775

judgement; the second, the idea of an emotion and the third one, the idea of performing an action.

Two percent (second graders) to 22.2 % (sixth graders) of the answers showed distortion, redundancy or inexistence of the contents. From 6.2 % (first graders) to 11.1 % (seventh graders) of the answers showed an understanding of health as being an absence of illness or problem.

The category " Health as doing or taking care. " was higher in the lower grades, decreasing as the grades increased. The percentage of the category " health as feeling " has an opposite tendency, increasing according to the grade levels. The category " Health as values or qualities " in general had almost similar percentages in all grades.

The Development of the Material

From the results of the interviews and because of the obvious lack of appropriate health education materials for young children from primary school, the project's second stage had been to produce and to evaluate instruction materials taking into consideration the cognitive aspects that is proper in this age group.

To make this information more interesting to the student, we decided on a story format as a device to obtain the following objectives:

- (1) Have students identifying themselves with the characters.
- (2) Make them relate it to their own experience.
- (3) Encourage them toward action.

The role of the story is to encourage the active interest of the parents, teachers and students through linking learning and the

environment in 3 different ways:

- (1) Through the acquisition of basic knowledge.
- (2) By observing the physical conditions of the environment which cause illness.
- (3) By being encouraged toward community health prevention.

Using a story format. not only are health messages presented, but also favor students to perform free play situations. The teacher can explore their students' ideas about the characters they meet in the story within an atmosphere of participation, freedom and creativity. Thus, the material can have both informal and formal functions and also be integrated throughout several subjects in the curriculum.

The first materials developed consist of a collection of 6 story books, called " Ciranda da Saude ". The subjects of the books were selected from the most important problems of health that affect the Brazilian children, such as: dental caries, lice infestation, Chagas' disease, nutrition, yellow fever, worms in general and schistosomiasis in particular.

The instruction materials include:

- (1) The illustrated booklet (Table VII) in which the information is conveyed on a literary form adequate for children from 7 to 12 years of age.
- (2) Leaflets containing more detailed information about the subjects treated in each case.
- (3) A guide-book aimed at providing the teachers with relevant information on the principles of health education.

Although the subjects of the booklets are specific to Brazilian children's health problems, the instruction material (leaflets and guide-book)

directs the teachers to a work which would bring about discussion concerning health aspects which are universal, such as its role in preventive medicine. The books include directions about how to develop extra-curricular activities such as games, story-telling, dramatization and excursions. Suggestions on how to promote the participation of the family and the community are also given.

It is important to mention that two books (about lice infestations and dental caries) were already published in Brazil. These books were considered appropriate to the philosophy of the collection and the authors agreed to participate in the project.

The other books and leaflets were developed for the project and the writers were oriented by scientists and members of the group in order to provide them the scientific knowledge to prepare the materials (texts) and to engage them in the philosophy of the collection. The guide-book was written by several specialists in health education. This collection has been tested in 150 schools in Rio de Janeiro since March 1987 and the work is expected to be completed by July 1988. The experimental design of the test for these materials is based on the Solomon procedure. As a control material, some chapters of a traditional science book were used.

The first results has been evaluated statistically (Schall et al, 1987) indicating that children that were in contact with one of the books " Ciranda da Saude " collection have improved their knowledge of health matters. Besides this, students who have learned through " Ciranda da Saude " gave more social messages in

their answers than the students from the control group.

Discussion

The analysis of the children's concepts of health confirms the data referred in the literature of this area. As Kalmins and Love (1982) in response to the question 'What is health?'. children whose cognition reflects the features of concrete thought give listings of specific acts, events or rules for maintaining health. On the other hand, the increase of the conception of health as a feeling through the grades may demonstrate also a development of the students' ability to integrate their feelings and experience in health into a conscious, communicable concept of health as a positive state of being. In addition, it is important to mention that both teachers and students' concepts of health did not take into consideration the social aspects in their answers. In a country where several diseases are related with environmental and social conditions, this kind of teacher and children answers can demonstrate a lack of awareness of the reality around them.

From these results, the collection of books was developed in a way to offer children opportunity to make a relation between health issues and their own life. The instruction materials for the teachers tend to improve their attention to the social aspects of health. This proposal seems to be appropriate since the first results gave evidence that children who were in

contact with the books of " Ciranda da Saude " reported more social aspects in the post-test than in the pre-test and also in comparison with the children of the control group (Schall et al, 1987).

Besides this, informal evidence through reports from teachers could demonstrate the occurrence of behavioral change as: (1) in a school where the material was used, students tended to buy less candy than they used to, (2) in another school, the third grade students started a campaign to eliminate lice infestation. Teachers reported that most of the students used to feel shy in admitting they had lice in their own hair. After using the material, they were able to discuss about lice freely. (3) Teachers also commented that several students mentioned interest in developing campaigns to preserve the environment as, for instance, cleaning polluted rivers.

Although these first results indicate that the material is serving its purpose, for this strategy to be successful, teachers have to be trained. A teacher training course on health education is necessary, not only to orient the use of the collection, but also to give basic information as follow:

- (1) Education in general and health education in particular.
- (2) Health as a human right.
- (3) The care of the body, the home, the school and the world.
- (4) Discovering your own body. How to teach about sex in the first grades.
- (5) Health and school failure.
- (6) The relationship between teachers and

730

students from Rogers' perspective of learning.

- (7) Health and environment.
- (8) The main diseases and health problem of Brazilian children.
- (9) The main transmitters of diseases and the different ways of transmission.
- (10) Learning about ethiology of children's diseases.
- (11) The problems of the handicapped child and how to cope with them.
- (12) Danger at home, in the school and in the street - First-aid, vaccination and the use of the serum.

After each unit, teachers will practice how to teach about health by using different kinds of creative activities such as: games, story telling, dramatization, puppet shows, excursion and art craft techniques, all related with the collection " Ciranda da Saude ".

Since the main goal of health education is to promote behavior changes or to develop preventive attitudes, the learning in this area has to be more affective. According to Rogers (1969), we are becoming more conscious of the importance of the affective development and the need to orient its growth in the schools. The emotional aspects of the students cannot be ignored, and the schools may be able to perform an important task in this sense. It is obvious that there is an affective learning in the schools, but a great part of this learning is casual to the school's objectives since it does not belong to the curriculum. Unfortunately, even with all the resources existent in the learning field, much of the learning process at the schools is still based on listening, reading, memorizing, repeating and

731

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forgetting.

Through the use of the collection " Ciranda da Saude " the learning process can be more practical, pleasant and collective. The possibility of the students identifying themselves with the characters may be considered a form to promote associations with human contents. These associations are positive and provide emotional supports for other challenges.

Although this collection is destined to Brazilian health problems, the strategy of using a story format to present information for children, may be extended to specific problems of other countries. Besides, stories dealing with mental, psychological, health issues and also social values can be created in order to improve the affective learning which is missing in the schools nowadays.

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782

783

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Table I - Questionnaire for Teachers and Older Students

Subject	Number of Questions	
	Teacher	Student
A - Personal data		
B - Concepts of health and illness	3	4
C - Nutrition and health	7	4
D - First-aid	2	2
E - Personal hygiene	3	3
F - Knowledge about Brazilian children's diseases	17	11
G - Drugs, alcohol and cigarettes	3	1
H - Pollution and conservation of the environment	2	3
I - Mental health	6	0
J - Herbal medicine and folk-cures	2	2
K - Attitudes and opinions	12	12
Total	57	42

784

785

Table II - Some Examples of Students' Answers to the Question " What is health ? "

Health is

1 - To feel well, to have disposition, to be motivated to do everything, to run, to jump... to be healthy.

2 - To help the people, to teach.

3 - Is something we have. It is a healthy person who eats well.

4 - It is very good to be healthy. The one who is healthy lives with peace. If people do not have vices, the world would not be so cruel. If something bad happens to people, they become addicted, they forget about health and they do not mind about anything else.

5 - To have a good diet, complete hygiene, to eat the right food, not to eat a lot, but the necessary.

6 - A person who has love and care.

7 - Is joy, cheerfulness.

8 - Not swimming in dirty rivers, not playing in the ground, not stirring in the street's dimples.

9 - To have Father and mother, to feel closer. One has more health.

10 - To have rights, to study.

11 - To have school and food.

12 - To take care of ourselves.

Table III - Same Examples of Operational Definition.

Health as "Doing" or "Taking Care": All the answers, including ideas of bio-psycho and social preservation. This category is divided into: In General; Physical Care with : Feeding, Hygiene, Treatment; Physical Prevention; Physical Activity; Appearance; Sleep/Rest/Breathing; Mental Care; Mental and Physical Leisure; Social Care - Helping Others; Consciously Acting Againsts One's Own Health; Mental-Physical-Social; Activity of Life.

Some examples of how the categories are operationally defined :

In General - Answers that give the idea of care without any mention of specific actions.

Ex: " Health is a thing we must have much care of."

" Health is a person who knows how to take care of himself. "

Physical Care With:

Feeding - Answers in which health is related to eating.

Ex : " To be healthy is to eat well."

786

787

Hygiene - Answers in which health is related to a practice of hygienic measures with one's body, the food and the house.

Ex : " Health is a person who is clean, that does not eat dirty things, and before eating washes the things."

" Health means to have a good nutrition, to have always hygiene, to wash the fruits, to take a bath, to clean the nails, and to keep clean the environment we live. "

Treatment - Answers which associate health with behaviours of searches for medical, odontological, pharmacological and other prophylactic measures.

Ex : " Health is to go to the doctor, to the dentist and not to walk barefoot."

Physical Prevention - Answers which indicate the idea of avoidance of doing things considered to be harmful in a physical dimension.

Ex : " Health is a person that doesn't drink dirty water, doesn't take baths in polluted rivers, and doesn't walk on puddles."

" Health is not taking bath in a river in order not to become sick, not eating fish from polluted waters and not walking on puddles."

788

Physical Activity - Answers which relate health to the performance of physical actions.

Ex : " Health is running and jumping.

" Health is having a strong body, is practicing sports."

Social Prevention - Answers which indicate the idea of avoidance of doing things considered to be harmful to health in a social dimension.

Ex : " Health is to eat well, is not to run after lunch, is to play, is to be a good boy, is to have regard toward the teacher, is to play well with friends and it is not to fight in lunch time to be first. Health as an Absence of illness or Problems : All the answers in which health appears as not having or being with diseases or problems.

Ex : " Health is not having any disease."

Health as the Guarantee of Basic Conditions for Survival: All answers referring to the need of family care, education and social conditions.

Ex : " Health is to have an education."

" Health is to be brought up at home, I was brought up at the street."

" Health is to eat well, to have what to eat."

789

Table IV - Teachers' Concepts of
Health and Illness (N = 98)

Categories (Health)	Number of Answers (%)
1 - Good physical conditions Healthy bodily functions / good equilibrium.	29 (23.4)
2 - Well-being	50 (40.3)
3 - Taking care of one's health	18 (14.5)
4 - Disposition and energy	7 (5.6)
5 - Absence of illness	8 (6.5)
6 - Health values	4 (3.2)
7 - Undecided and no response	8 (6.5)
Total of Answers	124 (100)

Table V - Categories and Sub-Categories of Students'
Health Concepts

1.0 Don't know
2.0 Gave redundant answers
3.0 Gave distorted answers
4.0 Health values or qualities
4.1 Related to health in general
4.2 Related to life
4.3 Personal
4.3.1 General
4.3.2 Physical
4.3.3 Mental and emotional
4.3.4 Behavioral
4.4 Social
5.0 Health as a feeling
5.1 General
5.2 Feeling of life
5.3 Physical sensation
5.31 Having well functioning organs
5.4 Mental and emotional
5.5 Mental and physical
5.6 Mental and social
6.0 Health as "doing" or "taking care"
6.1 In general
6.2 Physical care
6.2.1 With feeding
6.2.2 Hygiene
6.2.2.1 Personal
6.2.2.2 With food
6.2.2.3 With housing conditions
6.2.3 Treatment
6.2.4 Physical prevention
6.2.5 Physical activity
6.2.6 Appearance
6.2.7 Sleep, rest and breathing

790

791

- 6.3 Mental care
- 6.4 Mental and physical leisure
- 6.5 Social care : helping others
 - 6.5.1 In general
 - 6.5.2 Social prevention
 - 6.5.3 Care given by others
 - 6.5.4 Lack of care from others
- 6.6 Consciously acting against one's health
- 6.7 Mental, physical and social
- 6.8 Activity of life
- 7.0 Health as 'the guarantee of the basic conditions for survival
- 8.0 Health as a possibility
- 9.0 Health as absence of illness or problem
- 10.0 Health as the description of symptoms of lacking health
- 11.0 Health as not needing other people to take care of you

Table VI Students' Concepts of Health -
Questionnaire Showing the Percentage
Categories

What is to be healthy ?

How would you describe a healthy child ?

Categories	1st	2nd	3rd	4th	5th	6th	7th	8th
Number of Answers	97	99	76	57	73	63	72	88
Don't know	8	2	8	14	8	13	6	0
Redundant answer	1	0	5	5	11	6	8	1
Distorted answer	2	0	3	3	0	3	0	0
Health values or Qualities	29	21	28	23	23	22	21	16
Health as a feeling	7	10	11	11	11	21	19	24
Health as "doing" or "taking care"	43	51	30	37	27	22	28	47
Health as the guarantee of basics for survival	3	0	0	0	3	0	3	2
Health as a possibility	0	0	7	0	1	2	1	0
Health as an absence of illness or problem	6	11	7	9	10	10	11	9
Health as no health	0	0	1	0	3	0	3	0
Health as not needing other people to take care of you	0	3	0	0	1	2	0	1

792

732

Table VII - Books of the Collection " Ciranda da Saude "

- (1) Marucia Berriel Neto - Memorias do Pimpolho - Rio de Janeiro - Ed. Antares (1985) (about lice infestation)
- (2) Ana Maria Machado - Balas, Bombons e Caramelos - Rio de Janeiro - Ed. Antares, 1985 (about dental caries)
- (3) Carlos Pimentel - Quita, a Mosquita - Rio de Janeiro - Ed. Antares, 1986 (about yellow fever)
- (4) Virginia Schall - O Feitico da Lagoa - Rio de Janeiro - Ed. Antares, 1986 (about schistosomiasis)
- (5) Ana Clara Ribeiro - Guerra nas Entranhas - Rio de Janeiro - Ed. Antares, 1986 (about worm infestation)
- (6) Virginia / Maura - Na Pista do Perigo - Rio de Janeiro - Ed. Antares, 1987 (about Chagas' disease)