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My experience from exposure to Triatomines, a narrative analysis

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Abstract
The Chagas' disease is a disease caused by the *Trypanosoma cruzi*, it is transmitted between the vectors by the *triatomines*, represents a serious health problem in Mexico, [Hidalgo].
Aim: describe the analysis of the discourse as part of a qualitative case study with emphasis on the interaction of the host and with the vectors *triatomines* from the narrative experience with this transmitter agent.
Methodology: a case study was made from the perspective of the qualitative methodology through the narrative of the experience and the interaction of a person with this insect in the Community of Coyolapa, Municipality of Atlapexco, Hidalgo, Mexico.
Results: 21 year old feminine person remembers that when she was 6 years old it stung her leaving a zone with a purple-reddish color. Rubbing it felt itchy and it hurt. Called my attention the fact that they alimented themselves with blood. When I found them and pushed them and the blood came out of it in a reddish tone and in others with a purple tone. They had different shapes, some long and full, others small with less blood and others exploded of the fullness, the insects came out every third day. Analyzing this situation I can say that every third day they had to eat.
Conclusion: This person has been in contact with the insect, the health care services are incapable to share the results with the habitants and it seems to not have vigilance and/or efficient programs of intervention and control of the vector.

Keywords: chagas' disease, triatomines, *Trypanosoma cruzi*, interaction, narrative-experience

Introduction
The Chagas' disease is a parasitical disease which represents a true public health care problem. An American trypanosomiasis, was first described by Dr. Carlos R. J. Chagas in 1909 and 1910. The National Academy of Medicine in Brazil denominated the disorder "Chagas disease" in honor of this doctor [1, 2].
The importance of transmitters was pointed out by Lent and Wydodzinky in 1979 [1]. Vector transmission occurs in all age groups [2, 3]. Chagas disease is a chronic infection caused by *Trypanosoma cruzi*, a eukaryote transmitted to humans and other mammals by hematophagous arthropods "*Triatomines"*, in Hidalgo by 2010 it was known that four species of triatómines were known: *Triatoma barberi* (Usinger), *T. dimidiata* (Latreille), *T. mexicana* (Herrich-Schaeffer) and *T. gerstaeckeri* (Stål), (Zárate *et al* 1980).It is known that there are four species of triatómines : Triatoma barberi (Usinger), T. dimidiata (Latreille), T. mexicana (Herrich-Schaeffer) and T. gerstaeckeri (Stål), (Zárate *et al* 1980) [4]. The arthropod deposits its feces on the host's skin surface and subsequently bites it. When the human or animal host scratches the bite area, penetration of the infected feces is facilitated. Other forms of infection are blood transfusion, organ transplant, of congenital origin, or occasionally food intake [1, 2, 3].
The three anatomical/clinical periods of this disorder were defined in 1940 by Dr. Salvador Mazza *et al*. in Argentina. The incubation period is from 5 to 14 days post-infection with feces of triatomines, and 20-40 days post-infection from blood transfusion. After 8-12 weeks of infection, the chronic phase of the disease begins. Many people are asymptomatic until 5-40 years post-infection. Only 30-40% of infected individuals develop grave symptoms, including enlargement of heart ventricles leading to heart failure (20-30%), an enlarged esophagus or an enlarged colon (10%) [3, 5].
Chagas disease in the Americas and today is endemic from Mexico to Argentina. Due to the great mobility of people nowadays between Latin America and the rest of the world, in recent decades it is ever more common in the United States, Canada, many European countries and some Asian countries of the west Pacific [6]. It is now known that the insects responsible for infection adapt themselves to living in houses and other constructions. The World Health Organization (WHO) has estimated that 10 million people are infected worldwide [6]. In 2008 approximately 10,000 people died from Chagas disease [7, 8].
The principal risk factors for acquiring Chagas disease are the presence of domestic animals and the type of construction of houses, the altitude (>2,150 and <2,180 meters above sea level, lifestyle. Chagas disease is a parasitosis caused by biological, environmental, social,

economic and cultural factors [9]. Therefore, it is important to design strategies for health education, including consciousness of lifestyles and housing materials, in order to reduce the risk of acquiring this disease. However, it is also important to consider environmental and biological factors. The complexity of the problem requires a multifaceted approach linked to health, education, housing and environment in order to strengthen programs designed to cut the chain of transmission. Few studies have considered knowledge of the disease and the parasite as well as consciousness of local customs as important risk factors for its propagation. One approach to resolving the problem is to consider, among all the factors involved, the most important risk factors in a given locality for acquiring the disease. This multipronged approach should replace the current strategy in Mexico that focuses principally on chemical control of the vector [9].

In Columbia, the principal risk factors for acquiring Chagas disease are the presence of domestic animals and the type of construction of houses [10, 11]. In rural Venezuela, the risk factors identified were a low to medium level of knowledge of the disease, the vector and the parasite. It was concluded that there is a need to educate the population to recognize the disease and its transmission vectors. Additionally, the population must be aware of the type of construction of houses that lends itself to such transmission [12].

In Mexico the first case of chagasic cardiopathy was recognized in 1944 in the National Institute of Cardiology in 1988, 8% of patients with myocardiopathy in this institute had tripanosomosis [13]. In 2001 the Mexican Secretary of Health identified two broad regions that constitute foci of the disease: 1) Hidalgo, Veracruz and San Luis Potosí, and 2) Guerrero, Jalisco, Michoacán, Morelos, Oaxaca and Mexico City. The other states of the republic had only isolated cases [14].

In Mexico the 33 species of hematophagous triatomines known to exist are distributed in 31 states [15], the species of the greatest importance epidemiologically are *Triatoma barberi*, *Triatoma dimidiata*, *Triatoma phyllosoma*, *Triatoma longipennis*, *Triatoma mazzottii*, *Triatoma pallidipennis* and *Triatoma picturata* [16, 17]. Triatomines can be found between sea level and 2,400 meters of altitude [18, 19]. The prevalence of serum antibodies against *T. cruzi* in Tamazunchale (a township in the state of San Luis Potosí) was 6.3%, above the national average (1.6%) and the previously reported seropositive rate for San Luis Potosí (2.5%) [19]. In Puebla, risk factors as altitude (>2,150 and <2,180 meters above sea level) [20]. In Tabasco a study in 2006 determined that little to no knowledge existed in that state of Chagas disease, the parasite and its vector [21]. In Veracruz the presence of the disease is favored by the type of material with which homes are constructed, including thatched roofs and walls, dirt floors and poor ventilation, the abundant insect life and the presence of the vector. Depending on the part of this state, prevalence of Chagas disease is between 0 and 2.8% [22].

In the 84 townships of Hidalgo, a study in 2000 determined that the prevalence of Chagas disease was associated with certain materials for constructing homes, and the presence of cracks in the walls and cats in the house [23]. In one township, Huejutla, the factors associated with presence of triatomines were mainly cracks in the walls, poor ventilation, overcrowding, and sleeping on the dirt floor or on a straw mat. Other common risk factors were roofs of wood, swamp grass or bamboo, walls of adobe, clay, stone, wood, swamp grass or bamboo, and floors of dirt or wood [24]. In Metztitlán, Hidalgo, the transmission of *Trypanosoma cruzi* was associated with environmental as well as biological factors, as well as the local campaigns to eradicate the responsible [4].

In the reading of the highland environment, from the science of the sustainability, there are discovered aspects of the ecosystem that determine the relation of the native with the triatomineo; processes of progressive deforestation for the development of the agriculture under new bosses for the communities, as the nearness with the housings, phenomenon that previously was realized in distant zones of the inhabited area; the environmental pollution related to waste of western products of consumption, opposite to which the native does not find a cultural modal that defines his meaning, his effect and consequently, his suitable managing, and that affect the presence of the natural reservoirs of the *Trypanosoma cruzi* and of the triatomines that take them as a natural source of supply.

From the science that studies the sustainability and his object of study that is the resistance partner ecological of the systems, and based on the investigation on Chagas's Disease, it becomes necessary to penetrate on sociocultural aspects that redound to a traditional managing of the elements that relate to the disease of Chagas [25].

Alarcón de Noya *et al*, 2010. In its publication entitled Large Urban Outbreak of Orally Acquired Acute Chagas Disease at a School in Caracas, Venezuela in their results they indicate that: [26]

The difference between the attack rate among students of the morning shift (22.5%) and the attack rate among children of the afternoon shift (2.4%) was statistically significant ($P<0.05$). Although the absolute number of infected children was higher (77 of 103 infected subjects), the maximum infection rate (15.2%) was observed among the school employees. One of the 16 workers who were involved directly in the preparation or transportation of luncheons showed evidence of acute T. cruzi infection, with serological test results positive for specific IgM and IgG. A significant positive correlation was found between ingestion of guava juice and risk of infection (OR, 3.5 [95% CI, 1.85–6.7]). The epidemiological interviews revealed that, except for the guava juice, all other beverages were made in the early morning. The guava fruits, in contrast, were boiled the night before and left to cool inside a large uncovered pot before blending in the morning. Once in the school, the juice was delivered to the morning shift, first to school personnel, then to kindergarten students, and then to students in ascending grades. Some personnel and students of the afternoon shift customarily consumed any remaining juice.

This shows that socio-environmental conditions play an important role in the mechanism of transmission of Chagas disease, that is, the study of Chagas disease does not only contemplate that the transmission mechanism is hematophagous. that is to say by stinging and embedding of the protozoan by scratching in the area where the insect peaks, but the socio-economic, environmental context are determinants for the transmission of said insect by ingesting food contaminated with feces from the insect and even from food contaminated with the protozoan in endemic areas, this represents an opportunity for health authorities to take samples from food, it also means that it is important to

invest in lifestyles, since with this Chagas disease confirms that it is a disease associated with poverty and this opens up a different perspective as to what will have to be considered for the design of intervention programs for the control and epidemiological surveillance of this disease

Finally they point out that
This new situation imposes necessary changes in the strategy of CD control programs, which until now have been limited to vector control activities in rural Latin American communities in areas of endemicity. De manera importante en el estado de hidalgo no existen programas para trabajo especializado sobre este padecimiento, esto aunado a la presencia de zonas endémicas con la enfermedad de Chagas [26].

Methodology
A study case was carried out from the perspective of the qualitative methodology from the ethno-methodology through the narrative experience and the interaction of a person with this insect as a key source in the community of Coyolapa, Municipity of Atlapexco Hidalgo, Mexico. She was asked to make commentaries freely on her experience with this insect in her life context during 21 years, the information was transcribed into Word and it proceeded to realize an analysis of her narrative discourse.

Results
The interview in-depth applied, shows that the interviewed person has been in contact with the vector of the Chagas' disease.

> *[…]I come from the community of Coyolapa, Municipity of Atlapexco Hidalgo, I lived here for 21 years, it is a community with no more than 200 habitants, is has an extensive vegetation, rivers, and a great variety of species and among them a lot of insects, for example the chinche. I remember when I was approximately 6 years old y got to know the chinche. They usually appear in the months of April, May and June because in these months the high temperatures are predominating and because of this they can be found in the homes."*

In her discourse she point out that the health care staff…ago, came to her house to find the vector, although, she says that they did not inform them about the preventive measures when it comes to handle the chinche. This way they did not make educative work for the health with the community.

> *[…] "When the health care sector began to announce the adverse effects that these insects mentioned above, cause damaging the health, the nurses started to carry out a campaign in which they told the people to report immediately that if they found some inside their homes and they asked them to collect them in bottles but they never said whether it was good to touch them with the hands or to avoid major contact with them."*

The discourse of the interviewed person makes it clear that have been in contact with this insect in some sort of way, gets to know the insect and among the symptoms that she mentions, those patagnomonical symptoms can be found which are typical when you are stung by this type of insect.

> *[…] "Unfortunately I was stung by a chinche and where it stung me some things called my attention such as: the purple color of it and when I brushed it, it felt itchy and when rubbing it, I felt pain. In some cases it turned into reddish of type eccyhmosis."*

She writes in a convincing way that the chinches had blood inside them. This lets us make the hypothesis that she or someone in her family had been attacked by the chinche because when it was found it was full of blood as she writes it down.

> *[…] "I remember that it called my attention that they aliment themselves with blood. When I found them and I pressed their stomach and the blood came out with a red tone and in others it come out with a purple tone. They had different shapes as well, some were long and full, others smaller and with less blood in them, and some were that full that they exploded."*

This information that is mentioned in her discourse could be related with that what we already know that the chinche absorb enough blood to preserve some part of it, this as a mechanism of adaptation.

> *[…] "A very interesting fact is that they appeared every third day. Analyzing this situation I can say that they have to eat every third day."*

Undoubtedly a commitment is necessary to be made by the health sector authorities in order to work for the public health in a preventive way. She herself writes that it seems that they have forgotten about it that they have never sent or communicated the results. There is a need of programs of community intervention started by the epidemiological vigilance system of the state where they do interventions from the education for the health and also pedagogical strategies that somehow let us do something against the attack of the chagas' disease since the cases detected in vulnerable communities show an area of opportunity to decrease the social/medical cost of the of the medical attention, and of the people of the vulnerable community, and of the health care sector. This entails to the joint responsibility in the applied public health. Finally this turns into the generation and maintaining the community's healthy and better lifestyle and better life level.

> *[…] "As a nursing student I would like to emphasize this topic because I know how to prevent diseases. I would like to expand this topic in order to as a nurse I could create an environment where they focus on the epidemiology through multidisciplinary teams like the teams of the public health care which in spite the fact that they have a big disadvantage because the samples that, they asked for that were up to 4 chinches in a bottle, they have never returned the results and while the rumors had settled down, they forgot about the consequences which are carried by these*

insects, perhaps not immediately, but in a determined time, then it became usual and almost normal for the people."

Discussion

The promotion of the health in vulnerable communities should be started by the health care authorities. They should give view backwards at the teaching methods of the staff of health care, and they also should take a look forward with the commitment of reeducation based on the constructivist pedagogy. This applied to the promotion of health it would conclude in the joint responsibility in public health, and in turn the improvement of the quality- and the lifestyle of habitants of vulnerable communities. Although the improvement would not be exempt or would improve the status of health in the cities where are supposedly better health indicators, this of course without keeping in mind the slum area.

Without any doubt, to make a study from the qualitative methodological perspective represents a field of opportunities and applicability regarding the health investigation because of what it results to be convincing to show that it is truly a narrative case regarding the experience with the insect.

This allows us to orientate the understanding of the host-vector interaction and of course the possibility to present the parasite. A situation which results to be respectable for the interviewed person, since for different situations it was not possible to carry out the mentioned laboratorial exam to verify her state regarding the presence of the parasite, but if the information gathered in the interview lets us see the utility that is to say that the mentioned information about her daily life lets us suggest this methodology as an individual diagnostic methodology and also collective at the level of the community, in the detection of social contexts where the lifestyles show determinant social and environmental deficiencies for the health, Recently, cases of Chagas disease have been detected in Bondojito, El Carmen and Jonacapa Mpio. Of Huichapan Hidalgo by blood tests to be donors, this means that the problem requires immediate attention from the health sector and the authorities.

The results obtained through in-depth interviews from qualitative research perspetiva allow fully consider the following:

The biological standard of health is interpreted by the social standard of health [27]. The metodology qualitative research experience in Public Health is considerable, so from here we have tried to work together to underline its validity, also stating that the epidemiological quantitative and qualitative methodology not only not mutually exclusive but can complement, but does not mean separation, continuity [28, 29].

Conclusion

The experience of this person with the chinche indicates for one side the possibility to carry the parasite but furthermore the possibility to use this strategy of searching the knowledge or the experience with the insect as one of the strategies to increase the possibility of the detection of the cases and therefore the successful outcome of the investigation on its treatment. Finally this suggestion through a very detailed interview lets us establish the detection social and environmental contexts where the people have been in contact with the triatomine and therefore the detection of opportunity fields as much for carrying out scientific investigations, as for the planning of strategies of intervention in the community, in order to detect the triatomine, diagnostics in the community and the selection of the persons to make the laboratorial examinations.

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