

## Associations Between Mental and Physical Illness Comorbidity and Hospital Utilization Among Adolescents and Young Adults

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**Objectives:** Adolescents and young adults (AYA) with mental and physical illness have high hospital utilization. Less is known about comorbid mental and physical illness on hospital use. This study aims to characterize the prevalence of chronic mental and physical illnesses and their comorbidity among AYA and assess the association of comorbidity on hospital utilization.

**Methods:** Population-level sample of 49,089 AYA (ages 12-21) in Vermont's 2018 all-payer database. We used the pediatric medical complexity algorithm to identify AYA with chronic illness. We used multiple logistic regressions to examine associations between comorbid mental illness and hospital utilization (emergency department (ED), hospitalization) for multiple physical illnesses controlling for age, sex, and insurance type.

**Results:** Our sample was 50% female, 63% Medicaid, and 43% had  $\geq 1$  chronic illness. Mental illness was common (31%) and highly comorbid with the most common physical illnesses: neurologic (45%), pulmonary (38%), endocrine (41%), musculoskeletal (29%), and cardiac (38%) conditions. Among AYA with pulmonary illness, those with comorbid mental illness had 74% greater odds (95% Confidence Interval (CI): 1.49–2.05) of ED use and 2.9-times greater odds (95%CI: 2.05–4.00) of hospitalization than those without mental illness. Similarly, comorbid endocrine and mental illness had 84% greater odds of ED use (95%CI: 1.39–2.44) and 2.1-times greater odds of hospitalization (95%CI: 1.28–3.46), comorbid neurologic and mental illness had 36% greater odds of ED use (95%CI: 1.18–1.56) and 2.4-times greater odds of hospitalization (95%CI: 1.73–3.29), and comorbid musculoskeletal and mental illness had 38% greater odds of ED use (95%CI: 1.02–1.86) and 2.1-times greater odds of hospitalization (95%CI: 1.20–3.52). Mental illness comorbidity did not predict hospital utilization for cardiac illness. In sensitivity analyses of comorbidity among each pairing of four physical illnesses (pulmonary, endocrine, musculoskeletal, cardiac), more than half of the associations with hospital utilization were not significant ( $P > .15$ ).

**Conclusions:** Comorbid mental and physical illness was common and was associated with greater odds of hospital use across multiple physical illnesses. Empowering pediatric specialty clinics to screen for and coordinate treatment of mental illness may help decrease overall AYA hospital utilization.