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ORIGINAL ARTICLE / *ARTIGO ORIGINAL*

Evaluation of schistosomiasis control activities in the Family Health Strategy in municipalities in the Jequitinhonha Valley, Minas Gerais, Brazil

Avaliação das ações de controle da esquistossomose na Estratégia de Saúde da Família em municípios do Vale do Jequitinhonha em Minas Gerais

Humberto Ferreira de Oliveira Quites[I,II], Mery Natali Silva Abreu[I], Leonardo Ferreira Matoso[II,III], Andrea Gazzinelli[I,II]

ABSTRACT: Observational study that examined the quality of the preventive actions for schistosomiasis control in the Brazilian Family Health Strategy (FHS) in an endemic area. Structured questionnaires were used to interview 97 health professionals of the FHS and the Secretary of Health of 25 municipalities belonging to the State Health Department of Pedra Azul, Minas Gerais, Brazil. Models of latent variables were used to define a score to evaluate the quality of the process. The results showed that 57.8% of the FHS teams' actions were unsatisfactory or critical. The professionals did not perform effective activities for the control of the infection and 8.1% did not use the diagnostic methods required by the government. Similarly, the professionals did not receive adequate training for the development of schistosomiasis prevention and control. There was a lack of educational materials to carry out health education activities, and the FHS teams conducted educational activities in only 48% of the schools of municipalities. Less than half of the professionals interviewed knew about the Schistosomiasis Control Program. We concluded that it is necessary to integrate this Program's practices to the FHS, and seek a suitable support of municipal management through pacts and social control.

Keywords: Schistosomiasis mansoni. Communicable disease control. Public health. Family Health Strategy. Health services administration. Neglected diseases.

[I]School of Nursing, *Universidade Federal de Minas Gerais* – Belo Horizonte (MG), Brazil.

[II]*Instituto Nacional de Ciência e Tecnologia em Doenças Tropicais*, Brasil.

[III]*Centro de Pesquisa René Rachou*, *Fundação Oswaldo Cruz* – Belo Horizonte (MG), Brazil.

Corresponding author: Andrea Gazzinelli. Escola de Enfermagem da Universidade Federal de Minas Gerais, Avenida Alfredo Balena, 190, CEP: 30130-100, Belo Horizonte (MG), Brasil. Email: andreag@enf.ufmg.br

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RESUMO: Estudo observacional que analisa a qualidade das ações de diagnóstico, tratamento e controle da esquistossomose na Estratégia Saúde da Família (ESF) em área endêmica. Foram utilizados questionários estruturados em 97 profissionais de saúde da ESF e em secretários municipais de saúde de 25 municípios pertencentes à Gerência Regional de Saúde de Pedra Azul, Minas Gerais. Foram utilizados os Modelos de Variáveis Latentes para definir um escore a fim de avaliar a qualidade da proposta. Os resultados mostraram que 57,8% das equipes da ESF realizam suas ações de maneira insatisfatória ou crítica. Os profissionais não realizam ações efetivas para controle da infecção e 8,1% não utilizam o método diagnóstico preconizado pelo governo. As estratégias de vigilância e controle ainda são incipientes. Da mesma forma, os profissionais não receberam treinamento adequado para o desenvolvimento das ações de prevenção e controle da esquistossomose. Falta material educativo para o desempenho das atividades de educação em saúde, sendo que as equipes da ESF realizam atividades educativas nas escolas em 48% dos municípios. Menos da metade dos profissionais entrevistados conhecia o Programa de Controle da Esquistossomose (PCE). É necessário integrar as práticas do PCE à ESF, além de buscar um adequado suporte da gestão municipal por meio de pactuações e do controle social.

Palavras-chave: Esquistossomose mansoni. Controle de doenças transmissíveis. Saúde pública. Estratégia Saúde da Família. Administração de serviços de saúde. Doenças negligenciadas.

INTRODUCTION

In Brazil, schistosomiasis is considered a major public health problem, affecting three to six million individuals, and 25 million are at risk of contracting the disease[1]. It affects 19 federal units and approximately 99% of cases are concentrated in the Northeast and Southeast of Brazil[2]. In the State of Minas Gerais, there are approximately 10 million people living in endemic areas, and there is active transmission of schistosomiasis in 523 (61%) of the 853 municipalities[1,3,4].

Since 1980s, the Schistosomiasis Control Program (SCP) develops schistosomiasis surveys and other initiatives with support from the federal government, aiming to control the disease across the country[5]. Since 1998, municipalities became responsible for the surveillance and control activities of the infection throughout their coverage area. To this end, they should have a structure capable of providing the development of these actions in an integrated manner, considering epidemiological and environmental surveillance actions in health and disease control, in addition to performing a comprehensive assessment of the municipal health-disease situation[3].

Currently, the Ministry of Health aims to treat the communities in areas of greater risk, seeking to reduce the transmission of the infection and its possible complications and intensify the search for improvements in sanitation[6]. On the State level, the SCP is responsible for training and supporting the municipalities in actions involving the diagnosis and treatment of the infection, as well as identifying outbreaks of vector snails. This program is also responsible for encouraging control actions, social mobilization,

health education, and the integration of data generated in the corresponding information system[6,7]. Another important recommendation is carrying out activities for the surveillance and control of schistosomiasis in the municipalities through the incorporation in the SCP of the actions developed in primary health care (PHC), held by the Family Health Strategy (FHS)[3]. Studies show that the systems guided by PHC show positive results in relation to the provision of better health care for their populations, both regarding greater efficiency and equity, and in relation to the continuity of care and user satisfaction[8,9].

Despite all efforts, there are still difficulties in the implementation of actions aimed at the control of schistosomiasis in the health services due to the precariousness of public PHC services, not only in some endemic countries[10] but also in Brazil[11]. In the case of schistosomiasis, the complexity of the transmission mechanism and the diversity of conditioning factors hamper their control by the health services[12,13]. In endemic areas, the asymptomatic nature of the disease can result in a silent evolution with important consequences for the individual and even the installation of its severe forms. It is therefore essential that there is a constant monitoring of the infection[1,2]. There are very few patients with acute schistosomiasis in an endemic area, and yet, it is likely that these cases are being overlooked, misdiagnosed, underestimated, and underreported over the years[13]. All this context is aggravated when associated with lack of planning and prioritization of local actions in health, which creates difficulties in controlling this infection[7,14].

It is known that PHC services should include the diagnosis and treatment of schistosomiasis in endemic areas, and its success is determined by the coverage of the target population, as well as its cure rate, always depending on the human resources involved in this process, as well as the awareness and the community involvement[11,14]. Considering the recurring problems in controlling the infection in endemic areas, limitations on actions taken by the SCP, and the need to understand more about the approach to this disease by the PHC; this study aimed to analyze the quality of diagnosis, treatment, and control actions of schistosomiasis.

METHODS

STUDY DESIGN AND PARTICIPANTS

This is an evaluative study, with observational cross-sectional design, performed with health professionals and the Secretary of Health from all 25 municipalities belonging to the Regional Health Management of Pedra Azul, an endemic area for schistosomiasis, located in the northeastern state of Minas Gerais. These are small towns with a population ranging from 4,656 to 24,131 inhabitants, and an average Human Development Index of 0.6332[15]. Each location received an identification number to preserve their identity. Study participants were 97 representatives of the FHS team, doctors or nurses, from a total of 103 professionals, and 25 Secretaries of Health.

INSTRUMENT AND PROCEDURES

Data were collected in 2012 through structured questionnaires, developed based on the literature and on the experience of the researchers, who have been carrying out research activities in the region for more than 10 years. A pilot test was carried out for the adequacy of instruments. The purpose of the health professionals' questionnaire was to obtain information on control and surveillance practices related to schistosomiasis developed on the PHC, as well as aspects related to the diagnosis and treatment of the disease. The questionnaire of health managers aimed to obtain information related to the municipal control strategies of schistosomiasis, infrastructure of services, financing of the SCP and continuing training and education of the professionals involved. The study was approved by the Ethics Committee of the Universidade Federal de Minas Gerais, CAAE – 0640.0.203.000-11 and all participants signed the informed consent.

STATISTICAL ANALYSIS

Initially, descriptive analysis was performed for the submission of information obtained, and the averages and the distribution of frequencies calculated in accordance with the character of the researched variables. To assess the quality of care related to the diagnosis, treatment, and control of schistosomiasis by the FHS in PHC, the analysis of latent variable models (LVMs) was carried out[16]. The scale of values used to assess this construct was produced considering the necessary activities for the development of actions developed in PHC. The variables were adequately evaluated for their correlation and adjustment. They are:

- having materials and equipment to carry out basic control activities;
- organizing community meetings and lectures to develop health education actions in PHC;
- ordering routine parasitological tests for all patients;
- ordering parasitological tests in strategic cases, such as risk groups and post-treatment with praziquantel (PZQ) to check its effectiveness;
- using the PCE-108 form in the reporting of positive cases;
- using the Kato-Katz method for the stool test;
- conduction of the adequate treatment by the professional;
- having PZQ in the municipal health sector;
- conducting the treatment in the municipal health sector;
- receiving explanatory material on the activities of the SCP;
- maintaining partnership among professionals of the SCP and the FHS in the surveillance and control actions;
- organizing meetings between the FHS teams for discussions related to schistosomiasis;
- training of the FHS teams to carry out prevention and control of infection;
- notifying positive cases;

- having a reference center for the clinical monitoring of chronic cases;
- sharing information on positive cases with the SCP;
- participation of the municipal manager in drafting the Municipal Health Plan, to ensure that control activities are included;
- inclusion of previously agreed prevention and control actions for schistosomiasis in the municipal goals; and
- having a municipal epidemiology sector.

The technique used for the measurement of the "quality of care" construct was the item response theory (IRT), associated with the Rasch model and Cronbach's alpha. To construct the LVM, we used the R software, version 2.8.1, and the Ltm package, which allows adjustment of the models using the maximum marginal likelihood method. From the construction of the score, the quality of diagnosis, treatment, and control activities developed by the FHS teams were classified into four categories based on quartiles of the score distribution: Critical (< 25%), unsatisfactory (between 25 and 50%), satisfactory (between 50 and 75%), and excellent (> 75%). The scores of the municipalities (n = 25) were calculated by the average of the scores of the teams.

RESULTS

Surveillance, prevention, and control of schistosomiasis in the cities studied are carried out by the SCP through active case search and by the PHC, through the FHS teams. In general, the FHS has been an important model used for the benefit of the population, ensuring coordinated and planned health actions in primary care. These services are responsible for diagnosis and treatment of infected individuals coming by spontaneous demand to the municipal basic health units (BHUs).

In general, the 97 teams from the 25 municipalities studied were in accordance with the proposal of the FHS, consisting of medical professionals ($\overline{X} = 0.96$), nurses ($\overline{X} = 1.01$), nursing technicians ($\overline{X} = 1.58$), and community health agents (CHAs) ($\overline{X} = 6.63$) working on average 40 hours per week. Most of these teams (45.4%) had their activities focused on the municipality's urban area, 27.8% developed their activities in rural areas, and 26.8% in both regions. In areas of risk, i.e., without basic sanitation and treated water, the number of FHS teams is still reduced (14.1%). Precarious conditions of basic sanitation structure, hygiene, drinking water, and garbage collection were present in 87.6% of the coverage areas of the investigated teams.

In general, when a patient sought care at a health center and the stool test for parasites was ordered for the diagnosis of schistosomiasis, the health service would perform the procedure in the municipality itself (n = 24) or, in the case of only one municipality, the test was performed in another reference center. In 61.6% of the FHS teams, stool tests were ordered only for symptomatic cases. Of these, 51 (86.9%) did not discriminate the method to be used in the parasitological test, 6 (6.1%) requested

the sedimentation of feces, and 8 (8.1%) requested the Kato-Katz method. It was also reported that 10 (10.1%) teams ordered blood tests for eosinophilic assessment as a diagnostic method for schistosomiasis.

The mandatory reporting of positive cases was performed by all teams of the municipalities visited. However, the instrument used varied in the surveyed area. Thirteen municipalities (52%) performed the correct reporting of positive cases using the PCE-108 form, six were still using the old form of the Notifiable Diseases Information System (SINAN) for schistosomiasis and two used the two forms mentioned above simultaneously. This incorrect use of the SINAN form can redirect data to other information systems and consequently cause an information deficit in the Schistosomiasis Control Program Information System. Four municipality managers were not able to inform the form used by their FHS teams.

Treatment after diagnosis was carried out at home in 18 municipalities (72%), and at the health services in which diagnosis was made, in 12 municipalities. This was performed with a single dose of PZQ by 87.9% of professionals. However, there was a variation in the dosage. In 47.5% of these cases, doctors prescribed as recommended by the Ministry of Health, i.e., a dose of 50 mg/kg for adults and 60 mg/kg for children. In other cases, a dosage of 50 mg/kg of PZQ was used both in adults and children. The drug was dispensed by the Municipal Basic Pharmacy and delivered to the patient in 60.0% of the cities visited, and in the others, the drug was on the Zoonosis Control Center (24.0%) or in other sectors according to the determination of the Municipal Secretary of Health (16.0%).

Regarding the quality of diagnosis, treatment, and control actions of schistosomiasis within the municipal PHC, 28% of municipalities had FHS teams classified as critical, unsatisfactory, and excellent equally distributed, according to Table 1. It was observed that in less than half of the investigated municipalities (44%) the work process was considered organized and adequate. When assessing each of the FHS teams separately, 56 (57.7%) had their activities classified as unsatisfactory or critical. Table 2 shows the scores for each of the FHS team used to measure the quality of diagnosis, treatment, and infection control activities.

Five (20%) municipalities reached higher percentages than the 50 quartile, with work considered satisfactory or excellent. In nine cities (36%), all teams were classified as critical or as unsatisfactory: Municipalities 2, 3, 4, 13, 14, 15, 20, 22, and 24. Ten cities had teams that totally differed with respect to control actions developed in the city, i.e., teams with critical and unsatisfactory activities and others with satisfactory and excellent activities: Municipalities 5, 6, 7, 10, 11, 12, 16, 18, 19, and 25. The higher ranking teams were the most organized, as they held meetings to discuss problems caused by schistosomiasis in the community (85.7%), performed control activities in partnership with the SCP (81.0%), and used a municipal epidemiology sector (95.2%) in support of their activities.

It is noteworthy that the municipalities with activities that are less developed by the FHS teams and that are relevant for schistosomiasis control measures were considered incipient. The absence of specific strategies used by the FHS to control the infection in endemic areas, the Kato-Katz method for diagnosis was not used regularly, insufficient educational

Table 1. Mean score obtained by the municipalities according to diagnosis, treatment, and control activities for schistosomiasis in the Family Health Strategy.

Municipality	FHS number	Mean	Quality classification
Municipality 1	2	0.274	Satisfactory
Municipality 2	8	-0.457	Critical
Municipality 3	2	-0.74	Critical
Municipality 4	3	-0.213	Unsatisfactory
Municipality 5	4	-0.063	Unsatisfactory
Municipality 6	3	0.311	Excellent
Municipality 7	3	0.162	Satisfactory
Municipality 8	2	0.499	Excellent
Municipality 9	6	0.686	Excellent
Municipality 10	3	-0.138	Unsatisfactory
Municipality 11	5	0.521	Excellent
Municipality 12	8	-0.091	Unsatisfactory
Municipality 13	4	-0.57	Critical
Municipality 14	3	-0.589	Critical
Municipality 15	3	-0.063	Unsatisfactory
Municipality 16	7	0.033	Satisfactory
Municipality 17	1	0.162	Satisfactory
Municipality 18	3	-0.063	Unsatisfactory
Municipality 19	8	-0.092	Unsatisfactory
Municipality 20	5	-0.288	Critical
Municipality 21	1	0.387	Excellent
Municipality 22	3	-0.401	Critical
Municipality 23	3	0.91	Excellent
Municipality 24	2	-0.288	Critical
Municipality 25	5	0.476	Excellent

FHS: Family Health Strategy.

Table 2. Distribution of the classification of scores related to diagnosis, treatment, and control actions of schistosomiasis carried out by the Family Health Strategy teams according to the municipalities of the State Health Department of Pedra Azul, 2012.

Municipality	Classification								
	Critical	%	Unsatisfactory	%	Satisfactory	%	Excellent	%	Team total
Municipality 1	–	–	–	–	2	100.0	–	–	2
Municipality 2	7	87.5	1	12.5	–	–	–	–	8
Municipality 3	2	100.0	–	–	–	–	–	–	2
Municipality 4	2	66.7	1	33.3	–	–	–	–	3
Municipality 5	1	25.0	2	50.0	1	25.0	–	–	4
Municipality 6	–	–	1	33.3	1	33.3	1	33.3	3
Municipality 7	1	33.3	–	–	1	33.3	1	33.3	3
Municipality 8	–	–	–	–	1	50.0	1	50.0	2
Municipality 9	–	–	–	–	1	16.7	5	83.3	6
Municipality 10	2	66.7	–	–	1	33.3	–	–	3
Municipality 11	1	20.0	–	–	1	20.0	3	60.0	5
Municipality 12	2	25.0	3	37.5	3	37.5	–	–	8
Municipality 13	4	100.0	–	–	–	–	–	–	4
Municipality 14	3	100.0	–	–	–	–	–	–	3
Municipality 15	–	–	3	100.0	–	–	–	–	3
Municipality 16	3	42.9	–	–	3	42.9	1	14.3	7
Municipality 17	–	–	–	–	1	100.0	–	–	1
Municipality 18	1	33.3	1	33.3	1	33.3	–	–	3
Municipality 19	5	62.5	–	–	1	12.5	2	25.0	8
Municipality 20	4	80.0	1	20.0	–	–	–	–	5
Municipality 21	–	–	–	–	1	50.0	1	50.0	2
Municipality 22	1	50.0	1	50.0	–	–	–	–	2
Municipality 23	–	–	–	–	–	–	3	100.0	3
Municipality 24	1	50.0	1	50.0	–	–	–	–	2
Municipality 25	–	–	1	20.0	1	20.0	3	60.0	5
Total	40	41.2	16	16.5	20	20.6	21	21.6	97

material used by the teams, and the lack of meetings between FHS team of professionals to discuss issues related to the infection in endemic areas can be highlighted.

With regard to educational activities, only one doctor and seven (28.0%) nurses attended training on the surveillance, treatment, and control actions in this endemic area, and the last training occurred during the previous year. Only three of the 28 doctors who participated in the local teams' meetings of the Municipal Continuing Education Program reported discussing the topic of schistosomiasis as a priority among other issues. In addition, respondents reported that only 71 (11%) of the CHAs have access to any information or training on the actions related to schistosomiasis. In the past 2 years, 48% of the FHS teams did not adequately distribute educational material related to schistosomiasis for the population and 76% did not perform any kind of municipal educational campaign on this subject. Professional teams did not receive any instructional material in the recent years in 84% of municipalities and also did not perform activities in community schools or associations on the prevention of the infection in 48% of cities. However, preventive actions have been identified in all municipalities related to prevalent diseases in contemporary society, such as diabetes mellitus and hypertension.

Professionals from the FHS teams were asked about a range of activities that could be carried out to improve the diagnosis, prevention, and control of schistosomiasis. Among the proposals cited, there were educational campaigns for prevention and control of infection (76.3%), training and qualification of staff (73.2%), training of CHA (63.9%), and the development of activities with risk groups (57.7%). The hiring of new physicians (13.4%), the viability of more drugs (13.4%) for the treatment of infection, enabling a greater number of stool tests per FHS team (29.9%), and viability of specialized examinations (30.9%) related to infection were also cited.

Regarding the management of the FHS, 12 professionals (48.0%) reported being aware of the technical guidelines used by the SCP, and of these, only six believed in the viability of its operation. In addition, there was no regular and systematic evaluation of the results of actions developed by the municipal FHS teams. Importantly, there were few and sporadic (32%) meetings between the coordinators of the FHS and the SCP in the municipalities, and in only 14 municipalities (56.0%), the FHS manager effectively participated on the drafting of the Municipal Health Plan. Finally, almost half of the FHS professionals (48.5%) knew of the existence of the SCP in their municipality, and only 16 professionals (16.5%) received some sort of material on the subject. Forty-two professionals from the FHS (43.3%) were not able to inform if the activities of the SCP took place in their municipality.

DISCUSSION

The organization of the public health care in Brazil is under constant restructuring that advocate public health services and actions on a regional and hierarchical way with decentralization, integrality, and social participation guidelines[17,18].

The decentralization of diseases surveillance and control withdrew the health policy structure from the federal to the state and municipal levels, an indisputable fact to the advancement of municipal management[19]. However, this decentralization of health actions and services increased the responsibility and powers of the municipal managers in a context where their team, associated to their respective professional qualifications, remains partially limited. There are still problems related to inequities in the supply and in the access to health services, in addition to the intense fragmentation and disorganization of services in the Unified Health System (SUS). This is largely due to the fact that many of the health problems extend beyond administrative boundaries and governance of municipal authorities, requiring the consolidation of organized and integrated regional health systems[20].

The PHC is the first level of health services and should work with resolving actions on the population's health problems, linking up with other levels of complexity of the health system aiming to the solidification of an integrated health care network[21,22]. The FHS has been adopted in the country as a priority policy, being a substitute model of traditional core network, with universal coverage, having as its guiding principle the equity of their actions. The adoption of the FHS by the municipalities facilitates the population's access to health services[22]. The expansion of services to different health problems and the incorporation of new diagnostic technologies increased the services' ability to detect diseases in communities[11], and consequently schistosomiasis.

In endemic areas, prevention and control activities are assigned to the SCP, having the active search of positive cases as the main activity developed. Little is known about the integrated actions of the SCP and the PHC in endemic municipalities[12]. As recommended in the Technical Guidelines for the Control of Schistosomiasis, epidemiological surveillance in risk areas must rely on the participation of the PHC network for the diagnosis and treatment of all its carriers[2,6,23]. Even with the frequent actions of the SCP in these areas, the use of primary health care centers by spontaneous demand for the diagnosis of schistosomiasis in endemic areas is indispensable and essential for its control[24]. In addition to this, it can be attributed to the FHS the identification of risk areas and the incorporation of schistosomiasis as a subject to be worked into the strategies used in the PHC.

It is also important to recognize the role of the community health agents in this panorama, with their knowledge of the dynamics of the population. They act as a social mediator who translates people's needs to the health services, and serve as a link between the families under their responsibility and the health professionals[25]. As it happens, the CHA still does not receive specific or mandatory training for the development of their activities, which leads to a lack of preparation to deal with the problems of the population. In addition, there are also some health conditions in the community that limit the actions of the CHA, making the FHS's proposal inefficient[26].

In addition to the essential support of the CHA in this process, the Community Agent of Endemic Diseases can be an important "catalyst" in schistosomiasis control actions in the PHC. Its incorporation to the FHS teams has already been established by the Ministry of Health for some years and was planned together with a financial incentive to the municipality

to join the practice. Despite being optional, this professional is able to reorganize the work process, promoting the integration of the territorial bases of CHA to his, in addition to receiving direct support from other graduate professionals of the FHS team and further enhancing their work process[27], which would be essential for the control of this endemic disease. It is important to clarify that the federal government established conditions for the municipalities that need to be met for the incorporation of the Community Agent of Endemic Diseases to the FHS.

Other resource for the development of educational strategies of the FHS are not used in the areas surveyed when it comes to schistosomiasis, even when dealing with an endemic area, as is the case of the waiting room, frequently used as an educational space. This strategy can be crucial for its control, with a view to strengthen the health-worker-community coordination by providing to the community an opportunity to build knowledge about their health-disease process[28]. Nurses often use this environment to promote health programs, ask questions, create links with users and helping in the development of a warm reception at the health centers[29,30].

In addition to this, a resource that could also be used with the community is the operative groups. Using this strategy creates the possibility to rebuild and create meanings regarding the infection and its associated factors through the exchange of information, identification, and other processes[31].

Our results showed differences in the diagnostic methods, treatment, and control process of the infection among the FHS teams in each city and among municipalities. Teams that do not work in a standardized, clear, and planned way move away from its purpose, namely, the effective control of schistosomiasis. Health management is crucial in the process of organizing health services and essential in the effectiveness of social policies. Proper management involves planning and decision making that affects the structure, the production process, and the product of a system, aimed at generating actions that enable impactful interventions in the health work process[32].

It is expected that health professionals have the necessary commitment to develop activities for the control of schistosomiasis in the PHC. However, our results were far from this context, given that not even half of the studied municipalities received an overall positive classification. There were difficulties in carrying out the actions performed, they lacked clear strategies and the organization of this process was compromised, as shown by the results of the evaluation of the municipalities and the different activities developed by the FHS teams. An example is the non-inclusion of the Kato-Katz method in the diagnostic process in PHC, which would improve the effectiveness of control because it is faster and easier to perform, which enhances the planning of actions taken and also reduces costs.

An important advance was the centralization of the drug used to treat schistosomiasis in the Integrated System of the Pharmaceutical Care Management (SIGAF). Such gain is related to the better quality of the control process and the prevention of a possible indiscriminate use of this drug at the municipal level. With the creation of the Farmácia de Minas Network Program by Resolution CIB/SUS-MG no. 416 of 2008, the pharmacy is recognized

as a health establishment and a reference in pharmaceutical services to the population. In turn, the SIGAF is responsible for monitoring the use of medicines by the population assisted by SUS in the state[33]. While some municipalities are not organized that way, this measure controls the distribution and use of PZQ in endemic areas, avoiding abusive and unnecessary use of the drug among the population and health professionals. It is desirable that the treatment is performed at the health center, allowing the provision of a more efficient quality care. In the health service, in addition to medication, guidance is also provided about preventive measures of the disease and clarification of any doubts is held by consolidating the link between the community and the health service, as well as the compulsory notification of cases identified.

Regarding the notification, an inconsistency was observed in the use of forms. The PCE-108, introduced in the second half of 2010, aims to register cases of schistosomiasis identified in the PHC in endemic areas, replacing the SINAN form[34]. In the cities studied, only half of them were working in the expected direction regarding this process. Many still used the SINAN form, which created difficulties in knowing the real situation of local infection, resulting in underreporting or even absence of reliable records and impacting the information generated by the SISPCE in an endemic area. A precarious information system may lead to, in most cases, losses in the planning of actions and bad decision making.

It was also observed that the municipalities did not pass on information about individuals infected and treated in the PHC to the SCP. The fact that this does not occur reaffirms a gap between the practices performed for control of schistosomiasis between SCP and the PHC, also observed in other evaluation studies on the disease[35,36]. Even though participatory, part of the practices of health managers remain divided in very well-defined sectors, preventing solutions from being forwarded seamlessly and efficiently[37]. The integration of these health surveillance actions and the PHC is a mandatory condition for a holistic attention, and to achieve satisfactory results[1,2].

Another important result of this study was the lack of training of the FHS professionals. It is important to improve training of primary care professionals, because it facilitates cooperation with experts and strengthens community confidence, as well as being essential to the performance of new tasks assumed by the PHC[3,38]. The permanent health education, as well as being necessary, enables the production of new knowledge and collective agreements in SUS. This should be carried out with a clear purpose and strategies to avoid being a one-off training, programmatic, and centralized, with standardized content, aiming only to update knowledge of specific professional categories without considering the local conditions and the involved workers' learning needs[3].

In the cities studied, health education actions directed to schistosomiasis were not performed effectively because the lack of educational material was one of the obstacles of the development of activities in the community. The availability of educational material in the FHS is of utmost importance, because the latter's actions are based on health promotion and disease prevention[18]. These features, coupled with community

awareness of the problem, can certainly contribute to the control of schistosomiasis in an endemic area. The awareness of the disease impact on the community should extrapolate the popular dimension and have a connotation of organizational policy, reaching the Municipal Health Councils. This is where there is social participation through its members, ensuring social control over health actions and services in the municipality[29]. In this context, the council becomes an important vehicle to consolidate the infection control practices and put them into practice in the city and in the region. With social participation in these actions, the exercise of such practices will be guaranteed in municipal management through pacts and contracts, to support them effectively through the required time period.

CONCLUSION

This study showed that monitoring and evaluation of the services offered in PHC for the schistosomiasis control activities are still incipient in the municipalities of the State Health Department of Pedra Azul. There is no uniformity in the developed actions, nor a definition of strategies directed toward controlling the infection. Surveillance and control are compromised due to fragmentation, lack of planning, uncertainty and delays on the data collected, and a gap between the FHS and the SCP. The reorganization and evaluation of actions in health services are essential for the continuation, improvement, and maintenance of quality health care developed in different spheres.

Enforcing the various resources used by the FHS and carrying out effective actions on health education in schools are accessible resources that can be exploited in the actions carried out by the municipalities investigated. The support of managers and the inclusion of schistosomiasis in health surveillance actions and the Municipal Health Plan are essential to leverage these strategies. Awareness and community accountability should be raised regarding the combat of infection in these endemic areas, and should be exercised through social control.

However, the consolidation of integration between the PHC and the SCP is essential for controlling the disease in endemic areas. To this end, managers need to develop partnerships and strategies to stimulate the production and distribution of information, creating goals and setting indicators on the activities. Planning and evaluation are essential to the quality and success of these actions.

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