

Childhood Suicide in Tunisia: Forensic and Psychological Aspects

Suicide infantile en Tunisie: Aspects médico-légaux et psychologiques

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ABSTRACT

Aim: In Tunisia, since revolution, suicide among children and adolescents has increased considerably, becoming the second manner of death in this age group. Therefore, our study proposes to describe the epidemiological characteristics and the risk factors that could precipitate death by suicide among these categories.

Methods: Using the psychological autopsy method, we studied 57 cases of children under 18 years old of which 16 cases committed suicide and 41 cases made one or more suicide attempts in the governorate of Mahdia (Tunisia). Socio-demographic factors, characteristics of the suicide, family history and thanatological aspects were documented.

Results: Most of children and adolescents committing or attempting suicide were girls (75%). The majority of suicidal attempts were performed at the child/adolescent's home (62%) and history of previous suicide attempts were registered in 26% of cases. Furthermore, a dysfunctional family was the main risk factor (54%) that precipitates suicide among these categories.

Conclusion: Studying our population, we identified multiple characteristics of adolescents and children who died by suicide or attempted suicide. Most of them, were dying at their houses and derived from dysfunctional families. One third of our population committed suicide and died from the first try without any notification or suicidal attempts. These characteristics and risk factors should be considered in the future to promote preventive programs and strategies in order to fight suicidal behaviors among Tunisian children.

Key words: Suicidal behavior; Suicide; Children; Suicide attempt; Mental health

RÉSUMÉ

Objectif : En Tunisie, depuis la révolution, les conduites suicidaires chez les enfants et les adolescents ont considérablement augmenté, devenant la deuxième cause de décès dans cette tranche d'âge. Par conséquent, notre étude se propose de décrire les caractéristiques épidémiologiques et les facteurs de risque susceptibles de précipiter le décès par suicide au sein de ces catégories.

Méthodes : En utilisant la méthode de l'autopsie psychologique, nous avons étudié 57 cas d'enfants de moins de 18 ans, dont 16 cas de suicide complété et 41 cas ayant fait une ou plusieurs tentatives de suicide dans le gouvernorat de Mahdia (Tunisie). Les facteurs sociodémographiques, les caractéristiques du suicide, les antécédents familiaux et les aspects thanatologiques ont été documentés.

Résultats : La plupart des enfants et adolescents ayant commis ou tenté de se suicider étaient des filles (75 %). La majorité des tentatives de suicide ont eu lieu au domicile de l'enfant/adolescent (62 %) et des antécédents de tentatives de suicide ont été enregistrés dans 26 % des cas. De plus, une famille dysfonctionnelle était le principal facteur de risque (54 %) précipitant le suicide dans ces catégories.

Conclusion : En étudiant notre population, nous avons identifié de multiples caractéristiques chez les adolescents et les enfants décédés par suicide ou ayant fait une tentative de suicide. La plupart d'entre eux sont décédés à leur domicile et provenaient de familles dysfonctionnelles. Un tiers de notre population a commis un suicide et est décédé dès la première tentative, sans aucun avertissement ni tentative préalable. Ces caractéristiques et facteurs de risque devraient être pris en compte à l'avenir pour promouvoir des programmes et des stratégies de prévention afin de lutter contre les comportements suicidaires chez les enfants tunisiens.

Mots-clés : Comportement suicidaire ; Suicide ; Enfants ; Tentative de suicide ; Santé mentale.

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INTRODUCTION

The suicide of a child, in addition to the fact that it presents a significant public health problem, represents a surprising event and a tragedy that always upsets the balance of the family and threatens its sustainability and that of the communities. This is basically because it is more difficult to justify than adult suicide.

According to the World Health Organization (WHO), suicide was the second leading cause of death among young people aged 15 to 29 years old in the world in 2012. In addition, it accounts for about 6% of global mortality among young people [1].

In Tunisia, the extent of the suicidal phenomenon in children is difficult to appreciate. The political, social and media networks report an increase in its incidence as the suicide of the adult.

Since the Tunisian Revolution, suicide has become a subject of interest for mental health specialists, as well as sociologists, historians, and the media. This topic is particularly sensitive to discuss, partly due to religious considerations, especially when it involves young people. Recent data in Tunisia has shown an increase in the incidence of suicide after the 2011 revolution, with a different profile compared to the pre-revolutionary period [2].

According to Ministry of Health statistics, the proportion of young people under 19 who died by suicide in 2015 represented 13.4% of cases. Furthermore, a study conducted in a central region of Tunisia found a documented increase in suicide mortality among minors between 2009 and 2015 [3].

Suicidal behavior is a multifactorial and complex phenomenon that includes a sequence of behaviors such as ideation, attempt, and death by suicide [4].

The psychological autopsy is one of the most valuable tools of investigating on deaths by suicide. The psychological autopsy procedure involves collecting all available information through extensive interviews with family members and the entourage and collecting all possible data about health status, psychiatric records and other medical documents of the decedent [5,6].

Likewise, thanatological characteristics are also as important as the psychological autopsy in the determination of the profile of the victims. These characteristics define the different aspects of death, via age, gender, the circumstances and the different means of the suicide. Therefore, psychological autopsy and the thanatological characteristics will be useful to create future mental health policy [7].

Comparing to what has been reported in other regions, an increase in suicide and its occurrence has been observed in Mahdia over the past 3 years, especially among adolescents.

Hence, it has become a significant public health problem in the country. The use of psychological autopsies and thanatological characteristics have helped to identify risk factors precipitating the act of suicide among the children.

Herein, we aimed to analyze typical characteristics of

a group of Mahdia's children who died by suicide and who carried out suicide attempts and to identify the determinant risk factors.

METHODS

Participants

Inclusion criteria:

Mahdia region is divided in 11 municipalities. The study of 09 municipalities was included.

The autopsy reports and medical files were provided without names (to protect the anonymity) from both the Department of Forensic Medicine and Mental Health. As the youngest suicide completion is reported at 7 years of age by the National Institute of Health in Tunisia, and 18 years old is considered the age of legal majority, only cases of suicide between 7 and 18 years were gathered.

The population under scrutiny consists of all cases of suicidal deaths and suicide attempts of children aged under 18 years in the governorate of Mahdia. We considered suicide the violent death of a person caused by the voluntary intervention of the person himself in order to provoke his own death and where the preliminary data of the judicial investigation communicated were in favor of this hypothesis.

Only autopsy reports and medical documentation of those who committed suicide under 18 years old were included. All cases were born and lived in Mahdia, Tunisia.

Exclusion criteria:

We excluded from the scope of this study the homicides, the deaths that occurred in the underestimated circumstances and whose forensic form and the judicial investigation nullify the hypothesis of attempted suicide or death by suicide.

Procedures

The data was collected from both the Department of Forensic Medicine and Psychiatry.

For each file, the information collected were:

- Medical documents of the person concerned ;
- Commemoratives recorded by judicial authorities and the medical examiner;
- Report of the autopsy including the results of the external examination, the necropsy as well as results of post-mortem tests such pathological and toxicological screening.

Psychological autopsy questionnaire

Socio-demographic data such as age, gender and years of schooling, marital and occupational status, region of residence were gathered. The region of residence was classified as rural or urban according to the number of habitants. Inquiry of the suicide circumstances was also collected. For the location where the suicides took place, "home" was considered to be inside the house as well as the house courtyards. Family history, including alcohol consumption and or the use of illegal drugs and tobacco

by the decedent as well as by parents were explored. We also assessed the reaction of family members when a problem occurs: preoccupation, indifference, or cohesion?

In this study, we also explored the internal dynamics of the family including the questions:

How was the relationship between the child and his/her parents? if the parents were together or divorced/separated? Had the decedent experienced domestic violence even for once time?

If the family met three or more of those criteria, then it was considered as a dysfunctional family or disturbed. Other aspects considered in the questionnaire were: conflicts within the family and family history of suicide.

Statistical analysis

Continuous variables are shown as mean and standard deviations. Categorical variables are shown as frequencies and percentages. The statistical analysis was performed using SPSS version 20.0 for Windows. Significance was established at $p \leq 0.05$.

RESULTS

Socio-demographic characteristics

The study included 57 cases of suicide performed between 2016 and 2018, specific to children and adolescents between 8 and 17 years of age. The victims were predominantly girls (75%) with a sex-Ratio of 0,3. The victims' extreme ages varied from 7 to 16 years old with a mean of 15,3 years for both genders. All victims were single (100%). Regarding their occupation: 85,5% of victims were students.

Victims were mostly of low socioeconomic level and from a large family (the number of sisters and brothers varied between 3 and 6). They are living with their parents in 39% cases.

They were only 49% of cases with divorced parents and an orphanage. There were no records of victims' family background regarding history of sexual abuse, but in 16 % cases, there were physical assault, neglect or domestic violence. A family history of psychiatric disorder was found in 2 cases. None of those cases has provided information about parental substantial abuse.

Psychological and thanatological characteristics of our population data are shown in table 1.

Suicide circumstances

Spring and summer were the most common seasons for suicide (58,9%) with the highest number of cases being reordered in July and March, 13% and 9% respectively. 50% of suicides and suicides attempts were committed in the afternoon (2 :00 p.m. – 06 :00 p.m). The suicidal act occurred more frequently in the victims' homes (62%). A precipitating factor for suicide was specified in 82,3% of cases. School issues such as being bullied at school were reported as precipitating factor in 8,7% of

cases. A recent relation-ship break-up was found in 8,7% of cases especially for adolescent girls. Other factors included: mourning, conflict with friends and unwanted extramarital pregnancy.

Table 1. Socio-demographic characteristics and risk factors, found in the Psychological Autopsies of 57 children and adolescents in a Mahdia's population

Characteristics	Percentage
Gender	
Male	25%
Female	75%
Marital Status	
Married	0
Single	100%
Occupation	
Housewife	0
Student	92%
Full-time job	0
Unemployed	8%
Suicide Method	
Hanging	21.1%
Poisoning	78.9%
Region of residence	
Rural	49.12%
Urban	47.37%
Not mentioned	3.5%
Place of Death	
Home	62%
Outside	38%
Season	
Autumn + winter	45.7%
Spring+ Summer	54.3%
Time	
Morning	14%
Afternoon	50%
Night	35%
Previous suicide attempt	
Yes	62.3%
No	37.7%
Risk factors*	
Alcohol consumption/illegal drugs	5.3%
Exposure to domestic violence	46%
Trouble with the family	40%
Dysfunctional family	49%
Suicide in family	5.3%
Relationship conflict	8.7%
School problem	8.7%
Psychiatric disorders	20%
Mourning	1%
Extra-marital pregnancy	3.5%

*Some cases presented with more than a single risk factor

Suicide methods and autopsy findings

Poisoning was the most used suicide method with 78, 9% especially for girls, followed by hanging with 21.1% of cases (Fig1). In all cases, autopsy findings did not reveal any external or internal recent traumatic signs related to physical or sexual abuse and confirmed that death was consecutive to the suicide method found at the

death scene. Regarding the cases of suicidal attempts, the psychiatric interview and consulting medical file showed that victims took action voluntarily. The results of toxicological analyses performed were positive for medicines (63%), pesticides (33%) household-care products (2%) or mix of those products (2%).

DISCUSSION

We aimed in this report to identify different factors and characteristics of suicidal cases among children and adolescents in Mahdia. We used a psychological autopsy by collecting information via interviewing friends, family members and relatives who were close to the victims and knew their characters and behaviors [8]. This method allows us to explain the manner of death and to estimate the suicide prevalence by age [9-10]. It also provides an ample background of the decedent and thus exhibits several warning characteristics, recognized as risk factors. For instance, psychological autopsy studies have shown that an enormous percentage of suicidal children have suffered from behavioral disorder, substance abuse and mood disturbance [11-13].

Overall, the psychological autopsy method helps to develop and invent preventive strategies to heal this behavior that leads to end someone's life.

Few factors were emphasized in this research: first, most of the suicides took places at home (62%). Our results are consistent with a study reported in Mexico in 2017 in which authors suggested that the house was the preferred location for adolescents to attempt suicide [7]. This can be explained by the accessibility and the privacy of this place which is secluded.

Also, the most used method by the victims was poisoning. This finding may be explained by the agricultural nature of the region and the accessibility to many pesticides. This result was not supported by other reports that had described suicide methods among children or adolescents. For example, in France, suicidal methods have developed a lot in the late 20 years, and hanging becomes the most used way for ending lives, regardless of gender : for boys aged between 14 and 19 years, the three methods frequently used to suicide are hanging (54%), the use of the firearm (16%) and then jumping from very high places (7%) as far as girls aged between 14 and 19 years, which used mostly hanging method (40%), then jumping from high places (20%), poisoning (18%) and finally the use of the firearm (9%) [11]. Authors explain this fact by the rapidity of hanging procedure compared to other tools that may provide cost.

These results emphasize the idea that there are many differences between populations concerning the most frequent used method in suicide among children and adolescents which is crucial to take into consideration in future studies to design suicide prevention programs specific to each population.

In Tunisia, despite the difficulties to prevent suicide by empoisoning, various strategies should be taken to direct this tragic event. Thus, we suggest that health services should afford information about the consequences of

poisoning like metabolic and neurological damage on survival or provide awareness via different community agencies and various online consulting websites.

We also found that most deaths by suicide in children and adolescents present previous suicide attempts (62.3%). This finding supports the results of a study of Canadian children and adolescents that showed 26% of 30 victims, had previously attempted to harm themselves at least once a time [20]. Likewise, the same scenario characterized adults who died by suicide. For example, Chaves-Hernandez, reported in his study including psychological autopsies of adults, which was performed in Mexico, and published in 2016 [21], that 67% of his data had made previous suicide attempts.

Lately, family factor has become one of the major motivational factor of suicide and the focus of several investigations [22-23]. Researchers have clearly concluded, in many reports, that all different age categories of suicides, showed a huge dysfunction in their families when comparing with non-suicidal individuals in the same range of age [24-25]. To explain this association, researchers clarify that lack of communication, hostility between family members, low empathy and being criticized ends up with a fragile personality, open to depression that can leads to suicide [26-27]. The role that the family plays in the suicidal behavior is so complex. It is important to study this association because this risk factor is easy to act on by various tools like therapeutic or behavioral interventions.

In our study, 70% of individuals who attempted suicide had disrupted schooling, including 8% who had never attended school. An association between suicidal behavior and academic difficulties has been reported by several authors (34).

A study conducted in Sfax showed that 72.1% of individuals who attempted suicide had disrupted schooling. Schooling is also linked to social factors associated with deprivation, as disadvantaged environments are characterized by higher rates of academic difficulties and school failure.

More suicide risk factors must be taken into consideration especially in female adolescents which involve eating and hormonal disorders, unwanted pregnancies, abortion, physical violence and sexual abuse [28-29].

In our study, there were no records about victims' background regarding a history of sexual abuse, but that does not mean this did not occur, as most of these information remains concealed by the family. The autopsied cases had neither revealed external nor internal traumatic signs related to physical or sexual abuse, but two cases presented extra conjugal pregnancy which could be the motif of suicide. Studies have shown that sexual abuse is a destabilizing factor for young people's mental health in general and a specific risk factor for suicidal behavior [30,31].

Shimshock et al. (2011) confirmed this association and stated that this factor is a key determinant of suicidal behavior in adolescents

Similarly, Fergusson et al. note that the more severe the sexual abuse (ranging from unwanted touching to abuse

involving penetration), the greater the risk of suicide attempts. The risk is also higher when the abuser is a first-degree relative [32].

A study done on a suicidal Mexican children and adolescents [15] had shown that 60,7% of these categories were alcohol consumers. The explication of this phenomenon is that the use of drugs and, or alcohol can cause deterioration of the cognitive functions and the abilities of discernment which could result in impulsive or dangerous behaviors. Other factors are highlighted such as social exclusion and the absence of a health support to count on [21].

Addiction disorders in our sample are underestimated due to the conservative nature of our society.

In our sample all victims were single, whereas the Mexican sample shows that 85.7% of the adolescents' victims also were single [15]. Other study established in Mexico [30] indicates that 96.7% of adolescents were single. Although, to be married at a young age could predisposed to suicide, but no evident study had assessed this risk. Though, this condition was not well evaluated.

To summarize, our study suggests that most young adolescents and children in the region of Mahdia, who died by suicide have a previous history of attempted harmful act and performed it at their houses. Moreover, the majority exhibits dysfunctional families or trouble within the family.

The most important limitation of our study is the size of the sample used which was not large enough to notice the differences between the age groups. So, we cannot generalize the conclusions established from this study in the whole Tunisian population.

CONCLUSION

Suicide and suicidal attempts in children and adolescents, who are vulnerable to different and various predisposing factors, is a major public health dilemma in many countries. Therefore, to improve prevention and care programs in order to decrease the suicidal behavior amongst the young population, efforts must be multiplied to explore more risk factors. It is mandatory to go further and invent preventive strategies to treat the suicidal behavior. These preventive measures have to focus on the role of the media which is a great contributor.

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