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Comorbidity between major depression and alcohol use disorder from adolescence to adulthood

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Abstract

Background: Limited information exists regarding the long-term development of comorbidity between Major Depressive Disorder (MDD) and Alcohol Use Disorder (AUD; abuse/dependence). Using a representative prospective study, we examine multiple aspects pertaining to MDD + AUD comorbidity, with a focus on the relation between disorders across periods (adolescence, early adulthood, adulthood) and cumulative impairments by age 30.
Method: 816 participants were diagnostically interviewed at ages 16, 17, 24, and 30.
Results: Rates of comorbid MDD + AUD were low in adolescence (2%), but increased in early adulthood (11%) and adulthood (7%). Rates of cumulative comorbidity were elevated (21%). Most individuals with a history of MDD or AUD had the other disorder, except for women with MDD. Prospectively, adolescent AUD predicted early adult MDD, while early adult MDD predicted adult AUD. Compared to pure disorders, MDD + AUD was associated with higher risk of alcohol dependence, suicide attempt, lower global functioning, and life dissatisfaction.
Conclusions: Lifetime rates of comorbid MDD + AUD were considerably higher than in cross-sectional studies. Comorbidity was partly explained by bidirectional and developmentally-specific associations and predicted selected rather than generalized impairments. Clinically, our findings emphasize the need to always carefully assess comorbidity in patients with MDD or AUD, taking into account concurrency and developmental timing.

1. Introduction

Comorbidity between Major Depressive Disorder (MDD) and Alcohol Use Disorder (AUD; abuse or dependence) represents one of the most prevalent and disabling psychiatric combinations in adolescence and adulthood. In the last decades, clinical and epidemiological studies have documented the rates and characteristics of MDD + AUD comorbidity, especially in adulthood [1–5]. Although longitudinal studies have investigated associations between the two disorders, none has comprehensively examined the development and implications of comorbidity from adolescence to adulthood. Here, we use a prospective sample of participants followed from adolescence to age 30 to investigate several key issues of comorbidity [6] applying to MDD + AUD.

Our first focus is on the relation between the two disorders. Using two complimentary angles, we analyze the temporal ordering and predictions between MDD and AUD across key developmental periods. Evidence on temporal ordering from retrospective studies has been mixed, with studies reporting MDD to most often precede AUD [1,7,8], AUD to most often predece MDD [9] or no clear ordering [2,10]. Similarly, predictions between disorders have been conflicting. Prospective studies have found MDD to predict AUD [8,11], AUD to predict MDD [12,13], bidirectional relations [9,14,15] and no association between the two disorders after controlling for confounders [16]. A key limitation of the literature is that most evidence comes from adult samples of wide age ranges [8,9,11,14–16], making it difficult to determine whether associations vary across developmental periods.

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Our second focus is on "cumulative comorbidity", which indexes lifetime rather than point co-occurrence of disorders [17]. We examine the implications of having lifetime patterns with or without overlapping disorders (concurrent vs. successive comorbidity) [6]. Very little information is available to document these types of comorbidity. We also investigate clinical and psychosocial impairments associated with lifetime comorbid MDD + AUD compared to pure MDD and AUD. Greater impairments have typically been reported in comorbid individuals (e.g., more persistent and severe disorders, suicide risk, lower social adjustment) [1,4,18–20], but other studies found no poorer or less adverse outcomes of comorbidity, notably lower AUD severity compared to pure AUD [21,22]. We also consider whether impairments vary as a function of both concurrency and temporal ordering (MDD-first vs. AUD-first). To our knowledge, no prospective study has previously examined cumulative impairments of MDD + AUD in adulthood.

We use data from the Oregon Adolescent Depression Project (OADP) [23] to address these questions. The OADP is unique in combining 4 prospective assessment waves from adolescence to adulthood paired with retrospective recall between assessments, providing diagnostic coverage up to age 30. This design compares favorably to most prospective studies, which have more limited coverage, as well as retrospective studies, which are impacted by long-term recall bias. In keeping with the new DSM-5 [24], we investigate AUD as a single disorder, rather than abuse and dependence as separate disorders. We do, however, consider alcohol dependence as a marker of AUD severity.

2. Method

2.1. Participants

OADP participants were followed at four time points [23]. The sample was randomly selected from nine high schools representative of western Oregon. After complete description of the study to the participants, written informed consent was obtained. Ethics approval was granted by the Oregon Research Institute. At T1, 1709 adolescents were administered a diagnostic interview and questionnaires at an average age of 16.6 years (SD = 1.2). The sample was approximately equally-divided by gender (53% women) and mostly White (91%). Participants were invited to complete a second assessment approximately one year later. At T2, 1507 participants (88% of T1) returned for a second assessment. A subset of participants was invited to a third assessment at age 24 (T3): all participants with a history of psychopathology (N = 555) and a randomly selected subset of participants with no history of mental disorder (N = 386); 941 participants (85% of those invited) completed T3 assessments. All T3 participants were invited for a fourth wave at age 30; 816 participants (87% of T3) completed assessments at T4. The present study uses OADP participants who completed assessments up to T4 (59% women; 89% White). Differences between persons who continued and discontinued participation were overall small [25]. Correlates of discontinuation were male gender, cigarette and substance use, a history of a disruptive behavior disorder, lower socioeconomic status, and fewer persons living at home during adolescence.

2.2. Measures

Diagnoses of MDD and AUD, as well anxiety disorders, disruptive behavior disorders (DBD), and other substance use disorders (SUD; excluding tobacco dependence) were obtained from standardized diagnostic interviews. T1–T3 interviews used a version of the Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS) [26], combining features of the Epidemiologic and Present Episode versions. T4 used the Structured Clinical Interview for DSM-IV (SCID) [27]. Diagnoses were based on DSM-III-R criteria at T1 and T2 and DSM-IV criteria at T3 and T4. The T1 interview recorded lifetime disorders from the age of 5. In T2–T4 interviews, the Longitudinal Interval Follow-Up Evaluation (LIFE) [28] assessed psychopathology since the previous interview.

Clinical characteristics were collected from diagnostic interviews. Disorder duration was calculated as the cumulative duration of MDD and AUD episodes in weeks. Disorder severity was defined as the lifetime occurrence of severe depression for MDD based on the DSM episode specifier and lifetime occurrence of alcohol dependence as opposed to abuse only for AUD. By T4, 121 AUD participants had a lifetime alcohol abuse diagnosis only (42.9%), 113 had a lifetime dependence diagnosis only (40.1%), and 48 had both lifetime diagnoses (17.0%). Lifetime suicide attempts and mental health treatment were assessed using relevant sections of the K-SADS and SCID. Psychosocial outcomes at T4 included marital status (1 = not married; 0 = married), parental status (1 = never parent; 0 = parent), years of schooling completed, weeks of unemployment in the past year, annual household income, global functioning (GAF; DSM-III-R/-IV), self-rated physical health (4-item scale; α = 0.50), life satisfaction (15-item scale; α = 0.89), and past-year risky sexual behavior (1 = any report of risky sex on 9 items; 0 = none).

2.3. Statistical analyses

We examined comorbidity between MDD and AUD in three developmental periods: Adolescence (two years prior to T1 up to and including T2); Early Adulthood (immediately after T2 up to and including T3); and Adulthood (immediately after T3 up to and including T4). We used path analysis to evaluate associations between MDD and AUD across periods. We specified a cross-lagged model with 1) cross-sectional associations between MDD and AUD in each period, 2) continuity associations for each disorder between adjacent periods, and 3) prospective associations from one disorder to the other in adjacent periods. Anxiety disorders,