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Risk factors for suicidal behavior related to depressive and anxiety disorders

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Original article

SUMMARY

Introduction

Suicide is among the most prevalent causes of death in the world. A history of previous suicide attempts is the most important of all risk factors to show suicidal behavior (attempts and completed suicides). The objective of this study is to assess the effect of anxiety disorders, major depressive disorder, and comorbid major depression and anxiety on the risk for suicide attempts.

Method

We recruited 505 patients with a history of suicide attempts and a control group of 277 patients without a history of suicide attempts from three hospitals in Madrid, Spain. We performed a logistical regression analysis using a progressive elimination method, with the presence or absence of a history of suicide attempts as the dependent variable. We included the diagnosis (anxiety, major depression, anxiety comorbid with major depression, and other diagnoses) as independent variables and other risk factors for suicide attempts recognized in the literature.

Results

The regression model correctly classified more than 80% of the patients. Patients with depression (OR=3.4; 95 CI =1.8-4.8) and with anxiety-depression comorbidity (OR=4.3; 95 CI =2.4-7.8) had higher risk for suicide attempt compared to patients with other diagnoses. Patients without children had a higher risk for suicide attempts than those with children (OR=3.8; 95 CI=2.3-6.2), while patients with a family history of suicide had a higher risk than those without it (OR=2.2; 95 CI =1.1-4.5).

Conclusions

In clinical populations, the comorbidity of depression and anxiety is a higher risk factor for suicide attempts than having either condition separately or having other diagnoses. It also seems to be more important than other risk factors, such as family history.

Key words: Anxiety, depression, suicide, attempted suicide.

RESUMEN

Introducción

El suicidio es una de las 10 principales causas de muerte a nivel mundial. La conducta suicida es resultado de la interrelación de factores psicopatológicos (depresión, psicosis, drogas), sociales (aislamiento, situación laboral), biólogicos (heredabilidad del 50%, hipofunción serotoninérgica) y ambientales (sucesos estresantes, situaciones de maltrato). El objetivo de este trabajo es valorar el riesgo de intentos de suicidio con presencia de trastornos de ansiedad, depresión mayor y depresión comórbida con ansiedad.

Método

Se reclutaron 505 pacientes con historia de intentos de suicidio y 277 pacientes sin ella, como controles, en tres hospitales generales de Madrid, España. Se realizó una regresión logística utilizando como variable dependiente la existencia o no de historia de intentos de suicidio, como variables independientes el diagnóstico y los factores de riesgo vinculados a los intentos de suicidio según la literatura médica.

Resultado

El modelo clasificó correctamente el 80% de los pacientes. El riesgo de suicido fue mayor en pacientes con depresión (OR=3.4; IC 95%=1.8-4.8) y con comorbilidad ansiedad-depresión (OR=4.3; IC 95%=2.4-7.8) a diferencia de los pacientes no diagnosticados con éstos. Los pacientes que no tenían hijos presentaron un riesgo de intentos de suicidio mayor respecto a quienes sí los tenían (OR=3.8; IC 95%=2.3-6.2). La edad del paciente menor de 35 años y la historia familiar de conducta suicida incrementó el riesgo de intento de suicidio (OR=2.2; IC 95%=1.1-4.5).

Conclusiones

La comorbilidad depresión-ansiedad es un factor de riesgo para la conducta suicida más importante que estas condiciones por separado u otros diagnósticos, esta asociación confiere mayor riesgo que otros factores como la historia familiar de conducta suicida, el no tener hijos o la edad menor a 35 años. Los clínicos deben prestar atención a pacientes con depresión y ansiedad comórbidas en presencia de factores de riesgo para la conducta suicida.

Palabras clave: Intento de suicidio, suicidio, depresión, ansiedad.

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INTRODUCTION

Suicide is among the most prevalent causes of death worldwide,[1] and it is also one of the most important causes of years of potential life lost.[2] A million people on the planet die from suicide every year. Suicide attempts cause an annual worldwide loss of 20 million *disability-adjusted life years* (DALY). Suicide prevention is a public health priority, but it is limited by a lack of data in order to generate interventions based on scientific evidence.[3] For this reason, identifying groups at risk of attempting suicide is key due to the relationship of these people with completed suicide.[4] In this sense, the most robust predictor of completed suicide is a prior history of suicide attempts.[5] Suicidal behavior is the result of the interaction of various risk factors: demographic, psychopathological, and biological, as well as stressful life events and factors that protect from such behavior (Table 1).[6] Some 90% of people who die from suicide suffer from a psychiatric pathology (major depression, bipolar disorder, alcohol/drug abuse, schizophrenia, and personality disorders). It has been determined that the suicide risk in psychiatric patients is between 2.4 and 23 times higher than the general population.[7] One of the most effective measures for suicide prevention is the correct diagnosis and treatment of mental illness.[8]

Suicide risk in patients diagnosed with major depression is three times higher than in the general population, and it is estimated that 80% of completed suicides exhibit depressive symptoms.

The role of anxiety in suicidal behavior has not been completely clarified; the majority of follow-up studies in clinical populations maintain that between 15%-20% of deaths in patients with anxiety are due to suicide.[9] Epidemiological studies are inconclusive regarding the relationship between anxiety and suicidal behavior.[10] However, anxiety would seem to play a role in suicidal behavior *per se* and as a comorbid symptom.[11]

The objective of this study is to assess the risk of suicide attempts in relation to the presence of anxiety disorders, major depression, and major depression comorbid with anxiety disorders, as well as to identify common risk factors for suicidal behavior in these disorders, in order to estimate their specificity.

METHOD

Sample

Some 782 patients were recruited for the study, 505 of whom had a history of suicide attempts and 277 who did not as controls. They were recruited from the Psychiatry services (emergencies and hospitalization unit) of three Madrid hospitals (Fundación Jiménez Díaz, Hospital Ramón y Cajal, and Hospital Clínica Puerta de Hierro). All patients gave their informed consent, approved in accordance with the 1964 Helsinki Declaration. The assessment protocol was carried out based on the semi-structured interview, the *Columbia Suicide History* Form.[5,12] Regular consensus meetings were held to increase reliability between examiners.

History of suicidal attempts is defined as the presence of "Self-inflicted potentially harmful behavior that does not produce death but for which there is the evident (implicit or explicit) intention to die".[13] This definition is the one used by the *National Institute of Mental Health*.

Assessment instruments

All the patients were assessed by psychiatrists or supervised psychiatry residents with at least two years of train-

Table 1. Risk factors for suicidal behavior (Nock, 2008)[6]

Demographic factors
**** Completed suicide***
• Male sex
• Adolescent or seniors
**** Suicide attempt***
• Female sex
• Young people
• Single people
• Low level of education
• Unemployed
Psychopathological factors
• Mental disorders (90-95 died due to suicide)
• Affective disorders
• Alcohol/drugs
• Personality disorders
• Desperation
• Anhedonia
• Impulsivity
• High emotional reactivity
• Personal history of suicide attempts
Biological factors
• Hereditariness 50%
• Serotonergic hypofunction
Stressful life events
• Family problems
• Partner problems
• Legal problems
• Profession (military, medical, police)
• Perinatal abuse
• Terminal illness
Protecting factors
• Religious beliefs
• Social support
• Pregnancy
• Having children

ing. Diagnoses during their lifetimes were established through the *Mini International Neuropsychiatric Interview* (MINI) for axis I of the DSM-IV,[14] which includes the following anxiety disorders: generalized anxiety disorder, panic disorder, agoraphobia, social phobia (social anxiety disorder), obsessive-compulsive disorder, post-traumatic stress disorder. Socio-demographic variables related to suicidal behavior[6] were included such as age (grouped into three categories: 18-35, 35-65, and over 65), sex, civil status, having children, working situation, and level of education. The presence of childhood abuse or mistreatment was documented, along with family history of suicidal behavior. The IPDE (International Personality Disorder Examination) was used to assess axis II.[15] Impulsivity was assessed with the Barratt Scale, validated in Spanish,[16] using a cut-off value of a total score of 46.5 points, which gives a sensitivity of 75% and a specificity of 70% to detect suicidal behavior.

Details of the protocol used and its psychometric validity can be found at references 12 and 17.

Statistical analysis

Contingency tables were analyzed using the chi squared test in order to check the association between the risk and protective factors and the diagnoses of anxiety and depression.

A logistical regression analysis was later carried out with the progressive elimination method (the likelihood ratio was used as an adjustment criteria for the model). The existence (or not) of a history of suicide attempts was considered as a dependent variable, and the rest of the variables proposed in the study were considered as independent variables. Through the *odds ratio* [OR] provided by the model, this technique creates a probabilistic model that allows an estimation of the risk that the different values of independent variables have on a dichotomous dependent variable (the existence, or not, of suicide attempts). In our case, the use of this technique identifies factors that could be associated with suicide attempts.

RESULTS

The distribution of diagnoses in the sample was: 60 (7.7%) with anxiety disorder, 228 (29.2%) with major depression, 217 (27.7%) with anxiety and major depression, and 277 (35.4%) with other diagnoses (140 with schizophrenia, 87 with drug dependencies, 32 with adjustment disorders, and 18 with eating disorders). Some 552 patients were identified with a previous history of suicide attempts.

Table 2 shows the relationship between diagnoses of anxiety, major depression, and comorbid anxiety and major depression with risk factors for suicidal behavior proposed by Nock (described in Table 1).[6]

The distribution by sex in the diagnoses is statistically different (Chi^2=11.7; gl=3; p=0.008), with a greater proportion in the diagnosis of anxiety or anxiety-depression being present in females. Patients with anxiety or anxiety-depression are slightly younger (greater representation in the <35 age group (Chi^2=17.0; gl=6; p=0.009). In terms of civil status, a lower proportion of single people was found in the group of patients with depression (Chi^2=19.9; gl=9; p= 0.018). No significant differences were found between the four diagnostic groups and the level of education or working situation.

The influence of the diagnosis is clear in the psychopathological factors related to suicide. In terms of drug abuse, patients with anxiety presented a lower proportion of drug consumption (Chi^2=11.2; gl=3; p=0.011). Regarding diagnosis, a small proportion of personality disorders was found (Chi^2=20.4; gl=3; p<0.001). Patients with depression and depression-anxiety were more impulsive (Chi^2=15.8; gl=3; p<0.001). Patients with depression, and particularly those with comorbid depression and anxiety presented a greater proportion of history of suicide attempts (Chi^2=61.0; gl=3; p<0.001). The same is true with a history of family background of suicidal behavior (Chi^2=18.7; gl=3; p<0.001).

The data shows that patients with anxiety and comorbid depression-anxiety have frequently experienced childhood sexual abuse (Chi^2=16.5; gl=3; p=0.01) and emotional abuse (Chi^2=18.7; gl=3; p<0.001). No differences were observed in terms of physical abuse (Chi^2=4.888; gl=3; p=0.180) and sexual abuse (Chi^2=4.477; gl=3; p=0.214) during adulthood.

In terms of protecting factors, patients with other diagnoses had a lower proportion of children, and depressed people had a higher proportion (Chi^2=14.6; gl=3; p=.002).

An analysis was then made of the relationship between factors related to suicide attempts and diagnoses in the subsample of patients with a history of suicide attempts (Table 3). There was an evident relationship between anxiety and an age under 35, and between depression and ages between 35 and 65 (Chi^2=17.1; gl=6; p=.009). Patients with other diagnoses presented fewer personality disorders (Chi^2=10.2; gl=3; p=.017). The presence of family members with suicidal behavior was more frequent in patients with depression and with anxiety-depression (Chi^2=8.3; gl=3; p=.039).

The model obtained with logistical regression showed a good adjustment (Chi^2 Hosmer and Lemeshow =11.147; gl=8; p=.193), correctly classifying 79.3% of the sample with a sensitivity of 91% and a specificity of 38% with a cut-off value of 0.5 in the regression equation. The four variables included in the model were: diagnosis (Chi^2 Wald=35.1; gl=1; p<0.001); having children (Chi^2 Wald=29.9; gl=1; p<0.001); age (Chi^2 Wald=19.4; gl=1; p<0.001); and family history of suicidal behavior (Chi^2 Wald=4.8; gl=1; p=0.029).

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Table 2. Risk factors for suicide and diagnosis of anxiety and/or depression

Type	Variable	Categories	Other diagnosis	Anxiety	Depression	Anxiety and depression
Demographics	• Sex	Woman	151	39	130	149
	χ^2= 11.7		54.5%	65.0%	57.0%	68.7%
	gl= 3	Man	126	21	98	68
	p= .008		45.5%	35.0%	43.0%	31.3%
	• Age	<35	130	35	93	123
	χ^2= 17.0		47.1%	58.3%	40.8%	57.2%
	gl= 6	35-65	129	21	113	83
	p= .009		46.7%	35.0%	49.6%	38.6%
		>65	17	4	22	9
			6.2%	6.7%	9.6%	4.2%
	• Civil status	Single	148	29	92	111
	χ^2= 19.9		59.9%	53.7%	42.4%	52.6%
	gl= 9	Married	57	11	66	63
	p= .018		23.1%	20.4%	30.4%	29.9%
		Divorced	36	11	48	33
			14.6%	20.4%	22.1%	15.6%
		Widowed	6	3	11	4
			2.4%	5.6%	5.1%	1.9%
	• Level of education	Illiterate/elementary	97	18	83	63
	χ^2= 7.6		40.2%	34.0%	39.5%	30.4%
	gl= 6	High school	89	25	84	88
	p= .268		36.9%	47.2%	40.0%	42.5%
		University	55	10	43	56
			22.8%	18.9%	20.5%	27.1%
	• Working situation	Unemployed	80	9	60	71
	χ^2= 10.9		33.8%	17.6%	28.2%	35.3%
	gl= 9	Disability	61	18	57	40
	p= .284		25.7%	35.3%	26.8%	19.9%
		Employed	78	19	80	74
			32.9%	37.3%	37.6%	36.8%
		Retired	18	5	16	16
			7.6%	9.8%	7.5%	8.0%
Psycho-pathology	• History of drug abuse	No history of drug abuse	189	52	163	140
	χ^2= 11.2		68.2%	86.7%	71.5%	64.8%
	gl= 3	History of drug abuse	88	8	65	76
	p= .011		31.8%	13.3%	28.5%	35.2%
	• Personality disorder	No personality disorder	108	22	72	50
	χ^2= 20.4		43.9%	40.0%	33.3%	24.0%
	gl= 3	Personality disorder	138	33	144	158
	p< .001		56.1%	60.0%	66.7%	76.0%
	• Cluster B	No Cluster B	177	35	133	108
	χ^2= 19.4		72.0%	63.6%	61.6%	51.9%
	gl= 3	Cluster B	69	20	83	100
	p< .001		28.0%	36.4%	38.4%	48.1%
	• Impulsivity	No impulses	163	36	103	96
	χ^2= 15.8		58.8%	60.0%	45.2%	44.2%
	gl= 3	Impulses	114	24	125	121
	p< .001		41.2%	40.0%	54.8%	55.8%
	• History of suicide attempts	No suicide attempts	114	17	39	30
	χ^2= 61.0		42.5%	32.1%	17.6%	14.4%
	gl= 3	Suicide attempts	154	36	183	179
	p< .001		57.5%	67.9%	82.4%	85.6%

Table 2. Continued

Type	Variable	Categoríes	Other diagnosis	Anxiety	Depression	Anxiety and depression
Biological factors	• Family history of suicidal behavior	No family history	235	43	176	150
	χ^2=18.7		88.7%	91.5%	80.7%	75.0%
	gl= 3	Family history	30	4	42	50
	p< .001		11.3%	8.5%	19.3%	25.0%
Stressful life events	• Physical childhood abuse	No	220	43	180	161
	χ^2= 7.8		89.1%	84.3%	82.9%	79.7%
	gl= 3	Abused	27	8	37	41
	p= .052		10.9%	15.7%	17.1%	20.3%
	• Sexual childhood abuse	No	236	42	199	174
	χ^2= 16.5		95.5%	82.4%	91.7%	86.1%
	gl= 3	Abused	11	9	18	28
	p=0.01		4.5%	17.6%	8.3%	13.9%
	• Parental neglect	No	228	43	203	183
	χ^2= 4.8		92.3%	84.3%	93.5%	92.0%
	gl= 3	Neglect	19	8	14	16
	p= .448		7.7%	15.7%	6.5%	8.0%
	• Emotional abuse	No	211	38	178	140
	χ^2= 18.7		85.4%	74.5%	82.0%	69.7%
	gl= 3	Abused	36	13	39	61
	p< .001		14.6%	25.5%	18.0%	30.3%
	• Physical adult abuse	No	223	43	188	168
	χ^2= 5.6		90.7%	84.3%	86.6%	83.6%
	gl= 3	Abused	23	8	29	33
	p= .150		9.3%	15.7%	13.4%	16.4%
	• Sexual adult abuse	No	237	48	208	185
	χ^2= 4.2		96.0%	94.1%	95.9%	92.0%
	gl= 3	Abused	10	3	9	16
	p= .270		4.0%	5.9%	4.1%	8.0%
Protecting factors	• Children	Without children	157	33	103	117
	χ^2= 14.6		64.9%	63.5%	47.7%	56.8%
	gl= 3	With Children	85	19	113	89
	p= .002		35.1%	36.5%	52.3%	43.2%
	• Values opposing suicide: religion, family, etc.	Would avoid attempting suicide	42	14	24	33
	χ^2= 16.5		73.7%	70.0%	57.1%	57.9%
	gl= 3	Some opposing values	6	4	8	14
	p= .001		10.5%	20.0%	19.0%	24.6%
		Minimal or indeterminate	9	2	10	10
			15.8%	10.0%	23.8%	17.5%

The *odds ratios* (OR) for these variables (Table 4) show that depression increased suicide risk threefold in comparison to other diagnoses (OR=3,4; 95 CI =2.0-5.6), and up to four times with comorbid anxiety-depression (OR=4.3; 95 CI =2.4-7.8). Not having children increased the risk of suicide attempts by almost four times (OR=3.8; 95 CI =2.4-6.3). Finally, a family history of suicide doubled the risk (OR=2.2; 95 CI=1.1-4.5).

DISCUSSION

The main finding of this study is that in clinical populations, comorbid depression-anxiety is the most important risk factor for suicidal behavior, in contrast to these conditions separately and to other diagnoses.

Another important finding is that patients with suicide attempts and diagnoses other than anxiety and depression

Table 3. Significant associations between risk factors for suicide attempts and diagnostic group in patients with a history of suicide attempts

Type	Variable	Categoríes	Other diagnosis	Anxiety	Depression	Anxiety and depression
Demographics	• Age	<35	88	27	82	105
	χ^2= 17,1		57.5%	75.0%	44.8%	59.3%
	gl= 6	35-65	58	7	87	66
	p= .009		37.9%	19.4%	47.5%	37.3%
		>65	7	2	14	6
			4.6%	5.6%	7.7%	3.4%
Psycho-pathology	• Personality disorder	No personality disorder	48	9	44	31
	χ^2= 10.2		33.1%	26.5%	24.6%	17.7%
	gl= 3	Personality disorder	97	25	135	144
	p= .017		66.9%	73.5%	75.4%	82.3%
	• Cluster B	No Cluster B	92	18	100	84
	χ^2= 7.6		63.4%	52.9%	55.9%	48.0%
	gl= 3		53	16	79	91
	p= .05	Cluster B	36.6%	47.1%	44.1%	52.0%
Biological factors	• Family history of suicidal behavior	No family history	128	29	142	131
	χ^2=8.3		84.8%	90.6%	78.9%	74.0%
	gl= 3	Family history	23	3	38	46
	p= .039		15.2%	9.4%	21.1%	26.0%

present a greater family burden of suicidal behavior than patients with anxiety and/or depression. These patients also presented more personality disorders (especially *cluster* b [Table 3]). The most important risk factor for suicide attempts was comorbid depression and anxiety (OR=4.3; 95 CI=2.4-78) (Table 4). This relationship is higher than other risk factors such as not having children, family history of suicidal behavior, or age. Anxiety disorders (OR=1.4; 95 CI=0.6-3.1) increased the risk of suicide attempts with respect to other mental disorders, excluding depression.

A *National Comorbidity Survey* of 8 090 people representing the U.S. population between 15 and 54 years old used a semi-structured interview for the DSM-III-R and CIE-10 criteria. Analysis of comorbid major depression and panic disorder in this NCS study showed that comorbidity of panic disorder with depression was 55.6%; in other words, more than half of patients diagnosed with panic disorder also had major depression. This did not occur in reverse (only 11.2% of those diagnosed with major depression also had comorbid panic disorder).

With respect to suicide attempts throughout a lifetime, controlling sociodemographic factors, prevalence was greater in patients with comorbid depression-panic disorder (25.5%) than in major depression (14.8%) or

Table 4. Logistical regression for personal history of suicide attempts

					OR 95 CI	
	χ^2 Wald	gl.	Sig.	OR	Low	High
Depression/anxiety (reference other diagnoses)	35.087	3	.000			
• Anxiety	.650	1	.420	1.396	.620	3.142
• Depression	21.178	1	.000	3.358	2.005	5.626
• Anxiety and depression	23.632	1	.000	4.335	2.400	7.832
Having children (reference no children)	28.948	1	.000	.260	.159	.425
Age (reference >65)	19.372	2	.000			
• <35	8.060	1	.005	3.523	1.477	8.404
• 35-65	.370	1	.543	1.289	.569	2.920
Family history of suicidal behavior (reference no relatives with suicide attempts)	4.765	1	.029	2.213	1.085	4.517

panic disorders alone (5.2%). It was therefore concluded that the high figures of suicide attempts in patients with panic disorder was due to comorbidity with depression.[18] Borges at al. (2010)[19] partially reported these findings in a replica of the *NCS* in Mexico, where anxiety disorders increased the risk of attempted suicide, but to a lower level than any other psychiatric diagnosis, which is compatible with our findings. However, anxiety disorders, followed by affective disorders, are those which confer the greatest risk in converting suicidal ideation into planning and then into attempt. This idea reinforces our results and fits with a prediction model for re-attempting suicide carried out in Spanish and French samples, where anxiety is the most important diagnosis for the repeat of suicidal behavior.[20] Fawcett's[11] models of suicidal behavior establish two types of risk factor: acute, with a duration of less than one year (apathy, anxiety, and insomnia), and chronic, with a duration greater than a year.

The investigation of comorbidity in outpatients encapsulates how anxiety disorders give potential to suicidal tendencies in depressive patients, increasing suicidal ideation and desperation.[21] It also maintains that patients with panic disorder do not carry out suicidal intentions in the absence of other affective disorders.[22] It has been found that the occurrence of the first panic attack precedes 74% of suicide attempts in patients treated at anxiety clinics.[22]

Some authors have interpreted that the role of anxiety disorders can be masked by other psychopathological dimensions (aggressiveness and impulsivity) and in these samples, it is interpreted as a factor of confusion with other risk factors in the same way as drugs and alcohol are.[10] Our logistical regression model contradicts this vision, by eliminating them; on the other hand, in our sample, the distribution of drugs and tobacco consumption (which has been used as an indirect marker for other drugs) is in the same proportion in the four diagnostic groups. These results are interesting, especially in the Mexican context, where anxiety disorders are the most prevalent.[16]

The limitations of this study are those of any control case study. The controls (patients with diagnoses other than anxiety and depression) could be a group that is too heterogeneous. The size of the group of patients with anxiety is small (n=42) in relation to the other groups, although still sufficient to carry out the analysis. The results can be extrapolated to similar clinical populations.[23]

The primary conclusion of this study is that in clinical population, comorbid depression-anxiety is the most important risk factor for suicidal behavior, more important than these conditions alone and other diagnoses. It also seems to be more important than other factors such as a family history of suicidal behavior or adverse conditions in early life. In order to verify these results, (prospective) follow-up studies would be necessary in clinical samples that definitively establish the risk that patients with comorbid anxiety and depression have of attempting suicide and of dying from such attempts.[24]

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REFERENCES

1. World Health Organization: Preventing suicide: a resource for general physicians. Ginebra: 2000. Available at: http://www.who.int/mental_health/media/en/56.pdf
2. World Health Organization: Revised Global Burden of Disease (GBD) 2002 Estimates. Ginebra: 2002. Available at: http://www.who.int/healthinfo/bodgbd2002revised/en/index.html
3. Summary of National Strategy for Suicide Prevention: Goals and objectives for action. (Substance abuse and mental health services administration website). Available at: http://mentalhealth.samhsa.gov/publications/allpubs/SMA01-3518/default.asp#goal11. (Access date: January 27, 2007).
4. Baca-Garcia E, Perez-Rodriguez MM, Keyes KM, Oquendo MA et al. Suicidal ideation and suicide attempts in the United States: 1991-1992 and 2001-2002. Mol Psychiatry 2010;15(3):250-259.
5. Miret M, Nuevo R, Morant C, Sainz-Cortón E et al. Calidad de los informes médicos sobre personas que han intentado suicidarse Rev Psiquiatr Salud Ment (Barc.) 2010;3(1):13-18.
6. Nock MK, Borges G, Bromet EJ, Cha CB et al. Suicide and suicidal behavior. Epidemiol Rev 2008;14;30(1):133-154.
7. McNamee JE, Offord DR. Prevention of suicide. En: Canadian task force on the periodic health examination. Canadian guide to Clinical Preventive Health Care. Ottawa: Health Canada; 1994; pp.456-467.
8. Mann JJ, Apter A, Bertolote J, Beautrais A et al. Suicide prevention strategies: a systematic review. JAMA 2005;26;294(16):2064-2074.
9. Noyes R. Suicide and panic disorder: a review. J Affect Disord 1991;22 (1-2):1-11.
10. Placidi GP, Oquendo MA, Malone KM, Brodsky B et al. Anxiety in major depression: relationship to suicide attempts. Am J Psychiatry 2000;157(10):1614-1618.
11. Fawcett J, Bush KA, Jacobs D, Kravitz HM et al. Suicide a four pathway clinical-biochemical model. Ann N Y Acad Sci 1997;836:288-301.
12. Baca-García E, Oquendo MA, Saiz-Ruiz J, Mann JJ et al. A pilot study on differences in aggression in New York City and Madrid, Spain, and their possible impact on suicidal behavior. J Clin Psychiatry 2006;67(3): 375-380.
13. O'Carroll PW, Berman AL, Maris RW, Moscicki EK et al. Beyond the tower of Babel: a nomenclature for suicidology. Suicide Life Threat Behav 1996;26(3):237-235.
14. Sheehan DV, Lecrubier Y, Sheehan KH, Amorim P et al. The Mini-International Neuropsychiatric Interview (MINI): the development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. J Clin Psychiatry 1998;59(Suppl 20):22-33.
15. Blasco-Fontecilla H, Baca-Garcia E, Dervic K, Perez-Rodriguez M et al. Severity of personality disorders and suicide attempt. Acta Psychiatrica Scandinavica 2009;119:149-155.
16. Oquendo MA, Baca-García E, Graver R, Morales M et al. Spanish adaptation of the Barrat impulsiveness scale (BIS). European J Psychiatry 2001;15(3):147-155.18.
17. García-Nieto R, Parra Uribe I, Palao D, Lopez-Castroman J et al. Brief Suicide Questionnaire. Inter-rater reliability. Revista Psiquiatría Salud Mental 2012;5(1):24-36.
18. Kessler RC, Borges G, Walters EE. Prevalence of and risk factors for lifetime suicide attempts in the National Comorbidity Survey. Arch Gen Psychiatry 1999;56:617-626.
19. Borges G, Nock MK, Medina-Mora ME, Hwang I et al. Psychiatric disorders, comorbidity, and suicidality in Mexico. J Affect Disord 2010; 124(1-2):98-107.
20. Lopez-Castroman J, Perez-Rodriguez Mde L, Jaussent I, Alegria AA et al. European Research Consortium for Suicide (EURECA). Distinguishing the relevant features of frequent suicide attempters. J Psychiatr Res 2011;45(5):619-625.

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21. Rudd MD, Dahm PF, Rajab MH. Diagnostic comorbidity in persons with suicidal ideation and behavior. Am J Psychiatry 1993;150(6):928-934.
22. Warshaw MG, Dolan RT, Keller MB. Suicidal behavior in patients with current or past panic disorder: five years of prospective data from the Harvard/Brown anxiety research program. Am J Psychiatry 2000;157(11):1876-1878.
23. Baca-Garcia E, Perez-Rodriguez MM, Diaz Sastre C, Saiz-Ruiz J et al. Suicidal behavior in schizophrenia and depression: a comparison. Schizophr Res 20051;75(1):77-81.
24. Lepine JP, Chignon JM, Teherani M. Suicide attempts in patients with panic disorder. Arch Gen Psychiatry 1993;50(2):144-149.

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