

Prevalence and Trends in Hospitalizations for Suicidal ideation, Suicide, and Self-inflicted Harm among Patients with Cirrhosis: A Nationwide Analysis



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Introduction

- Chronic illnesses have been associated with suicidal ideation (SI), suicide and self-inflicted harm (S/SIH).
- Suicidality in patients with cirrhosis is understudied.
- We sought to describe trends, predictors, and outcomes of SI and S/SIH among hospitalized patients with cirrhosis.

Methods

- Using the 2007-2014 Nationwide Inpatient Sample, we determined trends in cirrhosis-related SI and S/SIH hospitalizations.
- We compared baseline characteristics between patients with cirrhosis hospitalized with SI and S/SIH vs. those without suicidality.
- Multivariable regression analysis was used to identify patient-level predictors of SI and S/SIH. We also compared outcomes including all-cause inpatient mortality, hospital length of stay (LOS), and costs.

Results

- SI and S/SIH-related hospitalizations accounted for 1.2% of cirrhosis admissions.
- SI hospitalizations increased steadily while those for S/SIH decreased after peaking in 2010 (Figure 1).
- The majority of SI and S/SIH hospitalizations occurred in men, Medicaid patients, and among individuals with depression and anxiety [Table 1].
- On multivariable analysis, older age (adjusted odds ratio [aOR] 0.12, 95% Confidence Interval [C.I.] 0.1-0.13), female sex (aOR =0.77, 95%CI= 0.78-0.81), and private payer status (aOR =0.58, 95%CI= 0.54-0.63) were associated with lower odds of SI and S/SIH.

Results

- Blacks (aOR=0.55, 95%CI=0.5-0.6) and Hispanics (OR=0.63, 95%CI= 0.57-0.7) had significantly lower odds of suicidality compared to White patients.
- Patients from lower ecological socioeconomic groups, those on Medicaid (aOR=1.21, 95%CI=1.13-1.29), and those with depression (aOR=1.63, 95%CI=1.52-1.75) and anxiety (aOR=2.58, 95%CI=2.41-2.76) had higher adjusted odds of suicidality.

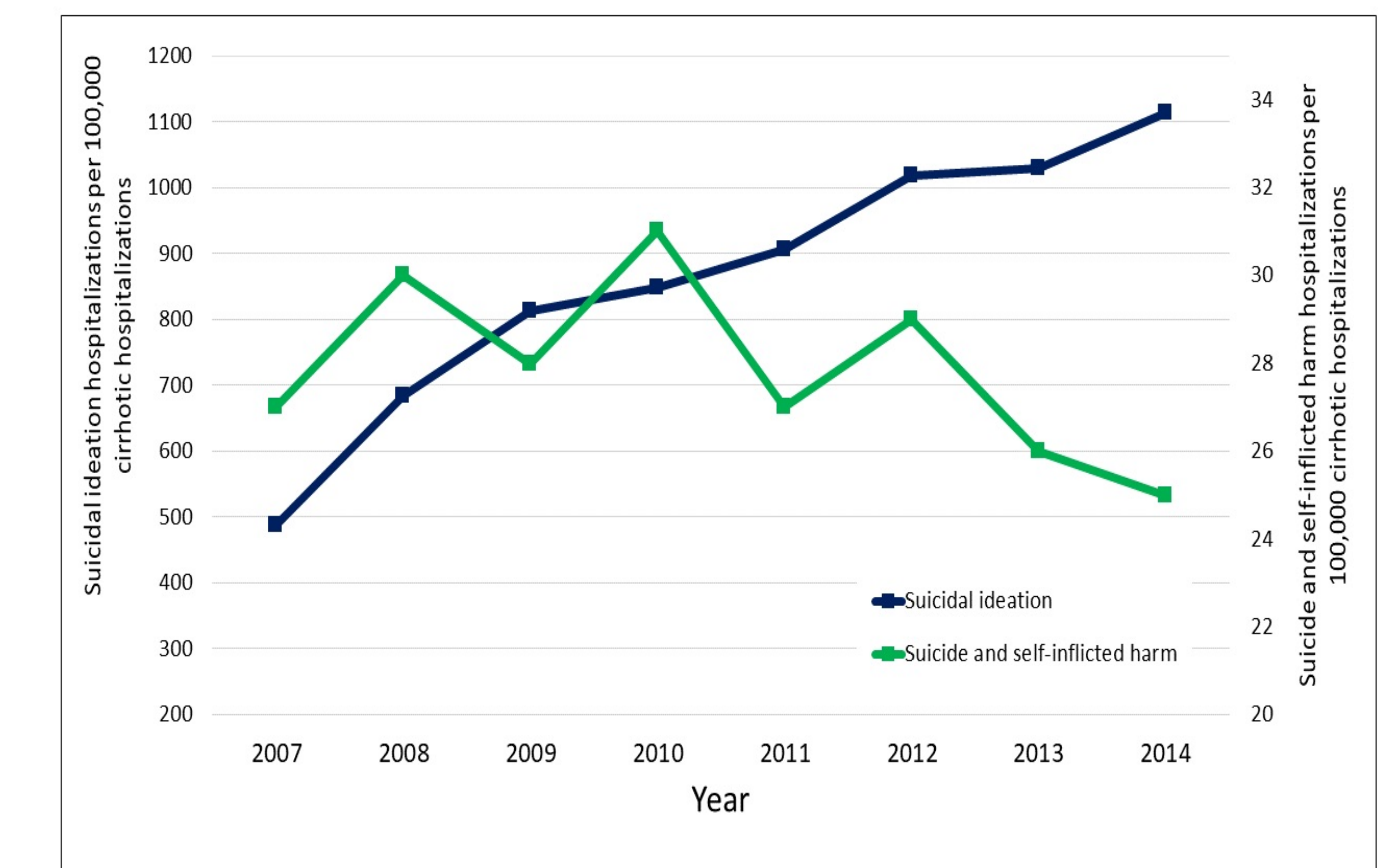
Table 1: Demographic characteristics and comorbidities of cirrhotic patients hospitalized for suicide ideation and self-inflicted injury

	None	Suicidal ideation	Suicide and self-inflicted harm	P-value
Weighted, n	3990744	35759	11245	
Age in years, mean (SD)	58.4 (0.06)	50.7 (0.13)	49.3 (0.21)	< 0.001
Age groups				
18-39	204102 (5.1%)	3997 (11.2%)	1559 (13.9%)	<0.001
40-64	Depression	29648 (82.9%)	9187 (81.7%)	
65-74	Anxiety	1747 (4.9%)	411 (3.7%)	
≥75	All-cause inpatient mortality	367 (1.0%)	87 (0.8%)	
Sex	Length of stay (in days)			<0.001
Male	Hospitalization cost (\$)	24931 (69.7%)	6884 (61.2%)	
Female	Depression	10823 (30.3%)	4360 (38.8%)	
Race	Anxiety			<0.001
White	All-cause inpatient mortality	23702 (66.3%)	7686 (68.3%)	
Blacks/African American	Length of stay (in days)	2702 (7.6%)	628 (5.6%)	
Hispanic	Hospitalization cost (\$)	4491 (12.6%)	1210 (10.8%)	
Others/Missing	Depression	4863 (13.6%)	1721 (15.3%)	
Primary payer	Anxiety			<0.001
Medicare	All-cause inpatient mortality	10978 (30.8%)	3247 (29.0%)	
Medicaid	Length of stay (in days)	13167 (36.9%)	3703 (33.0%)	
Private insurance	Hospitalization cost (\$)	5079 (14.3%)	2055 (18.3%)	
Self-pay	Depression	3874 (10.9%)	1317 (11.7%)	
No charge	Anxiety	499 (1.4%)	193 (1.7%)	
Other	All-cause inpatient mortality	2040 (5.7%)	699 (6.2%)	
Hospital size	Length of stay (in days)			0.389
Small	Hospitalization cost (\$)	4277 (12.0%)	1232 (11.0%)	
Medium	Depression	8529 (24.0%)	3029 (27.2%)	
Large	Anxiety	22709 (63.9%)	6889 (61.8%)	
Income	All-cause inpatient mortality			<0.001
Q1	Length of stay (in days)	13066 (38.4%)	3819 (35.4%)	
Q2	Hospitalization cost (\$)	8568 (25.2%)	3091 (28.7%)	
Q3	Depression	7368 (21.7%)	2341 (21.7%)	
Q4	Anxiety	4999 (14.7%)	1527 (14.2%)	
Comorbidity index				<0.001
0	Length of stay (in days)	19 (0.1%)	11 (0.3%)	
1-3	Hospitalization cost (\$)	13287 (37.2%)	2835 (25.2%)	
>3	Depression	22453 (62.8%)	8409 (74.8%)	
Depression		46885 (11.7%)	7357 (20.6%)	
Anxiety		246203 (6.2%)	6831 (19.1%)	
All-cause inpatient mortality		251739 (6.3%)	223 (0.6%)	
Length of stay (in days)		6.0 (0.02)	6.7 (0.09)	
Hospitalization cost (\$)		15409	8270	< 0.001

Results

- All-cause inpatient mortality was lowest among patients with SI (0.6%) compared to those with S/SIH (2.7%). In addition, patients with SI had longer LOS than those without SI (6.7 vs 6.0 days, p=0.012).
- Hospital costs were also significantly lower for those with SI (\$8270) compared to those with S/SIH (\$12376).

Fig 1: Trends in Suicidal ideation, suicide and self inflicted harm between 2007-2014 among patients with cirrhosis



Conclusion

- In this nationally representative cohort, we observed a rising trend in suicidal ideation among patients with cirrhosis especially patients who were younger, White, from lower socioeconomic backgrounds, with comorbid anxiety and depression.
- Hospitalizations for suicide and self-inflicted harm appeared to be on the downtrend.