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Code 100: a study on suicidal behavior in public places

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Every day, the emergency departments in our country receive a large number of patients that have thought about or attempted suicide. Unfortunately, these patients are very often reluctant to maintain a regular follow-up in mental health services. In this study we describe an original program to encourage assessment and treatment of suicidal patients, particularly when they receive medical treatment in public places. We summarize the application of the program and compare the results of a specific follow-up between two groups of patients: suicidal patients assessed by emergency services in public places and all other suicidal patients assessed in the emergency department of a tertiary hospital.

Keywords: Suicide attempts, Follow-up, Psychosocial crisis, Emergencies

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Código 100: un estudio sobre la conducta suicida en lugares públicos

Los servicios de urgencias de nuestro país reciben diariamente una gran cantidad de pacientes que han realizado un intento de suicidio o refieren ideación suicida. Desafortunadamente, estos pacientes son a menudo reticentes a mantener un seguimiento en salud mental. En este estudio describimos un programa pionero para favorecer la evaluación y el tratamiento de los pacientes suicidas y en particular de aquellos que son atendidos por los servicios de emergencia fuera de sus domicilios. Resumiremos la aplicación del programa y compararemos los resultados de un seguimiento específico entre los pacientes suicidas atendidos por los equipos de emergencia en lugares públicos frente al resto de pacientes con riesgo suicida evaluados en el servicio de urgencias de un hospital terciario.

Palabras clave: Intentos de suicidio, Seguimiento, Crisis psicossocial, Urgencias

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INTRODUCTION

In Spain, suicide has been the first cause of unnatural death and one of the main causes of death in young adults since the year 2008.¹ There are no reliable calculations on the total number of suicide attempts in Spain, although a recent study has indicated a gross annual rate of 255 suicide attempts attended in health centers per 100,000 inhabitants in the Madrid Community.² If we apply this number directly to the national population, it would mean almost 120,000 suicide attempts per year, without including those cases that do not come to the healthcare services or possible underestimation which in neighboring countries has been calculated to be up to 20%.³ The prevalence-life of suicide attempts in Spain is 1.5%, the risk of suicidal behaviors being higher in women, young persons and those with low educational level.⁴ Suicidal behavior, directly or indirectly, causes social dysfunction, use of healthcare facilities and incapacity, bringing about enormous social and economical costs.⁵ It is important to remember that, although previous suicide attempts are the best predictor of repetition and completed suicide,⁶ adequate prevention and treatment can reduce the risk.⁷

On the level of secondary prevention of suicidal behavior, interventions and risk population have obtained variable results. In general, support strategies without intervention such as sending crisis letters, personalized postcards or telephone calls have a limited effect on the reduction of risk of new suicidal behaviors,⁸⁻¹⁰ although there are exceptions.¹¹ Other methods based on intensive interventions focused on the patient or having the availability of crisis structure have been more effective.¹²⁻¹⁶ In fact, a recent review of suicide rates in the United Kingdom between 1997 and 2006 found greater decrease in risk in those centers that had created permanently available crisis units.¹⁷ The emergency services are most often the entry point to the healthcare system of suicidal patients¹⁸ and in this sense, they represent a unique opportunity to implement intervention programs. Up to now, these interventions have been mainly based on the establishment of intensive follow-up after discharge with the duration of 12 to 18 months.^{15,19} Early identification of patients with

high suicidal risk makes it possible to reduce repetition of suicide attempts and frequency of completed suicides.^{11,20-22}

In Spain, few programs on suicide prevention have been evaluated. In the year 2005, Tejedor et al. initiated a monitoring program of patients at risk. Compared with a control group, they found that the patients included in the program consulted more often due to suicidal ideation, but carried out fewer suicide attempts and had fewer hospital admissions.²³ Recently, Cebria et al.¹¹ described the implementation of a telephone follow-up program for suicide patients that has reduced the relapse rate by 8% compared to the general population and also regarding the data of the center in the previous year.

In this article, we have described the initiation of a collaboration program between the Psychiatry Department of the Fundación Jiménez Díaz (FJD) and SAMUR-Civil Protection (Emergency Service-Civil Protection) (hereinafter SAMUR) for the prevention of suicide behavior in the Community of Madrid (Code 100). This program favors the evaluation of suicide risk after emergency situations in public places to facilitate treatment and minimize abandonment.

METHODOLOGY

Patients

There are two access routes to the Code 100 program (Figure 1). One is during any intervention of SAMUR, which

only acts on public streets and public sites, regarding suicide ideation or behavior. The SAMUR team uses the International Neuropsychiatric Interview (MINI) suicide model and the SAD PERSONS scale²⁴ to evaluate suicide risk in the emergency site, in accordance with "psychiatric emergency procedure" (www.madrid.es/samur). After evaluation, those patients requiring it are transferred to the FJD Emergency Department. Before their transfer, the responsible persons of psychiatric emergencies are contacted by telephone, informing them about the suicidal behavior and the clinical status of the patient. In the second place, any patient who has attempted suicide and is evaluated by the FJD Emergency Department can also enter into the program in this phase. These patients can access the emergency department on their own petition or after a health care intervention in their homes.

Evaluation of suicide risk in emergency department

Inclusion criteria: 1) being over 18 years of age, 2) having suicidal ideation or behavior in the initial evaluation and 3) agreeing to participate, with signature on informed consent. Once in the Emergency Department, the subjects who enter the program undergo a protocolized evaluation, including the collection of: 1) sociodemographic variables, 2) characteristics of suicidal behavior, 3) personal and family background of mental illness and suicide behavior, 4) a questionnaire on life experiences (Brugha),²⁵ 5) Beck Scale of Suicidal Ideation,²⁶ and 6) the Spanish version of the Barratt

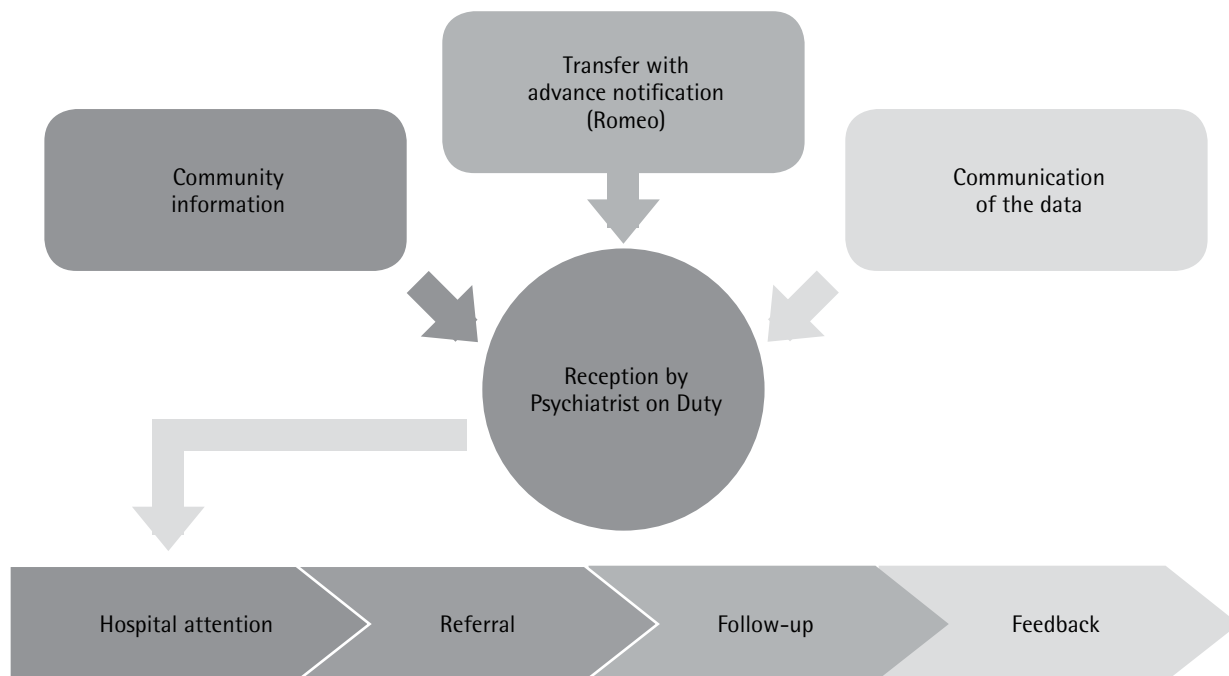


Figura 1 Code 100 program action plan. Romeo: SAMUR On-Call Psychologist

Impulsiveness Scale.²⁷ The MINI International Neuropsychiatric Interview²⁸ was applied for the diagnostic evaluation on Axis I. To evaluate the pathology on Axis II, the Spanish version of the International Personality Disorders Examination (IPDE), DSM-IV version was used.²⁹ All the questionnaires are available on websites and can be applied through internet (www.assessingsuicide.com). This procedure has been approved by the FJD ethics committee.

Procedure

Making the clinical decision to admit, discharge or transfer the patient was supported by the risk evaluation according to the usual procedure. In any case, after hospital discharge, the patient was offered the possibility of a first outpatient visit within 72 hours in the Moncloa Mental Health Center. If the patient was already being followed-up or preferred to be seen in another site, telephone contact was only maintained, this being to assure that the attention was received as well as transfer of information on the patient's clinical condition.

Specialized outpatient care has two primary functions: 1) ensure continuity of cares and 2) ensure adequate and early treatment of the mental disease. The responsible psychiatrist coordinates the treatment plan with other units (clinical psychology, nursing, social work) and adjusts the frequency of sessions based on the patient's clinical status. Furthermore, weekly group therapy is established with orientation towards improving behavior control in a subgroup of patients with impulsive traits. The intensive or local outpatient care program lasts from six months to one year. Following this period, transfer to the usual mental health circuit is assured.

Telephone follow-up

Simultaneously, telephone follow-up of the patients who have been seen within the program is performed, independently of the out-patient care. This follow-up is oriented towards detecting new suicidal behaviors and is performed using a contact program at 72 hours, one month, six months and one year of having had suicidal ideation or behavior. The administrative personnel in charge of contacting the patients have been trained to collect information on suicidal behaviors and on follow-up in mental health, and to favor continuity of cares of the patients.

Statistical analysis

We compared the patients admitted to the program through SAMUR attention with those admitted on demand

in the hospital using the Chi² test for categorical variables and analysis of the variance for quantitative variables. The significance level was established at $p < 0.05$. All the analyses were performed using the Social Package for Statistical Sciences v20.0.

RESULTS

Sample description

During the first 10 months, 110 patients entered the Code 100 program after an intervention by SAMUR (SAMUR group). Eighty three patients more were referred to the program from different units of the FJD (basically emergency). Of the 193 patients, four refused to participate and did not continue follow-up. Mean age of remaining 189 patients was 40.7 at the time of evaluation (SD=14.2) and the majority were men (103/189; 54.5%). A total of 115 patients completed the evaluation protocol. Of these, 35 patients had at least one new suicide attempt in the next six months (18.5%), many of them in the first three days (11/35) or in the first month (23/35) after evaluation. Five patients died during follow-up, two due to suicide attempt, the other three due to unconfirmed causes (information not available on death certificate).

Out of all the sample, 96 patients (83.5%) were not being treated (psychopharmaceuticals or therapy) at the time they entered the program. After the evaluation interview, 87 patients did not want to continue in the program or could not be contacted (87/189; 46%).

Comparison between suicide patients according to origin of the attention

Table 1 shows detailed information about the demographic variables analyzed. A significant association was found between level of monthly income lower than 500 Euros and place of attention ($\chi^2=0.76$; $gI=1$; $p=0.05$). The SAMUR group reported lower monthly income. No significant differences were found in relation with place of attention compared with gender, civil status, work status or educational level.

Regarding clinical variables, the patients from the SAMUR group more often rejected follow-up in mental health or could not be contacted ($\chi^2=13.54$; $gI=1$; $p=0.01$) and showed a statistically significant tendency towards diagnosis of substance abuse disorders ($\chi^2=3.37$; $gI=1$; $p=0.066$) versus the remaining patients. The SAMUR group also had significantly higher scores on the SAD PERSONS scale that measures suicide risk ($\chi^2=5.480$; $gI=1$; $p=0.019$). Without this being significantly different, this group had higher scores on the RRRS Rescue Subscale ($F=3.711$; $gI=1$;

Table 1		Comparison of clinical and demographic characteristics of suicide patients according to origin of attention ($p < 0.1$ indicated in bold)				
Place of attention	SAMUR n (%) or Mean \pm SD	Other n (%) or Mean \pm SD	Statistics			
			χ^2/F	gl	p	
Demographic factors						
Gender (women)	22 (45.8)	35 (52.2)	0.46	1	0.50	
Age	38.1 \pm 13.0	41.0 \pm 14.1	1.29	1	0.26	
Income (<500 Euros/month)	20 (46.5)	14 (21.2)	0.77	1	0.005	
Civil status (with partner)	37 (77.1)	47 (70.1)	0.68	1	0.41	
Work status (inactive)	32 (66.7)	39 (59.1)	0.68	1	0.41	
Education level (not greater than secondary)	27 (56.2)	27 (41.5)	4.39	2	0.11	
Clinical characteristics						
Without current treatment	37 (77.1)	59 (88.1)	2.44	1	0.12	
Follow-up	24 (53.3)	50 (86.2)	13.54	1	0.001	
Diagnoses (MINI)						
Major depression episode	24 (51.1)	34 (52.3)	0.02	1	0.89	
Dysthymic Disorder	8 (17.0)	14 (21.5)	0.35	1	0.55	
Anxiety Disorder	14 (29.8)	19 (29.2)	0.00	1	0.95	
Bipolar Disorder	3 (6.4)	9 (13.8)	1.59	1	0.21	
Psychotic Disorder	6 (12.8)	4 (6.2)	1.47	1	0.23	
Current consumption of alcohol	10 (21.3)	14 (21.5)	0.00	1	0.97	
Current consumption of substances	8 (17.0)	4 (6.2)	3.37	1	0.066	
Characteristics of suicide behavior						
Violent method	10 (20.8)	8 (11.9)	1.68	1	0.20	
Repetition						
72 hours	2 (4.4)	3 (5.7)	0.07	1	0.78	
1 month	5 (11.9)	1 (2.1)	3.47	1	0.062	
6 months	4 (13.3)	3 (8.1)	1.10	2	0.58	
SAD Persons	17 (35.4)	11 (16.4)	5.48	1	0.019	
RRRS rescue	11.5 \pm 2.5	12.5 \pm 2.0	3.71	1	0.057	
RRRS risk	6.1 \pm 1.2	5.7 \pm 1.2	1.73	1	0.19	
SSI Total	13.2 \pm 8.9	13.2 \pm 8.5	0.00	1	0.99	
SIS Total	10.2 \pm 6.0	9.3 \pm 6.6	0.36	1	0.55	

RRRS: Risk-rescue rating scale of Weisman-Worden; SSI: Scale for suicide ideation of de Beck; SIS: Suicide Intention Scale of Beck; MINI: International Neuropsychiatric Interview.

$p=0.057$) and a higher incidence of new suicide attempts during the first month of follow-up ($F=3.473$; $gl=1$; $p=0.062$) than the rest of the patients. There were no significant differences between sites of attention regarding any other diagnosis or clinical characteristic.

Regarding the analysis of personality disorders, the patients from the SAMUR group more frequently had background of diagnosis on axis II ($\chi^2=4.327$; $gl=1$; $p=0.038$). Furthermore, the SAMUR group showed a non-significant statistical tendency to lower levels of self-control in

accordance with the BIS scale ($F=3.164$; $gl=1$; $p=0.078$). However, there were no more differences between the groups regarding other subscales of BIS or personality disorder at the time of evaluation in accordance with the IPDE (data not included).

CONCLUSIONS

In this study, we describe the implementation of an evaluation and follow-up program for suicide patients using

the Emergency Department of a tertiary hospital. One of the characteristics of this program is the enrolment of patients attended by SAMUR in public places, a population that could be especially vulnerable and that has not been evaluated in previous studies.

In fact, our results confirm an increase in suicide risk in the group of patients attended by SAMUR. The individuals of this group have greater risk of suicide according to the SAD PERSONS scale and less adherence to follow-up than the rest of the suicide patients. Furthermore, they showed non-significant statistical tendencies to take greater precautions to prevent rescue (RRRS rescue subscale) and to repeat a new suicide attempt in the month following the evaluation. The backgrounds of personality disorders, also associated with the SAMUR group, could increase the risk of suicide behaviors^{30,31} and the severity of the suicide attempt.³²⁻³⁴ On the other hand, the interventions for suicide risk in public places frequently detected persons having low social-economic level, who could suffer social exclusion and susceptibility. However, we did not find psychopathological differences among these patients and the rest of the sample, except a tendency to non-alcoholic substance abuse/dependence. As a whole, the intervention on the public road, less adherence to follow-up and low social-economic level suggest a situation of psychosocial crisis. The increase in risk of suicide has been related with factors such as social isolation, unemployment, lower education level and poverty.³⁵⁻³⁸

The program considered a six month follow-up period corresponding with the period of greater risk of repetition of suicide attempt according to different studies.³⁹⁻⁴² A total of 74 patients (64.3%) out of the whole sample (n=115) analyzed responded to the six month follow-up. Of these, 2 (1.7%) committed suicide. According to these data, the response to follow-up had comparable results to those reported in other programs, this varying from 25% to 70%.^{13,23,43,44} However, the rate of completed suicides was slightly higher to that described in other methodologically similar studies, which ranged from 0.9 to 1.3%.^{23,43,45} The special vulnerability of our sample could explain this slight increase.

Our study has some limitations associated to the sample size. This suggests that some of the statistical tendencies found could be confirmed by increasing the number of participants. In addition, the non-participation of many patients in the follow-up made it impossible to verify the impact of the interventions carried out. Some previous studies have already indicated that the patients who appear to be more vulnerable during attention in emergencies due to a suicide attempt frequently abandon treatment.^{11,46-48} On the contrary, standing out among the strengths of the study is the systematic evaluation of the patients within the context of a clinical program of risk reduction. The evaluation of suicide risk is a fundamental part of psychiatric emergen-

cies, but these are often performed in an incomplete way according to the clinical reports.⁴⁹ The reasons that support the use of scales for the evaluation of suicide should be kept in mind: 1) they serve as reference and increase the completeness of the evaluation,⁵⁰ especially among specialists who are in training;⁵¹ 2) they increase capacity to predict new suicide behaviors;⁵² and 3) they provide a legal support to the evaluation of risk.

Prevention programs are effective,⁷ but improvement of the resources require that these program focus on especially vulnerable subpopulations. Although new studies are needed to confirm our results, the origin of the attention can make it possible to identify early a high risk population.

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