

Primary health care professionals' knowledge about compulsory notification diseases and health problems

Conhecimento de profissionais da atenção primária à saúde sobre doenças e agravos de notificação compulsória
Conocimiento de los profesionales de atención primaria de la salud sobre enfermedades y problemas de salud de notificación obligatoria

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Abstract

Objective: To evaluate Primary Health Care professionals' knowledge about compulsory notification diseases and health problems. **Methods:** A cross-sectional study conducted between August and December 2021 with 30 Primary Health Care professionals from Tauá - Ceará. A questionnaire was used for the sociodemographic and professional characterization and for the knowledge assessment of compulsory notification diseases and health problems. The data were analyzed with descriptive and inferential statistics. **Results:** Of the 30 participants, six (20.0%) correctly identified all items with compulsory notification diseases and health problems. The following was properly identified by almost all participants: dengue (27; 90.0%); leprosy (26; 86.7%); and tuberculosis (26; 86.7%). Severe work-related accidents (17; 56.7%), domestic violence (17; 56.7%) and schistosomiasis (17; 56.7%) obtained the lowest proportions of correct identification. The professionals that had greater knowledge about compulsory notification concepts and guidelines were also those who were able to properly identify more diseases and health problems ($r_s=0.475$; $p=0.008$). **Conclusion:** The professionals have difficulty identifying compulsory notification diseases and health problems, especially those with little prevalence in the municipality where they work and problems such as domestic violence and severe work-related accidents. Investing in the permanent education of professionals can contribute to reducing underreporting.

Descriptors: Notification of diseases; Primary Health Care; Epidemiology; Public Health; Knowledge.

Whats is already known on this?

Factors that contribute to underreporting compulsory notification diseases and health problems are linked to the professionals' actions, to the difficulties in the notification process and to diagnosis of the disease.

What this study adds?

Few professionals were aware of the concepts and guidelines of compulsory notification diseases and problems: they seem to understand the importance of notification secrecy, but are unaware of negative notification.



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Resumo

Objetivo: Avaliar o conhecimento dos profissionais de saúde da atenção primária à saúde acerca das doenças e dos agravos de notificação compulsória. **Métodos:** Estudo transversal, realizado, de agosto a dezembro de 2021, com 30 profissionais da atenção primária à saúde de Tauá - Ceará. Foi utilizado questionário para caracterização sociodemográfica, profissional e avaliação do conhecimento sobre as doenças e os agravos de notificação compulsória. Os dados foram analisados com estatística descritiva e inferencial. **Resultados:** Dos 30 participantes, seis (20,0%) identificaram corretamente todos os itens com doenças e agravos de notificação compulsória. Foram identificadas corretamente pela quase totalidade dos participantes: dengue (27; 90,0%), hanseníase (26; 86,7%) e tuberculose (26; 86,7%). Acidente de trabalho grave (17; 56,7%), violência doméstica (17; 56,7%) e esquistossomose (17; 56,7%) obtiveram as menores proporções de correta identificação. Os profissionais que tinham maior conhecimento sobre conceitos e diretrizes da notificação compulsória foram, também, os que conseguiram identificar mais doenças e agravos corretamente ($rs=0,475$; $p=0,008$). **Conclusão:** Os profissionais têm dificuldade de identificar doenças e agravos de notificação compulsória, sobretudo aqueles com pouca prevalência no município de trabalho e agravos como violência doméstica e acidente de trabalho grave. Investir na educação permanente dos profissionais pode contribuir com a diminuição de subnotificação.

Descritores: Notificação de doenças; Atenção primária à saúde; Epidemiologia; Saúde pública; Conhecimento.

Resumen

Objetivo: Evaluar el conocimiento de los profesionales de Atención Primaria de la Salud acerca de las enfermedades y los problemas de salud de notificación obligatoria. **Métodos:** Estudio transversal realizado entre agosto y diciembre de 2021 con 30 profesionales de Atención Primaria de la Salud de Tauá - Ceará. Se utilizó un cuestionario para la caracterización sociodemográfica y profesional y para evaluar el conocimiento sobre las enfermedades y los problemas de salud de notificación obligatoria. Los datos se analizaron por medio de estadística descriptiva e inferencial. **Resultados:** Seis (20,0%) de los 30 participantes identificaron correctamente todos los ítems que incluían enfermedades y problemas de salud de notificación obligatoria. Prácticamente todos los participantes identificaron correctamente al dengue (27; 90,0%), a la lepra (26; 86,7%) y a la tuberculosis (26; 86,7%). Accidentes de trabajo graves (17; 56,7%), violencia doméstica (17; 56,7%) u esquistosomosis (17; 56,7%) obtuvieron las menores proporciones de identificación correcta. Los profesionales que sabían más sobre conceptos y pautas de la notificación obligatoria también fueron los que lograron identificar correctamente más enfermedades y problemas de salud ($rs=0,475$; $p=0,008$). **Conclusión:** A los profesionales les resulta difícil identificar enfermedades y problemas de salud de notificación obligatoria, especialmente los de escasa prevalencia en el municipio donde trabajan y problemas como violencia doméstica y accidentes de trabajo graves. Invertir en la educación permanente de los profesionales puede contribuir a reducir las tasas de subnotificación.

Descriptor: Notificación de enfermedades; Atención Primaria de la Salud; Epidemiología; Salud Pública; Conocimiento.

INTRODUCTION

Compulsory notification is the act of communicating to the health authority when there are suspected or confirmed diseases or health problems. This notification is made by professionals or people working in health services, designated for such act.⁽¹⁾ The two most recent publications by the Ministry of Health about compulsory notification in Brazil are Ordinance No. 3,328 of August 22nd, 2022 (inclusion of Monkeypox Virus), and Ordinance No. 264 of February 17th, 2020 (inclusion of COVID-19). This study took as reference the list that contained 48 diseases or health problems⁽²⁾ (Ordinance No. 264/20), in force at the time it was developed.

The epidemiological behavior of diseases, the advancement of science and the current social profile has pointed to the need for frequent updates of epidemiological surveillance, as well as for new ways to overcome the challenges that have emerged.⁽³⁾ For the surveillance service to be efficient, the information must be of good quality. In the case of compulsory notification, this quality concerns notification whenever necessary and completeness of the information sent. This presupposes knowledge of the person who makes the notification, as a health professional.

In Brazil, the main information source to research the natural history of these health events is the Information System for Notifiable Health Problems (*Sistema de Informação de Agravos de Notificação*, SINAN), which is fed by notifications. From them, it is possible to monitor the epidemics of the Brazilian territory, which aids in decision-making for prevention and control.⁽⁴⁻⁵⁾

The notifications, released in SINAN, generate epidemiological indices for each municipality. These indices serve as the basis for the health plan, as they show where there is a greater need for health care and investment. There are cases of underreporting that render these indices unreliable. Aspects that appear to be the causes of underreporting are mainly related to the health professionals' actions, to the difficulties inherent to the notification procedures and to people's complex elements, as well as to diagnosis of the disease.⁽⁶⁾ Consequently, it is necessary that health professionals know about these diseases or health problems. Thus, the question guiding this research is as follows: What do Primary Health Care (PHC) professionals know about Compulsory Notification Diseases and Health problems (*Doenças e Agravos de Notificação Compulsória*, DANCs)?

This study is justified by the experience underwent in the PCH services of a municipality in Ceará, where the need is identified to diagnose problems that can cause barriers to the integration of actions between PHC and epidemiological surveillance, which is one of the challenges of management. When there is insufficient knowledge, the result is underreporting and/or incompleteness of the information, which reflects poor quality in the information required for health planning and evaluation. Especially in PHC, this problem can lead to difficulties in the effective control of diseases and priority health problems of each territory.

The scientific literature has been portraying that failures in notification have taken place. The dissemination of research results, which continue to point out this problem, helps to reinforce that energy and the cost in planning health actions are lost when a professional fails to provide information about DANCs.⁽⁴⁾ Therefore, this is also a reason for conducting this study. Compulsory notification is a primordial element for the development of health surveillance actions. It has PHC as the main instrument for detecting these diseases early in time. Thus, the professionals' knowledge is essential for this screening and to develop future actions based on epidemiological data that reflect reality.

Due to the updates of ordinances that concern compulsory notifications, it is necessary to develop research studies on the professionals' knowledge, including all the categories present in PHC, as everyone can notify and this can contribute to reducing underreporting. With this research, the objective was to evaluate PCH professionals' knowledge about DANCs.

METHODS

A cross-sectional study conducted according to the *Strengthening the Reporting of Observational Studies in Epidemiology* (STROBE) guideline. The locus was the municipality of Tauá - Ceará, located in the Inhamuns area, 14th Health Region, 344 kilometers from the capital city - Fortaleza. Tauá has a territorial area of 4,010,618 km², with an estimated population of 59,062 people⁽⁷⁾ and is classified as adjacent rural.

Currently, the municipality has 25 Family Health teams (FHTs), 14 at the city's headquarters and 11 in the inland. The strategies are divided into 19 Basic Health Units (BHUs), eight at the headquarters and 11 in the inland.⁽⁸⁾ It has 100% of its territorial area covered by the Family Health Strategy (FHS). The research was developed in the physical space of the 19 BHUs, in a reserved room, so that the health professionals were comfortable to answer the data collection instrument.

The FHS has a total of 50 higher education health professionals, 11 physicians and 11 nurses in the inland, and 14 physicians and 14 nurses at the city's headquarters. The Extended Family Health Center (*Núcleo Ampliado de Saúde da Família*, NASF-AB) team has 24 professionals, divided into social workers, physiotherapists, speech therapists, nutritionists, physical education professionals, psychologists and occupational therapists. Thus, the study population (n) was 74 Higher Education professionals. The sample (n) corresponded to 30 professionals that met the eligibility criteria and agreed to participate in the survey (n=40.5% of N).

FHS physician and nurses were included, as well as NASF-AB health professionals, with at least 6 months of experience in the FHS. The subjects excluded were those who, although meeting the inclusion criteria, were not active in the practice due to some type of distancing (leave, for example) during the data collection period.

Data collection was conducted in person from August to December 2021, before or after the professionals' working hours. An online questionnaire created on *Google Forms* was used, so that the participants could fill it in faster. Recruitment was made at the BHUs, followed by a request to answer the standardized, self-applied and anonymous questionnaire, containing questions divided into three blocks: Block I - Sociodemographic Characterization; BLOCK II - Professional Characterization: Training and Performance Time in the FHS, Institution of origin, classes on DANCs in undergraduate courses, participation in graduate or update courses, another workplace in addition to the FHS and service training; BLOCK III - Knowledge about DANCs, including questions with True [T] or False [F] answers on definitions, epidemiological aspects, regulations on the topic and examples of DANCs, immediate compulsory notification and eradicated diseases. The Block III issues were extracted from another study, also carried out in PHC.⁽⁹⁾ In addition to the questions in this block, 15 diseases were listed, among which the professionals should identify DANCs.

Upon completion of the collection phase, the spreadsheet with the data generated in association with *Google Forms* was imported from *Excel* to the *IBM SPSS Statistics* software, version 25 version 25 for Mac. Calculations were performed for the descriptive analysis (frequencies). The search for associations

between the categorical variables was analyzed through Pearson's chi-square test and odds ratio. The questions about the knowledge included in Block III of the instrument were transformed into a continuous variable ("number of correct answers"), for which existence or not of a correlation between knowledge about compulsory notification concepts and guidelines and identification of DANCs was analyzed. $p < 0.05$ was considered as an indication of statistical significance.

The current study was approved by the Research Ethics Committee of the Ceará Public Health School (CAAE: 47173321.7.0000.5037; Opinion 4,833,489), after submission for assessment of the guidelines and rules set forth Resolution 466/12 of the National Health Council, which deals with research involving human beings.⁽¹⁰⁾

RESULTS

The study participants were 30 professionals that work in the PHC services of the municipality of Ceará. They are predominantly young subjects (31.0 ± 8.1 years old), female (20; 66.7%), and graduates from private Higher Education institutions (26; 86.7%). Most of the research participants had a Nursing degree (12; 40.0%), although professionals from six other health areas also answered the questionnaire, with the highest proportion of experts (15; 50.0%). They have been working in PHC for approximately 2 years (18; 60.0%) and had only one employment contract (24; 80.0%). Slightly over half belonged to the NASF-AB team (16; 53.3%); the others were from the FHS team (Table 1).

Table 1. Training and work characteristics of the study participants. Tauá, CE, Brazil, 2022.

Variables	<i>f</i>	%
Undergraduate institution		
Public	4	13.3
Private	26	86.7
Degree		
Undergraduation	14	46.7
Specialization	15	50.0
MSc	1	3.3
Profession		
Physician	3	10.0
Nurse	12	40.0
Social Worker	3	10.0
Physiotherapist	6	20.0
Nutritionist	4	13.3
Physical Education Professional	1	3.3
Psychologist	1	3.3
Team they belong to		
FHS	14	46.7
NASF-AB	16	53.3
Time working in PHC		
Up to 2 years	18	60.0
3-5 years	10	33.3

6+ years	2	6.7
Employment/Work in another health service		
Yes	6	20.0
No	24	80.0
Classes on compulsory notification		
Yes	16	53.3
No	14	46.7
Already made notifications		
Yes	20	66.7
No	10	33.3

FHS: Family Health Strategy; NASF: *Núcleo Ampliado de Saúde da Família*; PHC: Primary Health Care

Source: Prepared by the authors (2021).

Regarding the research object, there was little difference between the number of participants who had classes on DANCs during their undergraduate or graduate studies, although 20 of them (66.7%) had made at least one notification since they started their professional performance in health services (Table 1).

In the data collection instrument, the five assertions about DANC concepts and guidelines were true, but the professionals gave correct answers to a median of three items (IQR=3). Only eight participants (26.7%) identified that all statements were correct. According to Table 2, the assertion with the most correct answers was 4, which addressed notification secrecy (25; 83.3%). Less than half of the participants (12; 40.0%) agreed to Assertion 5, about the importance of negative notification.

The analysis of the number of participants that gave correct answers to each statement regarding the training and work characteristics showed that there was no statistically significant difference between these correct answers and the experience time in PHC or the team they belong to. However, the negative notification frequency (Assertion 5) was higher among those who had undergraduate or graduate studies on the topic ($p=0.048$) (Table 2).

Of the 30 participants, six (20.0%) correctly identified all items with DANCs. The item that was properly evaluated by all participants contained fever, which should not be notified. The instrument included another clinical condition that is not a DANC: resistant arterial hypertension; However, three participants (10.0%) marked this item (Figure 1).

Table 2. Frequency of participants that gave correct answers to the items on DANC concepts and guidelines, according to the team they belong to, the time of acting in PHC and participation in undergraduate/graduate classes on the topic. Tauá, CE, Brazil, 2022.

Assertions	Team they belong to		Classes on notification		Time working in PHC			Total	
	FHS	NASF-AB	Yes	No	Up to 2 years	3-5 years	6+ years	<i>f</i>	%
Assertion 1	11	10	11	10	11	8	2	21	70.0
p-value	0.334#		0.873#		0.366*				
Assertion 2	7	10	10	7	10	5	2	17	56.7
p-value	0.490#		0.490#		0.423*				
Assertion 3	12	9	13	8	13	6	2	21	70.0
p-value	0.072#		0.148#		0.503*				
Assertion 4	13	12	14	11	14	9	2	25	83.3
p-value	0.176#		0.513#		0.571*				
Assertion 5	8	4	9	3	5	5	2	12	40.0
p-value	0.071#		0.048#		0.103*				

#It refers to the odds ratio; *It refers to Pearson's chi-square test

Assertion 1: A notification is the communication of the occurrence of a given disease or health problem, made to health professionals by health professionals or by any citizen.

Assertion 2: According to the Brazilian Penal Code, if health professionals fail to notify a disease to the public authority, they are committing a crime, with a penalty of conviction from six months to two years and a fine.

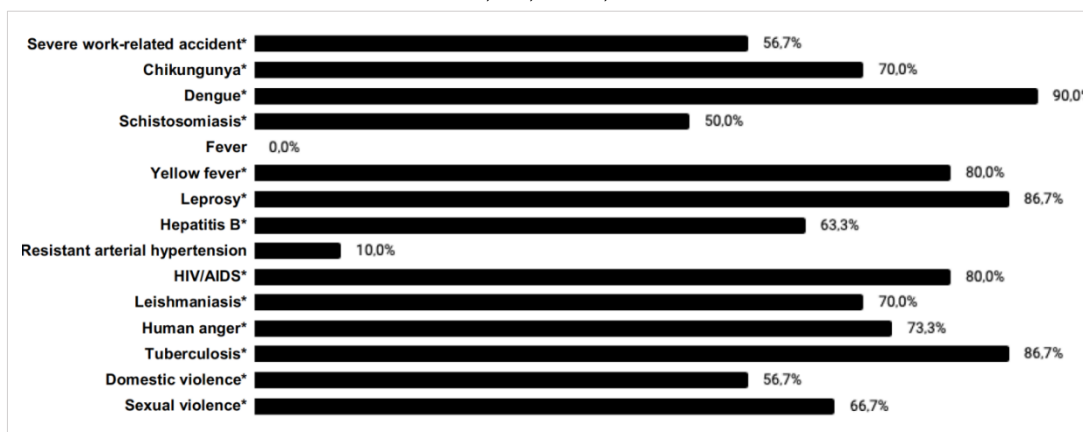
Assertion 3: For most of the health problems, the case should not be confirmed to make the notification, as this may mean losing opportunity to intervene effectively.

Assertion 4: The notification should be confidential and can only be disclosed outside the medical-health scope in case of risk to the community, respecting the citizens' right to anonymity.

Assertion 5: The notification instruments should be sent even in the absence of cases, configuring what is called negative notification.

Source: Prepared by the authors (2021).

Figure 1. Proportions of participants who identified each disease/health problem as of compulsory notification. Tauá, CE, Brazil, 2022.



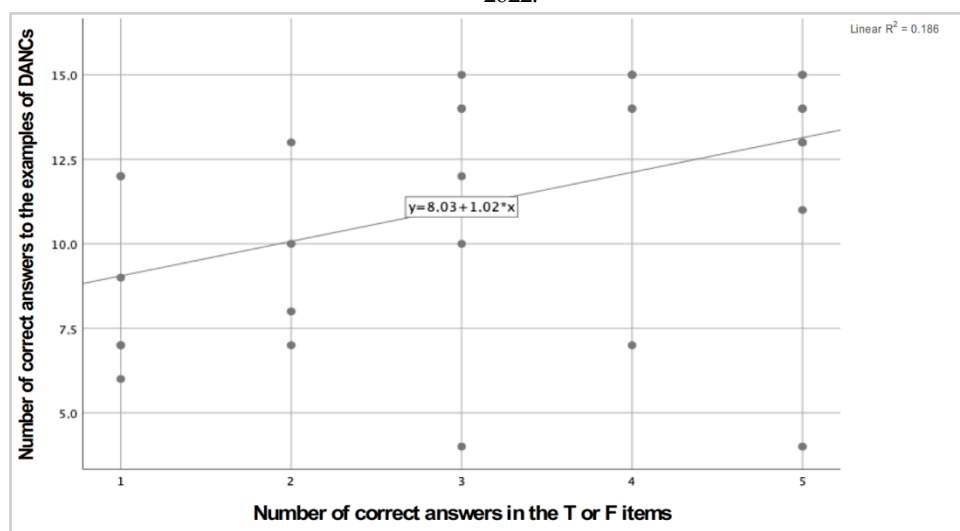
*Compulsory notification disease/health problem

Source: Prepared by the authors (2021).

Among the DANCs, those that were identified correctly by almost all participants were dengue (27; 90.0%), leprosy (26; 86.7%) and tuberculosis (26; 86.7%). Severe work-related accidents (17; 56.7%), domestic violence (17; 56.7%) and schistosomiasis (17; 56.7%) obtained the lowest proportions of correct identification, which shows that almost half of the health professionals did not know that they are of compulsory notification (Figure 1).

Figure 2 is designed to ascertain the existence of a correlation between knowledge about concepts and guidelines and the correct identification capacity for DANCs.

Figure 2. Correlation between number of correct answers given to the items of DANC concepts and guidelines (T or F statements) and the correct answers to the examples of DANCs among the study participants. Tauá, CE, Brazil, 2022.



Source: Prepared by the authors (2021).

It was found that the correlation was positive, moderate and significant ($r_s=0.475$; $p=0.008$), indicating that the professionals that had greater knowledge about compulsory notification concepts and guidelines were also those who were able to properly identify more DANCs.

DISCUSSION

It was possible to identify the knowledge level about DANCs presented by the professionals working in the FHS, which delimited relevant aspects of their profile that can influence the results of underreporting and/or incompleteness of the information. The professionals that gave the highest number of correct answers about DANC concepts and guidelines were those who make up the Family Health team. Greater preparedness is inferred for approaching patients regarding compulsory notification. It was found that nurses who are part of the basic composition of the teams were the most frequent among the participants.

These professionals are a reference of the team regarding the search for citizens when it comes to their area, consequently generating greater identification of diseases and health problems and their compulsory notifications. Although compulsory notification is mandatory for all health professionals,⁽²⁾ it is understood that the higher frequency of care to the population of the territory generates a greater opportunity to welcome the demands that are easily recognized as DANCs and those that are not always recognized as such, like severe work-related accidents and violence.

Thus, FHS nurses seem to be professionals that perform a large volume of appointments/consultations every day and establish bonds with the population of the territory. In addition, although stratifying knowledge by professional category was not the objective of this research, the greater participation of nurses among the respondents can explain the best performance of professionals working in Family Health teams. Furthermore, nurses perform various functions in a BHU, which requires constant search for knowledge to put into practice competences that are directly or

indirectly attributed to them, such as leadership, permanent education, communication and decision-making.⁽¹¹⁾

The professionals that had attended some undergraduate/graduate class about the theme performed better in the answers. Thus, it is important to address this content in the training of health professionals, in order to reduce underreporting due to lack of knowledge among professionals. It is also understood that this learning should not be circumscribed to academic training, but also extended to the training offered by managers. Regarding this, it is important to remember that, when implemented, the improvements are focused on care for pregnant women, hypertensive individuals, diabetics and smokers, not foreseeing the update on compulsory notification in this listing.⁽¹²⁾

The urgent need to update these professionals is understood, a clear result that theory and practice are inseparable. The scientific literature reinforces that work is impaired without permanent education, with consequent harms; otherwise, it is allowed to discuss and innovate the work processes.⁽¹²⁾ During training, it is relevant to emphasize the importance of notifying the epidemiological surveillance actions. Ultimately, notifications are not always considered necessary by those who provide care/service because they associate such act with bureaucracy, "one more thing to do" and/or unimportant.⁽¹³⁾

Deeper specific knowledge about compulsory notification guidelines, such as negative notification (sending notification instruments even in the absence of cases),⁽²⁾ by those who reported attending classes on DANCs reinforces that the approach to this issue in the formal education of health professions reverberates in care actions in the service offered day after day. Incorrect DANC communication actions show that the professionals are unaware of important variables and can record incorrect information due to lack of technical knowledge. This prevents effective performance in the control and prevention of diseases, health problems and public health events.⁽¹³⁾

Another issue to be considered is the locus of this study: the inland of Ceará. The literature has pointed out⁽¹⁴⁾ that individuals treated in the inland or in the metropolitan region have more underreporting chances. This reinforces the need to train health professionals for the notification of suspected/confirmed cases in these scenarios. In addition, when the health service is not computerized, the probability of losing information is higher due to delays, misconduct and/or not filling out forms.

In this research, fewer professionals have shown that severe work-related accidents, domestic violence and schistosomiasis are DANCs, which clearly enables people to underreport because of unawareness. Regarding schistosomiasis, the result may be a reflection of the professionals' limited or almost nonexistent contact with people suffering from this disease. Ceará presents itself as one of the states with the lowest prevalence of this disease, although the Northeast is a conducive region for the dissemination of schistosomiasis.⁽¹⁵⁾

On the other hand, the problem of underreporting domestic violence is widely recognized.⁽¹⁶⁾ It is believed that the result is attributed to health professionals not understanding that it is not only a competence of safety, but also of public health. Another survey conducted with health professionals working in PHC showed that only 33.3% of the total was aware that domestic violence was of compulsory notification. They reported fear of notifying due to the risk of reprisal or of harming the victim.⁽¹⁷⁾

Other causes of underreporting of this nature involve ethical aspects in the act of caring. They are professional factors, such as the difficulty handling cases due to unpreparedness, as well as cultural factors such as the perception that the violence perpetrated by a partner is exclusive to the private family scenario. Thus, these conceptions can lead health professionals to diminish the complexity of what is being placed under their care. In addition, the limited knowledge about the legislation for the protection of domestic violence victims is well known, which can lead professionals to act only according to their empirical knowledge.⁽¹⁸⁾

The same is valid for severe work-related accidents, for which communication is not the sole responsibility of the workplace, but also of PHC health professionals when treating a clinical condition resulting from this problem. There are barriers in notification and knowledge about its need by the health service. Many professionals believe that only deaths should be notified (fatal accidents), as well as non-investigation of the relationship of the accident to work. This is due to the professionals' lack of knowledge because of insufficient training, not being awareness about the importance of recording the relationship with the occupation, concerns for legal consequences, especially among those who make the notification, deficiency of material resources that might help investigate the relationship of the accident with the occupation, and pressures by the employer, lawyers and even other health professionals and relatives of the victim so that no record is made in correlation with the occupation.⁽¹⁹⁾

It was verified that the professionals with greater knowledge about the compulsory notification concepts and guidelines were also the ones that identified the most DANCs. The result of this correlation reinforces the relevance of training, bringing as a consequence greater wit when identifying health problems and diseases, especially those of compulsory notification. It is extremely necessary to train and update health professionals, as these services constantly undergo improvements in assistance in their most varied areas within multiprofessional performance. Permanent education gives the necessary foundation for reflection, humanized assistance, better planning and health production through the work process.⁽²⁰⁻²¹⁾

The study presented a small sample, which is one of the research limitations. Non-probability sampling, which occurred according to acceptance of participation, is also considered as limiting regarding generalization of the results found. The survey was conducted in a small city, with approximately 59,000 inhabitants.⁽⁷⁾ And even if it has 100% coverage by Family Health teams, the number of active professionals that comprised the sample was limited. Even so, it is believed that this study contributes to the argument that it is necessary to invest in the permanent education of FHS professionals about compulsory notification, to collaborate with the reduction of underreporting and to improve work processes. However, the suggestion is to develop future, multicenter research studies involving more participants, if possible.

CONCLUSION

The assessment of the FHS health professionals' knowledge showed that few were aware of DANCs concepts and guidelines; they seem to understand the importance of notification secrecy but are unaware of negative notification. The professionals that attended undergraduate/graduate classes about the theme showed greater knowledge about specific issues related to the topic.

The professionals have difficulty identifying what DANCs are, especially those with little prevalence in the municipality where they work and problems such as domestic violence and severe work-related accidents. The professionals with greater prior and general knowledge about the compulsory notification concepts and guidelines were the ones that correctly identified the DANCs.

CONTRIBUTIONS

Contributed to the conception or design of the study/research: Oliveira RM, Oliveira ASS. Contributed to data collection: Oliveira RM. Contributed to the analysis and/or interpretation of data: Oliveira RM, Oliveira ASS, Frota NM, Felipe GF. Contributed to article writing or critical review: Oliveira RM, Oliveira ASS, Frota NM, Felipe GF. Final approval of the version to be published: Oliveira RM, Oliveira ASS, Frota NM, Felipe GF.

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