Family dysfunction and suicidality in adolescents with major depressive disorder

María Teresa Laurencia Perales-Blum,[1] Lídice Loredo[1]

Original article

ABSTRACT

Background

Suicide is among the three leading causes of death in the youth population; family conflicts have been considered as an independent possible risk factor for suicidality among this population.

Objective

To assess the relationship between family problems and suicidality in adolescents with Major Depressive Disorder (MDD).

Method

Patients between the ages of 10 and 18 with a diagnosis of MDD were included. To assess family problems, the Instrument for Family Problems (IFP) scale was applied; to determine the degree of suicidality, the Okasha Suicidality Scale was used. The values of these scales were compared through a logistical regression. Odds ratios (OR) were obtained to find differences between the groups with a confidence interval (CI) of 95%.

Results

Out of the 37 patients examined, 21 (56.7%) had a high suicidality risk. They were older in age and had a higher depression severity index. No association was found between the values obtained in the IFP and suicidality, except for the item "disagreements between the father and the mother regarding permissions", with an OR: 5.28, 95% CI (1.06-26.3).

Discussion and conclusion

The association found between high suicidality and the IFP-D item might be related to the use of a depression severity index as a co-factor. Family conflicts assessed through the IFP do not seem to be an independent factor explaining differences between the groups studied.

Key words: Suicide, adolescents, family, depression.

RESUMEN

Antecedentes

El suicidio se encuentra entre las tres principales causas de muerte en los adolescentes; los problemas familiares se han considerado como un posible factor de riesgo independiente de suicidalidad en esta población.

Objetivo

Estudiar la relación entre problemas familiares y suicidalidad en pacientes adolescentes con trastorno depresivo mayor (TDM).

Método

Se incluyeron pacientes entre 10 y 18 años con diagnóstico de TDM. Para evaluar los problemas familiares se aplicó el Instrumento de Problemas Familiares (IPF); para el grado de suicidalidad, se aplicó la Escala de Suicidalidad de Okasha. Se contrastaron los valores de estas escalas por medio de una regresión logística. Se obtuvieron los *odds ratios* (OR) con un intervalo de confianza (IC) de 95% para encontrar diferencias entre grupos.

Resultados

Se analizaron 37 pacientes, de los cuales 21 (56.7%) tenían alto riesgo de suicidalidad. Éstos eran de mayor edad y tenían un mayor índice de gravedad en la depresión. No se encontró una asociación entre los valores obtenidos en el IPF y la suicidalidad, a excepción del reactivo –desacuerdos entre el padre y la madre con respecto a permisos (IPF-D)–, con un OR: 5.28, 95% IC (1.06-26.3).

Discusión y conclusión

La asociación encontrada entre una suicidalidad alta y el reactivo IPF-D pudiera relacionarse con el uso de la gravedad en la depresión como un cofactor. Los problemas familiares, evaluados por medio del IPF, no parecen ser un factor independiente que explique las diferencias entre los grupos estudiados.

Palabras clave: Suicidio, adolescentes, familia, depresión.

[1] University Hospital Dr. José E. González, Autonomous University of Nuevo León.

Correspondence: María Teresa Laurencia Perales-Blum. "Dr. José E. González" University Hospital. Autonomous University of Nuevo León. Madero y Gonzalitos s/n (edificio aledaño al nor-oriente del edificio central entre la Facultad de Medicina y el Edificio de Radiodiagnóstico), 64460, Monterrey NL., Mexico. E-mail: laurencia_p@hotmail.com

BACKGROUND

Suicide is among the three primary causes of death among adolescents. In Mexico, rates have gone up 275% between 1970 and 2007.[1] Adolescents are a particularly at-risk group. Around 11% of adolescents have presented suicidal ideation at some time in their lives, and 3% have carried out a suicide attempt.[2] Major Depressive Disorder (MDD), which has high prevalence and morbidity in adolescents, is one of the primary risk factors for suicidality in this age group.[3]

Neurobiological, cultural, demographic, and social factors can raise the risk of suicide in adolescents. There are other specific factors besides MDD that are associated with suicidality in adolescents, including disruptive behavior, substance abuse, psychiatric comorbidity, a history of sexual abuse, a history of previous attempts, and a family history of psychiatric illness.[4-7] The characterization of these factors is essential in developing strategies for the detection, prevention, and treatment of suicidal ideation.

Family problems have also recently been given prominence as a risk factor independent of suicidality in adolescents. It has been suggested that families with suicidal adolescents are disorganized, have poor cohesion, and are hostile.[8] Adolescents with a high level of suicidality and depression report greater alterations in communication with their parents than control groups.[9] Adolescents with suicidality also show a greater perception of family dysfunction, come from what could be considered "broken" homes, or have conflictive relationships with their mothers.[10,11] A history of discord between the adolescent and their parents is an independent factor to predict suicidality in deprived adolescents.[12] In 1995, Martin et al. reported that a high level of family dysfunction according to the McMaster Family Assessment Device was associated with the severity of depression and suicidality in adolescent patients.[8] Garber et al. found similar data, showing that poor family function, measured by the Family Relationship Index, was associated with suicidality in adolescent patients.[13]

Even when it has been established that family alterations contribute to suicidality in adolescent patients, the dimension of risk and the specific factors remain unclear. In this study, we seek to use a standardized instrument evaluate the effect of family dysfunction on the severity of suicidality on a group of adolescents with MDD in Monterrey, Nuevo León, Mexico.

METHOD

Patients

Patients between the ages of 10 and 18 were included, who attended the Psychiatric Rehabilitation Unit at the Nuevo Léon Health Services with a diagnosis of MDD between March 9 2012 and June 9 2012. In order to join the study, patients had to meet the criteria for MDD according to the *Center for Epidemiological Studies of Depression Scale* (CES-D, value >16),[14] confirmed by the MINI International Neuropsychiatric Interview for Children and Adolescents (MINI Kid). All participants have an informed consent letter signed by their parents or tutors. Patients were excluded if they had psychotic symptoms, bipolar disorder, learning difficulties, or were under treatment with an antidepressant or antipsychotic. The CES-D scale was applied to 45 patients who met the above criteria. Seven (15.55%) people were excluded due to not reaching the minimum score on the CES-D for depression, and one person (2.22%) was excluded because they had difficulty in understanding the questions applied during the rest of the scales. A final sample of 37 patients was obtained.

Scales and measurements

Demographic and social data was obtained from all patients through surveys and interviews with the patients themselves, their tutors, and their families. The Okasha Suicidality Scale, the Instrument for Family Problems (IFP), and the State-Trait Anxiety Inventory (STAI) were applied.

Okasha Suicidality Scale:[15] This is a self-administered Likert-type scale made up of four questions, where the first three explore suicidal ideation and the fourth is about suicide attempts. It assesses the severity of suicidal ideation over the previous 12 months. Internal consistency through Cronbach's alpha has a value of 0.89. The four questions are: Have you ever thought that life was not worth living?; Have you ever wished you were dead?; Have you ever thought of ending your life?; and finally, Have you ever tried to end your life? The answers to these questions on suicidal ideas are recorded on a scale of category frequency which is scored from 0 to 3 for each question: never, almost never, sometimes, lots of times. The total score of the suicidality scale is obtained by adding the subtotal of suicidal ideation to the score from the suicide attempt question. The total score can range between 0 and 12. The higher the score, the greater the severity. In order to discriminate between suicidal ideas with or without high risk of suicidality, a cutoff point of five was calculated for suicidal ideation (sensitivity of 90% and specificity of 79%). For this analysis, we used the score of the subtotal of suicidal ideation (sum of questions 1, 2, and 3).

IFP:[16] This is an instrument designed to assess what people consider as the main problems that exist within their family. It consists of 122 questions that have a normal distribution, factorial loads over 0.40, and high consistency in its scales, with a Cronbach's alpha coefficient of 0.58 to 0.93. It is a self-applied Likert-type scale, where 5 means totally agree, 4 is agree, 3 is neither agree or disagree, 2 is disagree, and 1 is totally disagree. It was used to assess family dysfunction. It consists of eight factors:

1. Family communication and integration: This refers to communication and its role in integration for the fam-

ily, in which emotions, thoughts, and beliefs are transferred on a verbal and non-verbal level. Cutoff point 87.

2. Negative family interaction: This indicates the subject's perception of the lack of attention the family gives them, both in care and in being prepared to support, primarily in parents. Cutoff point 84.

3. Family conflict: Conflicts in close relationships can have long-term effects on the way in which family members perceive one another, and it ranges from situations such as verbal arguments, criticisms, jokes, or discredit through to huge lacks of respect. Cutoff point 57.

4. Family aggression: This factor includes aspects of scolding, anger, punishments, and even physical provocations. Inter-parental conflict and poor relationships with parents have been seen to predict functioning in young adults, and are related with problems in minors. Cutoff point 45.

5. Disagreements with father and mother in giving permissions: When rules and boundaries are not clear or firmly established by parents, adolescents put the family structure to the test. Cutoff point 33.

6. Influence of alcohol on the family: This reflects the effect of alcohol consumption on family organization and harmony. Cutoff point 21.

7. Drug-dependency in the family: This factor covers the consumption of various drugs and toxic substances that can generate emotional and physical chaos in the family. Cutoff point 18.

8. Alcoholic behavior in the family: This comes about when the family revolves around alcohol consumption and its implications on the system in terms of physical and emotional violence and impact on finances and health. Family dysfunction plays an important part in increasing alcohol consumption in students. Cutoff point 21.

STAI:[17] This assesses two aspects of anxiety: state (transitory emotional condition) and trait (relatively stable tendency for anxiety). It has 40 questions; 20 on anxiety-state (STAI-AS) and 20 on anxiety-trait (STAI-AT). The score is obtained by adding the scores from each of the 20 corresponding questions. Scores for the state questions range from 0-3, and operative criteria are established according to intensity (0=nothing; 1=some, 2=quite a lot, 3=lots). For some of the anxiety-state questions, it is necessary to reverse the scoring assigned to intensity (3=none, 2=quite a lot, 1=lots). These questions are: 1, 2, 5, 8, 10, 11, 15, 16, 19, 20. The scoring for trait questions also ranges between 0-3, but in this case it is based on frequency of presentation (0=almost never, 1=sometimes, 2=frequently, 3=almost always). For some of the anxiety-trait questions, it is necessary to reverse the scoring assigned to frequency of presentation (3=almost never, 2=sometimes, 1=frequently, 0=almost always). These questions are 21, 26, 27, 30, 33, 36, 39. The total score for each aspect ranges from 0-60 points. Higher scores mean higher anxiety levels.

Statistics

The patients' demographic and clinical data was compared with high and low risk of suicidality using the χ2 test (or Fisher's exact test) for categorical variables, or the student's T test for dimensional variables. The IFP values resulted in eight dimensional values, where higher values showed greater dysfunction. Patients were dichotomized as "healthy" or "unhealthy" using corresponding cutoff points. Logistical regression was used to compare the dichotomized variables extracted from the IFP values. *Odds ratios* (OR) with a confidence interval (CI) of 95% were obtained to find differences between groups. In the logistical regression models to compare between groups, age and CES-D score were included as covariates, in order to adjust the results in accordance with age and the severity of depression. Simple Pearson correlations were used to find the relationship between the different variables.

All statistical analyses were carried out using SPSS (SPSS, version 17.0; SPSS Inc., Chicago, Illinois, USA). The dimensional parameters were expressed as average ± standard deviation (SD) and $p<0.05$ was considered as statistically significant.

RESULTS

Demographic data

The demographic characteristics of the groups are shown in Table 1. A group of 37 patients was analyzed, of which 21 (56.7%) showed a high risk of suicidality according to the Okasha test (value >5). Patients in the high-risk group for suicidality had higher levels of severity for depression and anxiety. Although all patients met the criteria for major depression, the CES-D score was significantly higher in the high-risk group (32.7±8.88) compared to the low-risk group (23.9±7). Similarly, both values on the STAI scale were significantly higher in the high-risk group.

The age difference between the groups was statistically significant. Patients in the high-risk group for suicidality had an older age of 15.5 (11-18 years) compared to the low-risk group, with an age of 13.7 (12-17 years). Of the total number of patients, only a minority lived with their father and mother (21.6%), and the majority was students (56.7%). Around half of patients were female (51.3%). Other variables, such as occupation (student *vs*. none) or family status (living with both parents, one parent, or neither), did not reach a significant difference between the groups.

Correlations

As expected, a positive correlation was found between the score on the Okasha scale and the CES-D (r=0.613; *p*=0.001).

Table 1. Clinical and demographic data

	Risk of suicidality		
Characteristic	Low	High	P
Patients, n	16	21	
Female, n(%)	6(37.5)	13(61.9)	0.19[a]
CES-D total, avg (SD)	23.9±7.00	32.7±8.88	0.01[b]
Okasha, avg (SD)	1.63±1.54	8.19±2.24	0.01[b]
STAI-AS, avg (SD)	21.7±11.8	29.3±9.60	0.04[b]
STAI-AT, avg (SD)	27.3±9.70	35.4±10.5	0.02[b]
Age, avg (range)	13.7(12-17)	15.5(11-18)	0.01[b]
Occupation, n(%)			0.32[a]
Student	11(68.7)	10(47.6)	
None	5(31.3)	11(52.4)	
Family status, n(%)			0.51[a]
Lives with both parents	4(25)	4(19)	
Lives with one parent	8(50)	10(47.6)	
Others	4(25)	7(33.3)	

[a]=χ^2; [b]=T-*student*; CES-D: Center for Epidemiological Studies of Depression Scale; STAI: State-Trait Anxiety Inventory; avg: Average; SD: Standard Deviation.

Age correlated positively with the Okasha scale (r=0.408; p=0.01). It was found that the STAI-AS score correlated positively with the scores on the Okasha scale and the CES-D (r=0.34; p=0.04 y r=.37; p=0.02, respectively). Furthermore, the STAI-AT score also correlated positively with the scores on the Okasha scale and the CES-D (r=0.510; p=0.001, and r=0.481; p=0.002, respectively). However, no correlation was found between the IFP questions and scores on the Okasha scale or CES-D, except for IFP-D, which showed due positive correlation with scores on the Okasha scale (r=0.357; p=0.03).

IFP results

The IFP results are shown in Table 2. When IFP scores are dichotomized using the established cutoff points, high-risk patients for suicidality have a significantly higher probability of having disagreements between father and mother in being permissive, (IFP-D) with OR: 5.28, 95% CI (1.06-26.3). None of the other IFP questions showed a significant difference; neither was there a statistically significant difference found when the numerical IFP scores were compared between groups.

DISCUSSION AND CONCLUSION

As expected, we found that adolescent patients with MDD and a high level of suicidality have a higher level of depression and anxiety, as well as positive correlations between Okasha scale and CES-D scores. These risk factors have already been established.[3,18] Furthermore, we found that the group with higher suicidality was older. Other studies have found that age is an important factor, with less suicidal ideation in younger patients.[4,5] In a national survey conducted

Table 2. Result of the Instrument for Family Problems in deprived patients with a High Risk of suicidality

	Prevalence			
	Risk of suicidality			
	Low (n=16)	High (n=21)	Adjusted OR (95% IC)	P
Dichotomous variable: n(%) "unhealthy"[a]				
Communication	11 (68.8)	10 (47.6)	2.43 (0.43 – 13.4)	0.3
Interaction	3 (18.8)	8 (38.1)	1.05 (0.13 – 8.2)	0.9
Conflict	4 (25.0)	10 (47.6)	3.23 (0.41 – 25.2)	0.3
Aggression	3 (18.8)	8 (38.1)	4.10 (0.46 – 11.4)	0.5
Disagreements	4 (25.0)	13 (61.9)	5.28 (1.06 – 26.3)	**0.04**
Alcohol	7 (43.8)	10 (47.6)	1.02 (0.19 – 5.2)	0.9
Drug-dependency	1 (6.3)	6 (28.6)	15.00 (0.95 – 23.6)	0.05
Alcoholic behavior	2 (12.5)	4 (19.0)	2.07 (0.17 – 25.1)	0.6
Dimensional variable: avg (SD)[b]				
Communication	92.0 ±21.4	89.9 ±17.0		0.7
Interaction	69.6 ±15.8	79.9 ±15.9		0.2
Conflict	45.9 ±18.8	51.9 ±15.5		0.3
Aggression	36.9 ±11.8	40.7 ±10.8		0.2
Disagreements	26.8 ± 7.4	30.8 ± 7.7		0.1
Alcohol	18.3 ± 7.2	18.4 ± 6.9		0.9
Drug-dependency	10.2 ± 4.0	12.2 ± 5.0		0.2
Alcoholic behavior	12.4 ± 6.4	15.0 ± 6.1		0.2

[a]= Logistical regression; [b]= T-*student*; OR= Odds ratio; CI= Confidence interval; SD= Standard deviation; avg: Average.

in Mexico into suicide in adolescents, 15 was found to be the age with the highest prevalence,[1] which is a similar age to that found with high suicidality in this study. On the other hand, we found no difference between gender or family structure. This contrasts with studies that found that being female and not living with parents was associated with suicide risk in adolescents.[12,19]

Using univariate and multivariate logistical regression, we did not find significant differences between the IFP results and suicidality in adolescents with MDD, except for the question IFP-D (disagreements about permission between father and mother). This finding could be related with using severity of depression as a cofactor. In a study by Martin et al., it was found that the effect of family dysfunction on adolescent suicidality was not independent of depression, as this disappeared when adjusted for this factor.[8] King et al. also reported in 1993 a study of 102 adolescent patients which found that family discord (assessed with the *Social Adjustment Inventory for Children and Adolescents*) was not associated with suicidality when adjusted for severity of depression.[9] In 1982, Friedrich et al. applied the *Family Environment Scale* in adolescents with suicidality and found that some family factors, such as cohesion, independence, and organization, could predict suicidal ideation.[20] However, these same factors predicted depression, because of which it could not be concluded that they acted as independent risk factors. Other studies[19] have found that family discord does constitute an independent risk factor for suicidality in adolescent patients, with *OR*=1.5 (95% IC 1.1 a 2.0). Our results support the studies by Martin et al. and King et al., and suggest that family problems do indirectly affect suicidality by means of their effects on depression.[8,9]

The finding on the IFP-D question as the only likely factor associated with suicidality could be important. Inter-family relationships in particular could be more relevant than other factors. Adolescent-parent discord is the most commonly-indicated specific factor responsible for aggregate risk of suicidality.[12] Specific alterations in the adolescent-mother and adolescent-father relationship have also previously been described.[11,19] In fact, in families with adolescents with suicidality, greater levels of depression and perception of family dysfunction have been found from the parents' perspective.[9,13]

Our study does have some limitations. Our n is limited. Furthermore, it used an assessment not previously used in this type of study, which is the IFP. It should be noted that different studies similar to this one[8,9,13] used different tools for family assessment (*Social Adjustment Inventory for Children and Adolescents, McMaster Family Assessment Device, Family Relationship Index*, among others), which makes comparison and generalization of results very complicated. Furthermore, this article did not consider the cognitive development of the subjects, which may generate differences in the expression of depression and anxiety symptoms. On

the other hand, until adolescence, in conditions free of pathology, there is an increase in behavior challenging authority, rapid emotional changes, and impulsive behavior, all of which may influence the results described.[21] Studies should be carried out with more numerous samples which use standardized assessment scales to establish the nature of said discrepancies.

In conclusion, we found that adolescents with MDD and high suicidality are older and have levels of depression and anxiety that are more severe than adolescents with MDD and without suicidality. Family problems assessed by means of the IFP do not seem to be important independent factors that could affect suicidality indirectly by means of their effects on depression.

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Conflict of interest

The authors do not declare any conflict of interest.

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