Suicidal Ideation Trends and Associated Factors in Different Large Spanish Samples During the First Year of the COVID-19 Pandemic

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Data suggest an increased prevalence of depressive disorder and suicidal ideation (SI) (both closely connected with suicidal behavior) associated with the COVID-19 pandemic.[1]

The main study objective was to determine the prevalence of passive SI (PSI) and active SI (ASI) in Spanish general population surveys conducted at 3 points in time during the COVID-19 pandemic. We also characterize the main factors associated with ASI.

Methods

Three cross-sectional online surveys, designed to assess the psychological impact of the pandemic in the Spanish population 18 years and older, were conducted April 16–23, 2020 (S1: peak of first wave); October 14–November 8, 2020 (S2: peak of second wave); and March 16–31, 2021 (S3: after third wave). Study procedures were similar to those described elsewhere.[2,3] Studies were conducted according to the Declaration of Helsinki, using an ad hoc sociodemographic and clinical questionnaire and the Spanish versions of the Depression, Anxiety and Stress Scale (DASS-21)[4] and Paykel Suicide Scale (PSS).[5] It should be noted that COVID-19 vaccination status and specific questions about sleep problems, complaints, and satisfaction were included only in S3. PSI was defined as positive answers to PSS items 1 and/or 2, and ASI, as positive answers to PSS items 3 and/or 4. In each survey, the comparison between groups (with and without ASI) was carried out using an exploratory χ^2 test to establish different groups for categorical variables and a 1-way analysis of variance with a Bonferroni post hoc analysis for continuous variables. Forward stepwise regression models were estimated to determine independent factors associated with "active suicidal ideation during past month" (no/yes). Odds ratios and 95% confidence intervals were calculated. IBM SPSS Version 24.00 (IBM Corp, Armonk, NY) was used for all data analyses, and the P value was set at $< .05$.

Results

Sociodemographic and clinical characteristics of the samples are described in Supplementary Table 1. At S1, PSI was detected in 317 respondents (5.2%; mean [SD] age, 41.64 [14.55] years; males vs females: 76 [4.2%] vs 241 [5.6%], $P = .021$) and ASI in 223 respondents (3.7%; age, 39.25 [13.03]; males vs females: 54 [3.0%] vs 169 [3.9%], $P = .068$). At S2, PSI was detected in 1,024 respondents (16.0%; age, 32.03 [10.07]; males vs females: 69 [10.0%] vs 955 [16.7%], $P < .001$) and ASI in 590 respondents (9.2%; age, 31.27 [10.95]; males vs females: 57 [8.3%] vs 533 [9.3%], $P = .429$). At S3, PSI was detected in 590 respondents (10.4%; age, 36.69 [11.95]; males vs females: 55 [5.1%] vs 535 [11.7%], $P < .001$) and ASI in 415 respondents (7.3%; age, 34.89 [11.36]; males vs females: 58 [5.4%] vs 357 [7.8%], $P < .007$). In all surveys, subjects with PSI and ASI were younger than subjects without suicidal ideation ($P < .001$), and no age differences were found between subjects with PSI and those with ASI. Logistic regression models were run to assess variables associated with ASI in all surveys (Table 1).

Discussion

To our knowledge, this study is one of the first to show the evolution of SI in large Spanish population samples during the COVID-19 pandemic. Data show a high prevalence of PSI and ASI at the 3 points in time. In all surveys, the prevalence of prior-month SI was much higher than reported in the adult general population during the 12 months before (2001/2002) and after (2011/2012) the economic crisis[6] (0.69% and 0.89%, respectively), and even during the very early stage of the pandemic.[7] However, prior data suggest that only suicide attempts, and not SI, were more common in psychiatric admissions during the COVID-19 pandemic than before.[8] The large increase in prevalence of both PSI

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Table 1. Factors Associated With Active Suicidal Ideation (Past Month) in Surveys of the Spanish General Population Conducted at 3 Points in Time During the COVID-19 Pandemic

	Survey 1 (April 16–22, 2020)			Survey 2 (October 14–November 8, 2020)			Survey 3 (March 16–31, 2021)		
	β	*P* value	OR (95% CI)	β	*P* value	OR (95% CI)	β	*P* value	OR (95% CI)
Variable									
Sex (female)				−0.462	.005	0.630 (0.455–0.872)[a]			
Age							−0.027	<.001	0.974 (0.963–0.984)[a]
Educational level									
Primary (reference)					.001				
Secondary				−0.570	.146	0.566 (0.262–1.220)			
Higher				−0.896	.022	0.408 (0.189–0.880)[b]			
Work status									
Unemployed (reference)					<.001				
Employed/retired				−0.630	<.001	0.533 (0.398–0.713)[b]			
Self-employed				−0.178	.436	0.837 (0.534–1.311)			
Other				−0.373	.019	0.688 (0.505–0.939)[a]			
Income (€)									
No income (reference)								.039	
500–1,500							−0.173	.281	0.841 (0.615–1.152)
>1,500							−0.472	.007	0.624 (0.443–0.879)[a]
Prefer not to answer							−0.335	.265	0.716 (0.398–1.288)
Changes in income due to COVID-19									
No changes (reference)		.013						.002	
Reduction, ≤ 50%	0.324	.074	1.382 (0.969–1.973)				0.303	.039	1.354 (1.016–1.807)[a]
Reduction, 51%–100%	0.636	.003	1.899 (1.245–2.865)[b]				0.656	.002	1.926 (1.267–2.928)[b]
Increase	0.652	.303	1.920 (0.555–6.649)				0.480	.027	1.616 (1.055–2.475)[a]
COVID-19 diagnosis (yes)	0.433	.030	1.542 (1.042–2.283)[a]						
Living situation									
Alone (reference)								<.001	
With 1 other person							−0.662	<.001	0.516 (0.370–0.719)[b]
With more than 1 other person							−0.532	.001	0.588 (0.430–0.803)[b]
Dependent children									
None (reference)					.001				
1				−0.391	.014	0.677 (0.496–0.922)[a]			
More than 1				−0.485	.002	0.616 (0.454–0.835)[a]			
Past history of mental disorder									
No lifetime mental disorder (reference)		<.001			<.001			<.001	
Past mental disorder	0.042	.852	1.043 (0.671–1.620)	0.323	.044	1.382 (1.008–1.893)[a]	0.399	.015	1.490 (1.081–2.053)[a]
Current mental disorder	0.782	<.001	2.186 (1.529–3.124)[b]	1.247	<.001	3.479 (2.785–4.347)[b]	1.160	<.001	3.191 (2.489–4.091)[b]
Personal history of suicide attempt (yes)	1.171	<.001	3.224 (2.158–4.817)[b]	1.104	<.001	3.017 (2.278–3.996)[b]	1.350	<.001	3.856 (2.736–5.434)[c]
Able to enjoy free time (yes)	−0.552	.002	0.576 (0.404–0.821)[b]				−0.370	.001	0.691 (0.557–0.857)[a]
DASS-21 depression (yes)	1.669	<.001	5.469 (3.299–9.065)[c]	1.372	<.001	3.943 (2.819–5.515)[c]			
DASS-21 anxiety (yes)	0.835	<.001	2.305 (1.602–3.315)[b]	0.487	<.001	1.628 (1.285–2.062)[b]			
DASS-21 stress (yes)	0.728	<.001	2.070 (1.445–2.966)[b]	0.666	<.001	1.946 (1.515–2.499)[b]			
Insomnia (yes)[d]							0.604	<.001	1.829 (1.387–2.412)[b]
Sleep satisfaction[d]									
Dissatisfaction (reference)								<.001	
Neutral							−0.405	.004	0.667 (0.505–0.880)[a]
Satisfaction							−0.743	<.001	0.475 (0.351–0.644)[b]
Constant	−5.096	<.001	0.006	−2.910	<.001	0.054	−1.005	.001	0.366
Logistic regression									
Cox and Snell *R*		.079			.132			.076	
Nagelkerke R^2		.292			.288			.187	
Hosmer-Lemeshow χ^2 [*df*], *P*		5.729 [6], .454			5.697 [8], .681			14.410 [8], .072	
Correct predictions		96.3%			91.0%			92.7%	

[a]Cohen *d* equivalence: insignificant (OR < 1.68). [b]Cohen *d* equivalence: small (OR = 1.68–3.47). [c]Cohen *d* equivalence: medium (OR = 3.48–6.71). [d]Insomnia and sleep satisfaction assessment was included only in Survey 3.

Abbreviations: CI = confidence interval; DASS-21 = Depression, Anxiety and Stress Scale; OR = odds ratio.

and ASI, especially during the second and third waves, may be due to the different baseline sample characteristics, but possibly also to psychological fatigue after several months of living with COVID-19 pandemic risks and restrictions.[3] Personal history of suicide attempt; current or past history of mental disorder; insomnia; DASS-21 depression, anxiety, or stress; and reduction in income (> 50%) are consistent risk factors for ASI. However, the main protective factor was being able to enjoy free time. Our data suggest that risk and protective factors are dynamic and change slightly depending on the time point and stage of the pandemic.

The main limitations are the cross-sectional online nature of the surveys, which precludes establishing causality, and the use of 3 independent convenience samples, which precludes establishing a rigorous longitudinal SI trend and does not exclude the possibility that the data reflect cohort effects. Further, the included samples are smaller than other samples recently reported. Our data suggest some risk and protective factors associated with ASI during different stages of the COVID-19 pandemic in Spain that could contribute to better adaptation of evidence-based suicide prevention strategies during and after the pandemic.[9]

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Supplementary material: Available at PSYCHIATRIST.COM

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Supplementary Material

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List of Supplementary Material for the article

1. Table 1 — Sociodemographic and Clinical Characteristics of the Spanish General Population Samples Included in Three Surveys Conducted at Three Points in Time During the COVID-19 Pandemic

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Supplementary Table 1. Sociodemographic and clinical characteristics of the Spanish general population samples included in three surveys conducted at three points in time during the COVID-19 pandemic

	Survey 1 (April 16-22, 2020) Total sample (n = 6,108)[1]	Survey 2 (October 14 – November 8, 2020) Total sample (n = 6,418)[2]	Survey 3 (March 16-31, 2021) Total sample (n = 5,654)[3]	*P* Value (Statistically different groups)
Age [mean (SD)]	45.78 (14.15)	34.71 (11.74)	39.65 (12.65)	< .001 (1≠2≠3)
Sex (female) [n(%)]	4,280 (70.1)	5,731 (89.3)	4,575 (80.9)	< .001 (1≠2≠3)
Marital status [n(%)]				
Never married	2,080 (34.1)	3,488 (54.3)	2,351 (41.6)	< .001 (1≠2≠3)
Married / Living as married	3,365 (55.1)	2,645 (41.2)	2,947 (52.1)	< .001 (1≠2 & 2≠3); .001 (1≠3)
Separated / Divorced / Widowed	663 (10.9)	285 (4.4)	356 (6.3)	< .001 (1≠2≠3)
Educational level [n(%)]				
Primary	99 (1.6)	53 (0.8)	36 (0.6)	< .001 (1≠2 & 1≠3)
Secondary	1,763 (28.9)	1,983 (30.9)	1,634 (28.9)	.014 (1≠2); .018 (2≠3)
Higher	4,246 (69.5)	4,382 (68.3)	3,984 (70.5)	.010 (2≠3)
Work status [n(%)]				
Unemployed	518 (8.5)	506 (7.9)	358 (6.3)	< .001 (1≠3); .001 (2≠3)
Employed / Retired	2,748 (45.0)	3,954 (61.6)	3,906 (69.1)	< .001 (1≠2≠3)
Self-employed	2,098 (34.3)	422 (6.6)	455 (8.0)	< .001 (1≠2 & 1≠3); .002 (2≠3)
Other	744 (12.2)	1,536 (23.9)	935 (16.5)	< .001 (1≠2≠3)
Income (€) [n(%)]				
No income	592 (9.7)	1,293 (20.1)	784 (13.9)	< .001 (1≠2≠3)
500-1500	2,008 (32.9)	2,343 (36.5)	1,855 (32.8)	< .001 (1≠2 & 2≠3)
> 1500	3,038 (49.7)	2,376 (37.0)	2,729 (48.3)	< .001 (1≠2 & 2≠3)
Prefer not to answer	470 (7.7)	406 (6.3)	286 (5.1)	.003 (1≠2 & 2≠3); < .001 (1≠3)
Changes in income due to COVID-19 [n(%)]				
No changes	4,334 (71.0)	4,602 (71.7)	4,279 (75.7)	< .001 (1≠2≠3)
Reduction, ≤ 50%	1,182 (19.4)	1,256 (19.6)	861 (15.2)	< .001 (1≠2≠3)
Reduction, 51-100%	533 (8.7)	341 (5.3)	201 (3.6)	< .001 (1≠2≠3)
Increase	59 (1.0)	219 (3.4)	313 (5.5)	< .001 (1≠2≠3)
Living situation [n(%)]				
Alone	783 (12.8)	643 (10.0)	620 (11.0)	< .001 (1≠2); .002 (1≠3)
With one other person	2,325 (38.1)	2,219 (34.6)	2,016 (35.7)	< .001 (1≠2); .007 (1≠3)
With more than one	3,000 (49.1)	3,556 (55.4)	3,018 (53.4)	< .001 (1≠2 & 1≠3); < .027 (2≠3)
Dependent children [n(%)]				
None	3,789 (62.0)	4,441 (69.2)	3,393 (60.0)	< .001 (1≠2 & 2≠3); .026 (1≠3)
One	1,092 (17.9)	878 (13.7)	926 (16.4)	< .001 (1≠2 & 2≠3); .033 (1≠3)
More than one	1,227 (20.1)	1,099 (17.1)	1,335 (23.6)	< .001 (1≠2≠3)
Elderly dependents [n(%)]				

None	5,428 (88.9)	5,842 (91.0)	4,964 (87.8)	< .001 (1≠2 & 2≠3)
One	523 (8.6)	400 (6.2)	472 (8.3)	< .001 (1≠2 & 2≠3)
Two or more	157 (2.6)	176 (2.7)	218 (3.9)	< .001 (1≠3); .001 (2≠3)
Chronic physical disease (Yes) [n(%)]	1,295 (21.2)	1,081 (16.8)	1,279 (22.6)	< .001 (1≠2 & 2≠3)
Diagnosed with COVID-19 disease (Yes) [n(%)]	566 (9.3)	1,013 (15.8)	696 (12.3)	< .001 (1≠2≠3)
Family / Friends diagnosed with COVID-19 disease (Yes) [n(%)]	2,398 (39.3)	4,195 (65.4)	-	< .001 (1≠2)
Family / Friends died of COVID-19 (Yes) [n(%)]	705 (11.5)	819 (12.8)	1,272 (22.5)	.040 (1≠2); < .001 (1≠3 & 2≠3)
Frontline worker [n(%)]*				
No	-	3,836 (59.8)	3,231 (57.1)	.004 (2≠3)
Healthcare worker	-	1,575 (24.5)	1,316 (23.3)	NS
First responder	-	28 (0.4)	254 (4.5)	< .001 (2≠3)
Other	-	979 (15.3)	853 (15,1)	NS
Past history of mental disorder [n(%)]				
No lifetime mental disorder	4,812 (78.8)	4,014 (62.5)	4,344 (76.8)	< .001 (1≠2 & 2≠3); .012 (1≠3)
Past mental disorder	786 (12.9)	914 (14.2)	606 (10.7)	< .001 (1≠3 & 2≠3); .027 (1≠2)
Current mental disorder	510 (8.3)	1,490 (23.2)	704 (12.5)	< .001 (1≠2≠3)
Personal history of suicide attempt (Yes) [n(%)]	264 (4.3)	329 (5.1)	215 (3.8)	< .001 (2≠3); .038 (1≠2)
Able to enjoy free time (Yes) [n(%)]	5,690 (93.2)	5,453 (85.0)	3,353 (59.3)	< .001 (1≠2≠3)
DASS-21 Depression (Yes) [n(%)]	2,523 (41.3)	3,623 (56.5)	2,552 (45.1)	< .001 (1≠2≠3)
DASS-21 Anxiety (Yes) [n(%)]	1,056 (17.3)	2,374 (37.0)	2,443 (43.2)	< .001 (1≠2≠3)
DASS-21 Stress (Yes) [n(%)]	1,151 (18.8)	2,634 (41.0)	2,440 (43.2)	< .001 (1≠2 & 1≠3); .020 (2≠3)
Insomnia (Yes) [n(%)]**	-	-	2,320 (41.0)	-
Sleep complaints (Yes) [n(%)]**	-	-	3,456 (61.1)	-
Sleep satisfaction [n(%)]**				
Dissatisfied	-	-	1,523 (26.9)	-
Neutral	-	-	1,218 (21.5)	-
Satisfied	-	-	2,913 (51.5)	-

*Family / Friends diagnosed with COVID-19 disease was assessed only in Surveys 1 and 2; **Sleep problems, complaints, and satisfaction assessment was included only in Survey 3.

Abbreviations: DASS-21: Depression, Anxiety and Stress Scale; NS: Not statistically significant