

Suicide among young people in selected Brazilian State capitals

Suicídio de jovens nas principais capitais do Brasil

Edinilsa Ramos de Souza ^{1,2}
Maria Cecília de Souza Minayo ²
Juaci Vitória Malaquias ²

¹ Departamento de Epidemiologia e Métodos Quantitativos em Saúde, Escola Nacional de Saúde Pública, Fundação Oswaldo Cruz, Rua Leopoldo Bulhões 1480, Rio de Janeiro, RJ 21041-210, Brasil. edinilsa@nutecnet.com.br
² Centro Latino Americano de Estudos sobre Violência e Saúde Jorge Careli, Escola Nacional de Saúde Pública, Fundação Oswaldo Cruz, Av. Brasil 4036, Rio de Janeiro, RJ 21040-361, Brasil. mcmina@netra.castelo.fiocruz.br juaci@claves.fiocruz.br

Abstract *This study analyzes suicide among young Brazilians (15-24 years old) in nine metropolitan areas. Mortality data for 1979-1998 were obtained from the Mortality Information System of the Ministry of Health. External causes are the main causes of death among youth, and suicide is the sixth most frequent of these causes. The distribution is heterogeneous, varying according to the social stratum, specific age group, sex, and means used to commit suicide. All cities analyzed showed increased suicide rates from 1979 to 1998 (from 3.5 to 5.0 per 100,000 inhabitants 15-24 years old). Salvador and Rio de Janeiro had the lowest suicide rates, while Porto Alegre and Curitiba had the highest. The principal means used by youth to commit suicide were hanging, strangling, and suffocation (Porto Alegre), followed by firearms and explosives (Belo Horizonte).*

Key words *Behaviour; Mortality; Suicide; Mental Health*

Resumo *O presente estudo analisa o comportamento dos suicídios de jovens nas capitais das nove Regiões Metropolitanas brasileiras. Utiliza os dados do Sistema de Informação sobre Mortalidade (SIM) do Ministério da Saúde, na faixa etária de 15 a 24 anos, no período de 1979 a 1998. As externas são as principais causas de óbito de jovens e entre elas o suicídio ocupa a 6ª posição, com uma distribuição heterogênea. Sua incidência varia em função dos diferentes espaços sociais, das faixas etárias específicas, do sexo e dos meios utilizados. Para o conjunto das capitais observou-se uma certa elevação das taxas de suicídios nos anos analisados, correspondendo a 3,5 (em 1979), 3,4 (1985), 4,0 (1990) e a 5,0 (em 1998) por 100.000 habitantes de 15 a 24 anos. Salvador e Rio de Janeiro tiveram as menores taxas de suicídio; em contrapartida, Porto Alegre e Curitiba apresentaram as maiores taxas. Os principais meios utilizados para perpetrar tais mortes foram o enforcamento, estrangulamento e sufocação, sobretudo em Porto Alegre, e a utilização de armas de fogo e explosivos, ressaltando-se sua utilização em Belo Horizonte.*

Palavras-chave *Comportamento; Mortalidade; Suicídio; Saúde Mental*

Introduction

Suicide is a complex human phenomenon, and since it occurs in all known and researched societies, it is also considered universal. Its historical interpretation has been the subject of various approaches, ranging from common sense, which views it as a *behavioral deviation*, to Catholicism, which historically judged it as an *offense against God*, denying a Christian burial to those committing suicide. Most contemporary theories view it as *the result of mental disease*, while some schools of philosophy view it, at the limit, as *an act of supreme freedom*.

Where do suicides fit into the so-called group of *external causes* of mortality as a whole? Since the classical work of Durkheim, *Suicide*, which defines the phenomenon as "*all cases of death resulting from a positive or negative act of the victim himself, which he knows will produce this result*" (Durkheim, 1982:16), the subject has become part of scientific inquiry and debate. Three main explanatory models now exist: (a) the sociological model, dealing with suicide within the historical and cultural context; (b) the psychological model, considering it the result of individual internal conflicts; and (c) the nosological model, viewing the problem as an illness. All three involve both specific disciplinary limitations and emphasis on aspects of the known and complex relationship between individual and society. Since our study analyzes suicide among youth, these three lines of thought will be approached specifically through the literature taking this social group as its reference.

The sociological model

The sociological model as conceived by Durkheim aimed to conceptualize and explain this social drama within the European context precisely 104 years ago, in the late 19th century. Although the notion of individual intent was present in the author's own definition, Durkheim purposely failed to deal with the overlapping of the social issue and individual motives, because the theoretical foundations of his thinking considered suicide an eminently social event that should thus be studied according to the rules of the sociological method. Durkheim associated what he termed the *suicidogenic current*, that is, the prevailing increase in suicide rates, to the profound transformations in the mode of production and social labor relations throughout late 19th century Europe. Based on Quételet (1835), he viewed suicide as linked to social forces that transcended indi-

viduals, demonstrating with data that its increase is inversely proportional to the degree of a individual's integration into society and varies according to culture: "*each people has its own trend in relation to suicide*" (Durkheim, 1982:22). He contended that in the case of youth, self-destruction is linked to sudden changes in the social fabric. Young suicide victims tend to introject "*anomie*"; a Durkheimian concept referring to social breakdown; when there is excessive rigidity in the milieu they frequent, or when they lack referential schemes for their present and future concerns and social needs. The author also refers to another form, *altruistic suicide*, and its opposite, *egoistic suicide*, indicating excessive submission to causes, especially religious and political; the opposite case involves despair caused by social difficulties (Durkheim, 1982; Sampaio, 1991).

From the micro-sociological point of view, various researchers highlight the importance of the family institution as an extremely relevant nucleus for social equilibrium, neutralizing disintegration and anomic states, especially during adolescence and youth. They also indicate the relevance of professional and school groups fostering the expression of personal achievement and collective feelings involving the development of goods, values, and individuals against the disruption of unemployment, excessive competition, and alienation (Bridge et al., 1997; Chesnais, 1981; Feldman & Wilson, 1997; Gould et al., 1996; Kashani et al., 1989; Menninger, 1938).

The psychological model

The psychological model, in quantitative and empirical investment terms, is the model that has received the most theoretical attention and has been the object of observation and clinical attention since Ésquiro (1827), who described suicidal individuals as alienated, until the phenomenological currents and psychoanalysis, which viewed suicide as the result of mental disorder. Freud (1917) contended that suicide is an aggression against the object of an introjected love with an ambivalent investment. More recent international and Brazilian studies in this field agree on the principal risk factors for adolescents and youth, identified through trend analyses, research on clinical treatment for relatives of suicide victims based on psychological autopsies, or qualitative investigation with acquaintances of victims of self-destruction.

In all the studies analyzed, the following are considering suicide-risk situations for youth:

(a) first and foremost, depressive disorders. Hovey & King (1996) point out that various researchers have found connections between depression and committing suicide (Hoberman & Garfinkel, 1988); depression and suicidal ideas (Harter et al., 1992); depression and suicidogenic behavior (Robbins & Alessi, 1985); and lack of hope as a symptom or component of depression (Cassorla, 1984, 1987; Cassorla & Smeke, 1994; Kashani et al., 1989; Sonenreich & Friedrich, 1984; Vansan, 1987, 1988). Also cited are the weight of difficulties linked to mental development and cumulative stress; post-traumatic disorder, especially caused by losses (Feldman & Wilson, 1997); and abuse of psychoactive substances and alcohol (Brent et al., 1996; Cassorla & Smeke, 1994; Coggan et al., 1997; Goldston et al., 1996; Gould et al., 1996; Hovey & King, 1996; Turecki et al., 1999; Wilson, 1991).

Although based on the psychological explanatory model, the majority of the above-mentioned authors also link suicide to social interaction, highlight the relational family context as nuclear and fundamental to the development of socialization and the self-destructive process. In 1987, Cassorla commented that based on his studies, most young individuals who commit suicide come from broken homes. The same observation was made by Vansan (1987, 1988); based on interviews with family members and friends, he identified 17 situations that culminated in the individuals taking their own lives.

In both the national and international context, as well as in defending or highlighting any of the models, all of the researchers stress the weight of family psychodynamics in relation to the following issues: family history of suicide (Bridge et al., 1997); multigenerational family history with severe relational problems such as destructive behavior and violence; divorce, abandonment, long-lasting conflict; emotional rupture, excessive family symbiosis; rigidity and polarization in relations, real or imaginary losses, low degree of communication between parents themselves and with their children; and exacerbated aggressiveness. Such situations end up isolating young people from social groups of their own age and can cause or aggravate problems in school and lack of or negative perspectives for the future (Feldman & Wilson, 1997; Gould et al., 1996; Kashani et al., 1989). The latter authors found a high incidence of suicide and attempted suicide in very aggressive youth and those with legal problems, producing a sort of response to flaws in affective relations involving loss, separation, or abandonment of which they are victims.

The nosological model

The nosological model views suicide as a disease or the result of given illnesses. Some interpret it as the result of psychopathological disorders emerging over the course of mental illness, thus as a symptom of the underlying condition. In recent years various neurobiological studies have shown an association between reduced serotonergic activity (the prefrontal cortex is involved in executing the inhibitory function) and suicidal behavior, especially in cases with heavy impulsive and impulsive-aggressive traits. Based on a review of various authors, Turecki et al. (1999) found that a reduction in prefrontal cortical activity can predispose to self-destruction, since such individuals tend to act impulsively and self-aggressively when exposed to stressful situations (Kraemer et al., 1997; Mann et al., 1998; Turecki et al., 1999; Vansan, 1988). Turecki et al. (1999) also observed that various genetic/epidemiological studies have identified genetic problems that produce greater predisposition to suicide, such as the presence of aggregation of certain family types around suicidal ideas, behaviors, and practices (Baechler, 1975; Bridge et al., 1997).

As opposed to views of suicide based on a single discipline, most suicide researchers now tend to consider it a complex phenomenon determined by interactions among various factors, amongst which the biological contribution of individuals, their personal history, circumstantial events, and the environment (Cassorla & Smeke, 1994; Turecki et al., 1999). Several authors question the existence of a specific psychodynamic or personality associated with suicide. Furthermore, they generally analyze this problem as an escape from intense suffering, associated with frustrated needs involving a dire struggle for survival and unbearable stress, a narrowing of options, feelings of despair, helplessness, and an irresistible desire to flee (Juchem, 1998; Kaplan et al., 1997). An important study on adolescents and suicide by Sampaio (1991) calls attention to the need for interdisciplinary approaches, with a systematic line combining social, psychological, and nosological dimensions, observing and analyzing the interaction among factors and the different combination among them in each specific case.

Studies of historical series conducted in various Brazilian State capitals (Souza, 1995; Souza & Minayo, 1995; Vermelho, 1994) point to a major change in the way young Brazilians are dying. Since the 1960s, *external causes* have replaced infectious and parasitic diseases in

the hierarchy of deaths in this social group. In the last decade they were responsible for approximately seven out of ten deaths among Brazilian youth in the country's main cities.

Therefore, the main objective of this study is to analyze suicidal behavior among youth in the main urban areas of Brazil.

Material and methods

The objectives of this article are as follows: (1) to perform a descriptive analysis of mortality from suicide in young people 15 to 24 years of age in the main State capitals of Brazil from 1979 to 1998; (2) to identify the sex and age groups with the highest incidence of such deaths; (3) to characterize such suicides by type, marital status, place of birth, schooling, and occupation; (4) to compare mortality from suicide among the Brazilian State capitals studies (Belém, Fortaleza, Natal, Recife, Salvador, Belo Horizonte, Vitória, Rio de Janeiro, São Paulo, Curitiba, and Porto Alegre).

The source of mortality data was the Mortality Information System (SIM) of the Brazilian Ministry of Health (MS) (DATASUS, 1998). These data were coded based on the International Classification of Diseases (ICD), versions 9 (OMS, 1985) and 10 (OMS, 1996). The populations used to calculate the rates were estimated using the geometric method, based on the 1980 and 1991 national censuses (IBGE, 1980, 1991).

We used Epi Info version 6.0 (CDC/WHO, 1996) to tabulate the data and cross-analyze the variables, Excel to construct mortality spreadsheets and population projections, as well as to calculate statistical tests, and Dbase III Plus (Borland International, 1986) to read the SIM database.

The data were analyzed for the years 1979, 1985, 1990, 1995, and 1998 using the following indicators: proportional mortality from major groups of causes of death; overall mortality rates in the 15 to 24-year age bracket; rates of the five principal causes of death; mortality rates for groups of specific external causes; frequencies and proportional distributions of deaths according to age bracket, sex, marital status, and schooling. We calculated the "t" statistic to evaluate differences in relation to age bracket and sex (Levin, 1985).

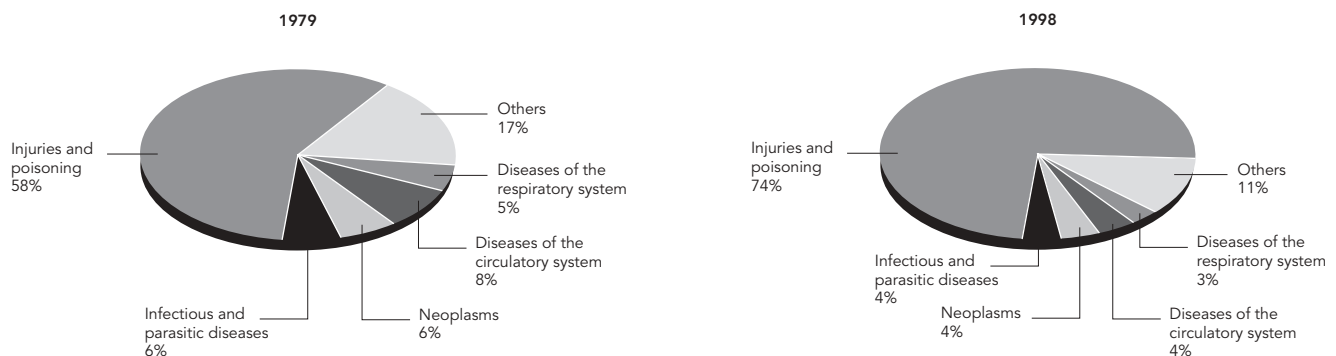
Results

As seen in Figure 1, the group of external causes (also known as injury and poisoning) showed a significant proportional increase from 1979 to 1998.

From 1979 to 1998 the proportion of external causes of mortality for the 15-24-year age bracket increased from 58% to 74%, or an increase of 27.6%, indicating that young Brazilians are dying more from social causes than biological diseases.

Figure 1

Distribution of mortality among young people by major groups of causes in selected Brazilian State capitals* in 1979 and 1998.



Source: Mortality Information System, Ministry of Health (DATASUS, 1998).

* Includes Belém, Fortaleza, Natal, Recife, Salvador, Belo Horizonte, Vitória, Rio de Janeiro, São Paulo, Curitiba, and Porto Alegre.

Data in Table 1 show that mortality rates for all causes (per 100,000 inhabitants) in the 15 to 24-year age bracket increased by 39.7% from 1979 to 1998, from 138.0 to 192.8 in the selected State capitals. This increase was due almost exclusively to mortality from injury and poisoning, which increased by 77.1% during this period, as compared to only 21.6% for the overall population.

This study shows that it was not only homicides that increased in Brazilian State capitals, as highlighted by previous studies (Mello-Jorge et al., 1997; Souza, 1995; Vermelho, 1994). Although the rates are relatively low, suicide increased by 42.8% in the selected capitals surveyed from 1979 to 1998. Meanwhile, the increase was only 27.3% in the overall population.

Data from Table 2 show that Salvador and Rio de Janeiro were the capitals with the lowest suicide rates, contrary to Belém, Curitiba, and Porto Alegre, which showed the highest rates during the study period.

Table 3 shows an increase in the absolute number of suicides and male-to-female mortality ratio, i.e., in some cases more than three male suicides per female suicide from 1990 to 1995. There was also a 54.7% increase in the mean number of suicides per month over the course of the period studied.

According to the "t" test, suicide only varied as a function of age in São Paulo. In this capital city, young people in the 20-24-year bracket have a higher risk of dying from suicide than in the 15-19-year bracket. This difference was statistically significant at the 5% level.

Statistically significant differences ($\alpha = 0.05$) were also observed in mortality from suicide in

relation to gender only in the cities of Fortaleza, Salvador, Belo Horizonte, Rio de Janeiro, and São Paulo. In these cities the risk of dying from suicide was greater for males than for females.

In terms of socio-demographic characteristics, in keeping with the age bracket, more than 80% of the young people who committed suicide were single. Still, nearly 10% were recorded as married (considering the years 1979, 1985, and 1990). Note that some 1% were already widowed (1990) or legally separated (1995), despite their young age.

For the selected State capitals as a whole, the vast majority of young suicide victims had only primary schooling. However, in the last year studied there was a proportional drop in this group, with a rise in the proportion of young people with more schooling. Note the high percentage of *unavailable data* for this variable (ranging between 20% and 30%, reaching 59% in 1998), indicating the precarious quality of this information. Considering the 18-24-year age bracket, only 3.5% of the young people were enrolled in university, while a far larger proportion (49.0%) had only primary schooling. This shows a huge grade/age gap among these young people and extremely low schooling in the group as a whole.

The majority of the victims (86%) were originally from these capital cities. As for occupation, the majority were students, with "manual labor" as the second most frequent occupation. Over the years the proportion of *unavailable data* for this variable was some 10%.

Table 4 lists in decreasing order the means and procedures used by young Brazilians to commit suicide.

Table 1

Mortality rates* for young people 15 to 24 years old in selected Brazilian State capitals** according to major groups of causes.

Major groups of causes	1979		1998	
	no.	Rate	no.	Rate
All causes	7,018	138.0	10,535	192.8
Injuries and poisoning	4,116	80.9	7,830	143.3
Suicide	177	3.5	275	5.0
Diseases of the circulatory system	545	10.7	374	6.8
Neoplasms	394	7.7	431	7.9
Infectious and parasitic diseases	387	7.6	454	8.3
Diseases of the respiratory system	374	7.4	325	5.9

Source: Mortality Information System, Ministry of Health (DATASUS, 1998).

* Rates per 100,000 inhabitants 15 to 24 years old.

** Includes Belém, Fortaleza, Natal, Recife, Salvador, Belo Horizonte, Vitória, Rio de Janeiro, São Paulo, Curitiba, and Porto Alegre.

Table 2

Suicide rates* among 15-24-years-old, by selected Brazilian State capitals.

Capital	Year				
	1979	1985	1990	1995	1998
Belém	6.5	4.8	3.2	5.4	11.4
Fortaleza	5.3	2.9	3.8	6.0	5.3
Natal	3.1	1.8	4.0	5.0	1.4
Recife	2.2	2.2	4.8	6.1	3.9
Salvador	0.6	0.3	0.5	0.6	0.4
Belo Horizonte	3.7	2.9	5.8	5.8	7.2
Vitória	7.8	0.0	2.0	1.9	3.8
Rio de Janeiro	2.3	1.2	1.5	1.2	1.0
São Paulo	3.8	4.9	5.6	6.2	5.9
Curitiba	4.3	6.5	7.0	7.0	8.6
Porto Alegre	4.9	5.3	3.3	12.1	10.4
Total	3.5	3.4	4.0	4.9	5.0

Source: Mortality Information System, Ministry of Health (DATASUS, 1998).
* Rates per 100,000 inhabitants 15 to 24 years old.

Table 3

Distribution of deaths from suicide according to sex, male-to-female ratio, and mean monthly suicides among 15-24-years-old in selected Brazilian State capitals*.

Deaths from suicide	1979	1985	1990	1995	1998
Sex					
Male	110	128	156	208	201
Female	67	44	50	57	74
Total	177	172	206	265	275
Male-to-female ratio	1.6	2.9	3.1	3.6	2.7
Monthly mean	14.8	14.3	17.2	22.1	22.9

Source: Mortality Information System, Ministry of Health (DATASUS, 1998).
* Includes Belém, Fortaleza, Natal, Recife, Salvador, Belo Horizonte, Vitória, Rio de Janeiro, São Paulo, Curitiba, and Porto Alegre.

According to Table 4, hanging and firearms were the first and second most common means used, respectively. There was an increase in the use of firearms, surpassing hanging in 1995 and dropping back to second place in 1998.

Note the precarious nature of the data as reflected by the category "other non-specified means and procedures", which appears in third place in the table, suggesting incomplete records on the means used to commit suicide.

Discussion

By way of discussion, the following remarks concern the increase in suicides among young Brazilians, as observed from the data. First, we should ask whether this increase is real or an artifact, the result of improved quality in data reporting and recording. Previous studies (Mello-Jorge, 1988; Souza, 1991) have already highlighted problems related to data quality concerning these deaths.

There are several reasons for the unreliability of the data, including the difficulties that society and institutions (especially the family) have in dealing with the issue, tending to avoid it, as well as technical and professional shortcomings in law enforcement agencies and forensic medical facilities in diagnosing and reporting this cause of death. In addition, Casorla (1994) discusses the difficulty in distinguishing suicide from the overall set of violent events, estimating that there are actually some ten times more suicides in Brazil than reported. Toolan (1975) refers to the same situation in the United States, to the point of stating that 50% of deaths reported as accidental are actually suicides. His studies, backed by others, show that some accidents reported as drowning, motor vehicle collisions, and pedestrian deaths may actually disguise suicides by young people.

Such problems end up leading to an underestimation of what are already traditionally low suicide rates in Brazil and certainly influence the different distributions and magnitudes observed for the phenomenon in the cities analyzed here. Thus, it is impossible to simply state that Salvador and Rio de Janeiro have lower rates, without taking into account that these two cities have greater problems in clarifying the cause of death. This same impact of quality of information may have led to apparently higher rates in Porto Alegre and Curitiba, since these cities have better data on deaths from suicide.

Considering the above-mentioned difficulties, it is clear that any statement concerning the data presented here must be made with some caution. With this caveat, we proceed to work with the hypothesis of a real increase in suicides among young people in the main Brazilian State capitals, a phenomenon also indicated by Mello-Jorge & Gotlieb (2000).

As portrayed in this study, in urban areas of Brazil suicide is the sixth most frequent cause of death among young people, having increased by 42.8% from 1979 to 1998. This should be emphasized especially due to its relevance for the

15-24-year age bracket, a fact insistently highlighted by Cassorla in studies ranging from 1984 to 1998, calling the attention of the Brazilian public sector and society. According to one study (Cassorla, 1994), of all the suicide cases analyzed in Campinas, São Paulo State, 75% involved individuals under 27 years of age.

Brazil does not have high suicide rates in its overall mortality profile as compared to official statistics for European countries and even North American and some Latin American countries (Mello-Jorge & Gotlieb, 2000). In the United States, for example, suicide is the third most frequent cause of death among adolescents and young adults. Epidemiological data, whose reporting basis is one of the most crucial points for defining the magnitude of the phenomenon, indicate that suicides represent some 4-5% of all violent or accidental deaths.

Although statistically less significant in Brazil, suicide here, as in any society, causes deep social commotion, especially when it occurs in the young population. Viewing the phenomenon in terms of social processes, the significant increase in suicide rates causes great concern, since it occurred in the same age bracket and during the same period in which there was a major increase in homicide rates.

It is believed that the group of young people studied here were subject to adverse life circumstances, as demonstrated by the data, making them more vulnerable to suicide. Limited schooling is one such characteristic. The data analysis shows that the vast majority of the young people had only primary schooling, indicating a large age/grade gap for students or the fact that they had to leave school to look for work.

The fact that a portion of the young suicide victims were unskilled manual laborers is backed by their low schooling. These combined factors mean a context of lack of social prospects along with job insecurity, since skilled positions in the current labor market require that individuals have at least a secondary school diploma or some technical/vocational course.

The characteristics of low schooling and low-paid occupations in the group studied appear to indicate that the weight of social pressure combined with having to deal with studies, increased job competition, and an increase in informal over formal work is generating insecurity for these young people in terms of their own survival and influencing their decision to give up living. At a moment of transition in the forms of production and social relations resulting from them, youth are the most heavily jeopardized in their attempt to participate,

Table 4

Distribution of principal means used by young Brazilians to commit suicide and State capitals where they were used most frequently, 1998.

	Means used	State capitals
1st	Hanging, strangling, and suffocation	Porto Alegre
2nd	Firearms and explosives	Belo Horizonte
3rd	Other non-specified means and procedures	Belém
4th	Sharp and/or pointed instruments	São Paulo
5th	Solid or liquid substances	Belém
6th	Leaping off high places	Vitória

Source: Mortality Information System, Ministry of Health (DATASUS, 1998).

when the economy is sparing labor, when labor relations are flexibilized, and when prospects for the country's future have virtually been reduced to an issue of individual competition. Thus, as discussed above, it is necessary to understand the simultaneous occurrence of individual genetic and psychological factors (i.e., what explains the fact that not all those exposed to the same problems kill themselves?) aggravated by socioeconomic, political, and cultural factors in the genesis of suicide. Yet one should also view this analysis with some caution, due to the high proportions of unavailable data for important variables like schooling and occupation.

We feel that further research is needed as to whether the Brazilian phenomenon of an increasing number of families organized without a father figure (due to separation or death, often violent) is associated with increasing suicide rates among youth. Research is also needed to learn how this experience of family breakdown combined with low schooling of these young people and their limited occupational skills act jointly to fuel their feelings of despair and lack of hope for the future. It would also be important to investigate young Brazilians' current level of religious and community integration, their capacity for reconciliation and resilience, and the relationship among these various factors and suicide. However, answers to these questions are only possible through qualitative approaches or a comparison of statistical constructs with comprehensive information.

What is unanimous in the literature is that depression increases the risk of conceiving, attempting, and committing suicide. However, it would be a major step forward in knowledge of this phenomenon if the type of depression were specified. The main approach to it has been bio-psychological. It is worthwhile here

to challenge the limited social focus adopted by psycho-social studies, virtually restricted to family factors, and to highlight the need to expand this focus. In general, these approaches overlook the effects that economic and social depression can have on suicidal behavior. In the case of young Brazilians, it is important to attempt to unveil the role of serious social problems (lack of schooling, limited work opportunities, poverty, and the risk of domestic violence in their area of residence, among others) in the occurrence of and increase in suicides, and how these macrosocial factors act in the conscience and subjectivity of young people.

Some demographic and epidemiological hypotheses appeal to the population structure as a way of understanding the dynamic interplay of violence inflicted by others and one's self. According to this view, societies with older populations tend to have higher mortality from suicide, while those with younger populations are more prone to high homicide rates. In Brazil, whose population is mostly young, this behavior is expressed in the high homicide rates and low suicide rates.

In epidemiological terms, it has traditionally been observed that countries with high suicide rates have low homicide rates and vice versa. In the first case violence is felt to become self-directed due to greater repression and the introjected demands of social norms, values, and controls. In the latter case, outwardly directed violence is marked by frustrated aspirations and expectations, especially among young people, for whom basic rights and needs are inadequately met. The flaw in these arguments is their mechanistic approach, since they are not based on the societies' dynamic realities, and also because there are countries whose epidemiological profiles demonstrate that this is not a universal rule.

Chesnais, in his broad socio-demographic study of mortality from external causes in two centuries of European history, analyzing data on violence data from 1780 to 1981, observed that "*at the base of both homicide and suicide one finds the same aggressive impulses of individuals*" (Chesnais, 1981:191). Corroborating the author's thinking, some empirical studies contradict the notion of an opposition between these two phenomena. Examples of their convergence are found in the historical series on violent deaths in the United States, where suicide and homicide rates follow parallel curves, with the same peaks and valleys, with both rates high in the years 1929-1930, exactly in the context of the infamous Great Depression (Mercy et al., 1993). Another recent case is that of

Colombia (Agudelo, 1999), where both suicide and homicide rates are high. The opposite situation also occurs, as in England, where both phenomena are rare. Apparently (and the current study can only raise this as a hypothesis) what is happening in the Brazilian case is the beginning of a convergence between homicide and suicide rates among young people, although the latter phenomenon is still statistically insignificant.

In its social configuration some clues are provided by domestic and international epidemiological analyses: the majority of suicides among young people occur at home; poor relations with the mother figure are one of the risk factors; the instruments used in self-destruction depend on given local uses and customs, as well as different historical contexts; there is a significant relationship between repeated attempts and actual perpetration of the act; there is evidence that young people with self-destructive ideas tend to give signs of a death impulse before they consummate it, especially by means of symptoms of depression and isolation; suicide rates are usually higher among young males and single individuals; and a major portion are neither enrolled in school or working when they commit suicide.

In the data presented above, we note that suicides are distributed heterogeneously among the Brazilian State capitals, indicating Salvador and Rio de Janeiro as those with the lowest rates. For the epidemiological level at which the data were analyzed (and for the data quality) it was impossible to establish a causal relationship. Still, it would be possible to raise the hypothesis identified by Chesnais (1981) – and backed by Durkheim (1982) – when analyzing the data on these events in Europe. The idea is that the greater or lesser oppression of the socio-cultural medium on young people influences suicide rates. Traditionally, Rio de Janeiro and Salvador are two cosmopolitan and even "festive" cities, where the plurality of cultural options is much more evident than in other places of Brazil. Certainly, other hypotheses such as European influences in southern Brazil (since suicide is much more frequent in all age brackets in Europe than in Brazil) could be raised, in addition to differences in data recording and quality. However, at best, the data discussed in this article call for research of a comprehensive nature on the phenomenon, which cannot be reduced to its quantification.

Certainly, other specific socio-cultural factors must be contributing to the high suicide rates among young people in the Brazilian city of Belém. This city should be the target of spe-

cial studies on the proximity and influence of indigenous culture, since indigenous peoples have been identified as having high suicide rates among their youth (Erthal, 1998; Terra, 1994).

In five of the nine cities studied (Fortaleza, Salvador, Belo Horizonte, Rio de Janeiro, and São Paulo) there were significant gender differences, since more men than women committed suicide. Considering age brackets, São Paulo was the only city where 20-24-year-olds had a higher and statistically more significant risk of committing suicide than 15-19-year-olds.

One should thus be alert to gender differences in suicidal behavior. It is well-known that more men than women actually commit suicide, while women make more suicide attempts (especially young and elderly women). The study showed a 3:1 male-to-female ratio among suicide victims. Note that the increase in deaths from external causes has had a negative impact on the mean life expectancy of men as compared to women, with the latter living some 6 years longer than their partners, on average.

Thus, gender issues and age structure are important to help understand the type of violence in a given area. According to Corrêa (1996), age structure factors show that the elderly population runs a higher risk of dying from suicide as compared to young people. In addition, marital status is also a universal differentiating factor for suicide. Worldwide, a major portion of suicide victims are single, divorced, or widowed. Based on the data presented in this article, from this angle the Brazilian cities confirm the trend: more than 80% of the young suicide victims were single. Of course this by itself is not highly significant, given the age bracket studied. What calls one's attention is the presence of widowed and separated individuals in such a young group. Note that factors such as loneliness and lack of emotional ties (conditions more common among the single, widowed, and separated) are identified as explanatory factors for committing suicide.

As for the means used by young Brazilians to take their own lives, hanging and firearms were the most common. This preference is not a coincidence. The people's desire to protect themselves from urban violence, along with the ease in obtaining firearms, mean that individuals totally unprepared and untrained to handle such weapons become veritable time bombs. They run the constant risk of hurting or killing others or themselves. In a study on American society, Mercy et al. (1993) noted that pos-

session of a firearm increases 43-fold the probability of a crime occurring in the household, whether against the individuals themselves, their family, or other familiar or unfamiliar third parties.

Conclusion

This study highlights the need to conduct in-depth research aimed at an understanding of the impact of individual, socio-cultural, and genetic factors (all widely referred to in the literature) on suicide among young Brazilians, how such factors act, and the ways their interact.

The greatest contribution of epidemiological studies on suicide is their capacity to map risks in areas and groups, expanding the analysis of social and cultural factors related to this phenomenon. In the current study, greater risks were observed in certain Brazilian cities, among men, and in the 20-24-year age bracket. However, studies like this are not capable of identifying the mode of influence of many factors cited in the Brazilian and international literature, thus requiring specific further research.

Various studies indicate a specific increase in homicides among increasingly younger males. However, self-inflicted violence, although not on the same proportion, has also tended to occupy an important place in the set of fatal events among youth. Although the incidence of suicide in this age bracket has still not called the attention of health professionals and policy-makers, in light of the unmistakable relevance of homicide rates, one cannot turn a deaf ear on the increase in this phenomenon as part of the overall socio-psycho-environmental "malaise" experienced in key urban areas of Brazil.

Rodrigues (1983) refers to suicide as the ultimate break with social control – its prevailing standards, norms, and values – focusing on it as a final break in the link between the individual and society. Should we not attempt to learn why some young Brazilians, who should be pursuing personal achievement and professional training, are opting for self-destruction? Why are a growing number of young Brazilians giving up on their dreams and abdicating from their supreme good? Such questions deserve answers not only from the social sciences, but also from the adult society that embraces the present and points to the future of the youth that will replace them in leading the country's history.

References

- AGUDELO, S. F., 1999. *El Quinto: No Matar*. Bogotá: TM Editores.
- BAECHLER, J., 1975. *Les Suicides*. Paris: Editorial Calman-Lévy.
- BORLAND INTERNATIONAL, 1986. *D-Base III*. Scotts Valley: Borland International.
- BRENT, D. A.; MORITZ, G.; BRIDGE, J.; PERPER, J. & CANOBBIO, R., 1996. Long-term impact of exposure to suicide: A three year controlled follow-up. *Journal of the American Academy of Child and Adolescent Psychiatry*, 35:646-653.
- BRIDGE, J. A.; BRENT, D. A.; JOHNSON, B. A. & CONOLLY, J., 1997. Familial aggregation of psychiatric disorders in a community sample of adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, 36:628-636.
- CASSORLA, R. M. S., 1984. Jovens que tentam suicídio: Antecedentes mórbidos e de condutas auto-destrutivas. *Jornal Brasileiro de Psiquiatria*, 33:93-98.
- CASSORLA, R. M. S., 1987. Comportamentos suicidas na infância e na adolescência. *Jornal Brasileiro de Psiquiatria*, 36:137-150.
- CASSORLA, R. M. S. & SMEKE, E. L. M., 1994. Auto-destruição humana. *Cadernos de Saúde Pública*, 10(Sup. 1):61-73.
- CDC (Centers for Disease Control and Prevention)/WHO (World Health Organization), 1996. *Epi Info 6, Version 6.04. A Word Processing, Database, and Statistics Program for Public Health*. Atlanta: CDC/Geneva: WHO.
- CHESNAIS, J. C., 1981. *Histoire de Violence*. Paris: Éditorial Pluriel.
- COGGAN, C.; PATTERSON, P. & FILL, J., 1997. Qualitative data from focus group interviews with youth. *Journal of Public Health*, 45:1563-1570.
- CORRÊA, A. C. O., 1996. Depressão e suicídio no idoso: Uma questão crucial em psicogeriatría. *Jornal Brasileiro de Psiquiatria*, 45:149-157.
- DATASUS (Departamento de Informática do SUS), 1998. *Sistema de Informações sobre Mortalidade, 1979-1997: Dados da Declaração de Óbito*. CD-ROM. Brasília: Ministério da Saúde.
- DURKHEIM, E., 1982. *O Suicídio*. Lisboa: Editorial Presença.
- ERTHAL, R. M. C., 1998. *O Suicídio Ticuna na Região do Alto Solimões*. Tese de Doutorado, Rio de Janeiro: Escola Nacional de Saúde Pública, Fundação Oswaldo Cruz.
- ÉSQUIROL, J. E., 1827. *Sur la Monomanie Suicide*. Paris: Editorial Calman-Lévy.
- FELDMANN, M. & WILSON, A., 1997. Adolescent suicidality in urban minorities and its relationship to conduct disorders, depression and separation anxiety. *Journal of Child and Adolescent Psychiatry*, 36:75-84.
- FREUD, S., 1917. *Deuil et Mélancolie*. Paris: Éditions Gallimard.
- GOLDSTON, D. B.; DANIEL, S.; REBOUSSIN, D. M.; KELLEY, A.; IEVERS, C. & BRUNSTETTER, R., 1996. First-time attempters, repeat attempters, and previous attempters on an adolescent inpatient psychiatry unit. *Journal of the American Academy of Child and Adolescent Psychiatry*, 35:631-639.
- GOULD, M. S.; FISHER, P.; PARIDES, M.; FLORY, M. & SHAFFER, D., 1996. Psychological risk factors of child and adolescent completed suicide. *Archives of General Psychiatry*, 53:1155-1162.
- JUCHEM, E., 1998. *Revisão Literária sobre Suicídio*. Porto Alegre: Universidade Federal do Rio Grande do Sul. (mimeo.)
- HARTER, S.; MAROLD, D. B. & WHITESELL, N. R., 1992. Model of psychosocial risk factors leading to suicidal ideation in young adolescents. *Psychopathology*, 4:167-188.
- HOBERMAN, H. M. & GARFINKEL, B. D., 1988. Completed suicide in children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, 27:689-695.
- HOVEY, J. D. & KING, C. A., 1996. Acculturative stress, depression, and suicidal ideation among immigrant and second-generation Latino adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, 35:1183-1192.
- IBGE (Fundação Instituto Brasileiro de Geografia e Estatística), 1980. *Censo Demográfico 1980*. Rio de Janeiro: IBGE.
- IBGE (Fundação Instituto Brasileiro de Geografia e Estatística), 1991. *Censo Demográfico 1991: Resultados do Universo Relativos às Características da População e do Domicílio*. Rio de Janeiro: IBGE.
- KAPLAN, H. I.; SADOCK, B. I. & GREBB, J. A., 1997. *Compêndio de Psiquiatria: Ciências do Comportamento e Psiquiatria Clínica*. Porto Alegre: Artes Médicas.
- KASHANI, J. H.; REID, J. & ROSENBERG, T., 1989. Levels of hopelessness in children and adolescents: A developmental perspective. *Journal of Consulting and Clinical Psychology*, 57: 496-499.
- LEVIN, J., 1985. *Estatística Aplicada a Ciências Humanas*. 2ª Ed. São Paulo: Editora Harper & Row do Brasil.
- MANN, J. J., 1998. The neurobiology of suicide. *Nature Medicine*, 4:25-30.
- MELLO-JORGE, M. H. P., 1988. *Investigação Sobre a Mortalidade por Acidentes e Violência na Infância*. Tese de Livre Docência, São Paulo: Faculdade de Saúde Pública, Universidade de São Paulo.
- MELLO-JORGE, M. H. P.; GAWRYSZEWSKI, V. P. & LATORRE, M. R. D. O., 1997. Análise dos dados de mortalidade. *Revista de Saúde Pública*, 31(Sup. 4): 5-25.
- MELLO-JORGE, M. H. P. & GOTLIEB, B. L. D., 2000. *As Condições de Saúde no Brasil*. Rio de Janeiro: Editora Fiocruz.
- MENNINGER, K., 1938. *Man Against Himself*. New York: Harcourt Brace.
- MERCY, J. A.; ROSENBERG, M. L.; POWELL, K. E.; BROOME, C. V. & ROPER, W. L., 1993. Public health policy for preventing violence. *Health Affairs*, 12:7-29.
- OMS (Organização Mundial da Saúde), 1985. *Manual da Classificação Estatística Internacional de Doenças, Lesões e Causas de Óbitos - Nona Conferência de Revisão*. São Paulo: Centro Brasileiro de Classificação de Doenças em Português.
- OMS (Organização Mundial da Saúde), 1996. *CID-10*. 3ª Ed. São Paulo: Edusp.

- QUÉTELET, A., 1835. *Sur l'Homme et le Development de ses Facultés, ou Éssai de Physique Sociale*. Paris: Éditorial Bachelier.
- ROBBINS, D. R. & ALESSI, N. E., 1985. Depressive symptoms and suicidal behavior. *American Journal of Psychiatry*, 142:588-592.
- RODRIGUES, J. C., 1983. *Tabu da Morte*. Rio de Janeiro: Editora Achiamé.
- SAMPAIO, D., 1991. *Ninguém Morre Sozinho: O Adolescente e o Suicídio*. 11ª Ed. Lisboa: Editorial Caminho.
- SONENREICH, C. & FRIEDRICH, S., 1984. Suicídios: Aspectos psiquiátricos. *Temas*, 26:49-61.
- SOUZA, E. R., 1991. *Violência Velada e Revelada: Estudo Epidemiológico da Mortalidade por Causas Externas em Duque de Caxias - RJ*. Dissertação de Mestrado, Rio de Janeiro: Escola Nacional de Saúde Pública, Fundação Oswaldo Cruz.
- SOUZA, E. R., 1995. *Homicídios: Metáfora de uma Nação Autofágica*. Tese de Doutorado, Rio de Janeiro: Escola Nacional de Saúde Pública, Fundação Oswaldo Cruz.
- SOUZA, E. R. & MINAYO, M. C. S., 1995. O impacto da violência social na saúde pública do Brasil: Década de 80. In: *Os Muitos Brasis: Saúde e População na Década de 80* (M. C. S. Minayo, org.), pp. 87-116, São Paulo: Editora Hucitec/Rio de Janeiro: ABRASCO.
- TERRA, A. R., 1994. *O Suicídio de Jovens Indígenas Kayowas de Dourados: Uma Explicação Psicológica*. Dissertação de Mestrado, Campinas: Universidade Estadual de Campinas.
- TOOLAN, J. M., 1975. Suicide in children and adolescents. *American Journal of Psychotherapy*, 29:339-344.
- TURECKI, G.; BRIERE, R.; DEWAR, K.; ANTONETTI, T.; LESAGE, A. D.; SEGUIN, M.; CHAWKY, N.; VANIER, C.; ALDA, M.; JOOBER, R.; BENKELFAT, C. & ROULEAU, G. A., 1999. Prediction of level of serotonin 2A receptor binding by serotonin receptor 2A genetic variation in postmortem brain samples from subjects who did or did not commit suicide. *American Journal of Psychiatry*, 156:1456-1458.
- VANSAN, G. A., 1987. Aspectos específicos dos meios utilizados pelos suicidas no Município de Ribeirão Preto. *Neurobiologia*, 50:281-288.
- VANSAN, G. A., 1988. Separação parental e suicídio. *Neurobiologia*, 51:57-66.
- VERMELHO, L. L., 1994. *Mortalidade de Jovens: Análise do Período de 1930 a 1991 - A Transição Epidemiológica para a Violência*. Tese de Doutorado, São Paulo: Faculdade de Saúde Pública, Universidade de São Paulo.
- WILSON, G. L., 1991. Suicidal behavior: Clinical considerations and risk factors. *Journal of Consulting and Clinical Psychology*, 59:869-873.

Submitted on 8 May 2001

Final version resubmitted on 21 September 2001

Approved on 13 November 2001