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# Repeated Suicide Attempts Among Service Users of An Emergency Service in Northern Colombia: Characteristics, Associated Factors, And Management

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### **Abstract**

Suicide has increased close to 60% in the last four decades worldwide. In Colombia, during the year 2019, 10,9% of violent deaths were due to suicide. This study aimed to identify risk factors predicting repeated suicide attempts. It also aimed to describe the management of suicidal behaviour within an emergency department of Northern Colombia. Dataset comprised 336 medical records of individuals seeking medical assistance for intentional self-harm between 2008-2019; 136 medical records were associated with previously reported suicide attempts. Results from a multivariate logistic regression showed that suicide ideation and having a history of psychiatric disorders significantly predicted repeated suicide attempts. Furthermore, repeated attempts were more likely in underaged individuals and young adults. Management of patients engaging in suicidal behaviour involved hospitalization and outpatient mental health services. However, a few patients were sent home with recommendations or were non-compliant. Findings from this study highlight the importance to develop evidence-based screening and monitoring protocols that prevent repeated suicide attempts.

*Keywords:* emergency services, mental disorder, suicide attempt.

### **Intento de Suicidio Repetido en Usuarios de un Servicio de Emergencias En Colombia Del Norte: Características, Factores Asociados y Manejo**

#### **Resumen**

El suicidio ha aumentado en cerca de un 60% en los últimos cuarenta años. En Colombia, para el año 2019, el 10,9% de las muertes violentas se presentaron por suicidio. Este estudio busca identificar los factores de riesgo asociados con los intentos repetidos de suicidio y además realiza un análisis descriptivo del manejo dado a estos pacientes. Esta investigación utiliza la base de datos de la unidad de emergencias en un hospital del norte de Colombia, y se centra en los pacientes que acudieron al hospital por intento de suicidio entre enero de 2008 y junio de 2019. La base de datos presenta 336 casos de los cuales el 81% corresponden a intentos suicidas y 19% a gestos. Resultados de un análisis de regresión logística multivariada mostraron que la ideación suicida y la historia de desorden psiquiátrico predecían significativamente los intentos suicidas repetidos y que los intentos repetidos eran más probables en el grupo de individuos menores de edad y en adultez temprana. El tratamiento administrado a los pacientes fue hospitalización y servicios ambulatorios; un porcentaje fue enviado a casa con recomendaciones. Los hallazgos de este estudio destacan la importancia del desarrollo de protocolos estandarizados basados en evidencia para prevenir los intentos repetidos.

*Palabras clave:* intento de suicidio, servicios de emergencia, trastorno mental.

SUICIDAL BEHAVIOUR is one of the three most common causes of non-accidental death in people under 25 years of age. Every year, almost a million people commit suicide worldwide (World Health Organization [WHO], 2012). In Colombia, official reports indicate a higher suicide rate amongst individuals between the ages of 15 and 30. Indeed, close to 25% of the people who commit suicide in Colombia are young adults (Gómez-Restrepo et al., 2002; Ruiz & Chaves, 2017). Intoxication is the leading chosen method used to self-harm and women comprise the majority of suicide attempt reports (Cardona, Torres, González, & Portilla, 2019; Castillo, Rodríguez & Torres, 2020), though completed suicide cases are more frequently carried out by men (Carreño Tapias, Sierra Buelvas, & Yepes Pabón, 2018). For each completed suicide, many more suicide attempts are registered, and each attempt increases the probability to occur again with increased lethality (Borges et al., 2010).

A study conducted with 18,903 medical records across Colombia indicated that persistent suicidal ideation predicted multiple suicide attempts. Having a diagnosis of mental disorder, in particular depression, was also significantly linked with repeated suicide attempts (Arenas, Gómez-Restrepo, & Rondón, 2016; Castillo et al., 2020). In line with national data, analysis of samples from the Colombian northern region report that repeated suicide attempts are significantly likely within the context of mental disorders. Other variables as previous hospitalizations and the presence of chronic medical conditions also seem to increase the likelihood of incurring in more than one suicide attempt (Tuesca Molina & Navarro Lechuga, 2003).

Decades of research have identified suicide behaviour as the result of a multifactorial interplay of biological, psychological, and sociocultural factors (Chang et al., 2016; Franklin et al., 2017; Ribeiro et al., 2016). Nevertheless, the evidence is not conclusive as to what factors underpin the transition between suicidal ideas and suicidal acts, particularly in populations of low and middle-income countries (LMIC; Knipe et al., 2019). The

integrated motivational-volitional framework (IMV; O'Connor, 2011) is a theoretical model composed of three phases that delimitates the pathways for the appearance of suicide behaviour and suicide ideation.

*The pre-motivational phase* explains the biopsychosocial context where suicidal ideation (motivational phase), and subsequent suicidal behaviour (volitional phase; O'Connor & Kirtley, 2018) emerge. This phase comprises three factors in relation to suicide ideation and suicidal acts: diathesis, environment, and life events. Diathesis refers to the factors associated with the individual's background that increases the risk of suicide behaviour. A solid body of evidence supports that genetic (e.g., Hesselbrock et al., 2004), biological (e.g., serotonin neurotransmission; Lin & Tsai, 2004) and cognitive predisposition factors (e.g., dispositional optimism; Hirsch, Wolford, LaLonde, Brunk, & Morris, 2007) increase the risk of suicide ideation and behaviour. Complementarily, societal and environmental factors as stressful life events, interpersonal problems, financial issues, and inequality are known to increase the risk of suicidal behaviour (Baca-García et al., 2007; Beautrais, Joyce, & Mulder, 1997; Chang, Yip, & Chen, 2019; Miller et al., 2005).

*The motivational phase* emphasizes the psychological processes underlying suicide ideation and intention formation. According to O'Connor and Kirtley (2018), the path towards suicide ideation initiates with feelings of defeat and humiliation in response to a life event stressor (e.g., a dispute with a partner). When the individual experiences these feelings of defeat and humiliation but lacks the psychological coping mechanisms to effectively manage them (Threat to Self-Moderators; TSM), feelings that there is no escape (entrapment) may appear.

The transition from feelings of entrapment to suicidal ideation are in turn moderated by Motivational Moderators (MM) that when present, increase or decrease the probability to progress from feelings of entrapment to suicidal ideation. In the absence of motivational moderators (e.g., belongingness, burdensomeness, resilience, or perception of social support, purpose) the risk for suicide ideation

increases. The influence of motivational moderators, specifically burdensomeness (the idea that one is a burden for family and friends), and social isolation (belongingness), is widely supported by empirical data (see for a review; Chu et al., 2017).

The final phase proposed by O'Connor, 2011, comprises *Volitional Moderators* (VM) that are fundamental to transition from suicidal ideation to behaviour. Volitional motivators may be physiological (e.g., risk-prone, impulsivity; McGirr et al., 2008), psychosocial (Haw, Hawton, Niedzwiedz & Platt, 2013), or environmental in nature (Bilsen, 2018; Riblet, Shiner, Young-Xu, & Watts, 2017). The volitional phase also includes a history of self-harm attempts as a VM that increases the risk of swifiting from suicide ideation to suicide behaviour. People that engage in self-harm behaviour once are significantly more likely to re-incur in suicide behaviour (Victor & Klonsky, 2014).

Other theoretical approximations to suicide ideation and behaviour, (i.e., interpersonal-psychological theory; Joiner, 2007), suggest that the transition from suicidal ideation to suicidal act depends on specific psychological variables like impulse control, hopelessness, and mood disorders (Bebbington et al., 2010; Brezo, Paris, & Turecki, 2006; Mann et al., 2016; Steeg et al., 2016). Suicidal behaviour may occur as a reactive function in situations where the subject feels defeated and without hope, generating intolerable stress, non-acceptance of that emotional state, and limited access to effective strategies for resolution (Taylor, Gooding, Wood, & Tarrier, 2011).

Identifying and intervening risk factors in early stages is essential for suicide prevention (WHO, 2012; Wasserman & Wasserman, 2009). For instance, literature offers supporting evidence towards the effectiveness of suicide prevention protocols that prioritize key predictors, as history of previous suicide attempts, suicidal ideation, and psychiatric conditions (e.g., De Beurs, Ten Have, Cuijpers, & De Graaf, 2019; Harris & Barraclough, 1997), including personality disorders (Gerson & Stanley, 2002; Parra-Urbe et al., 2017; Rosenthal et al., 2008).

A large percentage of people that complete suicide had sought medical assistance in the month

prior to passing (Luoma, Martin, & Pearson, 2002). Thus, when patients attend emergency services for self-harm may be a valuable moment of contact to intervene and reduce the risk of future suicide attempts (Deisenhammer, Huber, Kemmler, Weiss, & Hinterhuber, 2007), for instance, by screening for risk and protective factors during the assessment.

Medical bodies and international institutions as the International Association for Suicide Prevention (IASP) and the WHO advise that all individuals intentionally attempting to self-harm should undergo a psychiatric or psychological evaluation, regardless of the characteristics or severity of the suicidal act (WHO, 2014). However, while it is ideal to refer patients displaying suicide behaviour to mental health services, not all patients get to see a mental health professional (Stewart, Manion, & Davidson, 2002). The management of intentional self-harm should be informed by clinical evidence to improve the effectiveness of prevention strategies (Ayuso-Mateos et al, 2012; Berman & Silverman, 2014). This study sought to identify the risk factors predicting repeated suicide attempts and also to conduct a descriptive analysis of the management given to patients attending an emergency service for suicide attempts in Northern Colombia.

## Methods

### Setting

The data used in this study was collected at a hospital in the city of Soledad, in Northern Colombia. The hospital has a capacity of 60 beds and serves a population of approximately 250,000 patients per year. As well as an emergency department, the hospital offers in and outpatient services in various medical fields as neurology, cardiology, occupational therapy, psychiatry, and psychology, amongst others.

### Procedure

Routinely, patients attending the hospital's emergency department undergo an assessment conducted by nursing and medical staff. Details from this assessment are then documented in

the medical records and patients receive a formal diagnostic according to the International Classification of Diseases (ICD-10). Management of patients attending the service for suicide attempts may be hospitalized, liaised with outpatient mental health services, or be sent home with recommendations.

This study comprised a retrospective audit of the emergency department database of a hospital in Northern Colombia. Out of the general database of the hospital, the records of patients seeking medical help for intentional self-inflicted injury within the period of January 2008 and June 2019 were selected (ICD-10 codes: x60-x84). After excluding those depicting accidental intentional self-inflicted injury, the remaining data were extracted for analysis. The final sample included all medical records that according to the ICD-10 categories for intentional self-harm, indicated a suicide attempt (e.g., by hanging, by poisoning).

Following the initial audit of the database, the remaining medical records underwent further examination of the patient's reported motivation to commit the self-harming act. The records were then classified as self-harm aimed to hurt oneself, or suicide attempt (e.g., *"I did not want to live because my brothers threw me out of the house when they suspected I was pregnant"*, Medical record No. 14), and self-harming inflicted to cause an effect on others, or suicide gesture (Freeman et al., 2017; García-Nieto, Blasco-Fontecilla, de León-Martínez & Baca-García, 2014). Examples of suicide gestures found in the database included self-harming to attract someone's attention (e.g., *"I did it to scare my husband, because of the family struggles we are having"*, Medical record No. 48), and to persuade a relative (e.g., *"I drank the paint thinner to stop my husband from abandoning me"*, Medical record No.5). Only the data categorised as suicide attempts were entered in the logistic regression (N=271). However, the description of management practices was performed with the dataset of suicide behaviour globally, including both suicide gestures and attempts (N=336). This study was approved by the hospital Ethics Committee and all included data were anonymized and handled according to its ethical procedures.

## Study Variables

The variables utilized in the study included patients' sociodemographic details of gender, age, relationship status, and occupation (pre-motivational phase). Other factors hypothesized as predictors of single and repeated suicide attempts were suicide ideation before the episode of self-harm, use of recreational drugs (both self-reported), history of previous admissions for intentional self-harm, and record of prior psychiatric assessment, if available.

## Data Analysis

Initially, descriptive statistics were used to identify differences between those who attempted to commit suicide for the first time and those with repeated attempts. Categorical and continuous variables were analysed using  $\chi^2$  and T-Tests, respectively. Secondly, to assess the factors that significantly predicted repeated suicide attempts, a multivariate logistic regression analysis was conducted with the data of those meeting the criteria for suicide attempt (N=271). The dependent variable (history of suicide attempts) was dichotomized into 1 or 0 according to the presence or absence of previous suicide attempts within the medical record. The predicting variables utilised in the logistic regression were restricted to those available in the hospital database. Following the theoretical model of O'Connor (2011), two blocks of variables were introduced in the analysis: pre-motivational variables (age, gender, occupation status), and motivational variables (consumption of psychoactive substances, suicidal ideation prior the attempt, and history of a psychiatric disorder; see Table 2). In support to the second aim of this study, descriptive statistics were used to depict the management outcome of patients attending the emergency department for suicide behaviour. All data were analyzed using the statistical analysis software STATA 15 and SPSS version 26.

## Results

A total of 336 cases from the hospital's database met the inclusion criteria for this study. The sample was composed of 269 females and

67 males (N=336). Females showed significantly more repeated attempts of self-harm (M=1.72, SD=.64), than their male counterparts M=29.2, SD (M=1.34, SD=1.08;  $t=2.73$ ,  $P=.001$ ). Patient's age ranged between 8–95 years and reached a mean of 27.68 (SD=13.9). Young adults (20–40 years

old) were the largest age group within the sample. Over a third of the sample reported not having a partner (N=118), and being a student was the primary occupation reported (N=111), followed by formally employed (N=81) and homemakers (N=68; see Table 1).

**Table 1.** Demographic Details

Factor	Total sample (N=336)	First time (N=200)	Repeated (N=136)	<i>p</i>
Age in years				.01
Mean+/-SD	28+/-14	29+/-15	25+/-11	
Min-Max	8-92	8-92	8-67	
Gender (%)				.02
Female	269	151(56)	118(44)	
Male	67	49(73)	18(27)	
Age group (%)				
<18	107	61(57)	46(43)	
Adulthood	175	101(58)	74(42)	
Late adulthood	52	38(73)	14(27)	
Relationship status (%)				.28
In partnership (e.g., civil partnership, married)	72	40(56)	32(44)	
< 16	64	34(53)	30(47)	
In partnership with children	73	49(67)	24(33)	
Single	118	74(63)	44(37)	
Occupational status (%)				.26
Homemaker	68	39(57)	29(43)	
Student	111	60(54)	51(46)	
Employed	81	55(68)	26(32)	
Not reported/Unemployed/Retired	75	46(61)	29(39)	
Suicidal ideation (%)				<.001
No	230	168(73)	62(27)	
Yes	105	31(30)	74(70)	
Use of psychoactive substances (%)				.19
No	302	177(59)	125(41)	
Yes	32	22(69)	10(31)	
Previous psychiatric assessment (%)				<.001
Psychiatric or personality disorder alone	141	72(51)	69(49)	
Psychiatric disorder in comorbidity with personality disorders	74	33(45)	41(55)	
Psychiatric disorder in comorbidity with other psychiatric disorders	30	18(60)	12(40)	
Without record of psychiatric assessment	91	77(85)	14(15)	

The most-reported method utilized to self-harm was self-induced intoxication ( $N=289$ ). Patients used a variety of substances, including poison ( $N=67$ ; e.g., rat, termite poison), chemical solvents ( $N=45$ ; e.g., bleach, paint thinner) and medications ( $N=177$ ). It was observed that amongst the medications ingested by patients to self-harm, 42.3% ( $N=75$ ) corresponded to over the counter medications (e.g., paracetamol, aspirin), 33% ( $N=59$ ) reported ingesting medications with restricted sell (e.g., antipsychotics, benzodiazepine), and further 3% ( $N=5$ ) did not specify the type of medication. Other types of methods utilized included cutting ( $N=32$ ), firearms and hanging themselves ( $N=13$ ). Intentional self-harming behaviour was mainly performed in the context of family ( $N=132$ ) or relationship disputes ( $N=116$ ), but some individuals reported triggers like financial concerns ( $N=8$ ).

It was documented that suicide attempters reported feelings of despair associated with the perception that there was no other way out for the situation they were experiencing (Feelings of entrapment and hopelessness). Excerpts from the database records included statements as: *“things had already reached such a point that the only option was to attempt against my life”* (Medical record No. 23); *“I did not see any way out other than suicide because of the situation I was living with my partner”* (Medical record No. 48).

In 105 records, the episode of self-harm was preceded by suicidal ideation, and 32 patients disclosed using psychoactive substances. A diagnostic of psychiatric disorder was reported in 245 cases. The most frequent diagnostic amongst suicide attempters were psychiatric disorders as mood disorders and psychosis ( $N=155$ ), followed by diagnostic of a psychiatric disorder in comorbidity with a second or third diagnostic of personality disorder ( $N=73$ ). A diagnostic of personality disorder was reported in 15 cases, and the remaining 91 reports did not have a psychiatric diagnostic within their medical history.

In 40% of cases ( $N=136$ ), the patient had previously attempted to intentionally self-harm and the number of prior attempts ranged from 1-8 ( $M=1.64$ ,  $SD=1.02$ ). Repeaters were significantly younger ( $M=25.5$ ,  $SD=11.37$ ) than those with a single attempt registered in the database ( $M=29.2$ ,  $SD=15.36$ ),  $T=2.38$  (333)  $P=.01$ . There were no significant differences in mean number of attempts between age groups,  $F(2,331)=.36$ ,  $P=.70$ . Following the reviewing of motives behind the suicidal behaviour, it was identified 271 cases of suicide attempts and 65 suicide gestures.

### **Risk Factors for Repeated vs Single Suicide Attempt**

Among the 271 patients who were treated at the hospital for suicide attempt, 67.5% had no history of previous attempts and the remaining 32% had one or more previous suicide attempts. It was found that females engaged in more attempts to self-harm than did their male peers; 35% females had history of one or more suicide attempts (as oppose to 65% first-timers), while amongst men 23% cases presented previous attempts (and 77% did not have previous attempts).

Over half suicide attempters ( $N=271$ ) were young adults (52%), 30% were children or teenagers, and 17% were in intermediate or late adulthood. Patients reporting being single corresponded to 23% of the sample, 22% were in a relationship (both with or without children), and 15% were underaged. In terms of occupational status, 43% of patients reported to be unemployed, retired, or being a homemaker, 29% of cases corresponded to students, and 27% of suicide attempters were in formal employment. Approximately 72% of those who had one or more previous attempts reported having had previous suicidal thoughts (suicidal ideation), but only 8% of participants disclosed using psychoactive substances regularly. Previous psychiatric diagnoses were associated to 192 records. Diagnoses of mental disorders were observed in 40% of records, mental disorders in comorbidity



with personality disorders in 26% records, and personality disorders alone in approximately 2%. Finally, 29% records of suicide attempts were not associated with a pre-existing diagnosis.

Results indicated that repeated attempts were significantly more likely to occur in patients that were underaged, odds ratio [OR]=4.93; 95% CI, 1.39-17.47, and in early adulthood, OR =3.79; 95% CI, 1.39-10.29. However, neither gender, nor occupational status appeared to predict repeated suicide attempts ( $P>.05$ ). Findings regarding the motivational block of variables indicated

that presenting suicidal ideation significantly predicted repeated suicide attempts, OR=10.88; 95% CI, 5.40-21.87. Conversely, self-reported consumption of psychoactive substances did not significantly predict the recurrence of suicide attempts ( $P>.05$ ). However, repeated attempts were 3,26 (95% CI, 1.28-8.26) times more likely in patients with a previous diagnostic of mental disorders, and those with a history of mental disorders in comorbidity with personality disorders were 4,2 (95% CI, 1.56-11.26) times more likely to repeatedly incur in suicidal attempts.

**Table 2.** Odds Ratio Single vs Repeated Attempt

	Odds Ratio	Std. Err.	z	P> z	[95% Conf. Interval]	
Female	1.80	.84	1.260	.21	.7215	4.4884
Childhood/Adolescence	4.93	3.18	2.470	.01	1.3921	17.4726
Early adulthood	3.79	1.93	2.620	.01	1.3978	10.2934
Student	.51	.24	- 1.410	.16	.1972	1.3011
Employee	.61	.27	-1.1	.27	.2551	1.4660
Use psychoactive substances	1.28	.80	.400	.69	.3749	4.3840
Mental disorder	3.26	1.55	2.500	.01	1.2893	8.2626
Personality disorder	1.13	1.15	0.120	.90	.1539	8.3041
Personality disorder and Mental disorder	4.19	2.11	2.850	0	1.5622	11.2649
With previous suicide idea	10.88	3.88	6.700	0	5.4091	21.8777
Constant	.02	.01	-5.47	0	.0038	.0715

### Management of Self-Harm

Patients seeking medical help for intentional self-harm were commonly sent for further psychological or psychiatric assessment. In 108 (32.1%) cases, the management outcome was to grant appointments for outpatient psychiatric or psychological services and further 73 (21.7%) were hospitalized. 99 patients (30%) attending the emergency department for intentional self-harm were sent home with recommendations, and 50 (15%) patients were not compliant (see Table 3 for details).

Amongst those attempting to self-harm by ingesting prescription medication ( $N=172$ ), 90 (52%) were liaised with psychological or psychiatric services (hospitalization or transferred to outpatient services), further 55 (32%) were sent home with recommendations and 27(15%) were not compliant. Amongst those attempting to purposely poison themselves with paint thinner, bleach, or poison ( $N=112$ ), management outcome included psychiatric hospitalization ( $N=28$ ), transfer to outpatient mental health



services (N=36), and to follow recommendations at home (n=29). Nineteen (N=19) patients were not compliant with the treatment offered at the service. The management of cases comprising cutting and other methods of self-harm (N=44) included mostly liaising the patient with mental health services (N=26), though 15 cases were discharged with recommendations, and three did not comply with the treatment.

The most frequent management outcome for cases with a previous psychiatric disorder diagnostic was to be sent home with recommendations (N=52), followed by being liaised with outpatient mental health services (N=51), and hospitalization (N=29). Likewise, 11 patients with a single diagnostic of personality disorder received mental health treatment, and further 4 were sent home with recommendations. Patients with a psychiatric disorder in comorbidity with a personality disorder were mainly transferred to mental health

services (hospitalized or outpatient, N=43), but in 17 records the management outcome was to send the patient home with recommendations. Out of 87 patients without a formal psychiatric diagnostic 47 received mental health treatment, 26 were sent home with recommendations, and 14 did not comply with the medical treatment.

Record cases of intentional self-harm with a history of one or more previous attempts (N=136) mainly received mental health treatment (hospitalized or transferred to mental health services; N=68). In 49 cases displaying repeated suicide attempts, patients were sent home with recommendations and 19 reports showed that patients did not comply to receive attention. On the other hand, 113 patients attending an emergency department for intentional self-harm for the first time received mental health treatment, while 49 first time attempters were sent home with recommendations, and further 19 first time reports were non-compliant.

**Table 3.** Management of Intentional Self-Harm; Method, Suicide Ideation, Psychiatric Assessment, and Prior Suicide Attempt

Variable	Management of self-harm			
	Psychiatric hospitalization n(%)	Outpatient mental health service n(%)	Sent home with recommendations n(%)	Non-compliant n(%)
<b>Method used to self-harm</b>				
Intoxication with medication	36 (21)	54 (31)	55 (32)	27 (16)
Intoxication with chemicals (e.g. Poison, bleach, paint thinner)	28 (25)	36 (32)	29 (26)	19 (17)
Cutting	5 (16)	12 (39)	12 (39)	2 (6)
Other (e.g., firearms, falling off bridge)	3 (23)	6 (46)	3 (23)	1 (8)
<b>History of suicide attempts</b>				
No (First time)	43 (22)	70 (36)	50 (26)	31 (16)
Yes (Repeated attempt)	30 (22)	38 (28)	49 (36)	19 (14)
<b>Suicide ideation prior the suicide attempt?</b>				
No	53 (23)	64 (28)	72 (32)	38 (17)
Yes	20 (19)	44 (43)	27 (26)	12 (12)
<b>Psychiatric assessment</b>				
Psychiatric or personality disorders	29 (21)	41 (29)	48 (34)	22 (16)
Psychiatric disorder in comorbidity with personality disorders	15 (21)	28 (38)	17 (23)	13 (18)
Psychiatric disorder in comorbidity with other disorders	5 (17)	16 (53)	8 (27)	1 (3)
Without history of assessment	24 (28)	23 (26)	26 (30)	14 (16)

## Discussion

The present study aimed to identify the risk factors that predicted repeated suicide attempts in patients attending an emergency department for intentional self-harm. The study also sought to provide a descriptive account of the management given to these patients.

Echoing official Colombian and worldwide epidemiological data (WHO, 2012; Instituto Nacional de Medicina Legal y Ciencias Forenses, 2018), most suicide attempts in this sample occurred amongst early and young adults. Moreover, descriptive analyses showed significant differences in number of previous episodes of intentional self-harm between age groups, and being a young adult was a significant predictor of repeated suicide attempts in the logistic regression analysis. The evidence indicates that this age group is particularly vulnerable to engage in intentional self-harming behaviour repeatedly.

Mean rates of suicide attempts were significantly higher in females compared to males, however being a female did not predict the occurrence of multiple suicide attempts. In the body of literature, women have been found to be significantly likely to engage in self-harm repetitively and to display more medical seeking behaviour. Conversely, males employ more lethal means in the attempt and are more successful at completing the suicide act (Freeman et al., 2017; Ruiz & Chaves, 2017). There seems to be specific risk factors that affect women and men differently (Chang et al., 2019). However, the difference in gender ratios in the sample (80% females compared to 20%) does not provide the present study with enough statistical power to validate the representativeness of these results.

It was found that participants who reported suicidal ideation and those with a previous psychiatric diagnostic (compared with patients without diagnosis) were more likely to engage in suicide behaviour repeatedly. It is well established that suicidal ideation is a predictor of suicidal behaviour (Bebbington et al., 2010; Brezo et al., 2006; O'Brien,

Nicolopoulos, Almeida, Aguinaldo, & Rosen, 2019), and it has been evident also in Colombian samples (e.g., Cardona et al., 2019; Castillo et al., 2020; Tuesca Molina & Navarro Lechuga, 2003). The presence of suicide ideation is a criterion transversely occurring in psychiatric disorders commonly linked to suicide behaviour (De Beurs et al., 2019) and thus, identifying these two risk factors may help prevent future, more severe, suicidal attempts. Similarly, other motivational factors as feelings of entrapment, and hopelessness may also help assess the level of risk in patients displaying intentional self-harm (O'Connor, 2011).

Other studies have identified having a mental disorder as a strong predictor of suicide attempts (Cardona et al., 2019; Castillo et al., 2020) and this was also the case in this sample. However, this study also revealed that individuals with a psychiatric diagnostic in comorbidity with a personality disorder were 12 times more likely to engage in repeated attempts compared to individuals with a single psychiatric diagnostic (e.g., mood or personality) or individuals without a diagnostic (Harris & Barraclough, 1997; Rosenthal et al., 2008). The influence of personality disorders in suicidal ideation and behaviour has been only partially covered by the literature. Borderline personality disorder in particular, has been identified as highly comorbid with other mental disorders and suicide behaviour (Gerson & Stanley, 2002; Parra et al., 2017; Rosenthal et al., 2008). This finding supports the need to further investigate suicidal behaviour in personality disorders, both to enhance the body of literature in this subject, and to develop strategies that help prevent suicide behaviour in these patients.

In this study, the management given to patients attending an emergency department for intentional self-harm mostly included mental health care attention in the form of hospitalization and outpatient services, which follows national guidelines in management of suicide attempts. However, for some patients it was not possible to see a mental health professional, being a missed

opportunity to intervene the suicidal behaviour effectively. These results highlight the need to improve suicide risk assessments and monitoring practices of suicide behaviour within clinical practices and prevention programs (Deisenhammer et al., 2007; WHO, 2012, 2014).

The introduction of evidence-based strategies to manage suicide behaviour in primary care settings are highly encouraged by global institutions preoccupied with suicide prevention. Intentional self-harm episodes are commonly associated with different levels of risk. Patients with high suicide risk are advised to undergo hospitalization in order to stabilize and receive adequate medical monitoring (Schmitz-Buhl et al., 2019; Berman & Silverman, 2014). On the other hand, medium and low-risk patients may benefit from an ambulatory mental health treatment, as isolation may not contribute to the recovery in these patients (Van Veen et al., 2019).

As well as early detection and treatment of risk factors, successful efforts to reduce suicide behaviour should include targeting psychosocial (e.g., change public's attitudes towards psychiatric disorders), and environmental (e.g., access to lethal means) risk factors (Ribley et al., 2017). In the present study, it was observed that amongst medication reportedly utilised, restricted sell items (e.g., antipsychotics and benzodiazepines) comprised over a third of cases of self-inflicted intoxication with medication. The second most common self-intoxication method used was the ingestion of chemicals, some of which are subjected to legal restrictions (e.g., pesticides). While restrictions regarding these substances in Colombia are in place, it is possible that further preventive strategies, as awareness campaigns, need to be introduced to complement those policies.

There are limitations to this study that should be noted. The study comprised a retrospective analysis of data collected at an emergency department and thus, the categorization and recording of data was not under control of the authors (with the exception of the classification between gesture and

intent); results showcase a naturalistic observation of suicide attempts in this hospital. Furthermore, the dataset corresponded to that found in the archives of the hospital and there was no follow-up on the cases of intentional self-harm. These issues hinder generalisability of findings and casual relationships that could potentially be drawn from these results. Future literature would benefit from prospective studies of explicative designs measuring pre-motivational, motivational, and volitional factors interplaying underneath suicide behaviour.

### Conclusion

Introducing recording practices in medical services helps create bodies of data that may be susceptible to analysis. It would be valuable for the literature and for the clinical practice to utilize this knowledge in the development and adaptation of management procedures that help respond to the patient's specific needs. This study's findings showed the predicting relationship between pre motivational (i.e., age), and motivational factors (i.e., psychiatric disorders, personality disorder, and suicidal ideation) in increasing the risk of repeated suicide behaviour. While further evidence is needed, it may be beneficial for the treatment of suicide behaviour to base management procedures upon known predictors, perhaps by including systematic protocols that ensure that patients in high-risk status receive the appropriate follow-up care. Complementary, further efforts should be directed to investigate suicide prevention strategies in the social realm, particularly in reinforcement of restrictions to people's access to lethal means.

### References

- Arenas, A., Gómez-Restrepo, C., & Rondón, M. (2016). Factores asociados a la conducta suicida en Colombia. Resultados de la Encuesta Nacional de Salud Mental 2015. *Revista Colombiana de Psiquiatría*, 45, 68-75. <https://doi.org/10.1016/j.rcp.2016.03.006>
- Ayuso-Mateos, J. L., Baca-García, E., Bobes, J., Giner, J., Giner, L., Pérez, V., ... & Recoms, G. (2012).

- Salud Mental*, 5, 8-23. <https://doi.org/10.1016/j.rpsm.2012.01.001>
- Baca-García, E., Parra, C. P., Perez-Rodriguez, M. M., Sastre, C. D., Torres, R. R., Saiz-Ruiz, J., & de Leon, J. (2007). Psychosocial Stressors May be Strongly Associated With Suicide Attempts. *Stress and Health: Journal of the International Society for the Investigation of Stress*, 23, 191-198. <https://doi.org/10.1002/smi.1137>
- Beautrais, A. L., Joyce, P. R., & Mulder, R. T. (1997). Precipitating Factors and Life Events in Serious Suicide Attempts Among Youths Aged 13 Through 24 Years. *Journal of the American Academy of Child & Adolescent Psychiatry*, 36, 1543-1551. [https://doi.org/10.1016/S0890-8567\(09\)66563-1](https://doi.org/10.1016/S0890-8567(09)66563-1)
- Bebbington, P. E., Minot, S., Cooper, C., Dennis, M., Meltzer, H., Jenkins, R., & Brugha, T. (2010). Suicidal Ideation, Self-harm and Attempted Suicide: Results From the British Psychiatric Morbidity Survey 2000. *European Psychiatry*, 25, 427-431. <https://doi.org/10.1016/j.eurpsy.2009.12.004>
- Berman, A. L., & Silverman, M. M. (2014). Suicide Risk Assessment and Risk Formulation Part II: Suicide Risk Formulation and the Determination of Levels of Risk. *Suicide and Life-Threatening Behavior*, 44, 432-443. <https://doi.org/10.1111/sltb.12067>
- Bilsen, J. (2018). Suicide and Youth: Risk Factors. *Frontiers in psychiatry*, 9, 540. <https://doi.org/10.3389/fpsy.2018.00540>
- Borges, G., Nock, M. K., Abad, J. M. H., Hwang, I., Sampson, N. A., Alonso, J., Andrade, L. H., Angermeyer, M. C., Beautrais, A., & Bromet, E. (2010). Twelve-month Prevalence of and Risk Factors for Suicide Attempts in the WHO World Mental Health Surveys. *The Journal of Clinical Psychiatry*, 71, 1617. <https://doi.org/10.4088/JCP.08mo4967blu>
- Brezo, J., Paris, J., & Turecki, G. (2006). Personality Traits as Correlates of Suicidal Ideation, Suicide Attempts, and Suicide Completions: A Systematic Review. *Acta Psychiatrica Scandinavica*, 113, 180-206. <https://doi.org/10.1111/j.1600-0447.2005.00702.x>
- Cardona, P. N. B., Torres, E. R., González, C. E., & Portilla, M. B. (2019). Intento suicida y factores asociados en dos instituciones de Cali-Colombia. *Revista Ciencia y Cuidado*, 19-31. <https://doi.org/10.22463/17949831.1542>
- Carreño Tapias, S., Sierra Buelvas, F., & Yepes Pabón, S. (2018). Análisis del comportamiento suicida en el departamento del Atlántico en los periodos de Enero a Julio de 2016-Enero a Julio de 2017. <http://hdl.handle.net/20.500.12442/2648>
- Castillo, Y. A. A., Rodríguez, A. M. B., & Torres, N. M. C. (2020). High Prevalence of Two or More Suicide Attempts Associated With Suicidal Ideation and Mental Disease in Colombia 2016. *Revista Colombiana de Psiquiatría (English ed.)*, 49, 95-100. <https://doi.org/10.1016/j.rcp.2018.07.001>
- Chang, B. P., Franklin, J. C., Ribeiro, J. D., Fox, K. R., Bentley, K. H., Kleiman, E. M., & Nock, M. K. (2016). Biological Risk Factors for Suicidal Behaviours: A Meta-analysis. *Translational Psychiatry*, 6, e887-e887. <https://doi.org/10.1038/tp.2016.165>
- Chang, Q., Yip, P. S. F., & Chen, Y.-Y. (2019). Gender Inequality and Suicide Gender Ratios in the World. *Journal of Affective Disorders*, 243, 297-304. <https://doi.org/10.1016/j.jad.2018.09.032>
- Chu, C., Buchman-Schmitt, J. M., Stanley, I. H., Hom, M. A., Tucker, R. P., Hagan, C. R., Rogers, M. L., Podlogar, M. C., Chiurliza, B., & Ringer, F. B. (2017). The Interpersonal Theory of Suicide: A Systematic Review and Meta-analysis of a Decade of Cross-national Research. *Psychological Bulletin*, 143, 1313. <https://doi.org/10.1037/bul0000123>
- De Beurs, D., Ten Have, M., Cuijpers, P., & De Graaf, R. (2019). The Longitudinal Association Between Lifetime Mental Disorders and First Onset or Recurrent Suicide Ideation. *BMC Psychiatry*, 19, 345. <https://doi.org/10.1186/s12888-019-2328-8>
- Deisenhammer, E. A., Huber, M., Kemmler, G., Weiss, E. M., & Hinterhuber, H. (2007). Suicide Victims' Contacts With Physicians During the Year Before Death. *European Archives of Psychiatry and Clinical Neuroscience*, 257, 480-485. <https://doi.org/10.1007/s00406-007-0751-1>
- Franklin, J. C., Ribeiro, J. D., Fox, K. R., Bentley, K. H., Kleiman, E. M., Huang, X., Musacchio, K. M., Jaroszewski, A. C., Chang, B. P., & Nock, M. K. (2017). Risk Factors for Suicidal Thoughts and Behaviors: A Meta-analysis of 50 Years of Research. *Psychological Bulletin*, 143, 187. <https://doi.org/10.1037/bul0000084>

- Freeman, A., Mergl, R., Kohls, E., Székely, A., Gusmao, R., Arensman, E., Koburger, N., Hegerl, U., & Rummel-Kluge, C. (2017). A Cross-national Study on Gender Differences in Suicide Intent. *BMC Psychiatry*, *17*, 234. <https://doi.org/10.1186/s12888-017-1398-8>
- García-Nieto, R., Blasco-Fontecilla, H., de León-Martínez, V., & Baca-García, E. (2014). Clinical Features Associated With Suicide Attempts Versus Suicide Gestures in an Inpatient Sample. *Archives of Suicide Research*, *18*, 419-431. <https://doi.org/10.1080/13811118.2013.845122>
- Gerson, J., & Stanley, B. (2002). Suicidal and Self-injurious Behaviour in Personality Disorder: Controversies and Treatment Directions. *Current Psychiatry Reports*, *4*, 30-38. <https://doi.org/10.1007/s11920-002-0009-6>
- Gómez-Restrepo, C., Rodríguez Malagón, N., Bohórquez, P., Diazgranados, F., Ospina García, M. B., & Fernández, C. (2002). Factores asociados al intento de suicidio en la población colombiana. *Revista Colombiana de Psiquiatría*, *31*, 283-298. [http://www.scielo.org.co/scielo.php?script=sci\\_arttext&pid=S0034-74502002000400002&lng=en&nrm=iso](http://www.scielo.org.co/scielo.php?script=sci_arttext&pid=S0034-74502002000400002&lng=en&nrm=iso)
- Harris, E. C., & Barraclough, B. (1997). Suicide as an Outcome for Mental Disorders. *British Journal of Psychiatry*, *170*, 205-228. <https://doi.org/10.1192/bjp.170.3.205>
- Haw, C., Hawton, K., Niedzwiedz, C., & Platt, S. (2013). Suicide Clusters: A Review of Risk Factors and Mechanisms. *Suicide and Life-Threatening Behavior*, *43*, 97-108. <https://doi.org/10.1111/j.1943-278X.2012.00130.x>
- Hesselbrock, V., Dick, D., Hesselbrock, M., Foroud, T., Schuckit, M., Edenberg, H., Bucholz, K., Kramer, J., Reich, T., & Goate, A. (2004). The Search for Genetic Risk Factors Associated With Suicidal Behavior. *Alcoholism: Clinical and Experimental Research*, *28*, 70S-76S. <https://doi.org/10.1097/01.alc.0000127416.92128.bo>
- Hirsch, J. K., Wolford, K., LaLonde, S. M., Brunk, L., & Morris, A. P. (2007). Dispositional Optimism as a Moderator of the Relationship Between Negative Life Events and Suicide Ideation and Attempts. *Cognitive Therapy and Research*, *31*, 533-546. <https://doi.org/10.1007/s10608-007-9151-0>
- Instituto Nacional de Medicina Legal y Ciencias Forenses. (2018). *Forensis 2018. Datos para la vida*. Instituto Nacional de Medicina Legal y Ciencias Forenses.
- Joiner, T. (2007). *Why People Die by Suicide*. Harvard University Press.
- Knipe, D., Williams, A. J., Hannam-Swain, S., Upton, S., Brown, K., Bandara, P., Chang, S.-S., & Kapur, N. (2019). Psychiatric Morbidity and Suicidal Behaviour in Low and Middle-income Countries: A Systematic Review and Meta-analysis. *PLoS Medicine*, *16*. <https://doi.org/10.1371/journal.pmed.1002905>
- Lin, P.-Y., & Tsai, G. (2004). Association Between Serotonin Transporter Gene Promoter Polymorphism and Suicide: Results of a Meta-analysis. *Biological Psychiatry*, *55*, 1023-1030. <https://doi.org/10.1016/j.biopsych.2004.02.006>
- Luoma, J. B., Martin, C. E., & Pearson, J. L. (2002). Contact With Mental Health and Primary Care Providers Before Suicide: A Review of the Evidence. *American Journal of Psychiatry*, *159*, 909-916. <https://doi.org/10.1176/appi.ajp.159.6.909>
- Mann, J., Ellis, S. P., Currier, D., Zelazny, J., Birmaher, B., Oquendo, M. A., Kolko, D. J., Stanley, B., Melhem, N., & Burke, A. K. (2016). Self-rated Depression Severity Relative to Clinician-rated Depression Severity: Trait Stability and Potential Role in Familial Transmission of Suicidal Behavior. *Archives of Suicide Research*, *20*, 412-425. <https://doi.org/10.1080/13811118.2015.1033504>
- McGirr, A., Renaud, J., Bureau, A., Seguin, M., Lesage, A., & Turecki, G. (2008). Impulsive-aggressive Behaviours and Completed Suicide Across the Life Cycle: A Predisposition for Younger Age of Suicide. *Psychological Medicine*, *38*, 407-417. <https://doi.org/10.1017/S0033291707001419>
- Miller, J. R., Piper, T. M., Ahern, J., Tracy, M., Tardiff, K. J., Vlahov, D., & Galea, S. (2005). Income Inequality and Risk of Suicide in New York City Neighborhoods: A Multilevel Case-control Study. *Suicide and Life-Threatening Behavior*, *35*, 448-459. <https://doi.org/10.1521/suli.2005.35.4.448>
- O'Brien, K. H. M., Nicolopoulos, A., Almeida, J., Aguiñaldo, L. D., & Rosen, R. K. (2019). Why Adolescents Attempt Suicide: A Qualitative Study of the Transition



- From Ideation to Action. *Archives of suicide research*, 1-18. <https://doi.org/10.1080/13811118.2019.1675561>
- O'Connor, R. C. (2011). Towards an Integrated Motivational–volitional Model of Suicidal Behaviour. *International Handbook of Suicide Prevention: Research, Policy and Practice*, 1, 181-198. <https://doi.org/10.1002/9781119998556.ch11>
- O'Connor, R. C., & Kirtley, O. J. (2018). The Integrated Motivational–volitional Model of Suicidal Behaviour. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 373, 20170268. <https://doi.org/10.1098/rstb.2017.0268>
- Parra-Urbe, I., Blasco-Fontecilla, H., Garcia-Parés, G., Martínez-Naval, L., Valero-Coppin, O., Cebrià-Meca, A., ... & Palao-Vidal, D. (2017). Risk of Re-attempts and Suicide Death After a Suicide Attempt: A Survival Analysis. *BMC Psychiatry*, 17, 1-11. <https://doi.org/10.1186/s12888-017-1317-z>
- Ribeiro, J. D., Franklin, J. C., Fox, K. R., Bentley, K. H., Kleiman, E. M., Chang, B. P., & Nock, M. K. (2016). Self-injurious Thoughts and Behaviors as Risk Factors for Future Suicide Ideation, Attempts, and Death: A Meta-analysis of Longitudinal Studies. *Psychological Medicine*, 46, 225-236. <https://doi.org/10.1017/S0033291715001804>
- Riblet, N. B. V., Shiner, B., Young-Xu, Y., & Watts, B. V. (2017). Strategies to Prevent Death by Suicide: Meta-analysis of Randomised Controlled Trials. *The British Journal of Psychiatry*, 210, 396-402. <https://doi.org/10.1192/bjp.bp.116.187799>
- Rosenthal, M. Z., Gratz, K. L., Kosson, D. S., Cheavens, J. S., Lejuez, C. W., & Lynch, T. R. (2008). Borderline Personality Disorder and Emotional Responding: A Review of the Research Literature. *Clinical Psychology Review*, 28, 75-91. <https://doi.org/10.1016/j.cpr.2007.04.001>
- Ruiz, C. P. S., & Chaves, J. A. O. (2017). Factores de riesgo asociados con la aparición de conductas suicidas en adolescentes. *MedUNAB*, 20, 139-147. <https://doi.org/10.29375/012370472272>
- Schmitz-Buhl, M., Gairing, S. K., Rietz, C., Häussermann, P., Zielasek, J., & Gouzoulis-Mayfrank, E. (2019). A Retrospective Analysis of Determinants of Involuntary Psychiatric In-patient Treatment. *BMC Psychiatry*, 19, 127. <https://doi.org/10.1186/s12888-019-2096-5>
- Steed, S., Haigh, M., Webb, R. T., Kapur, N., Awenat, Y., Gooding, P., Pratt, D., & Cooper, J. (2016). The Exacerbating Influence of Hopelessness on Other Known Risk Factors for Repeat Self-harm and Suicide. *Journal of Affective Disorders*, 190, 522-528. <https://doi.org/10.1016/j.jad.2015.09.050>
- Stewart, S. E., Manion, I. G., & Davidson, S. (2002). Emergency Management of the Adolescent Suicide Attempter: A Review of the Literature. *Journal of Adolescent Health*, 30, 312-325. [https://doi.org/10.1016/S1054-139X\(01\)00321-4](https://doi.org/10.1016/S1054-139X(01)00321-4)
- Taylor, P. J., Gooding, P., Wood, A. M., & Tarrier, N. (2011). The Role of Defeat and Entrapment in Depression, Anxiety, and Suicide. *Psychological Bulletin*, 137, 391. <https://doi.org/10.1037/a0022935>
- Tuesca Molina R., & Navarro Lechuga E. (2003). Factores de riesgo asociados al suicidio e intento de suicidio. *Salud Uninorte*, 17. Retrieved from <http://rcientificas.uninorte.edu.co/index.php/salud/article/viewArticle/4165/5613>
- Van Veen, M., Wierdsma, A. I., van Boeijen, C., Dekker, J., Zoeteman, J., Koekkoek, B., & Mulder, C. L. (2019). Suicide Risk, Personality Disorder and Hospital Admission After Assessment by Psychiatric Emergency Services. *BMC Psychiatry*, 19, 157. <https://doi.org/10.1186/s12888-019-2145-0>
- Victor, S. E., & Klonsky, E. D. (2014). Correlates of Suicide Attempts Among Self-injurers: A Meta-analysis. *Clinical Psychology Review*, 34, 282-297. <https://doi.org/10.1016/j.cpr.2014.03.005>
- Wasserman, D., & Wasserman, C. (2009). Oxford Textbook of Suicidology and Suicide Prevention. OUP Oxford. <https://books.google.com.co/books?id=LXkbAQAAAMAJ>
- World Health Organization. (2001). *The World Health Report 2001: Mental health: new understanding, new hope*. World Health Organization.
- World Health Organization. (2012). *Public Health Action for the Prevention of Suicide: A Framework*.
- World Health Organization. (2014). *Suicide Prevention: A Global Imperative*. Geneva: WHO.