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Psychosocial suicide risk factors

Factores de riesgo psicosocial para suicidio

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SUMMARY

Due to the number of deaths by suicide, it's classified as a public health problem, and it is a multifactorial and dynamic problem, influenced by biological, psychological, social, cultural, and environmental factors. The study aimed to identify risk factors based on the proposal of the biopsychosocial model of suicide risk of Turecki by applying the psychological autopsy in three suicide cases in young people. Based on qualitative analysis of the information, some distal, developmental, proximal, and social context risk factors are reported by the loved ones of the suicidal, such as bullying, negative affect, violence, alcohol consumption, financial difficulties, and isolation. In conclusion, it is necessary to study and determine the feasibility and vulnerability for suicidal behaviors in people who have a series of risk factors proposed in the model and the need to expand the study of suicide to develop effective prevention programs.

Keywords: *Suicide, psychological autopsy, risk factors, biopsychosocial model.*

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RESUMEN

Debido al número de muertes por suicidio se le ha clasificado como un problema de salud pública, es una problemática multifactorial y dinámica, influenciada por factores biológicos, psicológicos, sociales, culturales y ambientales. La investigación tuvo como objetivo identificar factores de riesgo basados en el modelo biopsicosocial del riesgo suicida de Turecki a través de la aplicación de autopsias psicológicas en tres casos de suicido de jóvenes. A través de un análisis cualitativo de la información recabada se identificaron algunos factores distales, del desarrollo, próximos y del contexto social reportados por los familiares entrevistados, tales como acoso escolar, afectos negativos, violencia, consumo de alcohol, dificultades económicas y aislamiento. En conclusión, es necesario estudiar y detectar los factores de riesgo propuestos en el modelo que vuelven a una persona vulnerable y propenso a tener comportamientos suicidas por la necesidad de extender el estudio del suicido para

desarrollar programas de prevención efectivos.

Palabras clave: *Suicidio, autopsias psicológicas, factores de riesgo, modelo biopsicosocial*.

INTRODUCTION

A priority issue in public health is suicide prevention. In this sense, the World Health Organization (WHO) (1) emphasizes the importance of promoting mental health and the need to generate actions sustained over time, to create environments and healthy living conditions. The WHO also points out the relevance of the evidence generation that allows the detection and prevention of risk factors associated with suicidal behaviors.

Due to the number of deaths by suicide, it has been classified as a public health problem of epidemic proportions (2,3). According to the WHO, about 800 000 people die by suicide worldwide (4). It has even been considered that the suicide deaths could be underestimated between 10 and 30 % (5).

Most suicide deaths occur in low- and middle-income countries. In 2016 death by suicide in these countries corresponded to 79 % of all cases in the world (6). Furthermore, it is the second cause of death in young people between 15 and 29 years old (7-9).

Suicide and suicidal behaviors are complex, multifactorial, and dynamic problems, influenced by the interaction between biological, psychological, social, cultural, and environmental factors (10,11).

The study of these risk factors for suicide is one of the research objectives that seek to understand suicidal behaviors. Risk factors are those aspects, situations, antecedents, stressors, or behaviors that can promote suicidal behavior. These are classified as predisposing, vulnerability, and trigger factors, based on the stage in which they occur and their duration (12).

Among the most critical risk factors for suicidal behaviors are physical and mental illnesses (13). More specifically, mood disorders (14) such as depression (15-17), and bipolar disorder (5) and others such as anxiety and psychological distress (16,18-20), substance use disorders (21,22), borderline personality disorder (9), psychotic disorders (5) to name a few.

Likewise, the presence of personality traits such as low tolerance to frustration (23), impulsivity (5), and hopelessness (16) have been associated with a higher risk of suicidal behavior. Having made a previous suicide attempt is considered the most important risk factor for deaths by suicide (9,21,24-26).

Regarding interpersonal relationships, such as family or partner relationships, it has been observed that disintegration and intra-family violence (10,27-28), difficulties and disappointments in couple relationships (10,29), as well as divorce (30,31), increases the probability of the appearance of suicidal behavior.

Evidence has been found that access to suicidal means such as the availability of firearms or drugs (32), as well as social isolation (13,33), being victims of bullying and social violence (20), the pressure and high expectations generated in academic, religious, or loved people (34), are suicidal risk factors, from a more social, environmental and cultural.

Some research has found that certain risk factors are gender specific. For example, exposure to parental violence, anxiety disorder, and substance use disorder are more important risk factors for women. On the other hand, for men, it was found that child abuse, the death of a parent, and hopelessness seem to have a more significant influence as risk factors for suicidal behaviors (14).

Among the psychological factors, it has been identified that whoever tries to cause his death seeks to end the pain and emotional suffering considered unbearable and unsolvable (5,9,28).

Within the most recent theoretical postulates is the integrative model of Gustavo Turecki. This model considers genetic and epigenetic, psychological, environmental factors, as well as socio-cultural factors. These risk factors are divided by temporality within its model, such as distal, mediating, and proximate factors. According to the model, the various elements are related to each other in suicidal behavior (35). Figure 1 shows the scheme of this model.

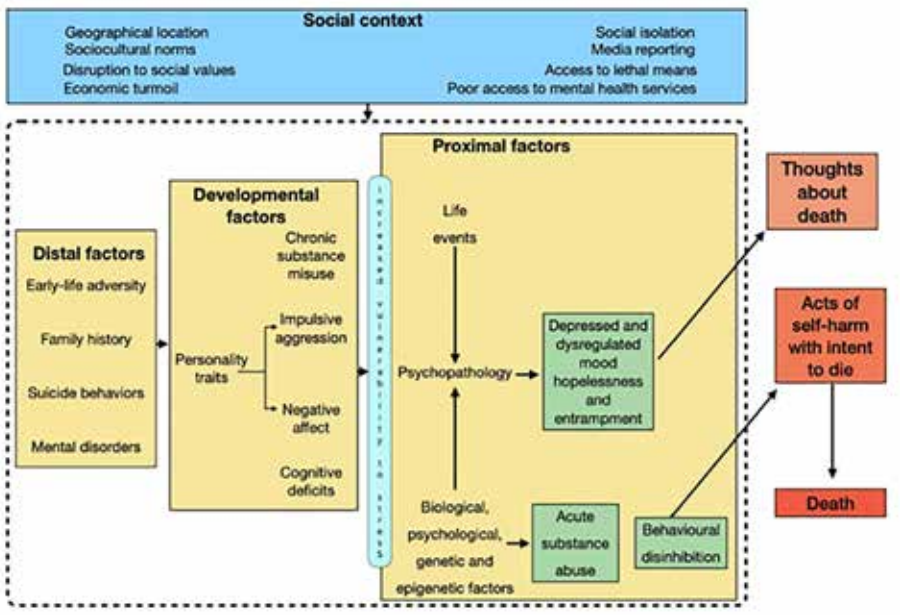

Figure 1. A biopsychosocial model of suicide risk

One way to study suicidal behaviors is through the psychological autopsy technique applied to collect data on a person's death to reconstruct aspects of their personality, characteristics, and mental state before the suicide (36). This technique was proposed by Robert Litman at the end of the last century's fifties, from interviews with people close to the person who has died, to generate a retrospective reconstruction that would facilitate the understanding of those factors that could be motivating and triggers of death (37).

Various studies have used psychological autopsies to identify biopsychosocial risk factors associated with suicide and breaking points in life (38-40). The above with adequate results, because it is considered a useful technique for the investigation of the psychological state of a person who has committed suicide (39) and to provide information that can be used in the prevention of deaths by suicide (40).

METHODS

This qualitative observational descriptive study had the aim to identify the risk factors using psychological autopsies based on the proposal of the biopsychosocial model of suicide risk of Turecki (35).

Three deaths by suicide were studied, collecting data from applying the psychological autopsy technique with close relatives that provided information on the people who died by suicide. Participants were invited by the Crime Prevention and Attention to Victims Department of the State of Coahuila, Mexico, as part of the Suicide Attention and Prevention Committee's request chaired by the Secretary of Health of the State.

After reviewing the ethical guidelines by the researchers and the Committee proceeded to invite the relatives of people who had died by suicide referred by the management, the written informed consent was obtained. Subsequently, the research team applied the psychological autopsies with a semi-structured interview format. Psychological care was offered to the interviewed relatives or someone else who so wanted.

A classification to analyze the information was established. The researchers reviewed the interviews to classify the information in

distal factors such as difficulties throughout life and family history; developmental factors like substance use, personality characteristics, and cognitive deficits; and proximate factors considered as life events, psychopathological symptoms, substance abuse, depressive symptoms, and disinhibition of behavior.

Also, social context factors were established considered as socio-cultural norms, disruption of the structure and social norms, contextual economic difficulties, social isolation, means of communication, access to lethal means, and difficulties in accessing health services. Also, the presence of suicidal thoughts or ideation and self-injurious behaviors or previous attempts were analyzed.

This classification was based on some of the factors proposed by the Biopsychosocial model of suicide risk (35), which is explained and detailed in Table 1. The interviews were transcribed and finally coded as established.

RESULTS

Three psychological autopsies of young adults were applied, two men and one woman who died by suicide, in Saltillo's municipality, in Coahuila, Mexico. Although psychopathology diagnoses before death were not reported in any cases, some traits of disorders were identified through the characteristics and behaviors that their relatives commented on.

In case 1, the young man lived with his parents, had no partner or significant friendship relationships. He said that he had difficulties since childhood due to a mole on his face that caused him emotional distress.

In case 2, the young woman lived in a common-law union with her partner, in her parents' house, and had difficulties and wanted to end the relationship. Also, she had a family history of death by suicide; a brother four years earlier took his own life.

In case 3, a man separated from his partner for several years lived with his daughter, parents, and sister. The precipitant was the threat of his partner to withdraw custody of his daughter. Below, Table 2 shows general information of the three cases.

Certain elements were found concerning distal, developmental, and proximate factors in the suicides from the relatives' reports.

Regarding the distal factors, it was found in case 1, a difficulty related to a medical aspect that has been present since childhood, the young man had a birthmark on his face that had manifested that it generated emotional discomfort "people sometimes ask: what happened? Why do you have it? [...] The last time we went to the hospital, two ladies came and said what's wrong with the boy? No, that's how he was born [...] he, he did cover himself up [...] he already had two appointments to go to undergo surgery, but the doctor told him that you are not going to be 100 %, you will have a scar". In this sense, it is possible that since childhood, a situation of constant social rejection generated epigenetic changes in the nervous system due to continuous exposure to social stressors.

In case 2, about distal factors, the young woman experienced bullying during her childhood and adolescence, reported by her mother "They began to say many things to her [...], that she joined the most popular to get the illusion [...] In high school too, they considered her ugly". Also, suicidal behaviors were identified in the consanguineous family, with the suicide of a brother years before.

The following were identified regarding development factors: for case 1, a pattern of avoidance and social isolation, negative affect, and difficulties in dealing with teasing and rejection due to the physical defect. As a family, they tried to face the problem through medical solutions without results.

Regarding case 2, low self-esteem was identified as she was considered unattractive. The rejection and school violence continued to develop coping strategies of support from others with no results to stop the violence. Also, alcohol consumption began. "I don't know if, if it would be alcohol, I don't know if it would be sadness... But she had something" (Case 2).

In case 3, it was possible to identify alcohol consumption as a resource to deal with emotional discomfort "He cried and... sometimes he would go and buy beer and drink, and that is it. [...]

Table 1

Classification of factors for the analysis of psychological autopsies

FACTOR	CLASS	LEVEL	DESCRIPTION
Distal factors	Difficulties throughout life	Psychological	Individual difficulties in childhood or adolescence
		Social	Social difficulties present for the whole community, which impacted the person
	Family history	Constituted	Difficulties with the established family (partner, ex-partner, and children)
		Nuclear	Difficulties with the nuclear family (parents - siblings)
Developmental factors		Substance use	Alcohol, tobacco, drugs
	Personality characteristics	Impulsiveness / aggression	Impulsive or aggressive personality characteristics
		Negative affects	Anger, sadness, jealousy, hatred, emotional distress.
	Cognitive deficits		Irrational beliefs, rigid thinking, maladaptive cognitive schemas, cognitive distortions
Proximate factors	Life events	Psychological Social	Stressors and/or psychological triggers Stressors and/or social triggers
	Psychopathological symptoms		Mental disorder symptoms (except substance abuse and depression)
	Substance abuse		Substance abuse and/or use before suicide
	Depressive symptoms		Dysregulation of mood, hopelessness, or feeling of being trapped.
	Disinhibition of behavior		Uninhibited, extroverted, brash behaviors
Social context	Sociocultural norms		Religious, social, or family norms
	Disruption of social structure and norms		Difficulty following social norms and structures
	Contextual economic difficulties		Widespread economic difficulties at a local level
	Social isolation		Personal or family social rejection or isolation
	Access to lethal means		Have the means to kill oneself
	Difficulties in accessing health services		Difficulties in accessing physical or psychological health services
Suicidal thoughts or ideation			
Self-injurious behaviors or previous attempts			

Table 2

General information on the cases analyzed

Case	Sex	Age	Marital status	Suicide method	Relatives interviewed
1	Man	21	Single	Shot with firearm	Father and mother
2	Woman	26	Free Union	Hanging	Mother
3	Man	29	Separated	Hanging	Mother and sister

Yes, he drank his beers [...] his pain was a lot" (Case 3).

In cases 2 and 3, distal factors of difficulties were identified in the established family history. Case 2 was a victim of physical and psychological violence by her partner before the one she had when she took her own life "He even beat her (referring to her ex-boyfriend) [...] I was also terrified of him because he could do something to her as well as to us at any time".

Case 3 had problems with the mother of his daughter, who was unfaithful on several occasions "what she did to him, hurt him a lot [...] she cheated on him many times", and when the relationship between them ended, the couple left him with the custody and care of their daughter. However, the mother considers that the discomfort generated by the relationship was not a determining factor in the suicide of her son "he had much time alone so that he would have done that to him, it did not hurt him that much".

Excessive alcohol consumption before suicide was identified in cases 2 and 3 "She even trips one way and another ... that time (the day she committed suicide) was the only time I saw her like this (that drunk)" (case 2); "The day he committed suicide, he went to the store and brought two beers" (case 3). In case 1, although there was no direct reference to substance use but rather to abusive use of social networks, the parents reported constant use of the cell phone "he was always on his cell phone".

Also, in the neighboring factors of behavioral disinhibition were observed in case 2, "I told her that she was very shameless and very irreverent". In case 3, more social stressors were reported that generated sadness and emotional discomfort. "Crying, he told me, Mom, they are going to take the girl from me [...] I already spoke with a lawyer, and she tells me that she is going to take my girl" referring to the fact that the justice system gives preference to custody to women.

Cases 1 and 3 were identified as feeling trapped and with no solution among their problems. In case 1, despite having sought medical procedures to eliminate his physical defect in the face, the doctors informed him that this would not be possible. In case 3, it was the experience of certainty that he would lose his daughter's legal custody to her mother.

In relation to elements of the social context that may have had an impact on suicide in the cases analyzed, direct and indirect references to the presence of financial difficulties were found. In case 3, it was mentioned that he had two jobs to meet his family's financial needs. In case 2, the mother commented, "Like everyone, we had financial problems, but I remember very well that she told me, Mom, we have had a complicated stage in economic matters, but do you notice? As things are already being fixed" (Case 2).

Regarding isolation, in case 2, it was reported with the maternal family, according to the mother generated by differences in family values reflected in behaviors, way of dressing and having tattoos, "I let them do what they wanted in that regard, true, maybe I was wrong because my family ... they were far away from my family".

In cases 1 and 3, a social distancing was reported of the young people "It was always the same [...] It was his custom, he was like that... it was as serious, reserved" (Case 1), "This house served as a warehouse, because here he spent many hours, many hours he had much time alone" (Case 3).

Regarding behaviors or verbalizations that

could express suicidal ideation, the parents of case 1 commented that he was arranged unusually the day of the suicide. In case 2, she commented on who would stay with her cat "She told him, the cat will be your inheritance". In case 3, the mother says that she went to leave her sister to the place where public transport waited to go to work, which he did not usually do and, he asked them to take care of her daughter in an insistent way "I'm going to go, in a little while, take care of my girl [...] look on her, mom".

In the three cases studied, access to the media was simple: all three committed suicide at home. In case 1, he had a weapon that was not stored or out of reach. In cases 2 and 3, the method used was hanging with cables that were easily accessible. "I had little that they had hired TV (pay television) [...] and there were cables for all that; there he grabbed it" (Case 2); "From where he hung his piñatas [...], he hung himself with a wire he used for piñatas" (Case 3).

None of the 3 cases sought support from mental health professionals to deal with emotional distress, even though the 3 cases contacted public authorities to address their most important problems, case 1 with the health sector due to their physical defect, Case 3 before the legal custody of his daughter and Case 2 for being a victim of domestic violence.

DISCUSSION

Suicide is a multifactorial and dynamic health problem. The considerable number of explanatory models developed in recent decades (41) gives evidence of the scientific and social interest concerning the subject and the importance of generating strategies that prevent suicide deaths.

The cases studied correspond to the highest risk age group: people between 15 and 29 years old (7) worldwide and in Mexico. Furthermore, based on the biopsychosocial model of Turecki (35), it is possible to identify several factors that generate a vulnerability towards suicidal behaviors.

Concerning distal and developmental factors, it is likely that adolescence and youth accumulated several difficulties that might affect people. In the studied cases, problems were detected since childhood and adolescence. These risk factors such as substance use (22), impulsivity traits (5), family disintegration (27), couple difficulties (10), are also reported in Turecki's model (35).

Cognitive deficits were not identified by the psychological autopsy, such as irrational beliefs, maladaptive schemas, and cognitive distortions. A possible reason is that it is complex to identify cognitive factors that are more personal from this tool's use. In this sense, it is important to be cautious when reconstructing the personality of the person who takes his or her own life based on a third party's account, to avoid biases and over interpretations.

However, at present psychological autopsies continue to be an alternative for studying those who have died by suicide. Thus, it is an option to continue applying the technique and analyzing its effectiveness without neglecting its limitations.

Although some psychopathological symptoms were reported, they were not enough to determine a mental disorder with certainty. On the other hand, aspects related to interpersonal conflicts, and substance misuse or abuse seem to be more explicit. It was remarkable that although the emotional distress in the three cases, they did not attend mental health services. In this regard, it would be interesting to review economic, social, and cultural aspects that affect more in certain groups compared to others, because in Mexico, being a middle-income country (42) and with traditional values, where the importance of family ties, values there is a rejection of specific actions, including suicide (43). Because of the above, psychopathological aspects may have a different role to that reported in countries with other characteristics.

An important aspect to highlight was the behaviors that could be associated with suicidal intent or plan were unclear to the loved ones. Furthermore, getting tidy, saying that a pet will be left as an inheritance, or requesting caring for children appear to be subtle signs that were probably interpreted after the suicide and that at the time were not necessarily interpreted as suicidal communication. In this subject, it would be important to sensitize the general population to pay attention to subtle messages and that, in combination with the more evident factors above

mentioned, they are not overlooked.

The precipitant risk factors were the most identified through psychological autopsies, such as intense emotional distress, the experience of being unable to cope with the problem, the sense of entrapment, helplessness and hopelessness, intense emotional pain, increased substance abuse, all of them reported by Turecki (35) and O'Connor nad Kirtley (44). These precipitating factors were observed by loved ones, although without assuming the risk of suicide.

Furthermore, it is important the disseminate information on suicidal behaviors, their characteristics, manifestations, possible origins, and risk factors to the general population for that within the most significant interpersonal relationships there is the qualification for the identification and prevention of suicide behaviors.

The biopsychosocial model of Turecki (35) has genetic and epigenetic factors that it was not possible to analyze directly. However, evidence was found concerning some of the factors proposed in the model based on the use of the psychological autopsy technique.

Although it is not possible to determine that these particular risk factors are applicable in all cases of suicide, it is intended to broaden the understanding of suicidal behaviors for the development of proposals for practical prevention actions focused on the attention of specific risk factors.

The present study has some limitations, such as having a small selection of cases to study, the lack of psychological autopsies of death cases from other causes matched by age and gender with the suicide death cases, and a lack of application of the psychological autopsy in other close people (friends, co-workers, etc.), interviewing only family members can generate biases in the information collected by the presence of cognitive distortions, non-elaborate duels, feelings of guilt among other variables.

Therefore, it is necessary to take the finding with caution. More research is needed regarding psychological autopsies in Mexico and Latin America to identify specific risk factors for those countries.

CONCLUSIONS

The study achieved the aim to identify risk factors present throughout the life of the three cases of suicide studied by psychological autopsy. Among the most relevant factors were difficulties in childhood and adolescence, couple difficulties, substance use and addictive behaviors, a history of suicide in one case, and negative affects.

Although a psychological disorder could not be determined, some symptoms were reported that would suggest probable diagnoses, such as group personality disorders, mood disorders, and substance use disorders. However, despite observing the particular situations that their loved ones were going through, the relatives did not report having the suspicion that they could decide to take their own lives.

Understanding and analyzing risk factors based on psychological autopsies allows one to know indirectly certain aspects of the life and personality of suicides and, consequently, use it to develop effective interventions.

Using the biopsychosocial model of suicide risk of Turecki as a reference can facilitate the analysis of the information and provide information that can increase the evidence of its applicability in different contexts and populations.

Finally, the findings can be useful in different levels, such as promoting mental health in the community, prevention of individual and family risk factors, psychotherapeutic intervention, rehabilitation, social inclusion, and future research development.

Conflict of interest. There is no conflict of interest of any of the authors of the study.

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