

Physicians' knowledge, attitude and practice about reporting work-related accidents in primary care

Conhecimento, atitude e prática de médicos sobre comunicação de acidente de trabalho na atenção básica
Conocimiento, actitud y práctica de los médicos sobre cómo reportar accidentes de trabajo en atención primaria

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Abstract

Objective: To evaluate physicians' knowledge, attitude and practice (KAP) on Work-related Accident Reports (*Comunicações de Acidentes de Trabalho*, CATs) in Primary Care. **Methods:** A cross-sectional study carried out from November 2020 to January 2021, with application of the Survey to 229 physicians from Fortaleza, Ceará. The instrument was sent electronically with questions about knowledge, attitude and practice in relation to the CAT. The project was approved by a Research Ethics Committee under opinion No. 4.263.48. **Results:** The highest inadequacy rate was related to practice (85.59%). Inadequate knowledge was associated with the existence of different forms of medical employment ($p=0.04$), inadequate practice ($p<0.001$) and inadequate attitude ($p=0.009$). Inadequate attitude was associated with inadequate practice ($p=0.026$) and inadequate knowledge ($p=0.009$). Furthermore, 88.21% of the participants ($n=202$) stated that they had never filled in the CAT. Inadequate practices were associated with inadequate knowledge ($p<0.001$) and inadequate attitude ($p=0.026$). **Conclusion:** The physicians' knowledge, attitude and practice in relation to the CAT need to be improved.

Descriptors: Health Knowledge, Attitudes and Practice; Physicians; Work-related Accidents.

What is already known on this?

The clinical practice in health services has empirically shown that physicians do not know how to issue a Work-related Accident Report (CAT) in Primary Health Care.

What this study adds?

Evaluative data on Primary Care physicians' knowledge, attitude and practice on reporting work-related accidents shows the urgent need for improvement and medical education on the theme.



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Resumo

Objetivo: Avaliar conhecimento, atitude e prática (CAP) de médicos sobre Comunicação de Acidentes de Trabalho (CAT) na Atenção Básica. **Métodos:** Estudo transversal, realizado de novembro de 2020 a janeiro de 2021, com aplicação do Inquérito com 229 médicos de Fortaleza, Ceará. O instrumento foi enviado de forma eletrônica com perguntas sobre conhecimento, atitude e prática em relação à CAT. O projeto foi aprovado pelo Comitê de Ética em Pesquisa, parecer n.º 4.263.48. **Resultados:** O maior índice de inadequação foi relativo à prática (85,59%). O conhecimento inadequado foi associado à existência de distintas formas de contratação médica ($p=0,04$), à prática inadequada ($p<0,001$) e à atitude inadequada ($p=0,009$). Atitude inadequada foi associada à prática inadequada ($p=0,026$) e ao conhecimento inadequado ($p=0,009$). Ademais, 88,21% dos participantes ($n=202$) afirmaram nunca ter preenchido a CAT. As práticas inadequadas estiveram associadas ao conhecimento inadequado ($p<0,001$) e à atitude inadequada ($p=0,026$). **Conclusão:** O conhecimento, a atitude e a prática dos médicos em relação à CAT necessitam ser aprimorados.

Descritores: Conhecimentos, Atitudes e Prática em saúde; Médicos; Acidentes de Trabalho.

Resumen

Objetivo: Evaluar el conocimiento, la actitud y la práctica (CAP) de los médicos sobre la Comunicación de Accidentes de Trabajo (CAT) en Atención Primaria. **Métodos:** Estudio transversal realizado entre noviembre de 2020 y enero de 2021, aplicando la Encuesta a 229 médicos de Fortaleza, Ceará. El instrumento se envió de forma electrónica con preguntas sobre el conocimiento, la actitud y la práctica en relación con la CAT. El proyecto fue aprobado por un Comité de Ética en Investigación, con n.º de opinión 4.263.48. **Resultados:** La tasa de deficiencia más elevada correspondió a la práctica (85,59%). Conocimiento inadecuado estuvo asociado con existencia de distintas modalidades de contratación médica ($p=0,04$), práctica inadecuada ($p<0,001$) y actitud inadecuada ($p=0,009$). Actitud inadecuada presentó asociaciones con práctica inadecuada ($p=0,026$) y con conocimiento inadecuado ($p=0,009$). Además, el 88,21% de los participantes ($n=202$) afirmó que nunca habían completado un CAT. Las prácticas inadecuadas estuvieron asociadas con conocimiento inadecuado ($p<0,001$) y actitud inadecuada ($p=0,026$). **Conclusión:** Es necesario mejorar el conocimiento, la actitud y la práctica de los médicos en relación con la CAT.

Descriptor: Conocimientos, Actitudes y Práctica en Salud; Médicos; Acidentes de Trabajo.

INTRODUCTION

The term Work is a “dynamic process between the worker, the environment, production methods and psychosocial and ethical relations, resulting in a product or activity”.⁽¹⁾ It can also be defined as an activity to be carried out, individually or in groups, with dynamism, complexity and volatility as its main characteristics, in which it is possible to distinguish human beings from other mammals due to their reflexive, conscious, assertive, strategic, instrumental and moral essence.⁽²⁾ As work has great relevance and influence on people's lives, it is very difficult, if not impossible, to separate human experience from work activity.⁽³⁾

In turn, workers are all men and women who work in urban or rural areas, regardless of how they enter the labor market, whether they have formal or informal employment, and whether they work in the public or private sector. In addition, the National Workers' Health Policy (*Política Nacional de Saúde do Trabalhador e da Trabalhadora*, PNSTT) covers salaried, self-employed, freelance, temporary, cooperative, apprentice, trainee, domestic, retired and unemployed workers.⁽⁴⁾

According to the Continuous National Household Sample Survey, in the November-January quarter of 2021, Brazilian workers totaled nearly 100.2 million people (approximately 47.30% of the Brazilian population).⁽⁵⁾ In Ceará, according to the same document for the October-December quarter of 2020, there were 3.80 million workers (approximately 41.16% of the population). In Fortaleza, according to the last census, there were around 849,000 workers (approximately 32.10% of the population).⁽⁶⁾

Given the significant number of Brazilians who are active in their work activities, it is extremely important to take into account Workers' Health (WH) actions aimed at meeting the health needs of these individuals. WH is the term used to refer to the set of measures aimed at improving, protecting, recovering and rehabilitating the health of workers who are exposed to work-related hazards and harms. To this end, epidemiological and health surveillance actions are used.⁽⁷⁾

In 2018, nearly 576,900 work-related accidents were registered with the National Social Security Institute (*Instituto Nacional do Seguro Social*, INSS). Compared to 2017, the number of work-related accidents increased by 3.47%. The total number of accidents registered with a Work-related Accident Report (CAT) increased by 5.19% from 2017 to 2018. Of the total number of accidents with registered CATs, the typical ones accounted for 75.47%, commuting accidents for 22.56% and work-related diseases for 1.97%. The male gender was the most prevalent.⁽⁸⁾

When they get sick, workers usually seek care at the Primary Health Care (PHC) level. This is due to the fact that PHC is very decentralized and comprehensive, with units close to people's homes and workplaces.

In Brazil, Primary Care is primarily operated by the Family Health Strategy (*Estratégia Saúde da Família*, ESF), which in turn is preferably made up of Family Health Teams (*Equipes de Saúde da Família*, eSFs). These teams are minimally made up of a physician, a nurse, a nursing assistant and/or technician and a community health agent (*Agente Comunitário de Saúde*, ACS). Endemic disease control agents (*Agentes de combate às Endemias*, ACEs) and oral health professionals (dental surgeons and oral health assistants or technicians) can also be part of the team.⁽⁹⁾

Each member of the health team has duties that are common to all and specific to each category. Among those that can be carried out by a physician, the most important are actions aimed at health surveillance (sanitary, environmental, epidemiological and workers' health) and knowledge of and action in accordance with the policies and guidelines set forth by the Ministry of Health.⁽⁹⁾

Among the aforementioned policies, the PNSST stands out, which defines the principles, guidelines and strategies of the Unified Health System (*Sistema Único de Saúde*, SUS) management spheres for the development of comprehensive workers' health care.⁽⁹⁾ The policy strongly emphasizes Workers' Health Surveillance (*Vigilância em Saúde do Trabalhador*, VISAT), highlighting the promotion and protection of workers' health, the reduction of morbidity and mortality resulting from development models and production processes, adding value to the work carried out by health professionals and recognizing the territory as the place where workers carry out their activities.⁽⁹⁾

Among the VISAT actions is the identification and notification of risk situations and work-related problems. In the event of a work-related accident or disease, physicians must issue the CAT as well as the notification. This document will be the tool for characterizing the link between the work-related accident/disease, as well as guaranteeing the insured worker access to accident benefits from the INSS.⁽¹⁰⁾

One way of recognizing an accident at work (common or commute-related) or a work-related disease is to issue a CAT. This document is the employer's responsibility and must be issued within one working day, or immediately in the event of death. The CAT can also be issued by a physician external to the company, a family member, an uninsured dependent person, a union representative or a public authority.⁽¹¹⁾

Searches in health databases such as Medical Literature Analysis and Retrieval System Online (MEDLINE), *Literatura Latino Americana e do Caribe em Ciências da Saúde* (LILACS) and *Base de Dados da Enfermagem* (BDENF) did not yield any significant or robust studies on the physicians' knowledge, attitude and practice regarding the CAT. The studies looked at adherence to standard precautions by a mobile pre-hospital care team, possible differences in the knowledge and actions of accident medical experts at a professional rehabilitation center, Brazilian pediatricians' knowledge and practice about gastroesophageal reflux disease in infants and the profile of Brazilian workers who have suffered work-related accidents involving biological fluids. This was extremely important for the planning and design of this article.

It was also found that researchers have used the KAP (knowledge, attitude and practice) survey to measure what a population knows and thinks and how it acts in relation to a given problem. This survey can be adapted to different contexts, enabling a population diagnosis of a particular issue and the identification of possible avenues for future effective intervention.⁽¹²⁾

The importance of carrying out this research is justified given the knowledge gap described above, the importance of work to people's lives, the large number of workers throughout the country, the morbidity and mortality resulting from work-related accidents and diseases, the costs to the health system and the small number of studies with significant data on the topic. The objective of this study was to assess the physicians' knowledge, attitude and practice regarding the CAT in Primary Health Care in Fortaleza.

METHODS

The method was written based on the guidelines for reporting observational studies (STROBE). The authors looked at the checklist for the type of research.

This is an evaluative and observational study with a quantitative approach and a cross-sectional design, supported by a knowledge, attitude and practice (KAP) survey and carried out between May 2019 and July 2021.

The study was conducted in Primary Health Care, specifically in Primary Health Care Units (PHCUs) from the city of Fortaleza-CE. The capital city is administratively divided into six Regional Health

Coordination Offices (*Coordenadorias Regionais de Saúde*, CORES).⁽¹³⁾ It was decided to stratify the sample, respecting the proportion of the populations in each CORES in order to obtain a representative sample of professionals.

The study population consisted of physicians working in Primary Health Care Units (PHCUs) in the municipality of Fortaleza, Ceará. It is worth pointing out that this figure varies from time to time, given the flow of professionals in and out. For this reason, the data for November 2020 were taken as a reference. The sample of 214 professionals was estimated based on a formula for finite populations, using the following parameters: $N = 478$, Prevalence = 50%, Sampling error = 5%, Confidence Interval = 95% and Significance Level = 5% (1.96).

The following inclusion criteria were adopted: being a physician (regardless of gender or age group), working in the PHCUs from the city of Fortaleza, Ceará, and working at least 20 hours a week. Professionals who were on vacation or on leave and those with less than six months' service were excluded from the study.

Data collection took place from November 2020 to January 2021 through an invitation to participate in the survey that was sent electronically, via a messaging app or email. The researchers had an up-to-date list of participants eligible for recruitment. Once they had agreed to take part in the study, they were sent the Informed Consent Form (ICF) and the questionnaire prepared in *Google Forms*. The questionnaire was structured and self-administered and included pre-coded questions about knowledge, attitude and practice in relation to the CAT. It should be noted that the questionnaire was previously tested on a group of participants with characteristics similar to those of the study target audience, in order to confirm suitability of the instrument and to guarantee the quality of the information obtained (pre-test).

As for the questions about knowledge, the plausible answers were "True", "False" and "I don't know". In relation to attitude, a Likert-type scale was used to classify five answer categories, as follows: "I agree", "I completely agree", "I disagree", "I completely disagree" and "I don't know". Finally, in relation to practice, the possible polychotomous answers were "Always", "Sometimes", "Rarely" and "Never". In addition to that, the professionals were asked if they had ever filled in a CAT.

For the data analysis purposes, knowledge was considered adequate when the participant reported having heard of the CAT and gave correct answers to all the questions about the aforementioned document. Knowledge was considered inadequate when the professional stated having never heard of the CAT or gave an incorrect answer to a question about it.

Attitude was considered adequate when the professional answered "I agree" or "I completely agree" when asked if filling in the CAT was responsibility of PHC physicians. Attitude was considered inadequate when the professional answered "I disagree", "I completely disagree" or "I don't know" when asked if filling in the CAT was responsibility of Family Health Team physicians.

In relation to practice, it was considered adequate when the professional reported having filled in the CAT at least once and answered the questions with the "Always" or "Sometimes" option. Practice was considered inadequate when the professional reported never having filled in the CAT or answered the questions with the "Rarely" or "Never" option.

A score from 0 to 10 was calculated for each domain of the questionnaire, with 10 as the highest value, given when all the questions were answered correctly. A cutoff point of 50% correct answers was established, a value used in similar studies.⁽¹⁴⁻¹⁶⁾

Once the data had been collected and checked, they were exported to an Excel spreadsheet, version 2019. The statistical analysis was then carried out using the Stata software, version 15.1. Initially, univariate analyses were carried out using central tendency measures (for numerical variables) and frequency tables (for categorical variables). The numerical variables were statistically analyzed using Student's t-test. In turn, the categorical variables were subjected to bivariate analysis, using the Chi-square hypothesis test or Fisher's Exact test (when the conditions for the Chi-square test were not met).

Variables whose analysis resulted in statistical significance at the $p < 0.20$ level were taken to the multivariate model. Simple Logistic Regression was also used to express the association level of each independent variable with the outcome by calculating the Odds Ratio (OR). The multivariate models were carried out using Multiple Logistic Regression and expressed through ORs and their respective confidence intervals. Variables statistically associated with the outcomes at the $p < 0.05$ level were kept in the final model. Finally, a 95% confidence interval and a 5% significance level were used in all the analyses.

The research was approved by the Research Ethics Committee of the São Carlos Hospital, Ceará, according to opinion No. 4,263,485 dated September 8th, 2020, and Certificate of Presentation for Ethical Appraisal No. 32855920.6.0000.5043

RESULTS

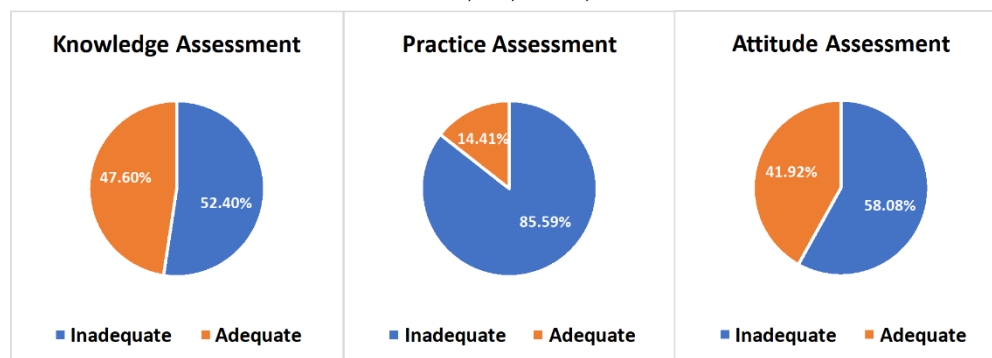
In relation to the participants' sociodemographic characteristics, females prevailed (54.59%, n=125). Their age varied from 21 to 69 years old, with a mean of 36.42 (SD ± 1.030). In relation to marital status, 53.71% (n=123) reported living with a partner. In relation to self-reported race, white-skinned individuals predominated (53.28%, n=122). In relation to religion, 89.96% (n=206) reported professing some form of religion, predominantly Catholicism (61.57%, n=141).

The sample consisted almost entirely of professionals who had graduated in Brazil (96.07%, n=220). There was predominance of graduates in the Northeast (87.77%, n=201), followed by the Southeast (5.24%, n=12). In terms of the type of Higher Education Institution (HEI), 72.49% (n=166) reported having obtained their undergraduate degree at a public university. When asked about their academic training, 54.35% (n=125) did not have any specialization course, 68.12% (n=156) did not have any medical residency course, 85.59% (n=196) did not have any MSc degree and 97.82% (n=224) did not have any PhD degree.

In relation to employment contract, there was predominance of statutory employees (32.75%, n=75). Finally, considering the weekly hour load, the option of 32 face-to-face hours in the PHCUs prevailed, plus 8 hours of Permanent Education (PE), with a 76.86% proportion (n=176).

The study participants were classified in each segment of the KAP Survey, according to previously established suitability criteria. As shown in Figure 1, the highest inadequacy rate was related to practice (85.59%). On the other hand, knowledge was considered adequate in 47.60% of the evaluations. In terms of attitude, 41.92% were adequate.

Figure 1. Distribution of the sample according to the knowledge, attitude and practice assessments (n=229). Fortaleza, CE, Brazil, 2021.



Source: The authors, 2021.

Inadequate knowledge was associated with the following factors: existence of hiring modalities other than the More Doctors for Brazil Program (*Programa Mais Médicos pelo Brasil*, PMMB) or Family and Community Medicine Residency (*Residência em Medicina de Família e Comunidade*, RMFC) ($p=0.04$), inadequate practice ($p<0.001$) and inadequate attitude ($p=0.009$). The other variables showed no significant association with inadequate knowledge (Table 1).

Table 1. Factors associated with inadequate knowledge. Fortaleza, CE, Brazil, 2021.

Variables	Knowledge				p	OR	95% CI	
	Inadequate		Adequate				UL	LL
	n	%	n	%				
Age group								
<30 years old	40	50.63	39	49.37	0.863			
30-39	34	50.00	34	50.00				
40-49	31	55.36	25	44.64				
≥50	15	57.69	11	42.31				
Gender								
Male	51	49.04	53	50.96	0.353			

Female	69	55.20	56	44.80				
Type of contract								
Other	88	57.14	66	42.86	0.040	1.791	1.025	3.130
PMMB/Residency	32	42.67	43	57.33		1	-	-
Practice								
Adequate	8	24.24	25	75.76	<0.001	1	-	-
Inadequate	112	57.14	84	42.86		4.333	1.868	10.051
Attitude								
Adequate	60	45.11	73	54.89	0.009	1	-	-
Inadequate	60	62.50	36	37.50		2.027	1.186	3.466

*Chi-square test or Fisher's Exact test

**Simple Logistic Regression

Source: The authors, 2021.

In relation to inadequate attitude, this outcome was associated with female gender ($p=0.004$), existence of hiring methods other than PMMB/RMFC ($p=0.034$), inadequate practice ($p=0.026$) and inadequate knowledge ($p=0.009$) (Table 2).

Table 2. Factors associated with inadequate attitude. Fortaleza, CE, Brazil, 2021.

Variables	Attitude				p	OR	95% CI	
	Inadequate		Adequate				UL	LL
	n	%	n	%				
Age group								
<30 years old	27	34.18	52	65.82	0.172	1	-	-
30-39	31	45.59	37	54.41		1.613	0.828	3.141
40-49	23	41.07	33	58.93		1.342	0.662	2.721
≥50	15	57.69	11	42.31		2.626	1.060	6.500
Gender								
Male	33	31.73	71	68.27	0.004	1	-	-
Female	63	50.40	62	49.60		2.186	1.271	3.757
Type of contract								
Other	72	46.75	82	53.25	0.034	1.865	1.045	3.330
PMMB/Residency	24	32.00	51	68.00		1	-	-
Practice								
Adequate	8	24.24	25	75.76		1	-	-
Inadequate	88	44.90	108	55.10	0.026	2.546	1.094	5.924
Knowledge								
Adequate	36	33.03	73	66.97	0.009	1	-	-
Inadequate	60	50.00	60	50.00		2.027	1.186	3.466

*Chi-square test or Fisher's Exact test

**Simple Logistic Regression

Source: The authors, 2021.

In relation to practice, 88.21% ($n=202$) stated that they had never filled in a CAT and the main reason cited was lack of opportunity. Inadequate practice was associated with inadequate knowledge ($p<0.001$) and inadequate attitude ($p=0.026$) (Table 3).

Table 3. Factors associated with inadequate practice. Fortaleza, CE, Brazil, 2021.

Variables	Practice				p	OR	95% CI	
	Inadequate		Adequate				UL	LL
	n	%	n	%				
Age group								
<30 years old	70	88.61	9	11.39	0.060	1.767	0.535	5.831
30-39	62	91.18	6	8.82		2.348	0.651	8.468
40-49	42	75.00	14	25.00		0.681	0.217	2.140
≥50	22	84.62	4	15.38		1	-	-
Gender								
Male	85	81.73	19	18.27	0.129	1	-	-
Female	111	88.80	14	11.20		1.772	0.840	3.736
Type of contract								

Other	127	82.47	27	17.53	0.054	0.409	0.161	1.038
PMMB/RMFC	69	92.00	6	8.00		1	-	-
Attitude								
Adequate	108	81.20	25	18.80	0.026	1	-	-
Inadequate	88	91.67	8	8.33		4.333	1.868	10.517
Knowledge								
Adequate	84	77.06	25	22.94	<0.001	1	-	-
Inadequate	112	93.33	8	6.67		2.546	1.094	5.924

*Chi-square test or Fisher's Exact test

**Simple Logistic Regression

Source: The authors, 2021.

In the multivariate analysis, the factors that remained associated with inadequate knowledge were the following: specialization in Family Health (Odds Ratio [OR]: 2.007; 95% CI 1.084-3.715), contract other than PMMB/RMFC (2.28; 1.252-4.152) and inadequate practice (5.015; 2.073-12.130).

Inadequate attitude remained associated with the following variables: contract other than PMMB/RMFC (2.161; 1.064-4.391), inadequate practice (2.777; 1.098-7.018), age 50 or over (3.623; 1.247-10.510), Catholic religion (3.556; 1.092-11.570), female gender (2.053; 1.130-3.729) and not any MSc degree (3.899; 1.468-10.350).

Finally, inadequate practice continued to be associated with inadequate knowledge (5.182; 2.063-13.010), working in Region 4 (0.176; 0.042-0.725), working in Region 6 (0.239; 0.066-0.859) and having no specialization (3.698; 1.193-11.460). The entire multivariate analysis is expressed and synthesized in Table 4.

Table 4. Multivariate analysis: factors associated with inadequate knowledge. Fortaleza, CE, Brazil, 2021.

<i>KAP survey variables and associated factors</i>	<i>OR</i>	<i>p</i>	<i>95% CI</i>	
Inadequate knowledge				
No specialization versus specialization in Family Health	2.007	0.027	1.084	3.715
Specialization in another area versus specialization in Family Health	2.649	0.043	1.031	6.802
Contract other than PMMB/Residency	2.280	0.007	1.252	4.152
Inadequate practice	5.015	0.000	2.073	12.310
Inadequate attitude				
Contract other than PMMB/RMFC	2.161	0.033	1.064	4.391
Inadequate practice	2.777	0.031	1.098	7.018
≥50 years old versus <30 years old	3.623	0.018	1.247	10.510
Catholicism versus no religion	3.556	0.035	1.092	11.570
Women	2.053	0.018	1.130	3.729
Contract other than PMMB/RMFC	2.161	0.033	1.064	4.391
Inadequate practice				
Inadequate knowledge	5.182	<0.001	2.063	13.010
Region 4 versus Region 1	0.176	0.016	0.042	0.725
Region 6 versus Region 1	0.239	0.028	0.066	0.859
No specialization versus specialization in other areas	3.698	0.023	1.193	11.460

*Multiple Logistic Regression

Source: The authors, 2021.

DISCUSSION

The Discussion is based on four topics that were constructed on the basis of the results highlighted above and compared to the relevant literature, namely: predominance of young female general practitioners, inadequate knowledge, inadequate attitude and inadequate practice.

Predominance of young female general practitioners

The predominance of females corroborates a national trend. Although men are still a majority, the gender gap is narrowing year by year. In 2020, men and women made up 53.4% and 46.6% of the physician population, respectively. However, there was an increase in female participation in the lower age groups in that same year. They represent 58.8% of the physicians aged up to 29 and 55.3% of those aged between 30 and 34.⁽¹⁷⁾

In a study carried out in Goiás with physicians who teach and precept medical courses, 45.5% of the participants were female.⁽¹⁸⁾ This finding is in line with the results of this study and the statistics from Ceará, where there is also predominance of males (56.1% men versus 43.9% women).⁽¹⁷⁾

The mean age found among the participants was 36.42 years old, confirming the incorporation of increasingly younger professionals into the Brazilian medical job market. The mean age of practicing Brazilian physicians is 45 years old. In Ceará, the mean age is 43.2.⁽¹⁷⁾

In this study, the term "generalist" was used to refer to any physician without any specialist title. Thus, this group includes all professionals who have completed their undergraduate degree but have not finished any medical residency or obtained a title in a medical society.⁽¹⁷⁾ In terms of professional training, the proportion of general practitioners (68.12%) was much higher than the 38.7% observed in Brazil and the 43.3% found in the state of Ceará. The specialist/generalist ratio in the study was 0.46, whereas it was 1.58 in Brazil and 1.31 in Ceará.⁽¹⁷⁾

Inadequate knowledge

This research indicates a considerable gap in PHC physicians' knowledge, attitude and practice in relation to the Work-related Accident Report. In terms of knowledge, most of the participants (52.40%, n=120) had inadequate knowledge. It is worth noting that all the professionals work in PHCUs, places where health protection and promotion actions should be provided, as well as disease prevention with an emphasis on health education.

A study carried out in India to assess knowledge and practice of COVID-19 biomedical waste management among health professionals highlighted that knowledge was 62.2% and practice 50.8%. Physicians had three times better practices than nurses.⁽¹⁹⁾ Another study in China states that factors such as extended working hours, lack of prevention standards and low knowledge are associated with higher occupational exposure risks.⁽²⁰⁾

Notification of a work-related accident is necessary both for health service managers and for the injured professional, as knowledge of the accident allows strategies to be implemented in the workplace to prevent further incidents. It is also noted that the PHC physician that assisted the worker and diagnosed the work-related accident is responsible for filling in the CAT, especially the second part of the document, which corresponds to the medical examination report.⁽¹⁰⁾

In the multivariate analysis, the variables that remained significantly associated with inadequate knowledge were lack of *lato sensu* specialization or specialization in an area other than Family Health and hiring other than PMMB/RMFC. Also along these lines, more study time can improve access to health databases, conferring greater familiarity with the concepts of evidence-based medicine and better ability to understand them.

In addition to that, medical residency programs and the PMMB have their own clinical meetings, manuals and routines. This suggests that physicians who participate in these programs are more concerned with research and the study of scientific evidence, favoring adequate knowledge. With this, continuing education helps physicians have access to the latest scientific evidence on the subject matter under investigation during their graduate or residency courses.

A relevant question to be investigated is whether knowledge is transferred into practice. Although an association was found between knowledge, attitude and practice in relation to filling in the CAT, attitude and practice were more inadequate in relation to knowledge.

Education is an essential tool for stimulating knowledge and its effectiveness depends on effective communication of the message, the scientific basis of the information and the use of channels familiar to the target audience. A study carried out in Australia reveals that improving communication skills among health professionals is necessary and allows for effective understanding in the transmission of diverse information. Offering training and educational workshops using active methodologies can help increase knowledge and develop the necessary skills.⁽²¹⁾

In Denmark, training using educational videos, role-playing and reflective circles was effective in teaching health communication to the professionals and helped them recognize the different ways of interpreting the verbal and non-verbal communication of patients and co-workers.⁽²²⁾

In Rio Grande do Sul (Brazil), an eight-year educational program was implemented to prevent work-related accidents involving biological material, with theoretical and practical activities. There was an annual reduction of 0.21% in percutaneous accidents and of 0.36% in percutaneous accidents due to improper disposal.⁽²³⁾

A study carried out in São Paulo (Brazil) with medical residents on work-related accidents involving exposure to biological material revealed that these professionals have difficulties communicating in plain language between physician and patient, about the importance of providing information and clarification during the consultation and the need to adapt the care process to meet each person's individual needs. The authors point out that this theme needs further research studies to expand knowledge about work-related accidents based on scientific evidence.⁽²⁴⁾

Inadequate attitude

In relation to attitude, most of the answers given to this survey were classified as inadequate: 58.08% (n=133). Work-related accidents are an important issue, given that work activities can expose workers to unhealthy conditions, interfering with the health-disease-care-work process.⁽²⁵⁾ Thus, clarifying the research participants about the recognition of accidents at work and the need to issue CATs can help reduce the scarce importance given to the subject matter, favoring appropriate attitudes.

It is worth noting that, according to the analysis of the physicians that took part in the study, inadequate knowledge contributed to inadequate attitude ($p=0.009$). Inadequate attitude was more prevalent among women, which can be explained by the predominance of females among the survey participants. In addition to that, the participants aged at least 50 years old had higher prevalence of inadequate attitude when compared to those under 30. This may reflect the difficulty professionals have in accessing recent scientific evidence. In the multivariate analysis, the other factors that remained significantly associated with inadequate attitude were employment contract other than PMMB/RMFC and absence of an MSc degree.

A study carried out in Italy evaluated the results of the notification system five years after its implementation in a tertiary-level hospital and was able to verify that, although the system eased knowledge of the accidents that had occurred, under-reporting was prevalent. Promoting a patient safety culture without punishments, health education actions and periodic analysis of health indicators can be factors that improve health professionals' adherence to reporting.⁽²⁶⁾ The opportunity to take part in training programs to enhance their practice can help them improve their attitude.

Inadequate practice

Although 89.96% (n=206) of the participants stated that they knew about the CAT, 88.21% (n=202) had never filled it out. As already mentioned, the knowledge acquired may not be put into practice. In relation to practice, nearly 85.59% (n=196) of the evaluations were classified as inadequate. When compared to knowledge and attitude, this was the highest inadequacy level.

Among those that had never filled in a CAT, the main reason cited was lack of opportunity to do so. Other causes found were not being aware of the document, the fact that this activity was not considered to be responsibility of PHC professionals and lack of time to fill in the document. This result can lead to underreporting of work-related accidents (WRAs).

Underreporting of accidents has been the target of studies by other researchers, whose data corroborates those of this study. Some studies found that the main causes of this problem are "no need to report the accident", "excessive bureaucracy" and "lack of knowledge".⁽²⁰⁾ A study carried out in São Paulo revealed that the main reasons for not notifying an accident were the following: delay in receiving care after the accident; insufficient time to leave the unit; excess work; and fear of being blamed for the work-related accident; as well as not knowing where and how to notify. It was found that underreporting of accidents was 2.4 times higher than reporting.⁽²⁷⁾

A recent systematic review identified factors associated with underreporting, such as personal characteristics like being female, young, less experienced and working alone at the time of the accident; psychological characteristics such as fear of losing one's job, poor evaluation of work performance, legal consequences, low support from colleagues and reprisals from managers; and notification characteristics such as not knowing how to notify or who to report to, as well as not having been instructed in relation to the notification process.⁽²⁸⁾

According to the multivariate analysis, professionals who had not attended any specialization course had more inadequate practice in relation to the CAT. These individuals may be more resistant to changing their practices when confronted with new evidence, or they may have been trained within another medical care paradigm. In addition to that, inadequate knowledge was a factor that strongly influenced inadequate practice ($p<0.001$).

When asked if they had received any training on how to fill in the CAT, the majority (88.21%) answered that they had never been trained. A study conducted in Belém with Nursing professionals identified that 54.55% of the participants did not fill in the CAT correctly because they were unaware of the procedures for reporting.⁽²⁹⁾

It is therefore necessary to train these individuals through continuing health education (CHE), given that underreporting exerts an impact on workers and health services alike. Early identification of accidents and assessment of safety in the workplace assist in the design of preventive strategies, as they seek to combine theory and practice through training in everyday work, overcoming the logic of mere professional training.^(30,31)

Study limitations and contributions

Although the calculated sample was reached, stratification by health region was not. However, we consider that the response rate was satisfactory, given the indirect route used to contact the physicians and the difficulties inherent to obtaining answers to questionnaires sent via email and messaging apps. In addition to that, the study did not assess the type of education and training in workers' health during their academic career, a factor that may have affected the results.

As strengths, we found that the tool used for data collection was advantageous, as it provided a quick and easy way to reach the stipulated number of physicians, especially in pandemic times. Furthermore, the form made it possible to address the main questions about filling in the CAT.

CONCLUSION

It was concluded that most of the participants had inadequate KAP in relation to the CAT. Although some factors such as continuity in academic training and hiring in the PMMB/RMFC modality have improved KAP, we must recognize that proper CAT completion is far from ideal. Adequate knowledge is more prevalent than adequate attitude or practice, indicating that improving knowledge is fundamental but insufficient to change the CAT completion panorama.

In view of the above, in addition to management support, more effective methods of transferring acquired knowledge into practice should be identified, such as strategies for Continuing Health Education. Finally, obtaining similar data from similar studies will contribute to better understanding the results of this survey.

CONTRIBUTIONS

Contributed to the conception or design of the study/research: Souza Júnior ON, Freitas RWJF. Contributed to data collection: Souza Júnior ON. Contributed to the analysis and/or interpretation of data: Souza Júnior ON, Freitas RWJF, Benevides BS, Araújo MFM, Nuto SAS. Contributed to article writing or critical review: Araújo MFM, Nuto SAS, Barros LM, Guimarães SC, Freitas RWJF. Final approval of the version to be published: Souza Júnior ON, Freitas RWJF, Araújo MFM, Nuto SAS, Barros LM, Guimarães SC, Souza Benevides BS.

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