



Nursing and environmental health in schools*

Enfermagem e saúde ambiental na escola

Enfermería y salud ambiental en la escuela

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ABSTRACT

Objective: To describe and analyze the meanings attributed by a group of adolescents to environmental health. **Methods:** A qualitative, descriptive, exploratory study, that utilized action research in a public school in the interior of Ceará, that was located in proximity to the construction of a thermoelectric coal power plant. We used free observation, field notes and a group approach, by means of the technique of historical design of the theme, and were guided by the question: What do you understand about environmental health? **Results:** Discussions emerged with respect to the interference of man on nature, harming the plants, sustainable development and pollution risk in the community. **Conclusion:** We found that nurses can be environmental educators and work in this space, encouraging moments of reflection about actions committed to the socioenvironmental locus.

Keywords: Environmental health; Health education; Adolescent

RESUMO

Objetivo: Descrever e analisar os significados atribuídos por um grupo de adolescente à saúde ambiental. **Métodos:** Estudo de abordagem qualitativa, descritivo, exploratório, que utilizou a pesquisa-ação em uma escola pública do interior do Ceará, que se encontra nas proximidades da construção de uma usina termoeletrica a carvão mineral. Foram utilizados a observação livre, o diário de campo e a abordagem grupal, esta por meio da técnica do desenho história com tema, tendo como eixo norteador a questão: O que você entende como saúde ambiental? **Resultados:** Emergiram discussões a respeito da interferência do homem na natureza, malefícios das fábricas, desenvolvimento sustentável e risco da poluição na comunidade. **Conclusão:** Constatou-se que o enfermeiro pode ser um educador ambiental e atuar nesse espaço, favorecendo momentos de reflexão sobre ações comprometidas com o locus socioambiental.

Descritores: Saúde ambiental; Educação em saúde; Adolescente

RESUMEN

Objetivo: Describir y analizar los significados atribuídos por un grupo de adolescentes a la salud ambiental. **Métodos:** Estudio con abordaje cualitativo, descriptivo, exploratorio, en el que se usó la investigación acción en una Escuela pública del interior de Ceará, ubicada en las proximidades de la construcción de una usina termoeletrica a carbón mineral. Fueron utilizados la observación libre, el diario de campo y el abordaje grupal, esta última por medio de la técnica del dibujo de una historia con tema, teniendo como eje norteador la pregunta: ¿Qué entiende ud.como salud ambiental? **Resultados:** Emergieron discusiones respecto a la interferencia del hombre en la naturaleza, daño de las fábricas, desarrollo sustentable y riesgo de contaminación en la comunidad. **Conclusión:** Se constató que el enfermero puede ser un educador ambiental y actuar en ese espacio, favoreciendo momentos de reflexión sobre acciones comprometidas con el locus socioambiental.

Descriptor: Salud ambiental; Educación en salud; Adolescente

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INTRODUCTION

The humanity must reflect on environmental health, since this is not an isolated problem, but it has a social nature, requiring interdisciplinary and creative actions for the discussion on the topic. For this reason, it is necessary to address issues involving environmental health with students in school settings, as this thematic imposes different challenges ruled by society, such as the recognition of the ecological imbalance caused to human life ⁽¹⁾.

These consequences are related to electricity, urbanization, waste disposal, soil contamination, air and water pollution, fires, deforestation, climate change, disease's appearance, as a result of the increased scale production and the accumulation of wealth ⁽²⁾.

Education fosters the development of an ethical attitude towards environmental issues. Therefore, the educator is understood as the person who is able to develop and play an active exchange role to form new relationships both in the world as well as in the interrelations between society and the environment, consolidating the ecological commitment. Another item to be considered is the role of schools as a tool in order to develop and strength student's ecological awareness, featuring a joint effort between school, teacher and society.

In a qualitative study with Latino adolescents, it was observed that young people demonstrated a detailed understanding of the risk and the protective influences of the environment on health, citing the harm caused by the waste disposal in nature and air pollution. They perceive their environment and require the nurses reinforcement of integral health assessment by identifying risk factors and the implementation of environmental protection measures in the context of the social health determinants in which they integrate ⁽³⁾.

In this perspective, it is known that the performance of nurses is directly related to human care, by dedicating themselves to the quality of life through individual or collective actions of Health Promotion. Thus, educational activities that promote understanding of health meaning, they also encourage people to think about their environmental commitment and how it can be developed in a transformation perspective of the learning process ⁽⁴⁾. Nurses are characterized not only as educators in the Health Services, but also in educational institutions, being able to develop health education in different scenarios.

In an educational perspective, action research is mainly a strategy that allows the researcher to investigate in order to enhance teaching, and leading the learning of their students, in addition to the existence of reflecting practice ⁽⁵⁾.

Health Education is able to reach a broader meaning in empowering people, providing a socioeducative approach. Hence, the knowledge, skills and training of critical awareness of citizens to decision making are assured with greater social responsibility.

School, leadership and faculty should articulate with nurses in order to build action strategies that integrate the fields of health and education, especially in the exercise of critical reflection on the problems faced by young people in their environment, empowering them to reflect on behaviors that minimize the health risk and in favor of the Health Promotion .

The study object arose from the need to investigate nurses as mediators in school contexts of educational action in environmental health, expanding its activities as health promoters on this topic. The aim of this study was to describe and analyze the meanings of environmental health assigned by an adolescent group. Therefore, this study may contribute to develop tools for planning and implementing educational interventions aimed at health promotion, consistent with the reality of different adolescent groups.

METHODS

This is a descriptive, exploratory study with a qualitative approach, which used action research as a method of data collection.

The research was conducted in March 2009 in a public school in a city of the State of Ceara, located near an area of a mineral coal thermal power implementation. The study subjects were 17 adolescents aged between 12 and 14 years old, living in a rural community, descendants mostly of farmers who feel threatened by the problem of expropriation, they were fighting for their space, experiencing, in an assiduous participatory process in meetings and in discussions between the community organization itself.

Samples in qualitative research deserves special comment, since the researcher should worry less with generalization and more with the depth, the broadest and diversity for understanding the phenomenon investigated. Therefore, their discretion is not numeric, being the decision a sum of aspects judged by the investigator as ideals and able to reflect all the multiple dimensions of the study object ⁽⁶⁾.

Thus, for the sample composition, the inclusion criteria for students were followed: They should be properly enrolled in school and be nominated by the teacher.

It was used free observation, field diary and the group approach, in which teenagers had gone through the technique of thematic drawing story, they prepared drawings taking as a guideline the question: What do you understand as environmental health?

Then, participants reported the stories of their drawings, which were recorded. The thematic drawing story is a dialogue resource facilitator, valid for any age group in different experiential conditions because it allows both verbal and graphic productions, through which the subject responds to requests from researchers ⁽⁷⁾. It is noteworthy that the drawing story is a procedure that allows the participant to have access to the ideas and emotions more spontaneously, ie the representation of their living ⁽⁸⁾.

Based on this technique, we generated narratives that allowed us the identification of issues which were related to their living reality with environmental health, consequently these items triggered the discussion.

In this perspective, the reflection was built with dialogue support substantiated by the Freirean dialogical method. This method assumes the importance of being an effective mean to perform health education actions to adolescents, derived from the group needs, enabling them to recognize their potential risk situations that affect their quality of life and leading them to reflect about their behavior ⁽⁹⁾. Note that this method is based on pedagogical practices in social processes and the construction of new knowledge and practices ⁽¹⁰⁾, therefore, a landmark in this study, since the reflection of young people based on drawings provides different discussions about their reality.

Data analysis to support discursive practices had as constructive elements the dynamics, describing a process of conversation, and the interpretative repertoire, serving as a reference for the culturally constituted aspects ⁽¹¹⁾.

This study respected the legal and ethical aspects involving research with human beings, according to Resolution N ° 196/96 of the National Health Council. The study was submitted to the Ethics Committee of the Federal University of Ceara and approved at the meeting on December 19, 2008, under Protocol 252/08. The identification of speech was guaranteed anonymity to the teenagers through the word *Young* followed by a letter.

RESULTS

The drawings and their stories are reproduced, however, it is noteworthy that not all are in this article due to the large number of pages, but the drawings represent in a way the ideas of others. The description of the meaning intended by some teenagers on environmental health is below.

I drew a landscape. "What is environmental health without the interference of man in nature." (Young H), *"Environmental health is a person in a clean and happy place."* (Young C)

The meaning of environmental health was perceived through a landscape, showing the beauty of where they

live. There is also the perception that it is a place free from human actions, referring that human well-being is possible, since it remains unpolluted.

In other descriptions, there was the identification of natural elements with environmental health, complementing the initial narratives and strengthening the meaning of landscape free of human intervention and well-being.



Drawing 1. When we think of environmental life, we just think in green, here I made a coconut tree, a sun, because nowadays it is very difficult for us to see a landscape, we see more deforestation and pollution. Which person wouldn't feel good in a place like this? In a polluted place nobody can breathe. Free of pollution is the true environmental health. (Young A)

In stories drawn, there are reports on the environmental threats suffered, evidenced by the construction of the thermoelectric, by the industry setting and economic development without a vision of sustainability, leading them to assert that in a few years, the region will be disfigured by environmental impacts. The narratives were mainly focused on the dichotomy already described and by the aspiration of how the region will be, often referred to as landscape.



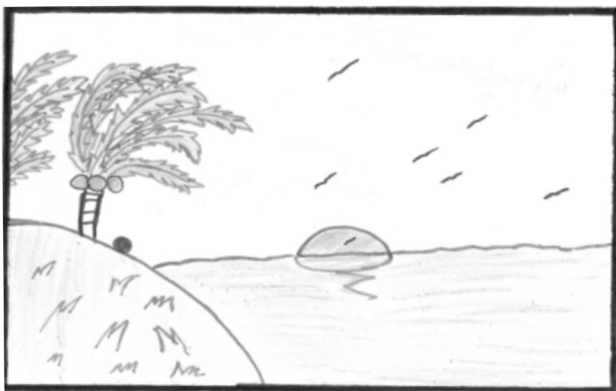
Drawing 2. The environmental health issue brought the thermoelectric topic, I drew today the blue sky, the sun and the sea, everything is beautiful! And here, when the thermoelectric arrive, it will have a lot of pollution. (Young B)



Drawing 3. Represents people seeing a better air, because after reaching these industries, we will not breathe the air we breathed before. (Young G)

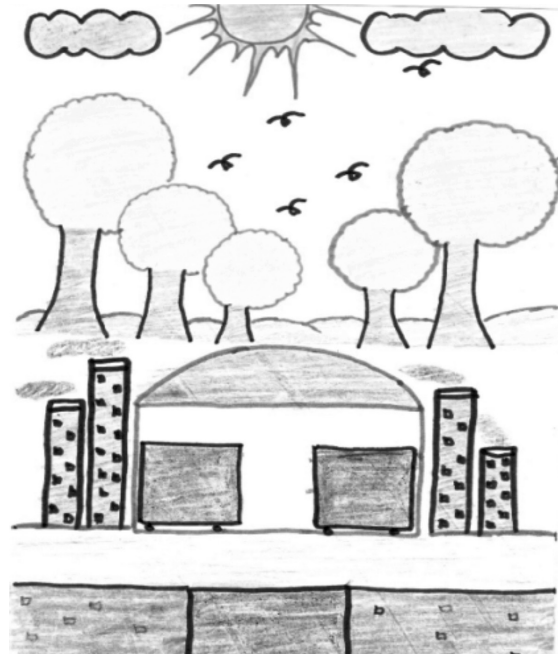
Again, reference is made to environmental health as the one without human interference, highlighting the problematic experience lived by them and realizing the possible implications that may occur.

In drawing 4, the meaning relates to a location without a large flow of people. In the perception of the young, the more people do not segregate waste properly the more global problems they will promote. It is also possible to highlight, in this narrative, changes occurred as increased traffic, and, in their perception, antagonistic to environmental health.



Drawing 4. Many cities are heavily polluted. Some people go to the beach and throw garbage, and it affects the whole planet, because the garbage goes around, right? Who wanted to be in the quiet, peaceful, without much traffic, smokeless place ... (Young D)

The representation of young M expresses the meaning of environmental health through the comparison between the environment in which it resides before and after a factory construction. In the common situation of other young people, he also used the word landscape.



Drawing 5. I drew a landscape here, based on where I live, because it was once full of trees, a very natural landscape and now it is modified by a factory that is running near my house. (Youth M)

The reflection after the drawing presentation was mediated by coincident ideas, namely: human interference in nature, harm from the factories, pollution risks to the community and sustainable development.

When we started the dialogue about the interference of man in nature, a young woman commented: *An example is a field that was full of trees. Whoever knows, also understands, a man came from the Capital, he was not from the community, he bought the land there. Destroyed everything! He made a huge hole to take clay. Nowadays we cannot play there, if a child goes play there it is dangerous and he can die.* (Young D)

As mentioned in the narratives of the drawings, the young perceives the changes in the landscape where they live and feel sometimes harmed. Following the discussion with the “factories harm”, it is clear that there was a focus on the mineral coal thermoelectric. In this discussion, the word tuberculosis emerged, as one of the consequences.

Likewise a dialogue about skin cancer emerged, which had its etiology enlightened by a young: *It is caused by strong sunlight. The sun gets stronger by the destruction of the ozone layer and we will not have a protection. So... it can cause skin cancer, because the city is warmer.* (Young E)

After this participant spoke, the discussion was focused on the acid rain issue. *It can kill living beings, rain falls clean, but factories do much dust. The rain passes through the dirty layer and turn into acid rain. The land is dry, unproductive.* (Young B). These teenagers were active in discussions about the implementation of thermoelectric and, previously, had taken note of the possible implications of this enterprise.

Furthermore in regard to acid rain, young teens demonstrated to know that this aggression will not be limited only to the soil: *The soil will be weak without producing foods.* (Young J). *Rice, beans we buy from the grocery store, everything comes from the soil. The farmer harvests, but goes through industry, but everything comes from the soil, it will not only harm it, but we as well, how we will eat, the healthiest foods are rice and beans.* (Young D)

The discussion addressed for the sustainable development theme. In this dialogue emerged the following comment: (...) *will create jobs, but the problem is where to build this thermoelectric. They want to build in the community, the basis will be the mineral coal, have you seen coal burning? The smoke rises, imagine if it's a huge thing, people will die. We need our oxygen. So ... it will destroy trees and from where come the gases, how are we going to breath?* (Young F)

In the dialogues, it is observed that the meaning assigned by the teenagers towards environmental health shows to be contrary to the construction of thermoelectric, this perception articulates directly to the context in which they are inserted in.

DISCUSSION

This study shows the need for educational action, it is necessary to respect the previous knowledge of people to follow the formulation of knowledge based on a collective discussion, in which everyone can participate. In this context, education is a freedom instrument, capable of bringing awareness through the individual "empowerment", however, it is necessary to think about their condition and about the critical elements which are necessary ⁽¹²⁾.

In this space for debate, the nurse can clarify doubts or erroneous ideas, such as in tuberculosis, presenting measures of contagion and disease prevention brought by human action, and the risks of respiratory diseases – asthma, bronchitis, emphysema and coal pneumoconiosis – brought by the thermoelectric.

Health Education actions with adolescents must initially identify the perception they have about the topic, because when contextualized the reality it will provide a debate guided by the cultural context ⁽¹³⁾.

In research conducted with specific groups, in order to explore the knowledge, the perceptions and beliefs regarding environmental health issues of adults living

near a thermoelectric, it was observed that residents shared concerns about the effects of the thermoelectric based on their own life experiences ⁽¹⁴⁾.

The life experience was an important item in this study, it was already observed in the early narratives. Therefore, environmental health was perceived as one that does not receive human interference, it was described as well-being which brings mental health, as nature provides happiness and vitality for people in intrinsic actions to life.

Thus, environmental health is directed by the harmonious relationship between human and nature, without experiencing losses for either. As the word happy was identified in some narratives, it is important to clarify that happiness is a predominantly subjective phenomenon, related to external factors ⁽¹⁵⁾.

At this point, we see how important it is to ensure a healthy environment for people to promote their physical and mental health, this aspect presents itself vulnerable to these young people who are living the threat of contamination, which may also harm their mental health.

Environmental education is a scientific basis for effective prevention against air contamination, water contamination, food contamination and other common risk factors to human health ⁽¹⁶⁾, being indispensable to implement school actions about the concepts of environmental health to help the formation of informed citizens capable of assessing public health issues.

In an attempt to develop a literacy model that embraces a dialectical relationship between a world and word critical reading, it is necessary to understand the meanings and conflicts experienced by group members, establishing a possible relationship to critical thinking on the assumptions of daily life ⁽¹⁷⁾.

In the daily lives of these young people, there is the reflection which defines environmental health as a pollution-free nature, with harmony between water and land, without deforestation, as well as highlighting the natural elements. There were also narratives that demonstrated clearly the dichotomy between these environments landscapes versus deforestation and pollution.

Importantly, the fact that community members articulate with each other to become stronger towards the experienced problem. In this context, community leaders and members had been fighting and explaining the implications of environmental problems caused to the city. It is clear, however, that in the drawings, there is inevitability the statement that destruction of the community environment will occur.

In a similar study, however, conducted with adults, it was noted that they realize the economic and political

vulnerability and have an environmental pessimistic view of their place ⁽¹⁴⁾. It is necessary to think about development forms in which neither the cultural context nor the nature are harmed, as each community has their own characteristics.

It appears that support to develop new technologies and the society participation to define options to solve a problem involving environmental harmony with a lower risk for health and improving quality of life ⁽¹³⁾ are essential actions to sustainable development.

In the dialogical method, all participants must be perceived as autonomous individuals with potential, also their cultural aspects should be considered, because this item interferes in each narrative ⁽¹⁸⁾. Respect for the cultural scene is crucial, since this is one of the health determinants.

In the narratives was also noted that the community is characterized as a traditional society, with a peculiar identity, in which they realize the difference between a “*Man from the Capital and a man from the community*”, because the “*community man*” values his way of life and his lands, while the other has a vision of the space, not land. The challenge, which involves a set of social agents that are articulated between those responsables for different sectors and communities, is to find ways of economic development committed to the community welfare, ensuring consistent actions with social reality, as well as its members ⁽¹⁹⁾.

Complementing the adolescents assertions, other studies have reported that environmental health suffers many human influences, such as pesticides, industrial chemicals and air pollution, and also includes major public health issues, including tobacco use, infectious diseases, air quality, allergies and sanitation ⁽¹⁶⁾.

The comment of Young D, which refers to the drawing that characterized a happy child, demonstrates that the environmental health is in communion with the establishment of favorable environments that allow biological and social well-being. In this sense, the concept of health characterizes by a set of relationships established with their applications, structured in time and space, expressing in biological forms and in the collective based actions between production and the environmental components ⁽²⁰⁾, in order to see the macro context, since factories bring obstacles previously unknown to the community, such as, the loss of a recreation area which interferes in their health, for example.

Research on the environment need to explore the concept of education incorporating the interrelations complexity of the systemic problems, as well as the analysis of meanings, values and environmental socio-cultural potential in order to reorganize the ways

of thinking and acting in the process of healthy living interacting with environmental issues ⁽²¹⁾.

Adolescents perceive that the impacts of the thermoelectric construction might also change other sectors, such as economic (contextualized in a cultural reality of farmers), arguing harmful effects such as acid rain, directly or indirectly.

Faced with increasing environmental threats caused by development, they seek to reflect on ecological factors overlapping social and economic issues, favoring the formation of a critical scenario, arguable on the actual and future situation ⁽²²⁾.

In this study, the Young discussion brought a conflict topic on the social environmental field. This theme characterizes the complexity of the contemporary reordering of the regulatory mechanisms of environmental resources in the world, being a challenge to find instruments applicable to the political and socio-ecological process understanding ⁽²³⁾. The adolescents studied were involved with the environmental health problems of their community and participate in the discussions.

The differences of the twentieth century in relation to the twenty-first century, with regard to economic growth and technological transformation, were very beneficial to progress, but, on the other hand, aggravated the dramatic social condition of many people, in addition to frightening environmental problems ⁽²⁴⁾.

This question, currently, is as a challenge for a fair social and health environment development, featuring sustainability, the nurse can insert themselves in this field to mediate discussions and reflections. It is important, however, that these professionals are not just confined to technical training, but who are committed to transforming the realities encountered in their work fields ⁽²⁵⁾.

CONCLUSION

This study brings new knowledge to the nursing practice in school settings, as well as in the area of environmental health, since this professional can be an environmental educator, working to provide arguments favoring reflections on environmental compromised relations.

The group activity, added to those teenagers needs, favored their reflection direction and their critical thinking on their actions, then it allowed the identification and awareness on health and environmental risks to reach the discussion of social environmental conflict. It was evidenced that this reflective space, mediated by the thematic drawing stories contributed to the Nursing field for being an action designed to understand the meaning of an environmental health group and simul-

taneously allow participants to reflect on their social and environmental commitment.

In this perspective, it becomes important to understand the perception of the environmental health of the subjects studied, as they are contextualized in vulnerabilities by the implementation of a thermoelectric, and, according to environmental awareness, it is necessary to awaken in people a responsibility to nature and concern with the new committed relationships with human ecological and well-being.

In conclusion, it may be considered that the progress of this study was the inclusion of nurses in the school, following an educational approach with regard to environ-

mental health, since nursing care on the subject is scarce, and this is an area that needs intervention, and the nursing professional can be inserted through the Health Promotion in support to ecological well-being and therefore, human. The limitation of this research was the perceived difficulty to continue working with these adolescents, since their environment is in intense dynamic changes.

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