

The association between inflammatory bowel disease (IBD), psychiatric illness and suicide is not fully understood and somewhat controversial. Using a population-based case-control design, the current study aimed to: (1) explore the comorbidity of depression, anxiety disorders, reactions to severe stress and substance abuse among people with ulcerative colitis (UC) and Crohn's disease (CD); and (2) examine the associations between UC, CD and completed suicide. Psychiatric diagnoses were examined as both confounders and modifiers of these associations. All data for the current study were obtained from nationwide Danish health registries and the study population consisted of 27,053 completed suicide cases and 551,060 population controls matched on date of birth, sex and calendar time. All 4 psychiatric diagnoses were more common among people with IBD than without, with the exception of substance abuse which was equally common among people with and without UC. IBD diagnosis was associated with an increase in the rate of subsequent completed suicide (OR for CD = 1.6 [95% confidence interval: 1.1, 2.2], OR for UC = 1.5 [95% confidence interval: 1.2, 1.9]) and these associations remained unchanged when controlling for psychiatric diagnoses. Modification of these associations by psychiatric diagnoses and demographic variables will be discussed.

INTRODUCTION AND AIMS

❖ IBD is a risk factor for suicide.

–Small studies have indicated that IBD is associated with suicide (Morowitz *et al*, 1969; Prior *et al*, 1981).

–Males and females with Crohn's disease both appear to be at increased risk of death by suicide, and this association is particularly strong among females (Prior *et al*, 1981).

–The number of studies examining suicide mortality among people diagnosed with IBD is small, but this evidence in conjunction with anecdotal clinical evidence and case reports suggests that suicide may be an important sequelae of IBD diagnosis.

❖ Psychiatric illness may explain the association between IBD and suicide, although the association between IBD and psychiatric illness is not fully understood.

–During remission, the prevalence of psychiatric illness is between 29% and 35%, and the prevalence of anxiety and depression is 80% and 60%, respectively, during relapse (Andrews *et al*, 1987; Meittermaier *et al*, 2004; Addolorato *et al*, 1997).

–In a review of studies on Crohn's disease and psychiatric illness, North and colleagues (1994) found that most studies reported an association between Crohn's disease and psychiatric factors.

❖ Aims of the current project:

–Examine comorbidity of depression, anxiety disorders, reactions to severe stress, and substance abuse with ulcerative colitis (UC) and Crohn's disease (CD).

–Examine the associations between UC and suicide and CD and suicide.

METHODS AND STATISTICAL ANALYSES

❖ Nationwide population-based case-control study using data from Danish Health Registries including males and females ages 15–90 between 1981 and 2006.

❖ Cases and controls included all 27,053 completed suicides in Denmark and 551,060 controls matched to cases on gender, age and calendar time.

❖ Exposure data on IBD diagnoses and psychiatric diagnoses before suicide were assessed using diagnostic codes from ICD-8 and ICD-10.

❖ Descriptive analyses — to examine sample characteristics.

❖ Stratified analyses — to assess associations separately among those with and without IBD.

❖ Logistic regression analyses — to assess the association between UC, CD and suicide, while adjusting for important variables.

❖ All analyses were conducted separately for UC and CD.

INFLAMMATORY BOWEL DISEASE, PSYCHIATRIC ILLNESS, AND COMPLETED SUICIDE IN THE ADULT POPULATION OF DENMARK

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RESULTS – DESCRIPTIVE ANALYSES

Characteristics of suicide cases and population controls

	Cases (n = 27053)	Controls (n = 551060)
Gender		
Male	17948 (66%)	368404 (67%)
Female	9105 (34%)	182656 (33%)
Age Group		
15 – 34 years	4969 (19%)	127487 (23%)
35 – 54 years	10381 (38%)	251460 (46%)
55 – 74 years	8294 (31%)	142318 (26%)
75 – 90 years	3409 (13%)	29795 (5%)
Marital Status		
Married	9726 (36%)	315226 (57%)
Cohabiting	2115 (7.8%)	59398 (11%)
Single	14986 (55%)	171287 (31%)
Child	226 (0.84%)	5149 (0.93%)

Psychiatric disorders were more prevalent among people with IBD than among people without these diagnoses

	Crohn's Disease + (n = 591)	Crohn's Disease – (n = 577522)	Ulcerative Colitis + (n = 1271)	Ulcerative Colitis – (n = 576842)
Depression	16 (2.7%)	10307 (1.8%)	29 (2.3%)	10294 (1.8%)
Substance Abuse	17 (2.9%)	9158 (1.6%)	20 (1.6%)	9155 (1.6%)
Anxiety Disorders	7 (1.2%)	4529 (0.78%)	17 (1.3%)	4519 (0.78%)
Reactions to Severe Stress	15 (2.5%)	6979 (1.2%)	30 (2.4%)	6964 (1.2%)

RESULTS – STRATIFIED ANALYSES

Females with CD had a higher risk of suicide than males with CD

		Cases (n = 27053)	Controls (n = 551060)	OR (95% CI)
Male	Crohn's Disease +	22	367	1.2 (0.80, 1.9)
	Crohn's Disease -	17926	368037	
Female	Crohn's Disease +	18	184	2.0 (1.2, 3.2)
	Crohn's Disease -	9087	182472	

RESULTS – STRATIFIED ANALYSES

People with UC and depression had a higher risk of suicide than patients with UC alone

		Cases (n = 27053)	Controls (n = 551060)	OR (95% CI)
Depression +	Ulcerative Colitis +	21	8	3.8 (1.7, 8.5)
	Ulcerative Colitis -	4237	6057	
Depression -	Ulcerative Colitis +	66	1176	1.3 (1.0, 1.7)
	Ulcerative Colitis -	22729	543582	

People with UC and anxiety disorders had a higher risk of suicide than people with UC alone

		Cases (n = 27053)	Controls (n = 551060)	OR (95% CI)
Anxiety Disorders +	Ulcerative Colitis +	7	10	2.1 (0.80, 5.5)
	Ulcerative Colitis -	1130	3389	
Anxiety Disorders -	Ulcerative Colitis +	80	1174	1.4 (1.2, 1.8)
	Ulcerative Colitis -	25836	546487	

RESULTS – REGRESSION ANALYSES

❖ The rate of suicide was similar among participants:

- For CD RR = 1.6, 95% CI = 1.1, 2.2
- For UC RR = 1.5, 95% CI = 1.2, 1.9

❖ Psychiatric disorders were not confounders of this association (*i.e.*, associations were found independently of the influence of psychiatric illness).

CONCLUSIONS

- ❖ In this study, psychiatric illness was more common among people with IBD than people in the general population
- ❖ The stratified analyses showed that clinicians treating females with CD, or people with UC and depression or anxiety disorders, should be particularly cautious about suicidal behavior in these groups.
- ❖ Based on the regression results, patients with IBD should be assessed for suicidal ideation/behavior, even if they do not have a comorbid psychiatric diagnosis