

## KNOWLEDGE ANALYSIS ON SOME ZOONOSIS IN A PRIVATE SCHOOL IN THE MUNICIPALITY OF BOM JESUS-PI, BRAZIL

### *ANÁLISE DO CONHECIMENTO SOBRE ALGUMAS ZOONOSES EM ESCOLA DA REDE PRIVADA DO MUNICÍPIO DE BOM JESUS, PI, BRASIL*

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**ABSTRACT:** This study aimed to analyze the knowledge about some zoonosis in a private school in the city of Bom Jesus-PI, Brazil, through the application of questionnaires intended for primary school students, teachers and students' parents. Zoonosis are transmissible illnesses in natural conditions between the animals and the human beings, and knowledge about them does not always reach the population exposed to constant risks, and it is necessary to plan health education actions in these areas. On the analysis of surveys noted significant numbers in relation to lack of knowledge on the part of interviewed in all groups. In relation to cutaneous larva migrans 37 (46,83%) of the students answered don't know which factors were associated to the contamination, about to the prevention, 35 (44,30%) didn't know the measures to be taken. Relating to Leishmaniasis, observed that 43 (54,43%) of the students have already heard about the disease, 37 (46,83%) answered that the dog is the responsible for transmitting and 34 (43,03%) the mosquito. In relation to the prevention, 36 (45,56%) answered combat to the mosquitoes, 35 (44,30%) using repellents, protection screens in windows and use of mosquito nets, as long as 07 (8,86%) didn't know any prevention measure. In the amount of 79 students that answered the survey, 93,67% affirmed don't have knowledge about giardiasis and 74,68% answered don't know about how occurs the transmission about this zoonosis. Therefore, there is a need to carry out works that aim to provide this information to the population, especially the children because they are considered more susceptible as well as agents disseminating this information.

**KEYWORDS:** Information. Population. Collective Health.

### INTRODUCTION

Zoonosis are transmissible diseases in natural conditions between animals and human beings. These diseases are distributed all over the globe in variable levels of occurrence according to environmental factors of physical-chemical-biological nature and inclusive socio-economic-cultural (FRAGA et al. 2009).

The knowledge about zoonosis does not always reach the population exhibited to the constant risks, being necessary program sanitary education actions in these areas. These interventions need support of authorities associated with the healthy and the environmental sanitation, in addition to require extensive measures to the community aiming at inform them about risks of contract zoonosis and the ways of prevent them (MILANO; OSCHEROV, 2002).

With regard to zoonosis, children are the most vulnerable group due to their big affinity with

animals, associated to hygiene habits not yet mature and to qualitative and quantitative immaturity of their immune system (TORTAJADA et al., 2002). In light of the above of vulnerability, highlights the importance of educational actions about zoonosis, especially, with children (FRAGA et al., 2009).

The Ministry of Health of the country since 1970s comes considering the school an educational environment and social proper to work knowledge and changes of behavior, where children and teenagers take on the role of multiplier agent (FARIAS et al., 2013).

This study aimed to evaluate the level of knowledge about some zoonosis between students, teachers and students' parents of the elementary school in a private school, situated in the municipality of Bom Jesus (PI); just as, incite lectures which topics about the education in health linked to animals be worked often in the elementary school.

**MATERIAL AND METHODS**

The research was performed in a private school in the municipality of Bom Jesus, Piauí (PI), where 153 people were interviewed being students, parents and teachers, by application of survey composed of closed-ended relevant questions about the following zoonosis: Toxoplasmosis, Cutaneous larva migrans, Leishmaniasis and Giardiasis. Attended of the study elementary school's students of 6 grade to 9 grade, teachers and parents of students of the institution. The interviewed were reported about the aim of the implementation of the surveys and it was assured the reported data's privacy.

After the data collection, it was performed the descriptive statistical analysis to the informations' interpretation and to them were built tables in percent and delivery of frequency.

Subsequently it was applied a lecture to the students focusing to the points indicated by the

statistical analysis as the biggest lack of knowledge, through the use of a language more suitable aiming the interactivity and easy uptake from the target public.

**RESULTS AND DISCUSSION**

By the descriptive statistical analysis it can be noted that from 153 surveys analysed, 79 (51, 63%) were answered by students of 6 grade to 9 grade of the elementary school, 61 (39,86%) by the parents' students and 13 (8,49%) by the school's teachers where it was developed the research. It was carried the distinction between the owner interviewed and don't dog and cats owner (or others animals) and it was noticed a significant number in relation to the first group. From students 56 (70,88%) related be owner of dogs and cats; from parents 36 (59,01%), and teachers 07 (53,84%) (Table 1).

**Table 1.** Description of the interviewed people in a private school situated in the municipality of Bom Jesus, Piauí (PI), about the knowledge level in relation to some zoonosis.

| VARIABLES                              | CATEGORY          | F  | %     |
|--|-------------------|----|-------|
| Dog and/or cat owners                  |                   | 56 | 70,88 |
| Animals owners (not dogs and/or cats)* | Students          | 16 | 20,25 |
| Don't raise animals                    | N= (79/100%)      | 20 | 25,31 |
| Dog and/or cat owners                  |                   | 36 | 59,01 |
| Animals owners (not dogs and/or cats)* | Parents' students | 09 | 14,75 |
| Don't raise animals                    | N= (61/100%)      | 23 | 37,70 |
| Dog and/or cat owners                  |                   | 07 | 53,84 |
| Animals owners (not dogs and/or cats)* | Teachers          | 00 | 00    |
| Don't raise animals                    | N= (13/100%)      | 06 | 46,15 |

\*Rabbit, Parrot, Jabuti, Goat, Birds.

In the cities many families have touch with domestic animals and a big number of children have pets (FRAGA et al., 2009). According to Capuano and Rocha (2005), the increasing purchase of dogs like companion animals has been increasing the number of people exhibited to the risk of contract zoonosis and the child population correspond to the most exhibited group due to the habit of play in contact with the ground and to the habits of geophagy, go barefoot, to let be hug, lick and bite by their companion animals. The relation so close between the men with their pets become a relevant fator to the concern with the ways of avoid that this interaction don't become a risk fator (LIMA et al., 2010).

The toxiplasmosis, also known as the cat's disease that attack all of the warm- blooded vertebrates, it's a zoonosis caused by the protozoan *Toxoplasma gondii*. (MARTINS; VIANA, 1998; ARAÚJO; TEIXEIRA, 2010). The felines, wild or

domestics, are the definitive innkeepers and in them the parasite performs the enteroepithelial proliferation that culminate with the production and removal of oocystis by the faeces infecting the local environment and persisting in the wet soil by a period of up to 12 to 18 months (LAPPIN, 1993). Their importance to the public health is due to the severity of the congenital human infection that can leave sequels as neuropsychic retardation, chorioretinitis, hydrocephaly, epilepsy and deafness (MARTINS; VIANA, 1998).

In relation to the students, most of them already heard in toxoplasmosis (47/59,49%); however, 36 of these (45,56%) didn't know say who trasmit this disease and 30 (37,97%) answered that would be the cat. According to the students'parents, 51 (83,60%) already heard in toxoplasmosis; 13 (21,31%) didn't know say who transmit this disease and 42 (68,85%) answered that the cat would be the transmitter. From interviewed teachers most

(10/76,92%) said have knowledge about toxoplasmosis; 05 (38,46%) didn't know say who transmit this disease and 06 (46,15%) said the cat is the transmitter.

In terms of infection and preventive measures, 37 students (46,83%) didn't know the diseases' transmission types, 28 (35,44%) answered that would be by the contact with faeces of infested cats, 31 (39,24%) didn't know which preventive measures and only 14 (17,72%) suggested be through of the washing of the fruits and greeneries. From parents, 19 (31,14%) didn't know the transmission types, 14 (22,95%) answered by the contact with faeces of infested cats, 06 (9,38%) by the intake of raw meat or undone, 16 (26,22%) didn't know how to prevent this disease, 25 (40,98%) suggested the correct baking of food, especially meat, and 20 (32,78%) through of the washing of the fruits and greeneries. From teachers, 05 (38,46%) didn't know the transmission types as well as 05 (38,46%) answered be by the contact with faeces of infested cats; however, none suggested be by the intake of raw or undone meat. When answered about what must be done to prevent the disease 03 (23,07%) didn't know how to prevent the disease, 02 (15,38%) answered be the correct baking of food and 03 (23,07%) through the washing of fruits and greeneries.

According to Araújo e Teixeira (2010) the transmission types to the human beings are direct contact with faeces of infested cats, the intake of cystis in undercooked meat, oocysts in contaminated water, or in the congenital form. The intake of cystis in raw or undercooked meat specially of swinars and sheep is considered the most usual and important transmission route of the toxoplasmosis to the human beings (MARTINS; VIANA,1998). The high percentage observed in this research (46,83%, 31,14% e 38,46%; students, parents and teachers, respectively) that don't know the transmission types of Toxoplasmosis reflects the lack of knowledge concerning zoonosis associated to the lack of information about measures of its prevention.

Cutaneous larva migrans, or "bicho geográfico", is a clinical term which designate a dermal eruption of linear and serpiginosum nature produced by grubs of some *Nemathelminthes*, parasites of the dogs'and cats' small intestine. However, these parasites can achieve the men's skin. The canines, as the main innkeeper, spread the parasitismo, through the environmental contamination by eggs and grubs of helminths eliminated together with the faeces (BELLATO, 2010).

It's of great importance in public health, especially to children that custom attend leisure areas (beaches and sandy soils) in which there is substrate that this affection becomes apparent. The parts that most frequently get in touch with the soil are the most exposed like feet, legs, hands and forearms, gluteal region and thigh in children that play sitting on the floor, but the grubs can penetrate in others parts of the body that is unprotected by clothes (BELLATO, 2010). The intense pruritus caused can result in excoriation or secondary infection, exacerbating the context (ARAÚJO e TEIXEIRA, 2010).

In this study, most students (63/79,74%) answered that "bicho geográfico" is a disease and only 02 (2,53%) didn't know what was about, 44 (55,69%) said the dog and cat the transmitter animal and 05 (6,32%) didn't know. It was observed in the others two groups of interviewed: with the parents, where 50 (81,96%) knew the "bicho geográfico" is a disease, 08 (13,11%) didn't know what was about, 39 (63,93%) said be the dog and cat the responsible animals for the transmission, 12 (19,67%) didn't know by whom is transmitted the disease; with the teachers, where onde 12 (92,30%) knew take up a disease, 10 (76,92%) said to be the dog and the cat the responsible animals and 02 (15,38%) didn't know.

In relation to the factors associated to the disease's transmission, 37 (46,83%) students answered don't know which factors were associated to the contamination by "Bicho Geográfico" and 39 (49,36%) answered to be by the contact oh the person with contaminated sand with faeces of infected animals; in terms of prevention, 35 (44,30%) deny the measures being taken and 51 (64,55%) answered that "bicho geográfico" can be passed by the direct contact of a contaminated person to other. From parents, 41 (67,21%) suggested to be by the contact of the person with infested sand with faeces of contaminated animals, 20 (32,78%) didn't know the preventive measures to be taken, 14 (22,95%) thought have possibility of contamination in the direct contact between individuals. From teachers, only (15,38%) didn't know which factors were associated to the contamination and repudiate the measures to be taken, 11 (84,61%) answered by the contact of the person with infested sand with faeces of contaminated animals, 09 (69,23%) answered avoiding go barefoot in locals commonly attended by dogs and 08 (61,53%) that the "bicho geográfico" can be passed by the direct contact.

The interviewed people demonstrated knowledge in relation to the existence of this

zoonosis and of its transmission; however, according to the data obtained in the surveys, present little or any knowledge in relation to the measures of prevention that is the major way of intervention of the occurrence of this illness. Some preventive measures are: keep animals in good hygiene conditions, always treat the positive animals, impede the accessibility of dogs in locals attended by people, especially children, act in awareness campaign with guidance in the schools and in the community (BELLATO, 2010).

The leishmaniasis is a parasitic disease whose etiological agents are different species of protozoans of the genus *Leishmania*, that are transmitted by the sting of diptera of the family *Psychodidae*, of the genera *Lutzomyia* and *Phlebotomus* (COSTA, 2011). It's divided in two big groups: American Tegumentary Leishmaniasis (ATL) and Visceral Tegumentary Leishmaniasis (VL), the last known also as "Calazar" (RAMOS, 2011).

That way, the Visceral Leishmaniasis (VL) or "calazar" is a zoonotic character disease, and can attack the men when they get in touch with the transmission's cycle of the parasite, turning into an antrozoosis (MINISTÉRIO DA SAÚDE, 2006).

Regarding Leishmaniasis, it was observed that 43 (54,43%) of the students already heard talk about Leishmaniasis, 37 (46,83%) answered to be the dog responsible by the transmission and 34 (43,03%) the mosquito. In relation to prevention, 36 (45,56%) answered to be the combat against the mosquitoes, 35 (44,30%) use repellent, protection screens in Windows and use of mosquito nets, as long as 07 (8,86%) didn't know any measure of prevention. From interviewed parents 58 (95,08%) already heard talk in Leishmaniasis, 39 (63,93%) answered to be the dog responsible by the transmission and 28 (45,90%) the mosquito. In relation to prevention, 35 (57,37%) answered combat the mosquitoes, 29 (47,54%) use repellent, protection screens in Windows and use of mosquito nets, and 07 (11,47%) didn't know any measure of prevention. The most teachers that took part of the research (12/92,30%) already heard talk in Leishmaniasis, which 09 (69,23%) answered to be the dog responsible by the transmission and 06 (46,15%) the mosquito. In this group 09 (69,23%) answered that the combat to the mosquitoes is the measure of prevention while 04 (30,76%) highlighted the use of repellents, protection screens in windows and mosquito nets. It was observed a significant number of interviewed people that deem

to be the dog the responsible by the Leishmaniasis's transmission.

These results affirm the necessity of diffusion of information in relation to measures of transmission and prevention to this illness that is considered of high prevalence in all over the country. There were surveyed data from Sanitary Vigilance and from Health Secretary of the municipality of Bom Jesus-Pauí, can check that between the 2004 and 2010 were notified 15 cases of human leishmaniasis, which nine were attacked by the visceral form, being all the patients from the urban zone with wide distribution by the quarters of the city (SANTOS et al., 2014).

There are five species of *Giardia* that inhabit the intestinal tract of practically all the classes of vertebrates, but the *Giardia duodenalis* (*Giardia lamblia*, *Giardia intestinalis*) is the only species found in humans and domestic mammals (dogs and cats are important innkeepers) and wilds (THOMPSON et al., 2002).

The infection occurs when cysts of *Giardia* are ingested by susceptible innkeepers through contaminated water, food, direct transmission to person to person or animal-person (ALMEIDA et al., 2010). In Brazil, there's a big number of people that live in poor communities and with lack of sanitation. Thus, the high prevalence of *Giardia* spp. in these innkeepers caused by the zoonotic transmission is a possibility that cannot be neglected (FARIAS et al., 2013).

Studies previously performed in the city of Bom Jesus (PI) in 195 dogs revealed the parasite with the highest prevalence found in stool samples was the *Ancylostoma* spp. (79,4%) followed by *Giardia* spp. (30,8%). The high frequency of this intestinal parasites highlights the necessity of program educative measures and of control like trial of improve the life's condition of the animals and avoid that them be the zoonosis's route of propagation (FARIAS et al., 2013).

In the amount of 79 students that answered to the survey 93,67% claimed don't have knowledge about Giardiasis and 74,68% answered don't know about how occurs the transmission of this disease. Even 72 students (91,13%) affirming drink filtered water, when asked about the measures of prevention, only the minority suggested as preventive measure the option of avoid drink water untreated water or with ice of untreated fountain (17/21,51%). As to parents, 75,40% affirmed have already heard about the disease and suggested like a fountain of contamination don't wash the hands before the meals and after use the bathroom and the intake of food or contaminated water with

faeces (22/36,06% e 32/52,45%, respectivamente). Although 51 (83,60%) of the interviewed parents affirm drink filtered water, only 31 (50,81%) mentioned as prevention to avoid drink untreated water or with ice of untreated fountain. All the participant teachers of the study answered know about the Giardiasis and most it was assertive in terms of the ways of prevention (11/84,61%). However, 04 (30,76%) answered don't know how the disease is transmitted.

Although the parents present a certain knowledge in relation to this zoonosis, the students showed don't understand about its ways of prevention. It's possible this occurs in virtue of the parents' delay in the execution of this activity on the part of the school. Relatedly in this context, some teachers limit themselves in don't discuss about the topic, supporting the textbooks deficient of these informations.

In relation to preventive measures of immunization and vermifugation, 56 owner students of dogs and cats 35 (62,5%) answered be careful in vermifugation and immunization of their animals, but 04 (7,14%) of them don't perform any of these cares. From 36 owner parents of dogs and cats 35 (62,5%) answered be careful in vermifugation and immunization their animals, but 04 (7,14%) of them don't perform any of these cares. From 36 owner parents of dogs and cats the vast majority (31/86,11%) answered be careful in vermifugation and immunization their animals. The same happened in case of the 07 owner teachers of dogs and cats where 04 (57,14%) answered be careful in vermifugation and immunization their animals periodically.

It was observed the most have some type of care with their animals, especially, concerning to vermifugation and the immunization that prevent several zoonosis in combat of the worms, avoiding the usual contagion of children and adults (GAERTNER; BRANCO, 2003).

In relation to the gathering of the faeces of the animal in house, 42 of the students (75%) answered that collect and give a destination to them (waste, vacant lot, toilet seat, fertilisation), 34 (60,71%) wash frequently the place and 10 (17,85%) go barefoot in this place. During a walk in the street with their animal only 14 (25%) answered that gather the faeces to don't exist risk of the animal (in case of being sick) contaminate the environment and, therefore, other living beings. thirty three of the parents (88,88%) answered that collect and 30 (83,33%) answered that wash frequently the local. When questioned if gather the faeces of their animals during a walk in the street,

11 (30,55%) answered that don't think necessary the gathering.

Despite the sanitation of the residence be representative between the interviewed people, the gathering of the animal's faeces in public areas didn't become a habit yet, probably because of a cultural local issue. This problem occurs in several cities of the country where canine population passes freely in public areas as parks, town squares, beaches, among others. For lack of informations, many guardians have the custom of take their dogs to a walk or keep them released in public road; such animals end up defecating, most of the times, in this locals and their faeces rarely are gathered, and still should take in consideration the population of errant animals both dogs as cats (SILVA et al., 2013).

In relation to the habit of wash the hands after play with the animal, 50 interviewed students (89,28%) answered that perform it, as well as 33 (91,66%) parents and 06 (85,71%) teachers. The spread of parasitism occurs with bigger frequency in areas where the sanitary structure is precarious. Conducts of personal cleaning and of the environment are important since the men can accidentally infect themselves through the environment or the intake of contaminated water or food containing eggs, grubs or oocysts of parasites eliminated in the faeces of sick animals (TARSIANO et al., 2010).

After the lifting and the data's study obtained through the questionnaires, it was performed in the same institution an educative lecture directed to the students and teachers. During the meeting were highlighted, especially, the points of disability noted like the ways of diseases' transmission and the measures of prevention of them. Teachers and children well-informed can act in a relevant way like diffusers of topics related to illnesses transmitted by animals in their residencies and in the community (UCHOA et al., 2004), in addition to also awareness and educate young people about the importance and ways of prevention of some zoonosis.

To Moreira et al. (2013) given the importance of the zoonosis to the public health, is necessary the population's awareness in terms of the risks of them, specially by children and young people, for them be the spawners of knowledge, reposting to the parents and others adults the obtained learning. And one of the ways of awakening of these students is through of the management of lectures associated to zoonosis in a general way, comprising since the transmission until their measures of prevention; just as properly

measures of contact with animals as this activity brings a lot of physical and emotional benefits to the humans. Thus, don't prioritize educative actions that encourage the population do without the companionship of animals; but rather, raise awareness of the importance of the adoption of measures that become this interaction harmonica and healthy (FRAGA et al., 2009).

The research determined the low level of knowledge of the interviewed people (students, students' parents and teachers) in relation to approached zoonosis and, at the head of this problematic, the lecture contributed effectively redressing questions, awakening the interaction and the interest of the participants about the proposed theme.

## CONCLUSIONS

The veterinary doctor is able to develop an educative role in the community, providing informations relevant to public health.

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**RESUMO.** Este trabalho teve como objetivo analisar o conhecimento sobre algumas zoonoses em uma escola da rede privada do município de Bom Jesus-PI, Brasil, por meio da aplicação de questionários destinados aos alunos do ensino fundamental, professores e pais de alunos. Zoonoses são aquelas enfermidades transmissíveis em condições naturais entre os animais e os seres humanos, e nem sempre o conhecimento sobre as mesmas alcança a população exposta aos riscos constantes, sendo necessário programar ações de educação sanitária nestas áreas. Na análise dos questionários observaram-se números significativos em relação à falta de conhecimento por parte dos entrevistados em todos os grupos. Em relação a larva migrans cutânea 37 (46,83%) dos alunos responderam não saber quais fatores estavam associados à contaminação, já quanto à prevenção, 35 (44,30%) desconheciam as medidas a serem tomadas. Referente à Leishmaniose, observou-se que 43 (54,43%) dos alunos já ouviram falar sobre a doença, 37 (46,83%) responderam ser o cão responsável pela transmissão e 34 (43,03%) o mosquito. Com relação à prevenção, 36 (45,56%) responderam ser o combate aos mosquitos, 35 (44,30%) usar repelentes, telas de proteção em janelas e uso de mosquiteiros, enquanto 07 (8,86%) não sabiam nenhuma medida de prevenção. No montante de 79 alunos que responderam ao questionário 93,67% afirmaram não ter conhecimento sobre a giardíase e 74,68% responderam não saber sobre como ocorre a transmissão dessa zoonose. Portanto, existe a necessidade da realização de trabalhos que visem fornecer essas informações à população, principalmente, às crianças por serem consideradas mais susceptíveis além de agentes disseminadores destas informações.

**PALAVRAS CHAVES:** Informação. População. Saúde coletiva.

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