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Psychiatric Comorbidities Increase Cost and Length of Hospitalization in Adolescents and Young Adults with Chronic Medical Conditions

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Psychiatric comorbidities increase cost and length of hospitalization in adolescents and young adults with chronic medical conditions

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Introduction

Patients with chronic conditions of childhood experience exacerbations during adolescence and young adulthood, leading to higher rates of hospitalizations and burden of disease compared to earlier childhood or later adulthood.[1-3] Little is known about the epidemiology of hospitalization of adolescents and young adults with childhood-onset chronic medical conditions. We describe the impact of psychiatric comorbidity on the length of stay and cost of hospitalization.

Methods

We analyzed prospectively collected data from the 2013 National Inpatient Survey.[4] We restricted to patients between 13 and 26 years, and excluded hospitalizations which were pregnancy or injury-related. We evaluated both primary and comorbid diagnoses listed on the discharge summary. Primary variables included 7 diagnoses of common childhood-onset chronic conditions, including Cystic fibrosis, Asthma, Inflammatory Bowel Disease, Sickle Cell Disease, Cancer, Epilepsy, and Diabetes. To assess psychiatric comorbidity, we created a composite variable including suicide, psychotic/conduct disorders, and mood diagnoses that were not listed as the primary diagnosis for hospitalization. Other variables included sex, income, race, and insurance status. Outcomes were length of stay and daily and total cost of hospitalization. We used descriptive statistical methods, Student's t-tests, and logistic regression analyses to analyze the data, with the outcomes dichotomized at the 75th percentile. We used Stata version 14 for all analyses, and the IRB approved this study.

Results

Almost 50,000 hospitalizations where the primary diagnosis was one of the childhood-onset disorders of interest (cystic fibrosis, asthma, inflammatory bowel disease, sickle cell disease, cancer, epilepsy, and diabetes) contributed to this analysis. Almost 60% of hospitalizations occurred among patients 20 years of age or older. There were an equal number of males and

females. Psychiatric conditions (mood, anxiety, psychosis, conduct disorders) were comorbid in 23% of all chronic illness hospitalizations. The diagnoses with the highest psychiatric comorbidity included epilepsy (30%), cystic fibrosis (30%), diabetes (27%), asthma (19%), and IBD (19%). The lowest proportion of diagnosed psychiatric comorbidity occurred among hospitalizations for sickle cell disease (14%). Psychiatric comorbidity significantly increased the length of stay (OR 1.25 (1.18, 1.33)). With the exception of epilepsy, inflammatory bowel disease, and cystic fibrosis, psychiatric comorbidity increased the total cost of hospitalization (Table 1). Table 1 shows that most relationships were unchanged after adjusting for age, sex, insurance status, race/ethnicity, and income.

Discussion

Mental health conditions contribute to the burden of illness among adolescents and young adults with childhood-onset chronic conditions, resulting in greater hospitalization costs and length of stay. This finding is consistent with other literature demonstrating decreased disease self-management, increased complications, and increased health care utilization among patients with psychiatric comorbidity.[5-6] We unexpectedly found that hospitalizations associated with epilepsy did not follow this trend, with no significant influence on length of stay and a significantly lower cost in those with psychiatric comorbidity. We believe this may be related to blending of coding accuracy and prioritization when psychiatric and neurologic conditions are both present.

This study has several limitations. Although this cross-sectional study includes data derived from a sampling of discharge diagnoses, it does not account for every hospitalization in this age group. It is not possible to adjust for repeated hospitalizations among individual patients. There may be some variability in coding discharge diagnoses, particularly for complex patients, and the primary diagnosis designation may be equally important as a secondary or tertiary diagnosis that is labeled a comorbidity. We note that there may be decreased accuracy in reporting

psychiatric comorbidity in claims data, and variable coding practices for different patient populations may bias our results. This is supported by the low proportion of sickle cell disease patients in this dataset with documented psychiatric comorbidity.

Despite these limitations, our findings have important implications. In managing utilization patterns, attention to psychiatric comorbidity and targeted screening, intervention, and support may be particularly important in adolescents and young adults with chronic conditions of childhood. Hospitalists may benefit from addressing mental health conditions proactively and early during a hospitalization. Outpatient primary and specialty care providers should proactively identify and treat psychiatric comorbidity in this age group.

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Conflict of Interest:

None

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Figure 1A Length of stay of hospitalization for adolescents/young adults (ages 13-26) in the 2013 National Inpatient Sample, categorized by the primary hospitalization diagnosis and stratified by psychiatric comorbidity.

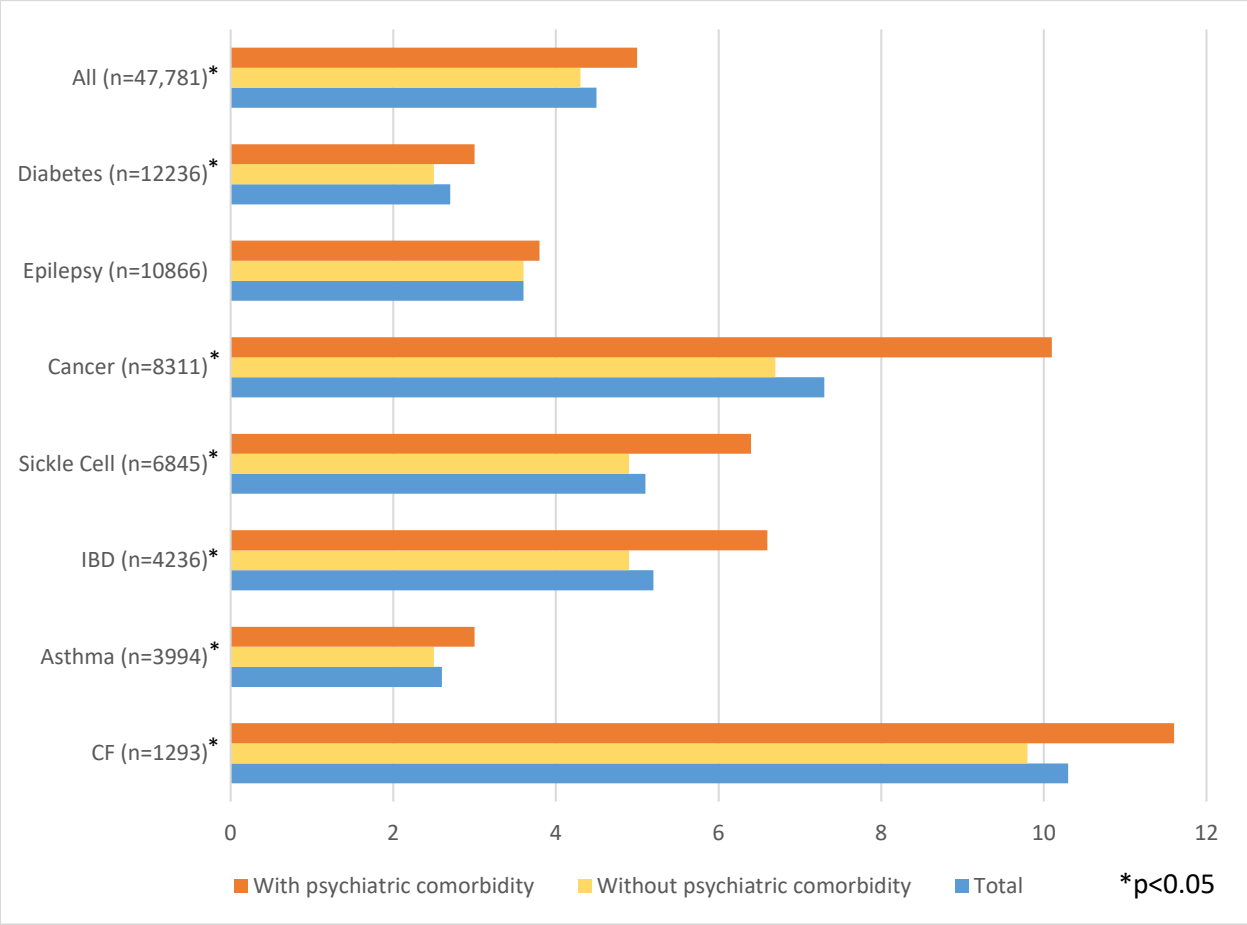

Figure 1B Total costs of hospitalization for adolescents/young adults (ages 13-26) in the 2013 National Inpatient Sample, categorized by the primary hospitalization diagnosis and stratified by psychiatric comorbidity.

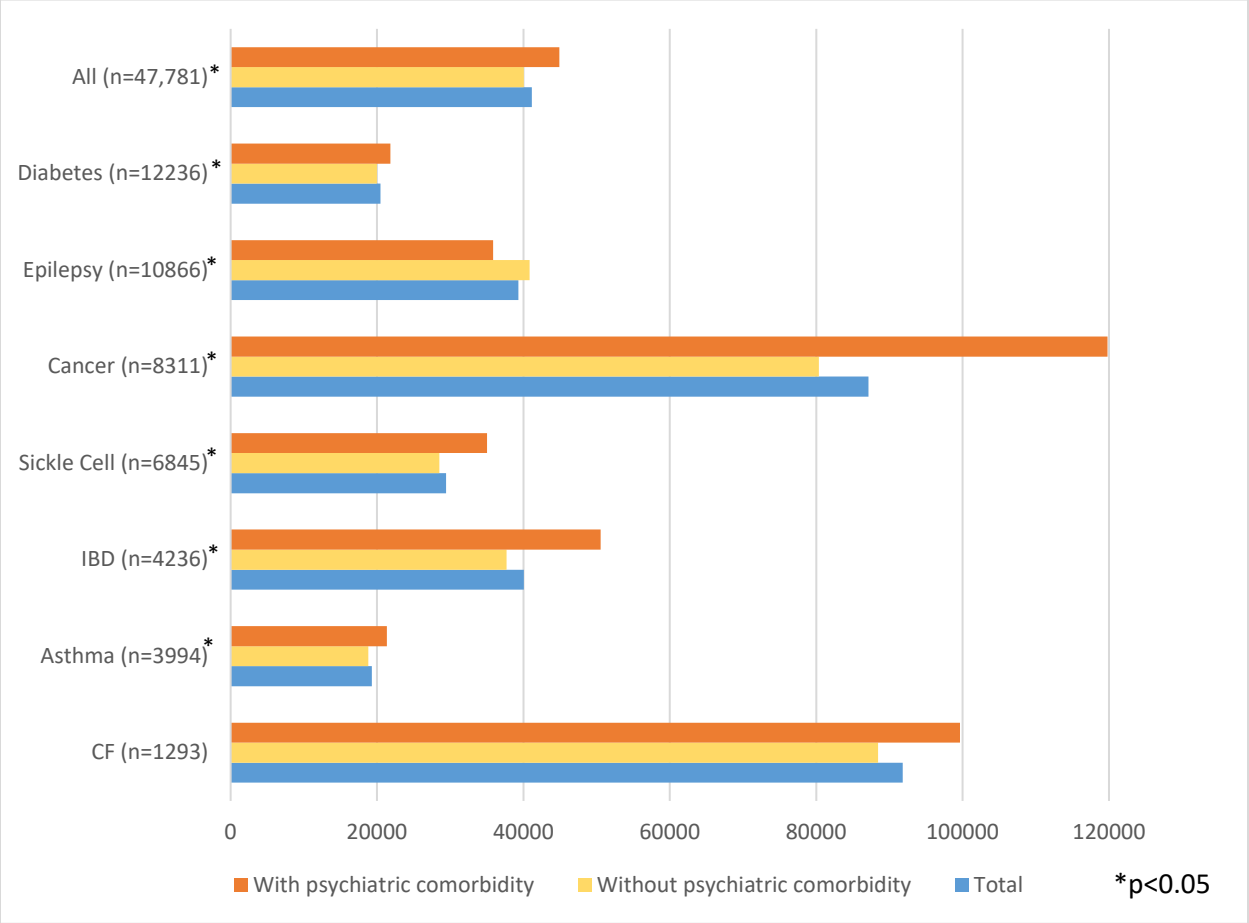

Table 1 Impact of psychiatric comorbidity on length of stay and total cost of hospitalization for chronic childhood-onset conditions, crude and adjusted for age, sex, race, insurance, and income for adolescents/young adults (ages 13-26) in the 2013 National Inpatient Sample,

	Crude		Adjusted	
	OR	CI	OR	CI
Length of stay				
All	1.22	1.15, 1.29	1.25	1.18, 1.33
Diabetes	1.87	1.59, 2.20	1.95	1.63, 2.32
Epilepsy	1.08	0.95, 1.24	1.09	0.94, 1.25
Cancer	1.70	1.48, 1.97	1.71	1.47, 2.00
Sickle Cell	1.71	1.48, 1.99	1.67	1.43, 1.95
IBD	1.49	1.25, 1.77	1.65	1.36, 1.99
Asthma	2.09	1.53, 2.85	1.89	1.34, 2.66
Cystic fibrosis	1.58	1.17, 2.11	1.59	1.15, 2.19
Total cost				
All	0.99	0.97, 1.05	0.99	0.93, 1.05
Diabetes	1.22	1.05, 1.40	1.30	1.11, 1.51
Epilepsy	0.77	0.69, 0.86	0.77	0.69, 0.86
Cancer	1.18	1.03, 1.35	1.20	1.04, 1.38
Sickle Cell	1.63	1.37, 1.94	1.58	1.32, 1.90
IBD	1.14	0.95, 1.37	1.18	0.97, 1.44
Asthma	1.45	1.09, 1.91	1.39	1.02, 1.89
Cystic fibrosis	1.22	0.93, 1.61	1.37	1.01, 1.87