FACTORS ASSOCIATED WITH SUICIDAL IDEATION IN ADULTS FROM THE LAMBAYEQUE REGION, PERU, DURING THE COVID-19 PANDEMIC

FACTORES ASOCIADOS A IDEACIÓN SUICIDA EN ADULTOS DEL DEPARTAMENTO DE LAMBAYEQUE-PERÚ DURANTE LA PANDEMIA COVID-19

Almir Carlo Sánchez-Neyra [1,a], Herry Lloclla-Gonzales [1,b], Heber Silva-Díaz [1,2,b]

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ABSTRACT

Objective: Determine the prevalence and factors associated with suicidal ideation in the adult population of the Lambayeque region, Peru, during the COVID-19 pandemic, 2021. **Methods:** Observational, prospective and cross-analytical study; carried out in a sample of 365 adults. Data were collected through Beck's Suicidal Ideation instrument. and a sociodemographic data collection sheet. **Results:** The sample was characterized by a median age of 26 years (IQR=23-32) and a slight predominance of the female sex (52.2%). The prevalence of suicidal ideation was 28.3%; and was associated with young age (p=0.047), female sex (p<0.001), widowed marital status (p=0.002) and excessive alcohol consumption (p<0.001), and no religion (p <0.001), to the low income (p=0.032) and to the illness (p<0.001) or presence of relatives who died from COVID-19 (p<0.001). **Conclusions:** There is a high prevalence of suicidal ideation related to the COVID-19 pandemic, so it is suggested to monitor the mental health of the study population.

Keywords: Suicidal ideation; COVID-19; Mental health; Suicide. (Source: MESH-NLM)

RESUMEN

Objetivo: Determinar la prevalencia y factores asociados a la ideación suicida en la población adulta de la región Lambayeque, Perú, durante la pandemia por la COVID-19, 2021. **Métodos:** Estudio descriptivo, realizado en una muestra de 365 personas adultas. Se utilizó el instrumento de Ideación Suicida de Beck y una ficha de recolección de datos sociodemográficos. **Resultados:** La muestra se caracterizó por una mediana de 26 años (RIC=23-32) y ligero predominio de sexo femenino (52,2%). La prevalencia de ideación suicida fue de 28,3%; y se asoció a la edad juvenil (p=0,047), al sexo femenino (p<0,001), estado civil viudo (p=0,002) y al consumo excesivo de alcohol (p<0,001), no profesar religión (p<0,001), al ingreso económico bajo (p=0,032) y al padecimiento (p<0,001) o presencia de familiares fallecidos por la COVID-19 (p<0,001). **Conclusiones:** Existe una alta prevalencia de ideación suicida relacionada con la pandemia de la COVID-19, por lo que se sugiere vigilar la salud mental de la población de estudio.

Palabras clave: Ideación suicida; COVID-19; Salud mental; Suicidio. (Fuente: DeCS- BIREME)

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INTRODUCTION

Suicidal ideation comprises a series of attitudes, plans, behaviors, and thoughts that a person has regarding suicide. Suicide is a growing public health problem; indeed, the World Health Organization (WHO) reported that approximately 703,000 people of all ages die by suicide every year. In 2019, suicide was the fourth leading cause of death in the age group of 15 to 29 worldwide; over 77% of suicides occurred in low- and middle-income countries. The most common methods are pesticide ingestion, hanging, and firearms[1-3]. It has been demonstrated that experiencing conflicts, loss of loved ones, and isolation as occurs in pandemics can lead to suicidal behaviors[4].

Indeed, the SARS-CoV-2 virus infection, which originated in Wuhan, China, in late 2019, subsequently leading to the COVID-19 pandemic, brought about profound changes in all aspects of humanity, including the mental health of individuals[5,6]. Moreover, the lack of religious beliefs and practices, as well as drug consumption, have been linked to this issue[9]. In Latin America, the average suicide rate is 9.8 per 100,000 inhabitants. In Peru, the suicide rate increased from 0.46 to 1.13 per 100,000 inhabitants between 2004 and 2013, respectively, with higher rates in Pasco, Junín, Tacna, Moquegua, and Huánuco.

The prevalence of suicide attempts is higher in urban areas, especially in Pucallpa (5.4%), Puerto Maldonado (4.5%), and Ayacucho (5.2%)[1,10,11]. A previous study in Peru, conducted on cancer patients at the Instituto Regional de Enfermedades Neoplásicas of Trujillo, reported a suicidal ideation prevalence of 9.8%; no differences were observed regarding sex and disease duration among patients[12]. Another study, conducted on diabetes mellitus patients at a hospital in Trujillo, reported that 21% of them were at risk of suicide. Employment status, unemployment, alcohol consumption, and depression were described as risk factors

In the Lambayeque region, Peru, the prevalence of suicidal ideation among the adult population in the context of the COVID-19 pandemic, as well as the associated characteristics, is unknown. Therefore, this study aimed to estimate the prevalence of suicidal ideation in the adult population of the Lambayeque region during the COVID-19 pandemic, as well as to identify the socioeconomic, demographic, and family background characteristics associated with suicidal ideation.

METHODS

Population and sample

The population consisted of 1,310,785 individuals, according to data from the Instituto Nacional de Estadística e Informática of Peru. Epidat version 4.1 was used, and a probabilistic sample of 385 individuals was obtained, with a 95% confidence level, 5% precision, and an expected proportion of 50%. The sampling design was multistage. In the first stage, a proportional stratified sampling was conducted by provinces: 254 individuals in Chiclayo, 100 in Lambayeque, and 31 in Ferreñafe. The second stage was performed through cluster sampling in 20 districts of Chiclayo, 12 of Lambayeque, and 6 of Ferreñafe, where four districts of Chiclayo were randomly chosen: Pátapo, Monsefú, Picsi, and Tumán; three of Lambayeque: Illimo, Jayanca, and Mochumí; and two of Ferreñafe: Ferreñafe and Pueblo Nuevo.

The selection of sample units in each district was by convenience, and the health center of each chosen district was used as the enrollment point. The number of samples per district was determined by simple affixation of the number corresponding to each province: Pátapo 64, Monsefú 64, Picsi 63, Tumán 63, Illimo 33, Jayanca 33, Mochumí 34, Ferreñafe 16, Pueblo Nuevo 15. The inclusion criteria were individuals over 18 years old with a minimum residence of one year during the COVID-19 pandemic in 2021. Those diagnosed with schizophrenia, psychosis, or altered consciousness were excluded.

Data collection

The data were collected using a survey technique, and the Beck Scale for Suicidal Ideation was utilized as the instrument. This instrument was applied and validated in Peru by the Ministry of Health in the clinical practice guidelines in Mental Health and Psychiatry. It was created by Aaron Beck and validated in 1979 at the National Institute of Mental Health in the United States[14].

The instrument exhibits high internal consistency (Cronbach's alpha coefficient of 0.89 – 0.96) and inter-rater reliability of 0.84[14,15]. The instrument consists of 19 questions, structured into four subscales: a) characteristics of attitudes toward life/death, b) characteristics of thought/suicidal desires, c) characteristics of intent, and d) intent update. The scoring range is from 0 to 38, as each item has three responses ranging from 0 to 2. If the score for the first five items is 0, the subsequent questions are skipped, and the participant is considered to have no risk.

Additionally, a questionnaire was administered for the collection of sociodemographic data, including age, sex, marital status, alcohol consumption, religion, province of residence, place of birth, monthly income, and accompaniment, as well as family history: COVID-19 experience, family history of suicide attempts, family member deceased from COVID-19, and parents' marital status. The instruments were self-administered but with in-person assistance from the researchers.

Data Analysis
The collected data were tabulated in a Microsoft Office Excel 2019 spreadsheet. Statistical analysis was performed using STATA v.16 software. Univariate analysis involved calculating absolute frequencies and percentages with their respective 95% confidence intervals for categorical variables, and measures of central tendency and dispersion for numeric variables. Bivariate analysis of categorical variables was conducted using the Chi-square test and Fisher's exact test, as well as prevalence ratios (PR) and 95% confidence intervals (95% CI). A significance level of 0.050 was maintained throughout the analysis.

Ethical considerations
The study protocol was reviewed and approved by the Ethics Committee of the Faculty of Human Medicine at the University of San Martín de Porres, under reference number 400-2021. Participation in the study was voluntary and anonymous, following the signing of an informed consent form. Throughout the data collection, processing, and analysis, confidentiality and anonymity of the participants were ensured by assigning a numerical code. The data were safeguarded by the principal investigator and stored on a restricted-access personal computer.

RESULTS
The prevalence of suicidal ideation was 28.3% (95% CI: 23.8-32.8). The social, family background, and demographic characteristics of the sample are described in Tables 1 and 2. Likewise, bivariate analysis showed a higher likelihood of suicidal ideation in females, widowed individuals, and those who consume alcohol more than three times a week, as well as in individuals who did not profess any religion and those who had COVID-19 (Table 1). Additionally, a higher likelihood of suicidal ideation was observed in the population with monthly incomes below S/. 750.00, individuals with a family history of suicide attempts, and those who had family members deceased due to COVID-19 (Tables 1 and 2).

Table 1. Social characteristics and family background of the adult population in the Lambayeque region during the COVID-19 pandemic in 2021 and their association with suicidal ideation (N=385).

Variable	N	% (95% CI)	Suicidal ideation / total (%)	P value	PR (95% CI)
Age (years)					
18 to 29	262	68.1 (63.4-72.8)	82/262 (31.3)		3.03(1.20-7.62)
30 to 39	94	24.4 (20.1-28.7)	24/94 (25.5)	0.047*	2.47(0.88- 6.91)
40 or more	29	7.5 (4.9-10.1)	3/29 (10.3)		Ref.
Sex					
Female	201	52.2 (47.2-57.2)	76/201 (37.8)		2.11(1.50-2.96)
Male	184	47.8 (42.8-52.8)	33/184 (17.9)	<0.001†	Ref.

	N	% (95% CI)	Suicidal ideation / total (%)	P value	PR (95% CI)
Marital status					
Cohabitant	66	17.1 (13.3-20.9)	20/66 (30.3)		2.27(1.18-4.39)
Single	225	58.4 (53.5-63.3)	67/225 (29.8)	0.002*	2.23(1.28-3.90)
Widowed	19	5 (2.8-7.2)	12/19 (63.2)		4.74 (2.43-9.25)
Married	75	19.5 (15.5-23.5)	10/75 (13.3)		Ref.
Consumption of alcohol					
More than 3 times a week	58	15 (11.4-18.6)	34/58 (58.6)		3.91(2.09-7.28)
Less than 3 times a week	132	34.3 (29.6-39.0)	39/132 (29.5)	<0.001*	1.97(0.95-4.07)
Less than 5 times per year	155	40.3 (35.4-45.2)	30/155 (19.4)		1.29(0.58-2.85)
Never	40	10.4 (7.4-13.5)	6/40 (15)		Ref.
Religion					
Christian (catholic)	246	63.9 (59.1-68.7)	66/246 (26.8)		2.15(1.21-3.79)
None	59	15.3 (11.7-18.9)	33/59 (55.9)	<0.001*	4.47(2.61-7.67)
Christian (others)	80	20.8 (16.8-24.9)	10/80 (12.5)		Ref.
Had COVID-19					
Yes	119	30.9 (26.3-35.5)	73/119 (61.3)		4.53(3.33-6.17)
No	266	69.1 (64.5-73.7)	36/266 (13.5)		Ref.
Family history of suicide attempt					
Yes	57	14.8 (11.3-18.4)	43/57 (75.4)		3.75(2.77-5.08)
No	328	85.2 (81.7-88.8)	66/328 (20.1)	<0.001†	Ref.
Family member deceased by COVID-19					
Yes	69	17.9 (14.1-21.7)	54/69 (78.3)		4.49(3.36-6.01)
No	316	82.1 (78.3-85.9)	55/316 (17.4)	<0.001†	Ref.
Marital status of the parents					
Cohabitants	121	31.4 (26.8-36.0)	33/121 (27.3)		1.72(1.11-2.66)
Separated	55	14.3 (10.8-17.8)	27/55 (49.1)	<0.001*	3.09(2.00-4.77)
Widowed	20	5.2 (2.98-7.4)	19/20 (95.0)		5.99(3.84-9.32)
Married	189	49.1 (44.1-54.1)	30/189 (15.9)		Ref.

PR = Prevalence Ratio, * Pearson's Chi-square p-value; † Fisher's exact test p-value

Table 2. Demographic characteristics of the adult population in the Lambayeque region during the COVID-19 pandemic in 2021 and their association with suicidal ideation (N=385).

Variable	N	% (95% CI)	Suicidal ideation / total (%)	P value	PR (95% CI)
Province of residence					
Chiclayo	254	66 (61.3-70.7)	74/254 (29.1)		1.13(0.61-2.09)
Lambayeque	100	25 (20.7-29.3)	27/100 (27.0)	0.876*	1.05(0.53-2.06)
Ferreñafe	31	8 (5.3-10.7)	8/31 (25.8)		Ref.

Place of birth					
Cajamarca	38	9.9 (6.9-12.9)	16/38(42.1)		1.94(0.87-4.33)
Chiclayo	182	47.3 (42.3-52.3)	53/182(29.1)	0.179*	1.34(0.62-2.91)
Lambayeque	104	27.0 (22.6-31.4)	23/104(22.1)		1.02(0.43- 2.39)
Other	38	9.9 (6.9-12.9)	12/38(31.6)		1.45(0.59-3.53)
Ferreñafe	23	5.9 (3.6-8.3)	5/23(21.7)		Ref
Monthly economic income (S/.)					
More than 2000.00	138	35.8 (31.0-40.6)	37/138 (26.8)		1.49(0.85-2.64)
Between 750.00 and 999.00	43	11.2 (8.1-14.4)	10/43 (23.3)		1.29(0.61-2.75)
Less than 750.00	137	35.6 (30.8-40.4)	50/137 (36.5)	0.032*	2.04(1.22-3.41)
Between 1000.00 and 1999.00	67	17.4 (31.6-21.2)	12/67 (17.9)		Ref.
Compaňy					
Lives alone	70	18.2 (14.4-22.1)	24/70 (34.3)	0.241†	1.27(0.87-1.87)
Accompanied	315	81.8 (77.9-85.7)	85/315 (27.0)		Ref.

PR = Prevalence Ratio, * Pearson's Chi-square p-value; † Fisher's exact test p-value

DISCUSSION

The 28.3% suicidal ideation observed in the study population could be explained by the high morbidity and mortality rates throughout the COVID-19 pandemic and the mandatory quarantine; both actions could have led to emotional disturbance such as distress, depression, or anxiety, which may have caused suicidal ideation, followed by suicide attempts [5]. This prevalence contrasts with the 20.8% suicidal ideation reported in a previous study in HIV population in Spain [16], as well as the 21% reported in diabetic patients in Trujillo in 2018 [13]. On the other hand, this higher frequency of suicidal ideation may be attributed to the context of the COVID-19 pandemic, during which suicide risk factors increased due to fear of getting sick, loss of employment, economic hardship, social isolation, and sudden death of family members, among other factors [6].

In this study, the highest proportion of suicidal ideation was found in the female population, a trend similar to that reported previously by a study in university students in China, where women had a prevalence of 20.4% compared to 13.1% in males [17]. Despite this trend, men are at higher risk of completed suicide,

mainly due to the greater lethality of the methods used and associated psychological factors [17]. However, another study in HIV patients in Africa reported that it was men who had a higher suicidal ideation prevalence with 45.9% compared to 25.3% in women [18]; this finding is likely due to the majority of HIV patients being men who have sex with men. Regarding marital status, we observed a higher likelihood of suicidal ideation in widowed individuals, which can be explained by the absence of a partner to emotionally support them during the social changes represented by the pandemic. Different results were observed in a previous study in diabetic population of a hospital in Trujillo, Peru, where cohabitants and married individuals were reported to have a higher suicide risk [13].

Excessive alcohol consumption can also influence psychological state and, therefore, represent a higher probability of suicidal ideation, as observed in this study and another previously conducted in diabetic population, where alcohol consumption was significantly higher in the group of patients with suicidal thoughts [13]. Indeed, alcohol can generate psychological distress and manifest in feelings of loneliness, confusion, and hopelessness, thus

increasing the likelihood of suicidal ideation. A meta-analysis study suggests that alcoholism is a cause of violent behaviors, suicide, self-aggression, traffic injuries, falls, burns, and workplace injuries[9].

Regarding religion, it was observed that those who did not practice any religion had a higher prevalence of suicidal ideation. This finding can be explained by recent studies identifying that religious beliefs and practices can serve as psychological and social resources to cope with stress, depression, suicide, anxiety, psychosis, and substance abuse, since practicing a religion, especially Christianity, could represent powerful sources of comfort, hope, and existential meaning [7,8]. In our study, participants who had experienced COVID-19 had a higher frequency of suicidal ideation. This may be due to the fear of death from this infection, a situation that leads to emotional disturbance such as distress, depression, or anxiety, which can lead to suicidal ideation, followed by suicide attempts, and ultimately, completed suicide[5]. A higher proportion of suicidal ideation was found in individuals with family history of suicide attempts; this data is consistent with the meta-analysis study conducted by Denis-Rodríguez et al. (2017) in medical students in Latin America and their family history. It is also observed that individuals who had a family member deceased from COVID-19 had three times higher probability

of suicidal ideation. This event could be explained by complicated and persistent grief, as during the COVID-19 pandemic, to contain the virus spread, traditional burial rituals were prohibited throughout Peru, so people could not bid farewell to their deceased relatives in hospitals [4].

This study had some limitations. First, there may have been selection bias, as participants in each district were chosen conveniently among attendees at their health center; however, probabilistic sampling through stratification and conglomerates in the selection of provinces and districts, respectively, allows for acceptable external validity of the results. Second, mandatory biosafety measures and personal protective equipment during data collection did not allow for optimal personal connection and trust-building with individuals. In conclusion, during the COVID-19 pandemic in 2021, nearly three out of every 10 adults in the Lambayeque region presented suicidal ideation. This was associated with age, female sex, widowed marital status, excessive alcohol consumption, non-religious affiliation, low economic income, COVID-19 infection, and family history of COVID-19-related death and suicide attempts. It is suggested to monitor mental health regarding suicidal thoughts, suicide attempts, and suicide in the post-COVID-19 period in the studied population.

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Correspondence: Heber Silva-Díaz.
Address: Pro. Augusto B. Leguía N° 100, Chiclayo, Lambayeque, Perú.
Telephone: +051 965902275
E-mail: hsilvad@usmp.pe

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