

Brief report

The relation of depression and anxiety to measures of attention in young adults seeking psychoeducational evaluation

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Abstract

The relation between mood and attentional functioning in young adults seeking psychoeducational evaluation has not been previously reported. This study examined the relation of self-reported depression and anxiety on attentional abilities among 161 young adults referred for psychoeducational evaluation. Depression and anxiety were measured with the Beck Depression Inventory-II and the State-Trait Anxiety Inventory, respectively. Attentional functioning was assessed using the Trail Making Test, the d2 Test of Attention, the Conners’ Continuous Performance Test, and the WAIS-III Working Memory and Processing Speed Indices. The unique variance accounted for by depression or anxiety was minimal (typically <1.5%); these null results were confirmed by diagnostic subgroup analyses and also after examining the interaction between depression and anxiety. These results suggest that performance on measures of attention within samples of young adults seeking psychoeducational evaluation is minimally related to self-reported depression and anxiety.

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1. Introduction

The relation between mood symptoms and performance on neuropsychological tests has been the focus of considerable interest in recent years. While psychiatric populations tend to score below normative levels on a wide variety of neuropsychological measures (Basso & Bornstein, 1999; Burt, Zembler, & Niederehe, 1995; Kindermann & Brown, 1997; Sweet, Newman, & Bell, 1992; Tancer et al., 1990; Veiel, 1997), recent research has suggested that the relation of affective variables to neuropsychological performance is quite variable (Kaufman, Grossman, & Kaufman, 1994; Sherman, Strauss, Slick, & Spellacy, 2000; Rohling, Green, Allen, & Iverson, 2002; Tsushima, Johnson, Lee, Matsukawa, & Fast, 2005). Uncertainty regarding the specifics of this relation may also be due to the fact that few of these studies accounted for the effect of participant effort in their study methodology, with a few notable exceptions (Sherman et al., 2000; Rohling et al., 2002).

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In particular, the literature on depressive symptoms as they relate to measures of attention is relatively equivocal. Some researchers have noted a significant relation between depression and impaired attentional performance (Gass, 1996; Ross, Putman, Gass, Baily, & Adams, 2003; Watari et al., 2006), while others have not (Miller, Faustman, Moses, & Csernansky, 1991; Reitan & Wolfson, 1997; Rohling et al., 2002). By comparison to depression, the contribution of anxiety to cognitive impairment is understudied. Recent studies have suggested that self-reported anxiety symptoms have minimal effects on neuropsychological performance in both healthy (Waldstein, Ryan, Jennings, Muldoon, & Manuck, 1997) and assessment-seeking samples (Smitherman, Huerkamp, Miller, Houle, & O’Jile, 2007). However, there is some evidence suggesting that comorbid depressive and anxiety symptoms may exert a synergistic effect together (Kizilbash, Vanderploeg, & Curtiss, 2002).

Rarely has the relation between affective symptoms and attentional performance been examined in young adults seeking psychoeducational evaluations, despite the fact that young adults constitute a growing population seeking such services (Gallagher, Gill, & Sysco, 2000). The one located study (Morasco, Gfeller, & Chibnall, 2006) did not obtain significant decrements in neuropsychological performance related to depression or anxiety; rather, they reported a non-significant trend toward anxiety being associated with improved performance among a sample of 70 participants. However, this study focused on intellectual and memory functioning and did not address attentional functioning in-depth.

Although previous studies of this genre have focused on general aspects of attention, few have focused on more specific components of attentional functioning such as sustained attention and distractibility, which are highly relevant to ADHD (Barkley, Anastopoulos, Guevremont, & Fletcher, 1991). Prior studies have instead focused on variables more consistent with working memory, interference, and inhibition as well as other cognitive modalities such as memory and processing speed (Spreeen & Strauss, 1991; Strauss, Sherman, & Spreeen, 2006). Additionally, factor analytic studies have confirmed that attention is not a unitary construct (Shum, McFarland, & Bain, 1990), and many specific tests of attention (such as continuous performance tests, or CPTs) load on individual factors apart from more general tests that tap aspects of attentional functions (Kremen, Seidman, Faraone, Pepple, & Tsuang, 1992; Mirsky, Anthony, Duncan, Ahearn, & Kellam, 1991).

Clinical lore suggests that neurocognitive deficits should be interpreted cautiously when comorbid mood symptoms are present, and many clinicians thus are reluctant to interpret attentional impairments in the presence of depressive or anxiety symptoms (Groth-Marnat, 2000; Sweet et al., 1992). Empirical findings are needed to guide such decisions. The aim of this study was to evaluate the extent to which self-reported depressive and anxiety symptoms predict attentional performance in a young adult sample seeking psychoeducational evaluation after accounting for participant effort. Consistent with negative findings from recent studies focusing on other cognitive domains (O’Jile, Schrimsher, & O’Bryant, 2005; Smitherman et al., 2007), we hypothesized that self-reported symptoms of depression and anxiety would be minimally associated with performance on common measures of attention in the present sample.

2. Method

2.1. Participants

The sample consisted of archival data extracted from adult patients referred for comprehensive psychoeducational assessment to an outpatient mental health clinic located within a large southeastern university. Individuals having an IQ < 70 were excluded from data analysis, as were individuals scoring above 3.29 S.D. from the study sample as per Tabachnick and Fidell (2001), so as to minimize the influence of extreme outliers. These exclusions yielded a final sample size of 246 who had complete data for all variables of interest.

Three symptom validity tests (SVTs) were chosen to assess effort in this sample of 246 participants (see Bianchini, Mathias, & Greve, 2001 for a review of SVTs). Individuals giving insufficient effort during testing were identified and removed from further analysis if they met any of the following criteria: (1) Wechsler Memory Scale-III (Wechsler, 1997b) Auditory Recognition Delayed Index raw score < 43 (Langeluddecke & Lucas, 2000), (2) Reliable Digits Score ≤ 7 (Griffenstein, Baker, & Gola, 1994; Mathias, Greve, Bianchini, Houston, & Crouch 2002), or (3) Mittenberg’s formula (Mittenberg, Theroux-Fichera, Zielinski, & Heilbronner, 1995) discriminant function score > 0.21 (Greve, Bianchini, Mathias, Houston, & Crouch, 2003). These criteria identified 85 individuals (35% of sample) as likely not giving effort sufficient to consider their neuropsychological performance valid. These exclusions left a sample of 161 individuals who had passed all measures of effort and response bias.

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