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Situational diagnosis of mortality among adolescents in conditions of vulnerability

Diagnóstico situacional de mortalidade entre adolescentes em condição de vulnerabilidade

Diagnóstico situacional de mortalidad entre adolescentes en condiciones de vencibilidad

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ABSTRACT
Objective: to identify the main causes of death among adolescents aged 10 to 19 years in a municipality in the state of Rio de Janeiro. **Method:** in this exploratory, descriptive, quantitative study, based on data collected from death records in the municipality of Rio das Ostras, the basic cause of death was the outcome. The data were processed in the statistics software, R. **Results:** of the 84 (100%) deaths observed, prevalence was higher among adolescents aged 17 to 19 years (49; 58.3%), males (71; 84.5%), and *pardos* (38; 45.2%). The main causes of deaths were firearm Injury / homicide (35; 41.7%) and accidents (32; 38.1%). **Conclusion:** one important step towards confronting and solving this serious problem is to acknowledge this vulnerability, especially in municipalities distant from urban centers, which often seem neglected as regards compliance with statutes and public policies in favor of this age group.
Descriptors: Adolescent; Social Vulnerability; Mortality; Nursing**.**

RESUMO
Objetivo: identificar as principais causas de óbito entre adolescentes de 10 a 19 anos em um município no interior do estado do Rio de Janeiro. **Método**: estudo descritivo, exploratório de abordagem quantitativa, a partir do levantamento de dados em registros de óbitos do município de Rio das Ostras. O desfecho foi causa básica do óbito. Os dados foram processados no Programa R. **Resultados**: foram observados 84 (100%) óbitos, com maior prevalência entre adolescentes de 17 a 19 anos, 49 (58,3%), do sexo masculino, 71 (84,5%) e de cor parda, 38 (45,2%). As principais causas de óbitos foram homicídio/perfuração por arma de fogo, 35 (41,7%), e acidentes, 32 (38,1%). **Conclusão:** o reconhecimento dessa vulnerabilidade configura importante caminho para o enfrentamento e resolução desse grave problema, sobretudo municípios localizados longe de centros urbanos, parece muitas vezes esquecido, no que tange o cumprimento de estatutos e políticas públicas a favor desse grupo etário.
Descritores: Adolescente; Vulnerabilidade Social; Mortalidade; Enfermagem**.**

RESUMEN
Objetivo: identificar las principales causas de muerte entre adolescentes de 10 a 19 años en un municipio del estado de Río de Janeiro. **Método:** en este estudio exploratorio, descriptivo, cuantitativo, basado en los datos recopilados de los registros de defunciones en el municipio de Rio das Ostras, la causa básica de la muerte fue el resultado. Los datos se procesaron en el programa estadístico R. **Resultados:** de las 84 (100%) muertes observadas, la prevalencia fue mayor entre los adolescentes de 17 a 19 años (49; 58.3%), varones (71; 84.5%) y pardos (38; 45,2%). Las principales causas de muerte fueron lesiones por arma de fuego / homicidio (35; 41.7%) y accidentes (32; 38.1%). **Conclusión:** un paso importante para enfrentar y resolver este grave problema es reconocer esta vulnerabilidad, especialmente en municipios alejados de los centros urbanos, que a menudo parecen descuidados en cuanto al cumplimiento de los estatutos y las políticas públicas a favor de este grupo de edad.
Descriptores: Adolescente; Vulnerabilidad Social; Mortalidad; Enfermería**.**

INTRODUCTION

Among the phases of the life cycle, adolescence is described in the literature as a stage in which, naturally, the individual establishes greater intensity of connections for the development of themselves as a subject who recognizes to be unique, with their own identity and, at the same time, belonging to a social group[1].

Although it is important to recognize adolescents as beings that experience their development in a singular manner and that also play an important role in building society, this population group still faces big challenges and prejudices that support the social stereotype of problematic adolescence, representing a risk to themselves and to the population[2].

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In the health field, this situation can, indeed, influence the maintenance of counterproductive index for the adolescent's healthy and harmonious development, among which early death excels, especially as a result of violence[3].

Violence is a global phenomenon of a complex design. Perhaps because of this, in the last years, an exponential increase of studies on the several types of violence has been observed, mainly among adolescents, and this is probably due to the fact that injuries are the main cause of deaths in individuals aged 10 to 19 years old[4].

In Latin America and the Caribbean, the homicide rate among adolescents is five times higher than the world's mean. In Brazil, in 2016, the same type of violence accounted for 49.1% of the deaths among 15-19 year-olds, representing the leading cause of death in this age group, and placing the country among the ten nations with the highest rates regarding this problem. In addition, injuries caused by violent acts are the main health problem among individuals aged 10 to 24 years old[5].

Regarding the types of violence that are perpetrated among adolescents, a study[6] has revealed that verbal bullying and domestic violence are the most prevalent. Although involvement in violent acts using firearms and melee weapons deserves to be highlighted, as they often result in fatal injuries[7].

Despite recent studies that have been developed on violence involving adolescents in the country, it is not necessarily possible to extrapolate the findings for regions located in the inland of the states, considering regional disparities. That said, all and every initiative should be privileged as for the evaluation of the evolution of domestic, firearm, and melee weapon violence in different contexts[7], especially in areas far from the big cities.

In this directive, studies on violence in this age group are urgent, due to the vulnerability of this population group, thus aiming at the development and monitoring of public policies to minimize this problem[6].

The importance is then reinforced of recognizing the reality of a certain region about the violence trend, accomplishing with this a broader understanding of the vulnerability conditions to which the Brazilian adolescents are subjected to, in order to encourage the development of specific and efficient strategies in the health field and other areas of knowledge.

Based on the above, the following research question should be highlighted: What are the main causes of death among adolescents aged 10 to 19 in a municipality in the inland of the state of Rio de Janeiro? To answer this question, the objective of the study was to identify the main causes of death among adolescents aged 10 to 19 in a municipality in the inland of the state of Rio de Janeiro.

METHODOLOGY

This is a descriptive and exploratory study with a quantitative approach that analyzed the main mortality causes among adolescents aged 10 to 19 years old in the municipality of Rio das Ostras, located in the inland of the state of Rio de Janeiro.

Therefore, data was collected in record books of death occurrences in the Legal Medical Institute and in the only Public Hospital of the city, which stands as an important emergency and urgency gateway for the municipality and adjacent regions.

According to the population projection of the Brazilian Institute of Statistics and Geography (*Instituto Brasileiro de Estatística e Geografia*, IBGE) for 2012, the resident population of the municipality concerning the study context was 116,134 individuals, of which 18,893 (16.3%) were between 10 and 19 years old. In this age group, the male population was 9,600 individuals[8]. The reference of adolescence used was based on the World Health Organization, where, chronologically, adolescence is considered the phase of life between 10 and 19 years of age.

Data was collected at archive services of each institution between September and November 2016 through the retrospective documental technique (2005 to 2014), from books intended for death registration. It should be noted that the time clipping respected the period in which the data were available in the registration books in the afore mentioned centers. This was the inclusion criterion: registration of deaths among adolescents between 10 and 19 years of age living in the municipality. For exclusion: incomplete records or records unavailable for access.

The survey was conducted on the following variables: age (10 to 19 years old), gender (male and female), basic cause of death (the 10th review of the International Classification of Diseases – ICD-10 was used), race (white, black and brown) and the institution of death registration. Socioeconomic variables were not included because there is no information on this matter in the registration books consulted.

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The outcome was the basic cause of death. The numeric variables were submitted to the Shapiro-Wilk's normality test to determine the normality of the distributions and, accordingly, the parametric (T, Anova) or non-parametric (*Wilcoxon, Kruskal-Wallis*) test was chosen. To analyze relations between categorical variables, the chi-squared test was performed and, if there had been any observations in the corresponding contingency table with less than five units, the Fisher's test was applied. A significance level of 5% ($p<0.05$) was considered.

The collected data were entered into a Microsoft Office Excel® spreadsheet, with double typing and processed in the free R Program (*R Foundation for Statistical Computing*). The results were presented in tables and graphs.

The research was submitted to and approved by the Ethics Committee on Research with Human Beings (C*omitê de Ética em Pesquisa*, CEP) of the Fluminense Federal University (*Universidade Federal Fluminense*, UFF) under the Opinion number: 917,560 and CAAE: 38696214.0.0000.5238, based on resolution No. 466 of December 12th, 2016.

RESULTS

From the chronological and contextual delimitations, 84 (100%) deaths were identified. The minimum age was 10 years old and the maximum age was 19 years old, with the highest proportion in the 17-19 year-old age group, 49 (58.3%). In relation to gender, the highest percentage of deaths occurred among males, 71 (84.5%). In the race analysis, the highest percentage was observed among brown-skinned adolescents, 38 (45.2%). In relation to the basic cause of death, the highest proportion was found for Homicide/Firearm Perforation (FP), 35 (41.7%), followed by accidents, 32 (38.1%). In the analysis of the institution, the highest proportion of records was observed in the Medical-Legal Institute (*Instituto Médico Legal*, IML), 74 (88.1%) (Table 1).

TABLE 1: Distribution of the deaths among adolescents according to sociodemographic variables, the basic cause of death, and the institution of registration in the period from 2005 to 2014 (n=84). Rio das Ostras, RJ, Brazil 2016.

Variable	N	%
Gender		
Female	13	15.5
Male	71	84.5
Race		
White	26	31.0
Black	18	21.4
Brown	38	45.2
No information	2	2.4
Age group		
10 to 12 years old	6	7.2
13 to 16 years old	22	26.2
17 to 19 years old	49	58.3
No information	7	8.3
Basic cause of death		
Accidents	32	38.1
Clinical	15	17.8
Homicide/FP*	35	41.7
NA	2	2.4
Institution		
IML	74	88.1
Municipal Hospital	10	11.9

*FP – Firearm Perforation.

In the analysis of the basic cause of death, the highest number was found in the 17-19 year-old age group, with emphasis on accidents, 23 (47.9%), and on Homicide/FP, 20 (41.7%). As for the race, the highest values for Homicide/PAF, 20 (55.6%), were checked in the group of brown-skinned individuals. A similar pattern was observed among the male group, with the highest number of homicide/FP, 35 (50.7%) (Table 2).

In the statistical analysis of the outcome (basic cause of death) with the selected variables, statistical significance was found in gender ($p<0.001$), race ($p=0.0315$), and the institution recording the deaths ($p<0.001$) (Table 2).

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TABLE 2: Distribution of the biological variables and the institution of registration with the outcome of basic cause of death in the period from 2005 to 2014 (n=84). Rio das Ostras, RJ, Brazil, 2016.

	Basic cause of death				
Variable	**Accidents**	**Clinical**	**Homicide/FP***	**Statistical test**	**p-value**
Age group				Fisher's exact test	0.0585
10 to 12 years old	1 (16.67)	4 (66.67)	1 (16.67)		
13 to 16 years old	6 (28.57)	4 (19.05)	11 (52.38)		
17 to 19 years old	23 (47.92)	5 (10.42)	20 (41.67)		
No information	2 (28.57)	2 (28.57)	3 (42.86)		
Gender				Chi-sq. (2 df) =22.39	< 0.001*
Female	5 (38.46)	8 (61.54)	0 (0.0)		
Male	27 (39.13)	7 (10.14)	35 (50.72)		
Race				Fisher's exact test	0.0315
White	15 (57.69)	5 (19.23)	6 (23.08)		
Black	4 (22.22)	5 (27.78)	9 (50.0)		
Brown	12 (33.33)	4 (11.11)	20 (55.56)		
No information	1 (50.0)	1 (50.0)	0 (0.0)		
Institution				Fisher's exact test	< 0.001*
MHRO	2 (20)	8 (80)	0 (0)		
IML	30 (41.67)	7 (9.72)	35 (48.61)		

*FP – Firearm Perforation.

DISCUSSION

The findings showed a higher prevalence of deaths among male, brown-skinned adolescents, between 17 and 19 years of age. The main basic causes of deaths were Firearm Perforation/Homicide and accidents, therefore, external causes.

The high proportion of the basic cause of death from Homicide/FP among adolescents corroborates the literature, in which homicide shows to be one of the main death causes in the 15 to 24-year-old population, especially, among the black-skinned males residing in the suburbs of the metropolitan areas. These findings are similar to those observed in the research in question for these basic causes of deaths regarding the adolescents' profile, which is brown-/black-skinned and male individuals[3,8,9].

It is worth mentioning that homicide is a universal indicator of social violence, which is defined as death from aggression and responsible for the high mortality rate in the world's population, especially among males[10,11]. In this sense, men between 15 to 29 years of age are the leading homicide victims, where the main used mechanism is the firearm[12]. Another important factor highlighted in the literature concerns accidents[9], which ranked second in this study.

Regarding the residence place of the adolescents, it is highlighted that the population in the suburbs and in the metropolitan regions is most often composed of black- and brown-skinned individuals, who, according to the IBGE last demographic census, represented 51% of the Brazilian population. However, even though they are the majority of the inhabitants in the national territory, the sustainment can be observed of socioeconomic inequalities and the high violence rate among black-skinned individuals, mainly among adolescents[,3,13,14].

In almost all regions of the country, regarding adolescents and young individuals between 15 and 24 years of age, the social focus group of this study, they are the main victims of urban violence, mainly in suburb, risky, and extremely poor areas in Brazilian cities[13,14].

Over the years, the factors related to external causes are increasingly more expressive, according to the findings of this study, in which violence continues to be perpetrated in the same population group, reaching significant proportions when compared to other groups. Mortality from external cause continues to rank first as a cause of death in this population[9].

Historically, the Brazilian society has been accompanied by violence in its different forms or types. Understanding this situation requires the understanding of broader factors that range from social determinants to cultural values adopted by each society in a given historical moment[3].

In its different faces, violence is still a reality for many people. In the meantime, children and adolescents stand out as groups that suffer violence, given their particularities in the natural conflict fields of the development

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process. Thus, sometimes depending on the society in which they are inserted, violence is understood as legitimate[14].

In this perspective, adolescence lies in significant conditions of vulnerability and not only of social nature, having as results of this process the violation of their rights by omission or transgression from the family, society or the State[14].

In this interpretation, an intertwining is observed of factors that signify, either directly or indirectly, family, community, or institutional violence. Violence ends up integrating the spaces of socialization, often manifesting itself as a risk factor, not only physical but also psychological, bringing detrimental consequences to their development, such as, for example, in the perception of the self. The interpretation of violence as such depends on several interrelated factors, like cultural ones and subjectivity, also varying according to the type of society and the context in which it is inserted. In other words, an act will be violent depending on who experiences it and how they signify it from the act.

Thus, its reading or analysis should consider the relationship established between the subjects and their surroundings. In this understanding, a violent act can be seen as barbaric or acceptable, yet still violent, harmful and resulting in psychic and physical suffering[14].

Still on this context, it is asserted that individuals do not constitute themselves isolated, they are part of the surroundings they live in, suffering influences from the environment they are inserted in, thus, they establish a mutual, continuous interaction, constitutive between the subjects and the culture around them. However, they constitute themselves in the interdependence between their individuality and in the social relations they establish[21].

In this directive, the characteristics are reflected in each adolescent in different forms, since the information is spread differently in the family, social, and cultural contexts in which each person is inserted. In this way, the conception of adolescence is experienced in a particular way in different groups, cultures, and societies[15].

So, given the above, the importance is sustained of implementing and/or strengthening public policies that, indeed, bring resolutions to the context of protection to the life of the adolescents, as well as to the healthy development of this collective. This requires an understanding of the local demands and priorities that reflect on social and individual vulnerabilities in the person experiencing the adolescence process.

Despite this study having accomplished the proposed objective, it has limitations such as scarcity of primordial information in the record books consulted, for greater understanding of this issue, such as the socioeconomic and schooling level, which impacts directly on the analysis of some of the variables and on its broader meaning, as a way of identifying multiple causal factors.

Therefore, it is important to highlight the importance of new studies that, based on the identification of the causes of death in adolescents, deepen the development of strategies that can actually modify the conditions of vulnerability to this portion of the population, taking into account the specificities and priorities of intervention.

CONCLUSION

The findings of the study identified that adolescents 17 to 19 years old, brown-skinned and male, are more vulnerable to death from violent causes, especially from homicide involving firearms. Accidents are the second cause.

The recognition of vulnerability to the external causes to which adolescents are exposed in the municipality is an important way to confront and solve this serious problem that afflicts societies worldwide, especially municipalities that, due to their geographical location in the inland of the state, often seem forgotten in terms of compliance with statutes and public policies in favor of this age group.

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