Suicide and attempts suicide by exogenous intoxication in Rio de Janeiro: analysis of data from official health information systems, 2006-2008

*Suicídios e tentativas de suicídios por intoxicação exógena no Rio de Janeiro: análise dos dados dos sistemas oficiais de informação em saúde, 2006-2008**

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Abstract

Objective: To describe the profile of suicide and attempts suicide by exogenous intoxication and completeness of data from the Center for Poisoning Control in Niterói City (CCIn), Information System for Notifiable Diseases (Sinan), and Mortality Information System (SIM) for Rio de Janeiro state (RJ). Methods: It was verified the frequency of suicide attempts and mortality in Rio de Janeiro state, period 2006-2008. The variables analyzed were sex, area of occurrence, circumstance, evolution, age, toxic agents and cause (ICD-10: X60-X69). The percentage of unknown information/blank was classified as excellent (≤ 10%), good (10 to 29.9%) and poor (≥ 30%). SPSS was used for statistical analysis. Results: Nine hundred and forty records of attempts (CCIn) and 470 (Sinan) were analysed. The female and the age group of 20-39 years predominated, as well as use of toxic agents like medicines and pesticides. About suicide, were identified 33 records (CCIn), 23 (Sinan) and 180 (SIM). In CCIn were more frequent female and age group of 15-29 years, through Sinan and SIM from 40-59 years. For both events, psychotropic drugs accounted for more than 70% of drugs. The Sinan system has shown the worst performance for toxic agents. Conclusions: Despite advances in improving the quality of information generated by the systems, problems regarding the coverage and data completeness remain committing the analysis of the magnitude of injuries. The study points out to the needs of systems compatibility and the improvement of the quality of information that are generated.

Keywords: Attempted suicide. Suicide. Poisoning. Information systems in health. Epidemiologic surveillance.

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Resumo

Objetivo: Descrever o perfil de suicídios e tentativas por intoxicação exógena e completitude dada pelo Sistema de Informações do Centro de Controle de Intoxicações de Niterói (CCIn), Sistema de Informações de Agravos de Notificação (Sinan) e Sistema de Informações sobre Mortalidade (SIM), para o Estado do Rio de Janeiro (RJ). **Métodos:** Verificou-se a frequência de suicídios e tentativas no período de 2006 a 2008. As variáveis analisadas foram sexo, idade, zona de ocorrência, circunstância, evolução, agentes tóxicos e causa básica (CID-10: X60-X69). O percentual de informações ignoradas/em branco foi classificado em excelente (≤ 10%), bom (10-29,9%) e ruim (≥ 30%). O programa SPSS foi utilizado para as análises estatísticas. **Resultados:** Foram analisados 940 registros sobre tentativas do CCIn e 470 do Sinan. O sexo feminino e o grupo etário de 20-39 anos predominaram, assim como o uso dos agentes tóxicos, medicamentos e agrotóxicos. Quanto ao suicídio, foram identificados 33 (CCIn), 23 (Sinan) e 180 (SIM) registros. No CCIn foram mais frequentes mulheres e grupo etário de 15-29 anos através do Sinan, e de 40-59 anos através do SIM. Para ambos os eventos, mais de 70% dos medicamentos eram psicotrópicos. O Sinan apresentou o pior desempenho para os agentes tóxicos. **Conclusões:** Apesar dos avanços para melhorar a qualidade das informações geradas pelos sistemas, problemas quanto à cobertura e completitude dos dados permanecem comprometendo a análise da magnitude dos agravos. O estudo aponta para a necessidade de compatibilizar os sistemas e aperfeiçoar a qualidade das informações geradas.

Palavras-chave: Tentativa de suicídio. Suicídio. Intoxicação exógena. Sistemas de informação em saúde. Vigilância Epidemiológica.

Introduction

The global rate of suicide was 16 deaths per 100,000 inhabitants in 2000[1]. In Brazil, according to the *Sistema de Informações sobre Mortalidade* (SIM – Mortality Information System), this rate is not high (5 deaths/100,000 inhabitants, in 2008) when compared to the world rate. However, there was an increase of 29.5% between 1980 and 2006. Exogenous intoxication is one of the three main means used in suicides and suicide attempts and intoxication occurred in approximately 70% of cases[2-5].

National and international studies showed that the main substances used in these events are pesticides, which varied between 60% and 90%, mainly in developing countries, whereas medications ranged between 12% and 60% and were more frequent in developed countries[3,5-10].

In the state of Rio de Janeiro, few studies have been performed to investigate suicides and suicide attempts by exogenous intoxication. Studies conducted in two general emergency hospitals found a higher frequency of use of pesticides (between 33% and 52%) and medications (39%) in both services[5,9]. Due to the scarce knowledge about the magnitude and profile of exogenous intoxications in cases of suicides and suicide attempts in the state of Rio de Janeiro, the present study aimed to describe the profile of suicides and suicide attempts by exogenous intoxication and the comprehensiveness of information recorded in the *Centro de Controle de Intoxicações de Niterói* (CCIn-Niterói – City of Niterói Poisoning Control Center), *Sistema de Informações de Agravos de Notificação* (Sinan – Information System for Notifiable Diseases) and *Sistema de Informações sobre Mortalidade* (SIM – Mortality Information System) for the state of Rio de Janeiro.

Methods

Study design

An exploratory descriptive study was

conducted to analyze the frequencies of suicide attempts, recorded in the CCIn-Niterói, Sinan and SIM systems, between 2006 and 2008. In this study, the coverage of these databases was not assessed, as the specific objective was to initially identify the quality of information about suicides and suicide attempts by exogenous intoxication.

Study groups

The cases analyzed were divided into two groups. Suicide attempt (SA) cases by exogenous intoxication were identified with the "circumstance" variable in the Sinan and CCIn-Niterói systems, made available by the Sub-Department of Health Surveillance and the Antônio Pedro University Hospital of the Fluminense Federal University, respectively. The Sinan and CCIn-Niterói information systems about intoxications were selected because they were the only official systems that concentrated specific information about these health problems. The SIH-SUS (Hospital Information System of the Unified Health System) also provides such information, although it is restricted to hospitalizations in public health units or those affiliated with the SUS, without sufficient details required for the monitoring of exogenous intoxications. Finally, the SIM system only has records of deaths.

Suicide cases by exogenous intoxication were identified with the "evolution" variable in the Sinan and CCIn-Niterói systems. In the SIM system, the "primary cause" variable was used to identify the cases of death relevant for this study. In this way, all deaths whose primary causes were coded X60-X69, according to the WHO International Classification of Diseases - 10th revision (ICD-10), were included. Data from this system were also made available by the Sub-Department of Health Surveillance.

Official sources of data on exogenous intoxication

The CCIn-Niterói is part of the *Rede Nacional de Centros de Informação e Assistência Toxicológica* (Renaciat – National Network of Toxicological Information and Support Centers), which is coordinated by the *Agência Nacional de Vigilância Sanitária* (Anvisa – National Health Surveillance Agency), the only referral center in the state of Rio de Janeiro. Professionals from this center record the services in files and type this information into a notification database. These are the services provided to meet the spontaneous demand of intoxicated individuals, health professionals or lay people seeking information about treatment and/or guidance on the procedures to be performed in case of poisoning.

The Sinan is fed by the information present in the disease notification and investigation files included in the National List of Diseases of Compulsory Notification[11] and other health problems of interest in the states and cities. Until the end of 2006, the Sinan only recorded cases of poisoning caused by pesticides. After this period, it began to record several types of toxic agents. Files are completed by professionals from the health units (public, health plan-affiliated and private) that care for cases of poisoning on a national basis. This system enables the online consultation of its database at http://dtr2004.saude.gov.br/sinanweb/.

The SIM is one of the first national health information systems. This system is fed by information included in death certificates (DC) and causes of death are standardized according to the ICD-10. These certificates are completed by physicians or forensic experts. The system also enables online consultation of its database on the website of the Unified Health System Data Processing Department (Datasus) at http://www2.datasus.gov.br/DATASUS/index.php.

Study variables

The variables analyzed were sex, age, toxic agents and place of occurrence. Ages were stratified into the following groups: 10-14, 15-19, 20-29, 30-49, 50-59, ≥ 60 years, according to the WHO. Toxic agents were grouped into medications, unspecified

medications and drugs, pesticides, and others. Substances that had an incidence equal to or lower than 5% were grouped under "others".

The detailed analysis of types of medication was performed with a single study group (suicide attempts + suicides) to generate a higher number of observations. Medications were gathered into the following therapeutic classes: antidepressants, anxiolytics, anticonvulsants, analgesics, neuroleptics, sedative-hypnotics, anti--hypertensives, antibiotics, other specified medications, and unspecified medications. "Other specified medications" included the toxic agents with an incidence equal to or lower than 5%. In contrast, "unspecified medications" referred to data described as "medications" exclusively.

With regard to the percentage of ignored or blank information, the following classification was used: excellent, when the percentage of ignored information was lower than or equal to 10%; good, between 10% and 29.9%; and poor, when equal to or higher than 30%[12].

The frequencies of each group studied were used to show the respective epidemiological profiles. They were calculated by taking into consideration the absolute number of suicide attempts and suicides in the total number of cases of intoxication per group of substances involved, between 2006 and 2008. The SPSS 13 software (SPSS Inc., Chicago, USA) was used for the statistical analyses.

Ethical considerations

The present study was approved by the Research Ethics Committee of the Institute of Collective Health Studies at the Federal University of Rio de Janeiro (number 68/2009 CEP/IESC/UFRJ). Authors declared there were no conflicts of interest.

Results

The variables associated with the 940 cases of suicide attempts and suicides recorded in the CCIn-Niterói database were analyzed, which represented 15.0% of all causes of intoxication. The same was performed with the 470 cases of suicide attempts and suicides recorded in the Sinan, i.e. 12.2% of all causes of intoxication. In the SIM, there were 180 cases of suicide by exogenous intoxication (17.4% of all records of suicide made by any method). As previously described, these analyses were performed between 2006 and 2008.

Upon analysis of the completion of the "circumstance" field, which is essential to identify cases of suicide attempts, the Sinan showed 73.6% of ignored and blank data, whereas these data totaled 2.4% in the CCIn-Niterói. Additionally, the Sinan system contributed to more than 30% of the lack of information about toxic agents. With regard to the "evolution" field, the Sinan and CCIn-Niterói systems recorded 22.3% (n = 105) and 12.6% (n = 119) of follow-up losses/ignored and blank data, respectively.

Cases of suicide attempts

Table 1 shows that women predominated in both systems. Adults aged between 20 and 49 years represented from 60 to 76% of all cases in these systems, although younger adults stood out (27.3% and 33.0% in the CCIn and SINAN, respectively), whereas those aged 50 years and more totaled 14.7% (CCIn) and 10.7% (SINAN) of cases. More detailed results found in the Sinan on the consumption of pesticides showed a 4.5:1 ratio (n = 112 vs. n = 25) for the use of a type of rodenticide known as *chumbinho*, when compared to other pesticides, while this ratio was 1.14:1 (n = 165 vs. n = 144) in the CCIn-Niterói system.

Table 2 shows the toxic agents involved in suicide attempts according to sex. The data from the Sinan shown in Table 1 do not reveal differences among the substances used (medications and pesticides), whereas this difference is evident in the CCIn-Niterói, with a clear predominance of medications. In this case, the CCIn-Niterói records corroborated the predominance of

Table 1 - Distribution of variables related to suicide attempts by exogenous intoxication in the Rio de Janeiro state, the period 2006-2008.
Tabela 1 - *Distribuição das variáveis relacionadas às tentativas de suicídio por intoxicação exógena no estado do Rio de Janeiro, período 2006-2008.*

Variables	CCIn- Niterói (n= 907) n (%)	Sinan (n= 447) n (%)
Sex		
Male	289 (31,8)	127 (28,4)
Female	618 (68,2)	320 (71,6)
	CCIn- Niterói (n= 894)** n (%)	Sinan (n= 382)** n (%)
Age group		
10-14	75 (8,4)	6 (1,6)
15-19	140 (15,6)	43 (11,2)
20-29	244 (27,3)	126 (33,0)
30-49	304 (34,0)	166 (43,5)
50-59	81 (9,1)	23 (6,0)
≥ 60	50 (5,6)	18 (4,7)
	CCIn- Niterói (n= 904)*** n (%)	Sinan (n= 273)*** n (%)
Toxic agents		
Medications	454 (50,2)	118 (43,2)
Pesticides	309 (34,2)	134 (49,1)
Others*	79 (8,7)	15 (5,5)
≥ 2 different agents	62 (6,8)	6 (2,2)

* Drugs, alcohol, chemicals, cleaning products, gas, cosmetics, plant, veterinary and other products.
** Records were excluded as ignored/blanks: CCIn (n = 13, 1.4%), Sinan (n = 65, 14.5%).
*** Records were excluded as ignored/blanks: CCIn (n = 3; 0.3%), Sinan (n = 174; 38.9%).
** Drogas, álcool, produtos químicos, domissanitários, gás, cosmético, planta, produto veterinário e outro.*
*** Foram excluídos registros como ignorado/branco: CCIn (n= 13; 1,4%); Sinan (n= 65; 14,5%).*
**** Foram excluídos registros como ignorado/branco: CCIn (n= 3; 0.3%); Sinan (n= 174; 38.9%).*

women observed. Additionally, the Sinan system showed a high percentage of ignored/blank data (nearly 30%), which were excluded for the calculation of frequencies.

Suicide cases

The results in Table 3 indicate that there is an excessive mortality of women (60.6% vs. 39.4%) according to data from the CCIn-Niterói, whereas the other two systems show the opposite. Nearly 50% of suicides in the Sinan and SIM were committed by individuals aged between 20 and 49 years; in the CCIn-Niterói, 28.2% were children and adolescents aged between ten and 19 years.

Table 4 shows the analysis of toxic agents in suicides. In general, the use of medications, pesticides and chemical products stood out.

With regard to the therapeutic classes of medications used in suicide attempts and suicides, only the CCIn-Niterói and Sinan systems made this information available. The data from these two systems showed that more than 70% of the medications used were psychotropics.

Table 2 - Distribution of variables related to suicide attempts by exogenous intoxication, according to sex, in the Rio de Janeiro state, the period 2006-2008.

Tabela 2 - *Distribuição das variáveis relacionadas às tentativas de suicídio por intoxicação exógena, segundo sexo, para o estado do Rio de Janeiro, no período de 2006 a 2008.*

Toxic agent	CCIn-Niterói				Sinan			
	Men (n= 289)		Women (n= 614)**		Men (n= 80)***		Women (n= 195)***	
	n	%	n	%	n	%	n	%
Medications	85	29.4	373	60.7	14	17.5	103	52.8
Pesticides	148	51.2	164	26.7	57	71.2	80	41.0
Others*	29	10.0	40	6.5	3	3.7	10	5.1
≥ 2 different agents	27	9.4	37	6.0	6	7.5	2	1.0

* Drugs, alcohol, chemicals, cleaning products, gas, cosmetics, plant, veterinary and other products.
Conventional symbols used: Numeric data is not equal to zero due to rounding.
** Four records were excluded (0.6%) as ignored/blanks.
*** Records were excluded as ignored/blanks: Male (n = 47; 37.0%) Female (n = 125; 39.1%).
** Drogas, álcool, produtos químicos, domissanitários, gás, cosmético, planta, produto veterinário e outro.*
Sinais convencionais utilizados: Dado numérico igual a zero não resultante de arredondamento.
*** Foram excluídos 4 (quatro) registros (0,6%) como ignorado/branco.*
**** Foram excluídos registros como ignorado/branco: Homem (n= 47; 37,0%); Mulher (n= 125; 39,1%).*

Discussion

The systems analyzed in this study provided varied information, including about different toxic agents. The use of different types of products and substances in suicide attempts and suicides has been previously reported in other national studies[2,4,13].

There is a great difficulty in comparing the frequencies of exogenous intoxications as means for suicide attempts and suicides, due to the methodological diversity used in national and international studies conducted on such theme. When different sources of information are used for the analysis of this theme, similar difficulties also occur, due to the diversity found among the proposed systems and the variables comprising such systems.

However, this difficulty did not prevent pieces of evidence pointed out by other authors[5,9,14], such as the impact of easy access to a type of rodenticide known as *chumbinho*, from being corroborated.

In the state of Rio de Janeiro, carbamate and organophosphate pesticides are usually found in a substance popularly known as *chumbinho*, which is often sold illegally as rodenticide and also used in suicide attempts and suicides[5,9,14]. However, in general, there were no differences between *chumbinho* and other pesticides in suicide cases and the ratio remained at 1:1 (CCIn-Niterói and Sinan). The SIM system does not specify the chemical groups of pesticides. Another piece of information found in the other systems (CCIn-Niterói and Sinan), which apparently indicates the irregular distribution and use of this pesticide, is the fact that nearly 90% of cases of suicide attempts and suicides occurred in urban areas, rather than rural areas, where access with other purposes could have been justified.

According to data from poisoning information centers, other Brazilian states have also reported the use of *chumbinho* in suicide attempts and suicides with rates close to 75% (Bahia, n = 415[15]; Santa Catarina, n = 478[16]). In the present findings, there were seven deaths (46.7%) caused by this substance, recorded in the CCIn-Niterói, and six (54.5%), in the Sinan.

The cases reported show the need for greater inspection and control by the competent institutions, evidencing the illegal urban trade. The carbamate pesticide known as *Aldicarb*, whose brand name is Temik®, manufactured by Bayer, is exclusively

Table 3 - Distribution of variables related to suicide by exogenous intoxication in the Rio de Janeiro state, the period 2006-2008.
Tabela 3 - *Distribuição das variáveis relacionadas aos suicídios por intoxicação exógena, no estado do Rio de Janeiro, período 2006-2008.*

Variables	CCIn-Niterói (n= 33) n (%)	Sinan (n= 23) n (%)	SIM (n= 180) n (%)
Sex			
Male	13 (39.4)	17 (73.9)	102 (56.7)
Female	20 (60.6)	6 (26.1)	78 (43.3)

Variables	CCIn-Niterói (n= 33) n (%)	Sinan (n= 20)** n (%)	SIM (n= 180) n (%)
Age group			
10-14	2 (6.1)	-	3 (1.7)
15-19	4 (12.1)	-	15 (8.3)
20-29	7 (21.2)	4 (20.0)	30 (16.7)
30-49	11 (33.3)	6 (30.0)	72 (40.0)
50-59	2 (6.1)	7 (35.0)	29 (16.1)
≥ 60	7 (21.2)	3 (15.0)	31 (17.2)

Variables	CCIn-Niterói (n= 32)*** n (%)	Sinan (n= 16)**** n (%)	SIM (n= 180) n (%)
Toxic agents			
Medications	11 (34.4)	4 (25.0)	20 (11.1)
Drugs and unspecified medications	-	-	11 (6.1)
Pesticides	15 (46.9)	11 (68.7)	103 (57.2)
Chemical products	5 (15.6)	1 (6.2)	33 (18.4)
Others*	1 (3.1)	-	13 (7.2)

* Drugs, alcohol, gases and vapors.
Conventional symbols used: Numeric data is not equal to zero due to rounding.
** Three records were excluded (13.0%) as ignored/blanks.
*** One record was excluded (3.0%) as ignored/blanks.
**** Seven records were excluded (30.4%) as ignored/blanks.
** Drogas, álcool, gases e vapores.*
Sinais convencionais utilizados: Dado numérico igual a zero não resultante de arredondamento.
*** Foram excluídos 3 (três) registros (13,0%) como ignorado/branco.*
**** Foi excluído 1 (um) registro (3,0%) como ignorado/branco.*
***** Foram excluídos 7 (sete) registros (30,4%) como ignorado/branco.*

recommended for use as pesticide in agriculture. According to the Department of Environmental Protection, in 2001, the illegal trade of *Aldicarb* totaled R$ 3 million in the state of Rio de Janeiro, exclusively[17].

With regard to pesticides in general, in 2010, the Anvisa reported that at least ten products with pesticide agents, freely used in Brazilian agriculture, were forbidden in the European Union and in the United States, among other countries. Nowadays, Brazil is the greatest consumer of pesticides in the world[18]. Giraldo[19] argues that the legislation of 1976 has promoted the

Table 4 - Distribution of variables related to suicide by exogenous poisoning, by sex, in the Rio de Janeiro state, the period 2006-2008.

Tabela 4 - *Distribuição das variáveis relacionadas aos suicídios por intoxicação exógena, segundo sexo, para o estado do Rio de Janeiro, período 2006-2008.*

Toxic agent	CCIn-Niterói				Sinan				SIM			
	Men (n= 13)		Women (n= 19)**		Men (n= 13)***		Women (n= 3)***		Men (n= 102)		Women (n=78)	
	n	%	n	%	n	%	n	%	n	%	n	%
Medications	4	30.8	7	36.8	2	15.4	2	66.7	7	6.9	13	16.7
Drugs and unspecified drugs	-	-	-	-	-	-	-	-	7	6.9	4	5.1
Pesticides	7	53.8	8	42.1	11	84.6	-	-	56	54.9	47	60.2
Drugs	-	-	-	-	-	-	-	-	7	6.9	2	2.5
Chemical products	1	7.7	4	21.0	-	-	1	33.3	23	22.4	10	12.8
Home cleaning products	1	7.7	-	-	-	-	-	-	-	-	-	-
Others*	-	-	-	-	-	-	-	-	2	2.0	2	2.6

* Alcohol and gas.
Conventional symbols used: - Numeric data is not equal to zero due to rounding.
** One record was excluded (5.0%) as ignored/blanks.
*** Records were excluded as ignored/blanks: Male (n = 4; 23.5%) Female (n = 3; 50.0%).
** Álcool e gás.*
Sinais convencionais utilizados: Dado numérico igual a zero não resultante de arredondamento.
*** Foi excluído 1 (um) registro (5,0%) como ignorado/branco.*
**** Foram excluídos registros como ignorado/branco: Homem (n= 4; 23,5%); Mulher (n= 3; 50,0%).*

current situation, as it associated rural funding with pesticide use, resulting in a development model based on agribusiness. Consequently, the process of reevaluation of these products in Brazil is hindered by the political and legal approach towards their production, rather than health protection.

International studies have led to important results in the reduction in the number of suicides with restrictive measures against pesticide use[6,20]. In Brazil, as previously discussed, policy-making should be sped up so that this does not harm the health of the population.

The other group of agents that stood out were the medications. The findings of this study did not differ from those of European countries and other Brazilian states. A study conducted in Madrid revealed that nearly 80% (n = 1,240/1,508) of the intoxications were suicide attempts and 68% of these attempts involved psychoactive drug use. These authors pointed out that in Spain, as in other developed countries, the use of tranquilizers has increased approximately 5% per year since 2005 and that women are the main consumers[21]. In the state of Paraná, Brazil, Margonato et al.[22] (2009) analyzed 546 records from the City of Maringá Poisoning Control Center, of which 38.3% were suicide attempts, where psychoactive drugs stood out (43.3%). Rios et al.[23] (2005) also pointed out the presence of these drugs in 60% of all suicide attempt cases studied.

With regard to psychotropic drug use, it should be emphasized that they are not exclusively prescribed by psychiatrists. Studies have shown that general practitioners are those who most frequently prescribe such drugs, especially anxiolytics and antidepressants[24,25]. Although the legislation is aimed at the regulation of controlled drugs[26], including parameters for the prescription and sales of these products, physicians often prescribe psychotropic drugs without adequate evaluation, at times even without a formal consultation[25]. This discussion shows that, more than an inspection effort, there is

the clear need to reevaluate the regulatory model adopted, as the implemented measures are not achieving the expected results.

The WHO argues that, although medications are the therapeutic resource with the best cost-effectiveness ratio, their inadequate use has become a world problem, with consequences for the health and economy[28]. National studies have shown that storing medicines at home promotes self-medication and their access as a means for suicide attempts and suicides[28,29]. A measure that could change this situation is the portioning of medications. Bill 7,029 of 2006 guarantees the mandatory sale of portioned medications; however, this bill has yet to be approved by the Brazilian government. What can be observed is that, despite the existing public policies, little has been effectively achieved such as preventive measures and restriction to the access to these medications. Social organizations, health sectors and the pharmaceutical industry have discussed such bill, although without considering the urgency to find solutions.

Another observation made from the Sinan and CCIn systems was the predominance of men among those who used pesticides as a means for suicide attempts/suicide, whereas the consumption of medications in suicide attempts (CCIn and Sinan) and pesticides in suicides (CCIn and SIM) predominated among women. These findings are in agreement with the literature[5,13,21,30]. With regard to these differences, the literature emphasizes that men use more deadly methods and, for this reason, are more successful in their suicide attempts. However, Beautrais[31] argues that, if the mortality of suicide is predominantly masculine, its morbidity is mainly feminine, as women are two times more likely to attempt suicide than men on average.

Canetto & Sakinofsky[33] state that the lethality of a certain method to commit suicide is not directly associated with the intention of dying per se, but rather with the social acceptance involving gender when selecting this method. Thus, women choose medications as a means for suicide as this would be more socially acceptable for them than for men. Results from several studies seem to corroborate this statement, as women use more medications, although these are accessible to both women and men. This discussion is particularly important in a country such as Brazil, where little is understood about the role of gender differences in suicidal behavior. Thus, there is a clear need for studies that investigate the roles of gender and the influence of culture in the selection of means for suicide attempts/suicide, aiming to provide adequate resources to support the cases and control these means.

The information systems used as instruments in the present research are relevant for health condition analyses, as previously argued. To achieve this, the quality of data becomes essential. Among quality dimensions, ignored and blank information affects the magnitude of health problems or diseases. In the present study, information was missing in the "circumstance", "toxic agents" and "evolution" fields, i.e. the key fields for surveillance. In addition, this could have negatively interfered with the magnitude of suicide.

Furthermore, regarding the CCIn-Niterói, Sinan and SIM information systems, it should be emphasized that these have distinct functions. In this way, it should be clarified that the present study did not aim to compare such systems, but rather access the best coverage provided by each of them and the quality of the information obtained.

The proposal of the CCIn-Niterói system is to reach the universe of spontaneous demands of exogenous intoxications in the state of Rio de Janeiro. It operates on a daily basis, providing information to the lay population, health professionals and institutions. The records of exogenous intoxication events are mainly based on telephone consultations. In contrast, the Sinan is a national system for compulsory notification of health problems and diseases, where all exogenous intoxication cases must be recorded. The records are made in the health units by health professionals.

Finally, the SIM system is aimed at gathering data on mortality, supporting health policies and actions, in addition to research. These characteristics are important to understand the comprehensiveness of the records from each system.

Certain studies have shown an important improvement in the quality of information systems when the integration of these systems is performed, particularly the relationship between databases and the investment in the capacity-building of human resources, with the organization of workshops and permanent discussion forums, retrieval and complementing of information through different sources[33-36].

In this way, it could be observed that strategies have been adopted aiming to improve the quality of data. However, the different methodologies used and their limitations should be assessed, guiding the adoption of that which is the most adequate for the local reality faced by the professionals involved in the process of construction and dissemination of such information.

The limitations of this study refer to the heterogeneity of data collection (spontaneous demand vs. mandatory notification), preventing a comparison of information coverage to be made. Another weak point was the impossibility of consulting health units caring for cases of suicide attempt and suicide by exogenous intoxication during this period. Access to such information would increase the reliability of the epidemiological profile of health problems. Nonetheless, the standardization of records enabled cases to be well characterized.

Conclusion

It is known that information for the development of public policies and decision-making is important. Thus, the CCIn-Niterói would be expected to operate in a way that complements the information obtained from Sinan, developing intercommunication between them, promoting disease surveillance, and enabling greater effectiveness and accuracy in decision--making. The standardization of variables such as group of toxic agents, occurrence, means of exposure and evolution can contribute to this intercommunication. Another important piece of information to be taken into account in both systems is the source of the medications used, whether they are for one's own use or belong to someone else's. This information is important to obtain the actual epidemiological profile of exogenous intoxications.

With regard to the SIM system, although the present study did not perform an assessment of underreporting among systems, it was evident that suicides by intoxication had not been recorded in the Sinan or CCIn-Niterói. Whether due to loss of follow-up or ignored/blank information, there is a clear need for systematic evaluations and the development of mechanisms that enable the integration of these systems.

Advances have been made in recent years, but what remains are the problems with the coverage provided by systems and the need to improve their quality, so that they can support health policies and actions in a safe way.

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