

Health education and social representation: an experience with the control of tegumentary leishmaniasis in an endemic area in Minas Gerais, Brazil

Educação em saúde e representações sociais:
uma experiência no controle da leishmaniose
tegumentar em área endêmica de Minas
Gerais, Brasil

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Abstract

This study was developed in an endemic area of tegumentary leishmaniasis in Minas Gerais, Brazil, with the objective of analyzing a health education process based on the social representations theory. The educational model was developed in two phases with 34 local residents. In the first phase, social representations of leishmaniasis were identified and analyzed. The second phase was based on the interaction between social representations and scientific knowledge. The results showed that social representations were structured in a central core by the terms "wound" and "mosquito" and in the peripheral system by the terms "mountains", "standing water", and "injection" related respectively to place, transmission, and treatment of the disease. We concluded that tegumentary leishmaniasis is viewed as a wound caused by a mosquito, portrayed by metaphors. The results of the second phase showed that social representations are systems that favor adherence to scientific knowledge, at times more rigidly in the central core, other times more flexibly when linked to the peripheral systems.

Health Education; Educational Models; Leishmaniasis; Endemic Diseases

Introduction

In recent decades health education has shown new conceptual and methodological contours. It has shifted from a more empirical approach, based on the transmission of knowledge, to one with predominantly pedagogical strategies with participation and interaction of knowledge related to health and daily reality ¹.

Currently, health education is a broad and systematized process with interaction of knowledge, aimed at allowing subjects to take a critical and reflexive view that expands their decision-making autonomy vis-à-vis health and daily issues. In the field of health promotion, health education is considered one of the pillars for individual quality of life. Viewing it from this perspective thus means linking social sciences and health sciences to its specific field of knowledge ^{2,3,4,5,6}.

The current study aims to analyze the relationship between a health education process based on social representations theory and the control of American tegumentary leishmaniasis (ATL) in an endemic area in the hinterlands of the State of Minas Gerais, Brazil. The study was based on the premise that learning occurs through an interaction between social representations – socially constructed knowledge governing the relationship between the subject and the world ⁷ – and scientific knowledge.

We define social representations as an organized set of opinions, attitudes, beliefs, and

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information related to an object or situation. The subjects themselves (with their life history and experience), the social and ideological system to which they belong, and the nature of their links to this social system determine such representations simultaneously. This socially constructed and shared knowledge aims at producing answers to daily issues, exerting an influence on the choices of subjects' attitudes, opinions, and practices ^{7,8,9,10}.

For a more in-depth understanding of social representations, one must understand the theoretical and practical field known as social representations theory ^{10,11,12,13}. To draw on social representations theory for an understanding of educational processes also means understanding ways of thinking constructed during subjects' life histories, thus influenced by collective experience, fragments of scientific theories, and schoolroom knowledge, partially expressed in social practice and mobilized and transformed to serve daily life ^{14,15,16}.

Social representations theory has two main watersheds, one prioritizing the content of social representations and the other their structure, i.e., their organization in a central core (more rigid, homogeneous, and stable knowledge) and the peripheral system, a more flexible, heterogeneous, unstable knowledge, more adaptive to the immediate context ^{14,15}.

Understanding the organization of the content of a social representation in its structures called the central core and peripheral system is fundamental for understanding how the knowledge-building process takes place on the basis of social representations. The theory states that in order to verify learning processes, it is necessary to identify at what levels changes in representations take place, whether they have reached the central core, and thus whether they have been incorporated more definitively into subjects' mental structures, or whether mere destabilizations of the contents of representations have taken place at a more superficial level, whose more permanent alteration would thus require the creation of new conflictive situations which would finally result in the modification or (re)construction of the subjects' initial representations ¹⁵.

The article thus proposes to reflect on the applicability of contributions by social representations theory to health education activities based on an actual experience with the control of tegumentary leishmaniasis in an endemic area in the State of Minas Gerais, Brazil.

Methodology

The study adopted a qualitative approach, consisting of descriptive research using social representations theory as the theoretical and methodological reference.

The study was conducted in Brejo do Mutambal, an endemic area for tegumentary leishmaniasis, with prevalence rates of some 60%. The location is a district in the municipality (county) of Varzelândia, in northern Minas Gerais, Brazil. The entire region has environmental characteristics favorable for endemic ATL, since it is surrounded by mountains with rock formations that serve as shelters for reservoirs of the disease: rodents, marsupials, anteaters, sloth, and other wild animals.

The overall schooling level is low, with a high proportion of the inhabitants either illiterate or with incomplete primary education. Most of the population lives from subsistence family farming and a minimum government income program known as *Bolsa-Família*.

Thirty-four residents of Brejo do Mutambal participated, mostly ranging in age from 16 to 36 years, having agreed to participate voluntarily and anonymously after being informed of the research. Participant selection used addresses of households with a history of ATL in the family. All participants signed a free informed consent form, in accordance with Ministry of Health Ruling 196. The Institutional Review Board of the Federal University in Minas Gerais also approved the study.

Study design

The study was designed to link the health education process to the research work. It was implemented in two phases. The first phase had two purposes: furnish content for subsequent analysis and determination of social representations and immediately create the educational process by providing a space for reflection on themes related to experience with ATL. This phase was conducted individually with each participant. Three data collection instruments were used: (a) free association of ideas ¹⁴ based on the inductive term "leishmaniasis" with the aim of identifying and analyzing words or expressions linked to ATL; (b) a questionnaire ¹⁷ with four questions related to transmission, prevention, control, and treatment of ATL in order to identify notions concerning these themes; and (c) an interview with semi-structured questions guided by images (photos) on the relationship between the disease and the place, daily reality, and the health-disease process in the

human life cycle. This resource of guiding the interview with images has been used as a facilitator for individuals with greater difficulty in answering the typical questions proposed in the interview¹⁷.

The second phase included collective educational moments approaching the social representations of ATL that had been identified by the researchers in the first phase.

The focus of this phase was interaction with scientific knowledge on ATL (place/disease relationship, transmission, control, risk factors, prevention, and treatment). The technique used was to construct thematic panels containing images (photos) chosen by the participants on the themes related to the disease, which were then discussed with them.

The ambiguous scenarios technique^{14,15} was used to evaluate the educational process. In this study, this technique played a double role: to test the centrality of social representations and to evaluate the (re)construction of knowledge by participants after the health education intervention. In this technique, the researchers reported that the central and core and peripheral systems linked to ATL and identified in the first phase were questioned, thus observing whether the participants maintained these same representations.

All the data obtained in both phases were analyzed as proposed by Bardin¹⁸ for content, together with the construction of “idea association maps” as proposed by Spink^{19,20}. Abric^{11,12} and Sá^{13,14} were our references for analyzing the structure of the social representations in the central core and peripheral system.

Results and discussion

First phase: identifying representations of tegumentary leishmaniasis

The participants' social representations of ATL were analyzed in three dimensions: cognitive, affective, and daily practice. The cognitive dimension consists of progressively assimilating and accommodating knowledge within the subjects' conceptual structure. The affective dimension refers to the subject's capacity to ascribe a value to an object or space. The dimension of daily practice involves habits, customs, and daily routines, linked to the “here” and “now” dictating what is relevant or irrelevant in daily life. Working with social representations assigned to different dimensions was important for the educational process, since they gave a multidimensional format to the content

approach (social representations). The emphasis on interaction between different types of knowledge thus focused not only on cognition, but on the other dimensions as well, namely affectivity and daily practice.

Approaching the cognitive dimension of social representations

When asked to talk about the disease “leishmaniasis”, the village residents' narratives revealed a wide range of expressions and adjectives, as shown in Table 1. These data resulted from analyzing the content obtained through free association of ideas based on the inductor “leishmaniasis” and the questionnaire containing aspects related to ATL transmission, prevention, and treatment.

Table 1 shows that for each thematic category, specific terms and expressions emerged. To express the meaning of leishmaniasis, the interviewees referred to the term *wound*; when thinking about ATL transmission they mentioned the word *mosquito*; they associated prevention of the disease with *standing water*; they mentioned *injections* as the way of treating the disease; for environmental conditions favoring the endemic they cited *mountains* and *pools of water*. This signals that in general the interviewees were familiar with some aspects of the ATL transmission cycle, although they highlight “standing water”, which is not related to this disease's mode of transmission.

As perceived by local residents, the terms “garbage”, “mountain range”, “water”, “animals”, and “mosquito” are directly related to the disease's transmission. When asked about ATL transmission, 39 different answers associated it with the “mosquito”, in the local residents' own words. The fact that dengue is also mosquito-borne may have facilitated the incorporation of knowledge that serves as an anchor for new knowledge, but in this case linked to ATL.

Another form of transmission depicted by interviewees with numerous citations is “water”. Analyzing their speech acts, we observed that the reference is not to contact between people and water, but to “water” as harboring the “mosquito” that purportedly transmits ATL. The fact that residents view “water” as related to ATL transmission may be related to the intensive mass media campaigns concerning precautions with “standing water” to prevent dengue. This communication process is combined with the fact that water is a notorious vehicle for the transmission of infectious and parasitic diseases like intestinal parasites, schis-

Table 1

Terms and expressions cited in the categories analyzed concerning interviewees' level of knowledge about American tegumentary leishmaniasis (ATL).

Thematic category	Terms and expressions most frequently cited by interviewees according to thematic category	n
Meanings ascribed to tegumentary leishmaniasis	Wound	50
	Disease	22
	Leishmaniasis	5
Transmission of tegumentary leishmaniasis	Mosquito	39
	Water	22
	Animals	13
	Do not know transmission mode	8
	Mountains	6
	Garbage	6
Treatment of tegumentary leishmaniasis	Injections	10
	Ointments	2
	Pills	2
	Herbal teas and medicinal plants	1
	Vaccine	1
Measures for prevention and control of tegumentary leishmaniasis	Benzathine penicillin	1
	Precautions with pooled or standing water	37
	Use poison [insecticide] to combat the mosquito	18
	Use incineration and fumigation	13
	Avoid proximity with the mountains	13
	Precautions with garbage	9
	Immunization against ATL in humans	5
	Immunization of dogs against ATL	2
Local characteristics favoring the endemic	Use of mosquito nets	4
	Not familiar with preventive measures	3
	Pooled or standing water	36
	Mountains	34
	Mosquitoes	17
	Unfamiliar with any relationship between the place and ATL	8

tosomiasis, and others and has been a highly recurrent theme in health education practices since the mid-20th century. By explaining the disease by means of water accumulated in various environments, the accent no longer falls on the true modes of transmission of disease, namely the mountain range, cited as harboring the vector insect and other animals.

In relation to the theme ATL treatment, residents used 38 expressions in the answers. Of these, 16 citations referred to the treatment as an injection (glucantime) as the only way of curing the wound caused by ATL, which is confirmed by medical discourse. We observed that the fact that leishmaniasis treatment involves injections generates discomfort, concern, and

fear in the population. Knowing individuals with the disease and its implications is rarely limited to the immediate family. Intertwining networks of kinship and friendship unavoidably lead to the involvement of neighbors and relatives in the patient's experience, either by providing support or transmitting stigma and information. Local residents thus always have a case of the disease in the village to tell about.

In relation to control and prevention, participants in the educational project represented them in terms of "environmental practices", quantitatively the most significant term, with 59 citations, followed by "measures related to the mosquito", with 35 citations, and "immune [vaccine] prevention", with seven citations.

Environmental practices associated with precautions with water, garbage, and the surrounding mountains were cited as the most important aspects for controlling the disease. Application of “poison [insecticide]” was cited as an important measure for reducing the insect population. Interestingly, other measures such as use of mosquito nets and long clothing to cover the body were rarely mentioned.

Many residents focused their representations concerning control of the insect vector precisely on eliminating the mosquito through various household measures such as producing smoke by burning various materials (animal dung, eucalyptus leaves, rubber, etc.).

The residents spoke about the relationship between the place and the disease based on the coexistence of numerous surrounding mountains, inadequate storage of standing water, and mosquito populations. Far from being knowledge that provokes preventive responses, this notion of the mountains as the disease vector’s “habitat” leads to a feeling of powerlessness vis-à-vis control of the endemic, clearly seen in the following report: *“I think it’s going to be difficult to wipe out this disease here, because of the mountains, which is where the mosquitoes live. People will have to learn to live with the problem, cause there’s no way to wipe out the mountains”*.

In the cognitive dimension, when asked to express what they think or feel when they hear about leishmaniasis, more than half of the residents mentioned the term “wound”. The fact that a clinical manifestation of ATL is the development of skin or mucosal ulcers which are generally difficult to heal means that the disease is recognized by its most obvious clinical manifestation, namely the “wound”. The objectification of the disease ATL is thus expressed in an image personified in a “wound” which possesses its own characteristics.

Thus, based on the narratives, the population used language to externalize the wound and the disease, full of meanings: *“It started with a little lump, and that little lump grew, that hard lump, and then a wound broke out on my leg”*. *“The wounds are like little eyelets”*. *“It’s a wound that heals on the outside and gets worse on the inside”*. *“The wound goes deep and looks like a muzzle”*. Local residents create such metaphors to express their perceptions and feelings. They engage others with the force of such evoked images. Local residents thus use such metaphors to call on others to share their experience.

Since residents individually and collectively construct notions on the wound and share reactions, stories, and feelings, the disease gains

identity and is considered anomalous. This aspect of identification and qualification of leishmaniasis confers a practicality to this knowledge, as proposed by Jodelet⁷, instrumentalizing the community to identify new cases of leishmaniasis in the village.

Approaching the dimension of daily practice in social representations

The data presented in this dimension were obtained in the interview guided with images that approached the relationship between the disease and local residents’ daily reality. Of the 34 participants in the study, 50% (17) stated that there was a risk of acquiring leishmaniasis while carrying out routine daily activities, including work in the fields, with 14 citations. Household activities were also identified as related to the disease, but with only three citations. Seven of the 34 participants claimed that there is no risk of acquiring the disease during routine daily activities.

More than half of the residents viewed the disease as something predictable for those who work in the fields, due to the proximity to the surrounding mountains, the habitat of the “mosquito”. On the other hand, although to a lesser degree, some residents felt that work in the fields was not a risk factor for the disease, as attested by one resident: *“That’s kind of hard [to catch the disease out in the fields], except if the person’s already sick, cause then there’s nothing better than working in the fields. No, the disease isn’t out there in the field, you have to be sick already”*. This discourse is elucidative and appears to derive from a phenomenon of rationalization. It contains an implicit attempt to attenuate the strong relationship between work environments and risk of acquiring the disease. The inference is supported by the fact that under various circumstances and when asked about the conditions responsible for transmission of the disease, local residents pointed to the surrounding mountains and forests, as described above in this educational work.

Denial of the real possibility of acquiring the disease in daily practice appears to be linked to the fact that the place identified as entailing the greatest risk, “work in the fields”, is simultaneously a source of satisfaction for many of the local residents.

The following brief excerpt expresses a positive feeling towards life with farm work as one of its pillars: *“The story I have to tell about my life is working in the fields. Working in the fields is health”*. In such cases, work has an intrinsic value; therefore it does not have a merely in-

strumental function linked only to the pressing need for survival. It is not viewed only as a means, i.e., within a primarily utilitarian perspective.

In our understanding health education proposals aimed at controlling endemic diseases should consider the dimensions of life linked to daily practice and human subjectivity, guaranteeing the discussion of two important categories, namely the notion of the disease's risk and visibility.

Approaching the affective dimension of social representations

The data obtained from the interviews guided by images on the relationship between the disease and the health/disease process and the related stories about them in the local community (Brejo do Mutambal) provide the affective dimension of this study. When the 34 participants were asked to talk about the place, 17 (50%) ascribed a positive image to it, while the other 17 viewed it in a negative light.

The relationship between residents and the place is measured by value-based representations and the construction of positive or negative images about it, which in this particular study appear in an ambivalent way. The negative images were related to adverse living conditions, lack of opportunities for social mobility, lack of prospects for the children, and the precarious local infrastructure: *"You know how hard our life is. I started working in the fields when I was ten and have been working there ever since. When I'm not working in the fields, I'm gathering kindling. Hauling all that kindling [pointing to a woodpile] on my head is nothing. I've been a widow for eleven years, just gathering the crumbs. Life is suffering"*.

The result of all this is a feeling of discouragement expressed by residents towards the community's lack of prospects. Thus, experiencing and narrating their pain, the local residents rule out any possibility of making forecasts about their lives, as shown in the following testimony: *"The drought, the lack of rain. The little rain that did fall all came at the wrong time. So with all the hardship, the dry years, things got out of hand and it was all dry here and people sold most of the land. The crops fell off and the time came when the drought got even worse. So the crops dried up all together. Like this year, when 60 to 70% of the crops were lost"*.

While residents of Brejo do Mutambal identify reasons for distress and suffering linked to living in a rural community, they also express several reasons for feeling fondness for the

place. Enjoying farm work is a point of attachment, as are the "kinship" they feel for the place and the roots they develop which further nourish this fondness.

A positive presence in the village is a network of friends. What apparently matters less is the residents' social and economic condition, and what matters more is their affective belonging to the community: *"I can't even explain it. I was born and raised here, and we get used to our own place. I think if we moved, we'd miss the place"*. The feelings fostered by the place can certainly help define the residents' behavior patterns towards their daily life. Thus, their fondness for the place can favor attitudes of refusal and denial towards anomalous phenomena, such as diseases whose risk factors are spread around the various local environments. In the eyes of local residents, tegumentary leishmaniasis is both normal and abnormal, integrated and rejected. When residents were urged to talk about their hardships and main health problems, leishmaniasis appeared in metaphorical form when the residents made free, detailed, and extremely fertile associations between the disease and various structures and animate and inanimate objects, to manifest their feelings of suffering, affliction, discomfort, shame, and fear towards the disease.

In response to the way they related to the place and the disease, the trend could thus be to link determination, knowledge, and discernment in deliberate action towards the place. When implementing studies and proposals for intervention, to assume this as truth means recognizing the importance not only of reality, but the way it acquires new configurations in the subjective imaginary. We believe that to the extent that the disease is verbalized, told, and narrated, it gains identity within a specific context where the subjects establish relations. It is important to recall that with endemic diseases, the majority of control and prevention measures depend on environmental interventions, i.e., depending heavily on collective attitudes that guarantee the restructuring of the environment and reflection on space.

Demarcating the central core and peripheral systems of social representations

Analyzing the residents' representations as a whole, the most frequent terms are "wound" and "mosquito" among all those used to describe leishmaniasis, as shown in Table 1. Identification of the frequency of words, or the most frequently quoted terms and expressions, is one way of visualizing the most prevalent cog-

nitions in the subjects' discourse, strong indicators of the centrality of this knowledge. Added to this approach were other analytical techniques such as symbolic value and connectivity^{11,12,14,15}. Associative idea maps were also used, as proposed by Spink¹⁹.

Thus, when we analyze these terms, considering the qualitative aspects or their symbolic value and associative power, "wound" and "mosquito" are again the ones that most serve this function, as compared to the terms "standing water", "mountains", and "injection", since it is through the terms "wound" and "mosquito" that all the others make sense, i.e., they guarantee a connection and an associative power with the other terms, in addition to bearing a meaningful and symbolic value that best specifies the meaning of leishmaniasis for the local residents.

We analyzed the potential of the term "water" to link and associate with other terms and observed that the same was not true for the terms "wound" and "mosquito". However, although it is not part of the disease cycle, *water* proved to be important in the sense of anchoring information on other diseases and was persistent in the conceptual structure of many local residents, leading us to view this expression as possibly belonging to the peripheral system of social representations. Other less frequent terms like "mountains" and "injections" also failed to show the characteristics of centrality in the representation.

Second phase: interaction between social representations and scientific knowledge

This phase took place during collective moments in a local public school. The distinguishing reference in this phase was to foster a dialogue between the subjects' social representations and scientific knowledge on leishmaniasis.

In this process, the subjects' knowledge gaps, cognitive conflicts, and contradictory and/or equivocal notions were approached carefully, considering the premise that although social representations are sometimes ambiguous, incoherent, and impregnated with common sense, they represent important mechanisms, culturally developed by the members of a given social group to deal with diseases with which they are forced to live for a major portion of their lives.

During the educational moments, we observed that the expression "water" or "standing water" as a purported breeding site for the leishmaniasis vector persisted in numerous citations, as occurred during the first phase of the process and was thus identified as responsible

for the endemic. The educator informed the group more than once that "standing water" is not a breeding site for the leishmaniasis insect vector, although it does serve as the habitat for various disease-causing microorganisms.

In relation to the animal reservoirs for the disease, the data from the second phase differed very little from those in the first phase.

In relation to local characteristics favoring the endemic, during the second phase the residents identified the "mountains" and "forests". In their view these places pose the greatest risk of infection, followed by working in the fields and in the home. The result was the same as in the first phase. A discussion thus ensued with residents concerning ways to reduce the risk of acquiring ATL in these places, such as wearing long-sleeved clothing and trousers and using insect repellents on the face, hands, and feet. Again, it was not common for local participants to adopt such measures. It was thus necessary to evaluate them in terms of the possibility of incorporating them into daily habits, since they involved costs for the local population.

At the end of the educational work, the results concerning the participants' knowledge about measures for ATL control and prevention showed that in their view spraying insecticide and using mosquito nets were the more important measures for preventing the disease, thus appearing with most citations in their discourse, unlike the first phase of the study, in which the participants identified environmental measures as the most important, specifically in relation to "standing water". We attribute this change in representation to the fact that the residents participating in the educational process learned the knowledge that "water" is not a breeding site for ATL sand flies.

Evaluation of the educational activity based on social representations: changes in the central core and peripheral system

In order to verify whether there had been interaction and reconstruction of knowledge related to leishmaniasis based on health education grounded in social representations, it was necessary to define which evaluative instrument to use. The researchers considered the "ambiguous scenario" described by Sá¹³ an adequate technique for this purpose, since it allowed subjects to test their arguments. In the "ambiguous scenario", the educator reports a fact associated with leishmaniasis in which the central core of the social representations is challenged or questioned, thus observing whether the participants maintain their initial position

and argue coherently, even when the cognitions linked to the central core are challenged. The researchers chose to discuss both the probable content of the central core, “wound” and “mosquito”, and that of the peripheral system, “water”, “injection”, and “mountains”.

This process was a collective activity during which each participant received a green card, which they raised when they agreed with the content of the scenario narrated by the educator, and a red card when they disagreed with the reported scenario. They were then asked to justify their choices. The following illustrates an ambiguous scenario aimed at questioning mosquitoes as the vectors for ATL: “*Here we are, with photos of people with ‘wounds’, but studies were done in this given place and they observed that none of them had been bitten by mosquitoes. Do these people, who have wounds but weren’t bitten by mosquitoes, have ATL?*”.

Table 2 shows the results of applying ambiguous scenarios to evaluate this educational activity based on representations of leishmaniasis. The most productive ambiguous scenario questioned standing water as a site for the mosquito, showing once again that this knowledge was replaced after the interaction of knowledge. In other words, before the educational activity it was viewed as an integral part of the ATL transmission cycle, but this changed after the educational activity, confirming our inference that “standing water” belongs to the peripheral system of social representation, with flexibility as a characteristic.

The results appear to confirm the aspects comprising the central core of subjects’ representations, namely “wound” and “mosquito”. When questioned during the ambiguous scenario, they were reaffirmed as “unquestionable” information and always viewed as part of knowledge related to ATL.

When the term “mosquito” was questioned, 85% of the participants considered its presence

directly linked to the fact that the village had an ATL endemic. This knowledge is important since the majority of the individual and collective measures focus on reduction of exposure to vector bites and combating the vector by applying insecticide, among others aimed at reduction of exposure to the vector and reduction of the insect population.

During the ambiguous scenario questioning the efficacy of individual and collective control measures like use of mosquito nets, the participants confirmed (in 70% of the responses) that such measures are effective for the prevention and control of ATL. This observation is interesting from the point of view of adopting measures for prevention and control, since it confirms that when control measures are well-based, their credibility increases and people accept them more readily.

Final remarks

Social representations are structured in a central core and peripheral system. Knowing this structure favors the health education process, identification of spaces for inflection, and the resistance of social representations. In other words, considering social representations for educational purposes in terms of content and structure creates the possibility of identifying not only the networks of meanings surrounding an object, but also the visibility of possible spaces for its transformation.

In this case, health education allowed questioning the peripheral system of representations, opening room for new knowledge to be incorporated into the participants’ conceptual structure. Thus, based on the process, the representation that leishmaniasis is transmitted by standing water was replaced by the idea that the surrounding mountains and forests and areas where animals are raised and where garbage

Table 2

Results of the evaluation of the educational activity and verification of the central core of social representation of tegumentary leishmaniasis by study participants.

Ambiguous scenario	Affirmative citations		Negative citations	
	n	%	n	%
Questioning the <i>mosquito</i> as the vector for tegumentary leishmaniasis	29	85	5	15
Questioning <i>water</i> as belonging to the area of preventive measures against tegumentary leishmaniasis	4	12	30	88
Questioning the <i>mountains</i> as a determining factor in the tegumentary leishmaniasis endemic	28	82	6	18
Questioning <i>forms of prevention</i> (smoke, insecticide, repellent, mosquito nets, and others)	24	70	10	30

accumulates constitute the habitat for sand flies. In this teaching situation, the peripheral system proved to be receptive to scientific knowledge.

Health education based on social representations allowed externalizing the central core of the representations, facilitating an understanding by educators of the ways the residents view the disease and moments of reflection, (re)cognition, and recreation of relevant images and representations by the residents. For the residents, leishmaniasis was not viewed as important, losing in order of priority to a series of other common diseases. It was described cognitively, affectively, and metaphorically, thereby revealing the place it occupies in individuals' lives by awakening emotions, fear of death, and feelings of affliction, concern, and shame.

In this educational activity, the content identified as belonging to the central core proved to be rigid and less receptive to scientific knowledge; however, we observed that scientific knowledge impacted the network of meanings comprising the central core of representations. Thus, after the development of health education, the representation of "mosquito" as the vector of ATL remained as part of the central nucleus. However, while it was previously

confused with the dengue mosquito vector, the sand fly gained its own characteristics, distinguishing it from the initial representation.

The evaluation process in this study was limited in time, and more effective conclusions concerning the interaction between subjects' social representations and scientific knowledge would require a more long-term process evaluation aimed at verifying whether the conceptual alterations persisted over time. The researchers are thus developing other studies to evaluate whether these alterations are consistent or merely reflect the results of sporadic exposure to the educational discourse.

In operational terms, an educational process based on social representations requires greater time, since it involves two phases and demands substantial investment in the production of educational materials. In addition, its applicability should not be generalized; thus, a particular health education proposal should be developed for each specific group of people.

Finally, educational work based on social representations of the disease can be reproduced for other endemic diseases and social-interest themes to verify the possibility of increasingly incorporating and integrating the referential framework of social representations into the health education field.

Resumo

Desenvolvido em uma área endêmica em leishmaniose tegumentar, zona rural de Minas Gerais, Brasil, este estudo pretendeu analisar um processo educacional em saúde fundamentado na Teoria das Representações Sociais. Este modelo educativo foi desenvolvido em duas fases e destinado a 34 moradores da localidade. Na primeira fase, foram identificadas e analisadas as representações sociais vinculadas à doença. A segunda fase consistiu na interação entre as representações sociais e o conhecimento científico. Os resultados da primeira fase identificaram que as representações sociais estavam estruturadas no núcleo central pelos termos "ferida" e "mosquito", e no sistema periférico pelos termos "serra", "água parada" e "injeção" relacionados, respectivamente, a lugar, transmissão e tratamento da doença. Para os pesquisados, a leishmaniose tegumentar se personifica em uma ferida do mosquito permeada de metáforas. Os resultados da segunda fase mostraram que as representações sociais são sistemas favoráveis ao "acolhimento" do conhecimento científico, ora mais resistente, quando ligado ao núcleo central, e ora mais flexível, quando ligado ao sistema periférico.

Educação em Saúde; Modelos Educacionais; Leishmaniose; Doenças Endêmicas

Contributors

D. C. Reis participated in the study design and implementation, conducted the data analysis, and produced the main draft of the article. M. F. Gazzinelli supervised the study and participated in its implementation, the data analysis, and drafting of the article. A. Gazzinelli participated in the data collection and reviewed the manuscript. C. A. B. Silva participated in the study implementation.

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