Do patients with suicidal ideation differ from those with suicidal behavior in sociodemographic and clinical variables?

¿Difieren los pacientes con ideación suicida de aquellos con comportamiento suicida en variables sociodemográficas y clínicas?

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ABSTRACT

This observational, analytical, cross-sectional, and prospective study (n=64) differentiates sociodemographically and clinically between two groups (SI and SB) aiming to establish patient profiles. Unmarried women aged 33.39 years (SI) and 28 years (SB), urban residents without children, often students or workers in less specialized roles, identified as middle class. More than 60% of the SI and 83% of the SB received psychopharmacological treatment and outpatient care but were never hospitalized. SI presented onset of suicidal ideation at 26, SB at 23, with 62% of SB before the age of 18. 86.4% of SI and 90% of SB lacked family history of suicide, however, 80% of SI had a family history of mental illness versus 36% of SB. Planning and ideation before attempts increased the risk of severity. Our findings underscore the need for specific prevention and intervention for this population.

KEYWORDS

Suicidal thoughts; Suicidal ideation; Suicidal behavior; Sociodemographic profiles; Clinical profiles.

RESUMEN

Este estudio observacional, analítico, transversal y prospectivo (n=64) diferencia sociodemográfica y clínicamente dos grupos (SI y SB) pretendiendo establecer perfiles de pacientes. Mujeres solteras de 33,39 años (SI) y 28 años (SB), residentes urbanas sin hijos, a menudo estudiantes o trabajadoras en roles menos especializados, identificadas como de clase media. Más del 60% de los SI y el 83% de los SB recibieron tratamiento psicofarmacológico y atención ambulatoria pero nunca hospitalización. SI presentó inicio de ideación suicida a los 26, SB a los 23, con un 62% de SB antes de los 18. El 86,4% de SI y el 90% de SB carecían de antecedentes familiares de suicidio, sin embargo, 80% de SI tenía antecedentes familiares de enfermedad mental versus el 36% de SB. Planificación e ideación antes de los intentos aumentaron el riesgo de severidad. Nuestros hallazgos subrayan la necesidad de prevención específica e intervención para esta población.

PALABRAS CLAVE

Pensamientos suicidas; Ideación suicida; Comportamiento suicida; Perfiles sociodemográficos; Perfiles clínicos.

Introduction

Suicide is a major health concern worldwide. According to recent data from the World Health Organization (WHO) in 2022, it is responsible for approximately 800,000 deaths annually, being the fourth leading cause of death in individuals under the age of 35. While the WHO aims to reduce suicide deaths by a third by 2030, the COVID-19 pandemic has had a devastating impact on mental health, increasing even more the rates of suicide (Ammerman et al., 2021). Furthermore, recent research has revealed that suicidal thoughts were present in approximately 11.84% of the population during the COVID pandemic (Dubé et al., 2021), in Spain, suicide rates exceeded 4,000 for the first time in 2022 (Observatorio del Suicidio en España 2021, s. f.), and is particularly concerning that these numbers have risen among vulnerable populations, including young people with mental health issues (Berardelli et al., 2021, Galbraith et al., 2021). Moreover, prior to committing suicide, individuals use to experience multiple previous attempts, associated with suicidal thoughts (Wang et al., 2020).

Suicidal ideation (SI) is a concept that includes different stages of the desire to die, from isolated passive ideas of death to the firm and elaborate desire to want to kill oneself. On the other hand, suicidal behavior (SB) includes all the actions that the individual performs to die, including suicidal acts per se. Some authors have recently described the prevalence of suicide by differentiating between SI and SB. In a meta-analysis of 54 studies, Dubé et al. (2021) found that the event rate for suicidal ideation in clinical and community samples was 10.81%; in turns, rates for suicide attempts and self-harm rates where superior in the clinical samples rating the 4.68% and 9.63%, respectively.

Regarding the sociodemographic profile of these patients, a recent study found the following factors, from most related to least related to consumed suicide: social isolation, unemployment, low socio-economic status, being single, low income, living alone, individuals who do not adhere to a specific religious belief, and having no children (Favril et al., 2022). Other recent studies have shown that certain sociodemographic factors increase the risk of suicide, such as being a young woman from democratic countries (Dubée et al., 2021) or being young men with more than three risk factors (Ma et al., 2022). Additionally, being a young person between the ages of 11 and 21 and a university student has been found to be a risk factor for having suicidal thoughts, ideation, and self-harm (Shobhana & Raviraj, 2022). However, despite the importance of the forenamed sociodemographic variables as significant risk factors, clinical variables have been described as the most relevant ones, such as being previously diagnosed with a psychiatric illness. 71% of those who died by suicide had a psychiatric diagnose, being mayor depression the most frequent diagnosis, followed by borderline personality disorder, schizophrenia and substance use disorders, including alcohol (Favril et al., 2022, Berkelmans et al., 2021).

Other clinical variables that have been strongly associated with higher risk of suicide are having a previous attempt, increasing the

risk especially during the first year following (Berardelli et al ., 2020) and having discharged from a mental health unit, being the risk in this case maintained higher during the first two years following their release (Kotrbová et al., 2017). Accordingly, being a survivor confers more risk of suicide, but also being a suicide-loss survivor (Oexle & Rüsch., 2018) since familiar clustering of suicidal behaviors supposes an increment of suicidal behavior, and not only when there is a family history of suicide (Bridge et al., 2015, McGirr et al., 2009, Tidemalm et al., 2011) but even when there is a family history of psychiatric illness (Qin et al., 2002). Importantly, the feeling of hopelessness per se is closely related to suicidal ideation or behavior (Ribeiro et al., 2018, Mitjans & Arias., 2012) and it is worthy to highlight that around 20% of people who die by suicide did not have a previous diagnosis or a history of contact with mental health units, nor did they belong to a clinical sample.

Given that SI can be the prelude to SB (Wang et al., 2019) and this type of behavior puts the patient at risk of dying by suicide, it makes sense at a preventive level to establish the profile of patients with SI and SB, and to determine which aspects of suicidal ideation put the patient at greater risk of attempting suicide.

Patients suffering from suicidal thoughts and behavior are often attended in the emergency departments. A recent study exploring the profiles of these patients, stated that those who attempted suicide, were patients with a psychiatric history, being the principal method the drug-overdose, by using with their own usual psychiatric medications. Although this method is considered as low lethality, it should be taken seriously due to its high prevalence, and the fact that may potentially escalate to higher-risk methods, ultimately resulting in suicide. Over-ingestion of medication is comparatively less harmful than other methods (such as fire guns or defenestration), mainly due to the high dosage required to cause significant somatic damage, especially with sedative drugs. However, almost 70% of attempters had more than one previous attention in the emergency department for a suicide attempt, and their suicide methods had been changed to increase the suicide success rate (Yeon et al., 2015). The main objective of this study is to establish the clinical and sociodemographic differences between two groups of patients from the suicide prevention program of the Universitary Hospital Complex of Albacete, the first group with suicidal ideation but not attempts and the second with suicidal behavior (suicide attempts, self-inflicted lesions).

Consistent with the latter perspective, we hypothesized that the sociodemographic and clinical profiles of patients with suicidal ideation and suicidal behavior will be in line with the current literature; young women or men, single, students living with their families, with previous psychiatric pathology and undergoing treatment. Patients with suicidal behavior and ideation will have similar profiles, but those with suicidal behavior will require more attention in mental health units or have previously consulted with suicidal thoughts. On the other hand, among patients who have presented suicidal behavior, those with prior SI

and premeditation or planning of the suicidal act will have more severe suicide attempts. Therefore, those who have more structured suicidal ideation will have higher risk of subsequent suicidal behavior.

Materials and methods
Study design

This is an observational, analytical, cross-sectional, and prospective study. *Participant recruitment*

The sample was composed by 64 patients, 32 for the SI group and 32 for the SB group, the patients included in the study were 14 years old or older. The number of patients for each sample was determined by the Statulator Program (Dhand & Khatkar, 2014), which indicates that a number of 64 is needed to achieve a power of 80%. The selection criteria were as follows: a) suicidal ideation / active suicidal behavior. b) speak Spanish correctly. c) sign the informed consent (in the case of patients under 18 years of age, informed consent adapted to the minor and informed consent to be completed by the legal guardian were included). Regarding to the exclusion criteria, it was stablished: a) intellectual disability. b) pervasive developmental disorder. c) neurological damage that affects the completion of the questionnaires. d) b to be diagnosed with any neurological or systemic disease with significant central nervous system involvement. e) patients under hospitalization.

Procedure

Data collection was carried out from May 2021 to December 2022. Patients were col-

lected from the monographic consultation of the Suicide Risk Outpatient Care clinic at the mental health service of the University Hospital Complex of Albacete, which is composed by a psychiatrist and a clinical psychologist. The patients of this program are referred from the different Mental Health units (Psychiatric Emergency Services, Brief Hospitalization Unit, Interconsultation and Liaison Unit, External Consultations) from Primary Care and Specialized attention, when there is an active suicidal ideation or behavior.

After a first assessment consultation, the professionals oversaw assessing whether the patient met the inclusion/exclusion criteria for the research study. An informed consent was signed after explaining the study.

The patients were classified and included in one group or another based on suicidal ideation and behaviors presented in the last three months. If the patient presented both suicidal ideation and behavior, they were included in the BS group. It was the professional who explored this information in the first interview, through the clinical interview.

All data regarding self-injurious methods and resulting somatic damage were collected through a thorough examination of clinical histories. The classification of somatic damage was determined based on the level of hospitalization required by the patient, including admission to the ICU, standard hospitalization, or discharge.

Data collection methods
We collected a range of sociodemographic and clinical variables for our study. Sociode-

mographic variables included gender, age, education level, employment status, marital status, children, family living situation, and place of residence. Clinical variables included personal psychiatric history (including information about attempted suicide or suicidal behavior), personal medical history, family psychiatric and medical history, substance use (current and past), treatment (pharmacological and psychosocial), and previous hospital admissions. We also recorded the number of psychiatric emergency visits, psychiatric inpatient admissions, and the age at which suicidal thoughts first appeared. Psychopathology was assessed following the DSM-5 classification. For participants in the suicidal behavior group, we explored the self-harm methods used and added this information to the database after conducting interviews.

Stadistical analysis

In the analysis of this research, various statistical techniques were employed to assess and understand the relationships between the key variables in the study.

In both the socio-demographic and clinical domains, it was crucial to consider a wide range of variables to obtain a complete understanding of the study population and patient characteristics. These variables were classified into three main categories: discrete quantitative, nominal qualitative and ordinal qualitative. To determine whether the data followed a normal distribution for discrete quantitative variables, such as age, a normality test was performed. Due to the lack of normality in the data, the Mann-Whitney U test was applied to investi-

gate differences between groups. In the case of nominal qualitative variables. Homogeneity tests, such as the Chi-square of homogeneity and Fisher's exact test, were used to assess the existence of significant statistical relationships between groups. On the other hand, for ordinal qualitative variables, the Mann-Whitney U test was applied to determine significant differences between groups.

To investigate the relationship between the degree of severity of the suicide attempt (measured by the degree of somatic damage) and the variables ideation of the attempt, planning, request for help after the attempt and self-harm methods, tests of independence were applied, such as the Chi-square test of independence and Fisher's exact test. In addition, Cramer's V test was used to assess the strength of the association with the degree of somatic harm.

In all cases, p-value, power ($1 - \beta$) and effect size (with specific endpoints, such as w for Chi-Square and d for Mann-Whitney U) were calculated. These calculations provided a more complete understanding of the strength and significance of the relationships studied in this scientific research.

Results
Sociodemographic and clinical profiles

Among the 32 patients of each sample (SI and SB), the mean age was 33.39 years (SD=17.61) for the SI group and 28 years (SD=16) for SB. The majority of the participants were women in both groups (54,5% SI, 78,4% SB). Most had primary studies (50.9% SI , 48.6% SB) , were single (61.8% SI , 61.1% SB) with no

children (69.4% SI, 62.5% SB) students (41.1% SI, 55.6% SB) , lived with their family of origin (58.9% SI, 67.6% SB) in a urban environment (75.5% SI, 80% SB) and had medium perceived economic level (50.9% SI, 57,15% SB).

The existence of differences between the two independent samples were compared. Regarding the sociodemographic profile, only in the case of gender $(\chi2(1) = 5.462, p = 0.019, 1 - \beta = 0.58, w = 0.27)$ significant differences between both groups were found, stating that either suicidal ideation or suicidal behaviour were more prevalent among women. Sample sociodemographic characteristics of the suicidal ideation and suicidal behavior group are reported in Table 1 alongside significance testing.

In both SI and SB groups, most individuals had prior psychiatric diagnoses and were on medication. Emergency psychiatric care was received by over 50% of each group, but only a small percentage were admitted to psychiatric units. A family history of mental illness was common in the SI group (76.7%), but not in the SB group (36.5%). It is worth noting that the majority of the sample in both groups had no family history of suicide.

Performing different statistical tests, the existence of clinical differences was verified between the two independent groups analyzed. There were only significant differences in the number of times the patient attended psychiatric emergencies $(U = 661.50, Z = -2.99, p = 0.003, 1 - \beta = 0.42, w = 0.61)$. Sample clinical characteristics of the suicidal ideation and suicidal behavior group are reported in Table 2 alongside significance testing.

Self-injurious methods for the sample of patients who present suicidal behavior

Within the group of patients with SB, the most frequent self-injurious method was over ingestion of medication with sedative effect (56.8%), followed by over ingestion of medication without sedative effect (21.6%), infusion (10.8%) and in a similar proportion the use of chemical products, fire, defenestration and hanging (2.7%).

Variables of the SI associated with greater risk of having more serious consequences derived from suicide attempt

The somatic consequences of the suicide attempt in patients from the SB group were; 57.1% of the patients who carried out a suicide attempt presented a degree of somatic damage with minimal consequences, while 28.6% of the sample presented moderate injuries and 14.3% required a medical or surgical hospital admission due to injuries.

Our study aimed to establish a correlation between the severity of a suicide attempt, as measured by the physical harm caused, and several contributing factors including the level of planning, ideation, and seeking help post-attempt.

The association with the variable degree of somatic damage and the ideation of the attempt, shows a moderate intensity of association $(\chi2(2) = 10.877, p = 0.002, V = 0.574, 1 - \beta = 0.76, w = 0.71)$, and also presents a high effect size ($w > 0.50$). From the data obtained from the sample, 80% of the patients who did not present ideation of the attempt suffered minimal consequences in terms of the degree of

somatic damage. On the other hand, 53.8% of the patients who presented ideation of the attempt presented moderate lesions. Therefore, we might expect that patients who had previous ideation of the attempt were more likely to experience an attempt with more serious consequences.

It is observed that there is a moderate association between planning the attempt and the degree of somatic damage ($\chi2(2)$ = 14.441, p=0.002, V=0.672, $1 - \beta$= 0.67, w= 0.68) and this, in turn, shows a high effect size ($w > 0.50$). From the collected data, it can be extracted that 73.1% of the patients who did not carry out a planning, carried out a less serious attempt, compared to 83.3% of the patients who did carry out a planning, who presented moderate lesions. In this case, we observe that patients who plan are more likely to suffer a suicide attempt with more serious consequences.

When relating the variables request for help after the attempt and degree of somatic damage, we obtain that there is a strong association between them ($\chi2(2)$ = 16.709, p=0.000, V=0.712, $1 - \beta$= 0.83, w= 0.88), with a high effect size ($w > 0.50$). Based on the available data, we can observe that 85% of the patients who requested help after the attempt had minimal consequences. In contrast, it was observed that a large percentage of patients who did not request help after the attempt presented moderate injuries (53.8%). Therefore, we could say that patients who seek help after the attempt tend to suffer a less severe attempt.

A moderate association between the degree of somatic damage and self-harm methods ($\chi 2(1 2)$ = 28.750, p=0.00 1, V=0.641, $1 -$

β= 0 .2 6, w= 0.67) , with a high effect size ($w > 0.50$), is shown in .The available data reveal that 100.00% of the patients presenting moderate lesions are due to the over-ingestion of drugs with a sedative effect. In addition, it was also observed that 60 % of the patients who required hospital admission were due to the over-ingestion of medications without a sedative effect and a similar proportion was found to be due to the use of fire and defenestration, which represented 20 %. It is observed that in 50% of the patients with minimal consequences, the cause of the lesion is due to over-ingestion of drugs with a sedative effect, followed by over-ingestion of drugs without a sedative effect, infusion and the use of chemical products and hanging (5 %). We can see that the most widely used self-harm method is the over-intake of drugs with a sedative effect and its association with different degrees of somatic damage.

Discussion

The current research explored variables that differentiate SI from SB in a sample of 64 patients from a monographic suicide prevention program in a Mental Health Service in Spain. Understanding suicidal ideation and identifying risk factors for suicide, is crucial in preventing suicidal behavior. However, current research lacks more specific suicide risk profiles, making it challenging to develop effective policies and initiatives. To our knowledge, this is the first study that compares both SB and SI samples to investigate their sociodemographic and clinical distinctions, and also explores variables regarding suicide ideation

that put the patient at a higher risk of committing a more severe attempt of suicide.

Our research indicates that both study groups had similar risk profiles as previously described in recent literature. The participants in both groups were young, single women from middle-class backgrounds, living in urban areas with their family of origin. Most had a history of mental illness and were receiving treatment but had never been admitted to a psychiatric unit. Some authors have indicated that certain groups may be more prone to exhibiting suicidal behaviors. For example, Dubé et al. (2021) found that young women in democratic countries like Spain could be at risk of suicidal behaviors. Similarly, D'Hond et al. (2020) and Ma et al. (2022) identified university students as a susceptible demographic for suicidal ideation. Additionally, a recent meta-analysis conducted by Shobhana and Ravirj (2021) highlighted that young people aged 11 to 21 years who are enrolled in university may be at risk of suicidal ideation.

Besides, we provided more specific information on the relationship between suicidal ideation and suicide attempt severity, showing a moderate correlation between previous SI and the seriousness of suicide attempts, which is consistent with recent research by Hubers et al. (2019) and Guo Z et al. (2023). These studies found that individuals who had expressed SI in the past were at a higher risk of completing suicide, especially within the psychiatric population. Our study also revealed that pharmacological over ingestion was the most common method used, but it was also the most severe, suggesting that accessibility and frequency

should not be confused with lethality. Therefore, clinicians should not underestimate the potential for serious harm caused by sedative medication and should not perceive suicide attempts using this method as less severe.

Regarding suicidal behaviors (SB) we found that this group had statistically significant more emergency psychiatric care visits before enrolling in the suicide prevention program. They also had an earlier onset of suicidal thoughts, with a high occurrence in minors, and younger patients may have fewer resources to cope with their suffering. Contrary to existing literature, the SB sample in this study had no family history of mental health or suicide (Ong et al., 2021) This could indicate that young people with a family history of mental illness may seek help more readily and feel more comfortable discussing their suffering, preventing the progression of suicidal ideation to behavior. In this study, patients with SB had high prevalence of medical history, being chronic pain the most frequent diagnoses. Chronic pain has been found to be an important independent risk factor for suicidality and the only sociodemographic factor found to be associated with suicidality in individuals with chronic pain was being unemployed/disabled (Racine M et al. 2018)

It should be noted that there are certain limitations to our findings. Firstly, it has been reported that almost 50-60% of people who die by suicide have not previously disclosed their suicidal thoughts (Hallford et al., 2023), so our results may only apply to those who have sought help or attempted suicide. Secondly, we have analyzed patients who presented

with suicidal ideation (SI) and suicidal behavior (SB) separately, but we have not followed up with patients who initially had SI but later developed SB during the study.

To sum up, our results showed that, young women, single, with no children, studying or with unqualified jobs and with a previous psychiatric diagnose and current treatment would be a vulnerable population of both SI and possible subsequent SB. Patients with SB had significantly more emergency attentions prior to the attempt, so patients who frequent the emergency department or those who have been recently attended should be followed more closely. Moreover, when there is suicidal ideation before the suicide attempt, and it is structured (planned), there is a higher risk that in case of evolving into suicidal behavior, the attempt will be more severe. Hence, it would be necessary to focus on the patients with the described profiles (young women, single, with no children, studying or with unqualified jobs and with a previous psychiatric diagnose and current treatment) and follow them closely so that when the suicidal ideation includes the high-risk variables exposed, more decisive action could be taken to prevent these patients from engaging in suicidal behavior. Therefore, establishing suicide prevention programs is of utmost importance to effectively manage patients who exhibit suicidal tendencies. As presented by this study, such programs have also yielded encouraging results in identifying risk profiles. They are particularly crucial when dealing with patients who display suicidal behavior risk factors and require urgent intervention.

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Table 1

Comparison of the sociodemographic profile of patients with suicidal ideation and patients with suicidal behavior.

	Patients with SI	Patients with SB
Mean age	33.39 years (SD=17.61)	28.24 years (SD=16.00)
Between 14 and 18 years	26.8%	35.1%
Between 18 and 29 years	26.8%	29.7%
Gender		
Male	45.5%	21.6%
Women	54.5%	78.4%
Educational level		
Primary studies	50.9%	48.6%
Professional situation		
Student	41.1%	55.6%
Unqualified work activity	17.9%	13.9%
Marital status		
Single	61.8%	61.1%
Married or with a partner	27.3%	25%
Children		
Yes	30.%	37.5%
No	69.4%	62.5%
Family coexistence		
Lived with their family of origin	58.9%	67.6%
Cohabitation with their own family		
	33.9%	24.3%
Place of residence		
Urban environment	75.5%	80%
Rural environment	24.5%	20%
Perceived economic level		
Midium	50.9%	57.15%

Table 2

Comparison of the clinical profile of patients with suicidal ideation and patients with suicidal behavior

	Patients with SI	Patients with SB
Psychiatric diagnoses		
Depressive disorders	32.4%	28.3%
Disorders related to trauma and stress	29.7%	32.1%
factor	16.2%	15.15%
Personality disorders		
Previuos emergency psychiatric care		
Never attended		
Only once	41.8%	48.6%
At least once	34.5%	
	23.7%	51.4%
Number of admissions to psychiatric unit		
Never been admitted		
One admission	89.3%	78.4%
More than one	10.7%	10.8%
		10.8%
Mean age of onset of suicidal ideation		
Onset before 18 years	26.27 years (SD=16.27)	23.40 years (SD=16.59)
	48.1%	62.9%
History of drug abuse		
Not consume any toxic substance	80.0%	68.29%
Alcohol	9.09%	9.75%
Tobacco	7.27%	9.76%
Cannabis	3.64%	12.20%
Personal medical history		
No medical history of interest	42.9%	75%
Chronic pain secondary to different musculoskeletal diseases	16.7%	4.2%
High blood pressure	12.5%	4.2%
Diabetes mellitus	12.5%	4.2%
Cancer		4.2%
Epilepsy		4.2%
Hypothyroidism		4.2%
Crohn's disease		4.2%

(Continúa)

	Patients with SI	Patients with SB
Current psychiatric treatment		
Yes	61.3%	81.3%
Antidepressants	48.3%	54.8%
Benzodiazepines	36.2%	37.5%
Psychiatric family history		
No	23.3%	63.5%
Yes	76.7%	36.5%
Depressive disorders	25.6%	25.6%
Substance use disorder	14%	14%
History of suicide attempts		
Yes	15.4%	10%
No	84.6%	90%