

The Intersection of Developmental and Acquired Disabilities, Mental Health, and Employment: A Review for Rehabilitation Professionals

Aryn Taylor¹, Amber Allison², and Aubrey Corwin²

¹University of Northern Colorado, Greeley, CO

²Vocational Diagnostics Incorporated, Boulder, CO

Rehabilitation counselors working in fields such as vocational rehabilitation and forensics have been responsible for serving individuals with complex and multiple disabilities for decades. Given the increase in prevalence of dual diagnosis acquired and developmental disabilities and mental health conditions, a greater focus has been placed on understanding the nuances of these disabilities. However, large gaps remain in the employment outcomes for these dual diagnosis conditions. Lack of understanding among rehabilitation professions regarding the complexities of serving dual-diagnosis populations will perpetuate disparities in employment outcomes for these populations. The purpose of this paper is to synthesize the concepts of dual diagnoses such as autism spectrum disorder, traumatic brain injury and mental health conditions to offer a more robust discussion regarding implications on employment outcomes and service provision across various rehabilitation settings.

Keywords: autism spectrum disorder; traumatic brain injury; mental health; disparities; disabilities; vocational rehabilitation; forensic rehabilitation

The Intersection of Developmental and Acquired Disabilities, Mental Health, and Employment: A Review for Rehabilitation Professionals

Disability is a natural part of human existence and can occur at birth or throughout the lifespan (Developmental Disabilities Assistance and Bill of Rights Act, 2000). The Centers for Disease Control estimates that over 61 million adults, or over quarter of the adults in the United States, live with a disability (2022). Regardless of type of disability, age of onset, or demographics, people with disabilities (PWDs) have the right to full societal inclusion in their communities. Historically, this right has been denied because of barriers ranging from access to attitudes (Roux et al., 2013; Shattuck et al., 2012). In large part because of grassroots movements and activism, there have been significant legislative accomplishments at the federal, state, and local levels. However, large gaps remain in outcomes for PWD, particularly those with disabilities with variable levels of severity, such as autism spectrum disorder (ASD) and traumatic brain injury (TBI). A particular area of concern for individuals with ASD and TBI is the high prevalence of dual-diagnosis mental health conditions, including anxiety and depression. Rehabilitation professionals are uniquely positioned to work with individuals with

multiple disabilities, and to specifically address disparities in employment outcomes for people with disabilities.

The ability for individuals with significant disabilities to work has been proven repeatedly through initiatives, research, and demonstration projects (Butterworth et al., 2017; Smith et al., 2017; Smith et al., 2015; Wehman et al., 2014; Migliore et al., 2012; Elinson et al., 2008; Sowers et al., 2000). However, the percentage of jobless individuals with disabilities has remained high (approximately 80%) over the years (U.S. Department of Labor, 2023). Supports for employment are critical because people with disabilities are less likely to engage in the labor force than people without disabilities. Not only does this put added financial stress on PWD's family members and society, but this also disallows PWD from experiencing the psychological benefits of work, which will be discussed later in this paper. Rehabilitation counselors have played a critical role in assisting people with multiple disabilities to gain and maintain employment, particularly through the state-federal vocational rehabilitation setting (Dutta et al., 2008; Pete et al., 2015; Szymanski & Parker, 2010).

The purpose of this article is to put forth a discussion of two complex disabilities that occur on a spectrum of severity: autism spectrum disorder (ASD) and traumatic brain injury (TBI), as well as to address high prevalence of mental health (MH) conditions, specifically anxiety and depression, in these populations. The critical elements of these dual-diagnosis disorders will be discussed for consideration in rehabilitation treatment, evaluation, and planning. Rehabilitation counselors have an established history of treating PWDs holistically through consideration of both the individual and their environment. Given the high prevalence of dual-diagnosis ASD / TBI and mental health conditions, it is important for rehabilitation professionals across settings, including vocational rehabilitation counselors and forensic vocational experts, to understand the complexities of the intersection between these spectrum disabilities, mental health diagnoses, and employment outcomes.

Definitions of Disabilities

Developmental Disability: Autism Spectrum Disorder

Developmental disabilities are characterized as “lifelong conditions due to an impairment in physical, language, or behavior areas” (Zablitzky et al., 2019, p. 2). These conditions can include Autism Spectrum Disorder, Learning Disabilities, Cerebral Palsy, and deafness (CDC, 2022). Although developmental disabilities comprise a variety of other disabilities, recent estimates indicate one in six or about 17% of children in the United States between in the ages of 3 to 17 will have one or more developmental disabilities (Zablitzky et al., 2019). Autism Spectrum Disorder (ASD) is a neurodevelopmental disability that occurs across all racial, ethnic and socioeconomic groups and is primarily characterized by difficulty with social and communication skills, as well as adaptive behavior challenges (Centers for Disease Control, 2022; Solomon, 2020). An estimated 1 in 44 children are diagnosed with ASD and these children will experience the transition to adulthood, with an estimated 50,000 youth with ASD entering adulthood each year in the United States (CDC, 2022; Shattuck et al., 2012). Given the rise in childhood diagnosis of ASD, there will be many individuals with ASD who are entering adulthood and becoming older adults. This number will continue to rise with new diagnoses (Malik-Soni et al., 2022). Individuals with ASD have historically been excluded from full societal participation, including in higher education, competitive integrated employment (CIE), and independent living. This exclusion has led to poor outcomes in these areas when compared to their peers with other disabilities or no disabilities.

Acquired Disability: Traumatic Brain Injury

An acquired brain injury (ABI) is an injury to the brain that is not hereditary, congenital, degenerative, or induced by birth trauma (Brain Injury Association of America, 2023). This type of brain injury is one that has occurred *after* birth. The injury results in a change to the brain's neuronal activity,

which affects the physical integrity, metabolic activity, or functional ability of nerve cells in the brain. There are two types of acquired brain injury: traumatic and non-traumatic.

Traumatic brain injury (TBI) is an insult to the brain caused by an external physical force, such as falls, assaults, sports injuries, abusive head trauma, gunshot wounds, domestic violence, or motor vehicle accidents (Brain Injury Association of America, 2023). A non-traumatic brain injury causes damage to the brain by internal factors, such as a lack of oxygen, exposure to toxins, pressure from a tumor, infectious disease, or aneurysm (Brain Injury Association of America, 2023).

TBI is classified into three types: mild, moderate, and severe. The type of TBI a patient is diagnosed with is based on three factors:

1. If and how long the patient experienced a loss of consciousness;
2. Whether the patient experienced post-traumatic amnesia and for how long;
3. Whether signs of injury appear in neuroimaging.

According to the National Institute of Health, mild versus moderate-severe TBI are defined as follows:

Table 1

Traumatic Brain Injury Severity Definitions

Variable	Mild TBI (Concussion)	Moderate and Severe TBI
Clinical definition	Loss of consciousness lasting <30 minutes, any alteration of consciousness, or post-traumatic amnesia lasting <24 hrs; some definitions include Glasgow Coma Scale score of 13 to 15	Loss of consciousness lasting = 30 minutes to prolonged coma, post-traumatic amnesia lasting =24 hr up to permanently, or Glasgow Coma score as low as 3
Focal neurologic signs	Usually none or transient	Frequently present
Neuroimaging with CT or MRI	Usually negative	Diagnostic
Natural History	Full recovery is usual; there is lack of consensus on the natural history of concussion and post-concussive symptoms	Natural history and recovery are directly related to the severity of the injury and functional neuroanatomy

Even with the ability to definitively diagnose mild versus moderate-severe TBI, there is lack of consensus regarding the development and presentation of post-TBI neurocognitive disorder. According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), to be attributable to TBI, a neurocognitive disorder must present either immediately after the injury or immediately after the individual recovers consciousness after the injury and persist past the acute post-injury period. This paper will focus on moderate-severe TBI, as the deficits associated with moderate-severe TBI are more

easily observed and follow a more predictable trajectory, rendering it possible to then discuss the intersection between post-TBI functioning, mental health conditions, and employment outcomes.

TBI is reported to be the leading cause of death and disability in young people in the U.S., with 37,200 children sustaining a moderate-severe TBI each year in the U.S (Popernack et al., 2015). The type of disability resulting from a TBI depends upon the severity of the injury, the location of the injury, and the age and general health of the patient. Following moderate-severe TBI, there are commonly problems with cognition (thinking, memory, and reasoning), sensory processing (sight, hearing, touch, taste, and smell), communication (expression and understanding), and behavior (personality changes, aggression, acting out, and social inappropriateness). These problems often result in difficulties in school (Ilie et al., 2020; De Netto & McKinlay, 2020), relationships (O'Keeffe et al., 2020), employment (Watkin et al., 2020), and social interaction (Milders, 2019) throughout the lifespan. In addition, individuals who have experienced moderate-severe TBI often face challenges in activities of daily living that impact their independence as adults.

Dual-Diagnosis TBI/ASD and Mental Health Conditions

Mental illness refers to conditions that are categorized as diagnoses that reflect significant and distinct psychological and behavioral patterns that cause distress to the individual and interfere with occupational performance (McLean et al., 2009). According to the National Institute of Mental Health (2020), approximately one in five adults in the United States live with a mental illness. Various terms are used interchangeably in the rehabilitation literature to describe anxiety and depressive disorders, including psychiatric disabilities, mental illness, and mental health conditions. This article will use the term mental health conditions to encompass the diagnoses presented below. Although mental health conditions are prevalent among the general population, specific disability groups experience higher prevalence of anxiety and depression. ASD and TBI will be discussed to conceptualize the interaction between these commonly diagnosed developmental/acquired disabilities and mental health conditions.

Anxiety and ASD

Children with ASD are at high risk for developing psychiatric symptoms, and anxiety disorders are among the most common dual-diagnosis conditions (Brereton et al., 2006; Mayer & Van Acker, 2009; Simonoff et al. 2008). In fact, as many as 50% of youth with ASD may develop clinically significant anxiety symptoms (Ung et al., 2015). Anxiety also has a high prevalence among adults with ASD, with levels of anxiety similar to children and youth with ASD (Smith et al., 2019). Both generalized anxiety disorder (GAD) and social anxiety disorder (SAD) have been frequently found in samples of adults with ASD (White et al., 2009). Anxiety symptoms in adults with ASD negatively predicts quality of life outcomes, which is of particular concern given the aging population of individuals with ASD (Mason et al., 2018). When untreated, mental health issues in adults with ASD can lead to poor outcomes in employment, adaptive functioning, and quality of life (Maddox & Gaus, 2019).

Although in research samples over half of adults with ASD experience anxiety, there are barriers to accessing mental health services. There is a robust evidence base showing that most individuals with behavioral health disorders receive no treatment at all for their symptoms (Wang et al. 2005). In individuals with ASD, access to care is negatively impacted by the reluctance to receive treatment for their mental health needs because of social stigma, as well as feeling uncertain about where to receive treatment (Crane, et al., 2019). Finding mental health treatment from a provider that is both skilled in the symptoms and treatment of the individual's mental health diagnosis and their developmental disability of ASD is extremely challenging (Maddox & Gaus, 2019). In addition to difficulty in finding providers who treat mental health diagnoses and ASD, individuals with ASD are frequently unemployed or underemployed and experience financial barriers to accessing care. They are more likely to experience wait-lists and limited provider options due to a higher reliance on Medicaid (Maddox & Gaus, 2019).

Anxiety and TBI

Lifetime occurrence of anxiety in the U.S. general population is reported at over 31% (Anxiety and Depression Association of America, 2022). A growing body of research indicates that anxiety disorders may be even more prevalent in the aftermath of TBI, as anxiety has been reported at rates as high as 70% in participants with a history of moderate-severe TBI (Rao et al., 2002). Six months after injury, children with moderate-severe TBI are at significantly greater risk for presenting new-onset anxiety disorders than those with traumatic orthopedic injuries, 46% vs 14%, (Luis & Mittenberg, 2002), including posttraumatic stress disorder, phobias (Vasa et al., 2002), obsessive-compulsive symptoms (Grados et al., 2008), and generalized anxiety disorder (Luis & Mittenberg, 2002). Further, children injured at younger ages appear more vulnerable to anxiety disorders (Max et al., 2011). Post-injury stress is a robust predictor of new-onset anxiety disorders, but there is little support for other environmental predictors of anxiety, including socio-economic status, parental education, pre-injury family functioning, history of anxiety disorders, and psychosocial adversity (Vasa et al., 2002; Luis & Mittenberg, 2002).

The development of anxiety disorders after moderate-severe TBI is a strong predictor of social, personal, and work dysfunction; nevertheless, the emergence of and treatment for anxiety has been largely unexplored and poorly understood in the context of TBI. The effectiveness of pharmacological therapy has been shown to be limited, and concerns have been raised regarding vulnerability of individuals with TBI to side-effects (Warden et al. 2006; Fann et al. 2009). Developing non-pharmacological treatments is essential; however, many typical psychological therapeutic modalities require active client involvement (Cuijpers et al. 2008), and individuals with moderate-severe TBI often have limited self-awareness and cognitive function, making it difficult to consistently engage in therapy.

Depression and ASD

Given the high prevalence of anxiety disorders and ASD, less attention has been given to dual-diagnosis depression and ASD (Hollocks et al., 2019). In a systematic review and meta-analysis on anxiety and depression in adults with ASD by Hollocks et. al. (2017), there was a “23% prevalence of current co-morbid depression or moderate to severe clinically elevated depressive symptoms in adults with ASD” (p. 568). However, when examining lifetime prevalence of depression, rates increased to 37% of adults with ASD (Hollocks et. al., 2019). According to the National Institute of Mental Health (2020), prevalence of depression in all United States adults is 8.4%, which is notably lower than the rates for adults with ASD. Social isolation and loneliness that individuals may experience as a result of autism is a risk factor for depression and suicidal ideation (Hedley et al., 2018).

Quality of life is also a concern for adults with ASD since they experience lower quality of life than their typically developing peers (Smith et al., 2019). Although in one sample, adults with autism experienced comparable education, quantity of friends, and living situations as the control group, they still reported significantly lower physical and social quality of life (Jennes-Coussens et al., 2006). A more recent meta-analysis of quality of life in adults with ASD found across the lifespan, adults with ASD experience significantly lower quality of life at all ages compared to their counterparts without ASD (van Heijst & Geurts, 2015). While severity of ASD symptoms and cognitive ability are predictors of positive adult outcomes for individuals with ASD, one study found the presence of a mental health diagnosis negatively predicted quality of life in adults with ASD (McConachie et al., 2018). While there has been strong evidence for the prevalence of mental health issues in children with ASD, there is a growing body of research indicating prevalence rates are equally high for adults with ASD.

Depression and TBI

Depression and personality changes are common following moderate-severe TBI (Seel, et. al., 2010). Jorge et al., (1993) followed a group of 66 patients with acute TBI for more than one year. During this period, 28 patients (42.4%) received a diagnosis of major depression as diagnosed using a semi-structured interview (Present State Examination; Springer 1985) and DSM criteria. Depression following

moderate-severe TBI is associated with poorer physical health (Dams-O'Connor et al., 2013), decreased social integration (Milders, 2019), and lower quality of life (Di Battista et al., 2012), even after controlling for medical, demographic, and neuropsychological factors. Individuals with a history of moderate-severe TBI and symptoms of depression lasting more than six months exhibit significant deterioration in social functioning and performance of activities of daily living (Jorge et al., 1994). Depressed patients with a history of moderate-severe TBI also report more severe post-concussive symptoms (e.g., headache, blurred vision, dizziness, and memory impairment) compared to non-depressed TBI patients (Fann & Tucker, 1995), suggesting depression likely complicates the neurological and cognitive sequelae of TBI.

Benefits of Employment

Work has an essential role in people's lives. The benefits of work are well described in the rehabilitation counseling literature and include positive impacts to social factors such as a sense of belonging, inclusion, psychological wellbeing, and productivity, as well as factors related to physical health, access to health insurance, and financial stability (Anhole et al., 2020; Brown, 2011; Lysaght & Cobigo, 2014). Rehabilitation counselors hold a unique identity in the counseling profession helping individuals with disabilities gain and maintain employment. The Commission on Rehabilitation Counselor Certification (CRCC) Code of Professional Ethics for Certified Rehabilitation Counselors (2023) states that rehabilitation counselors "have specialized knowledge, skills, and abilities to collaborate with persons with all types of disabilities to overcome barriers to employment or other life domains" (p. 3). Such a focus is placed on assisting individuals with disabilities in their employment goals because of the well documented benefits of work, and harmful effects of unemployment. Unemployment and underemployment for adults with disabilities can lead to negative outcomes. At the individual level, unemployment is associated with low physical and mental health (Pinto et al., 2018). Adults with complex disabilities are more likely to earn less than those without disabilities. Individuals with disabilities are also less likely than their counterparts without disabilities to hold managerial or professional positions, and can be considered underemployed (Department of Labor, 2019). In a study aimed to explore the relationship between employment status and life satisfaction, Konrad et al., (2013) reported that individuals with disabilities have lowest life satisfaction when unemployed and second lowest when their abilities are underutilized. Importantly, employment has also been associated with a reduction in negative symptoms associated with a mental health diagnosis (Ellison et al., 2015; Gmitroski et al., 2018).

It is known that work is a central, driving force in people's lives and the goal of rehabilitation counseling is to empower clients with disabilities in all areas of their lives, including returning to work. Saunders et al., (2000) state that "the centrality of the employment outcome to the rehabilitation counseling profession and to the role of the rehabilitation counseling professional has been evident since the first studies of both the role and functions of the rehabilitation counselor" (p. 142). The State-Federal Vocational Rehabilitation (VR) setting offers comprehensive and individualized employment services for people with disabilities. These services have been demonstrated to be effective through empirical studies (Pruett et al., 2008). Vocational rehabilitation counselors (VRC) are uniquely positioned to assist individuals with dual-diagnosis mental health and developmental disabilities since VR programs serve individuals with an array of complex disabilities (Saunders, 2005). Recent research points to VR supports such as job-related services of job placement assistance, job search assistance, on-the-job supports, and job readiness training, significantly increasing the likelihood of individuals with intellectual disability and dual-diagnosis psychiatric disorders gaining employment (Austin et al., 2019). Similar findings are evident in TBI research, with on-the-job support, job placement, and on-the-job-training having the most significant positive effect on employment outcomes for individuals being served by VR with TBI (Ahonle et al., 2020). Rehabilitation counselors working within the VR system should consider the following factors impacting employment for individuals with the dual diagnoses of ASD, TBI, and mental health conditions to address pervasively low employment outcomes for these groups

Factors Impacting Employment

As evidenced above, employment is beneficial for people with disabilities. Researchers have focused on identifying factors that may predict success in work integration, with the underlying assumption that an understanding of these factors may lead to strategies to improve potential outcomes. A common theme across individuals with ASD or TBI and mental health diagnoses are the person factors, the job factors, and the work environment are all important in facilitating work integration, (Chiocchio et al., 2006). Employers and colleagues who are understanding and supportive are viewed as key enablers of work integration in the mental health (Purnima & Ochocka, 2009), intellectual disability (Butterworth, 2007), and brain injury (Corr et al., 2003) literature. This summary aims to highlight the employment factors that are consistently found in the corresponding disability specific literature to emphasize the similarities for consideration by rehabilitation professionals.

In the TBI literature, the key factors associated with successful work outcome are ability to ambulate, pre-injury educational attainment, type of work—those returning to white-collar (e.g., professional, managerial, administrative) work were more successful—and having preserved cognitive capacity (Vestling et al., 2003). There is also support in the brain injury literature of the importance of considering jobs that match clients' skills (Corr et al., 2003; Power, 2003) and job environments that are favorable for implementing an enabling process for the worker (Kowalske, 2000).

In the developmental disability literature, "person factors" related to employment outcomes include socio-demographic characteristics such as gender, race/ethnicity, age, and economic status (Rimmerman et al., 1996), as well as motivation (Rose et al., 2005). There is also support for consideration of the compatibility between a worker's interests, job-related skills, and the job requirements in predicting future job tenure (Chiocchio et al., 2006).

In mental health literature, there are conflicting findings with regards to symptom and diagnostic indicators (Tsang et al., 2010). Bond & Drake (2008) reported that diagnosis, symptoms and disability status have not proven to be strong or consistent predictors and Siu's (1998) research cast doubt on the relationship between functional performance and employment outcomes. However, several other studies point to pre-morbid functioning, social skills, self-efficacy, cognitive functioning, and work history as significant predictors of work functioning (Burke-Miller et al., 2006; Christensen et al., 2007; Regenold et al., 1999). Some evidence exists in the mental health literature that the fit between the person factors and job factors can significantly influence work outcomes (Bond & Drake, 2008).

Environmental barriers involve the factors outside of the individual's control and beyond the job-specific factors. Examples of environmental barriers include labor market forces (McAlpine et al., 2002) and benefit systems that do not support work integration opportunities (Koch, 2005). For individuals with developmental disabilities, TBI, and mental illness: a) entry to the workforce or work integration is a major problem, with employment rates being low; b) the work trajectory is often interrupted in the early years of adulthood or before; c) workplace stigma exists in the form of assumptions regarding workplace competency, including vocational and social skills; and d) guiding principles exist for each population to address work integration that are complementary but to date, have not been compared or compiled.

Employment and Mental Health

Mental health conditions are known to impact employment outcomes, as research comparing individuals with and without mood disorders finds that those individuals with mood disorders have consistently poorer economic outcomes across the entire work-life span (Hakulinen et al., 2019). For example, at age 30, bipolar disorder is associated with a seven-fold increase in the odds of unemployment, and depression is associated with a four-fold increase in unemployment, and this same study found that individuals with bipolar disorder and depression earned around 36% and 51%, respectively, of the amount earned by individuals without mood disorders (Hakulinen et al., 2019). The factors contributing to the differences in earnings between those with and without depression may be related to increased use of sick leave while employed and more frequent periods of unemployment. For example, a 40-year-old man reporting depres-

sive symptoms will spend approximately 2 years less in work before retirement compared with a man not reporting depressive symptoms, and, in women, the corresponding difference in time less in work is 3 years (Hakulinen, et al., 2019). Similarly, World Mental Health (WMH) Report (2022) surveyed 62,971 respondents across 24 countries to assess days out of role (i.e., sick days) in the 30 days before interview. Mental illness was associated with 5.1% of all days out of role, the fourth highest population-attributable risk proportion of all the disorders considered, exceeded only by headache/migraine, other chronic pain conditions, and cardiovascular disorders (Kessler, 2012).

Employment and ASD

Employment is an important element for independent and community living, and greater financial independence for individuals with ASD. Overall, employment rates for adults with ASD are far below their counterparts without a disability. In one study by Roux et al., (2013), only 58% of the sample of young adults in their early twenties were employed. This employment rate is far below individuals with other disabilities, such as intellectual and learning disabilities (Roux et al., 2013). Even when receiving assistance, only 40% of adults with ASD receiving supports to gain employment, such as Vocational Rehabilitation, secured employment (Gerhardt et al., 2014). Regardless of their cognitive ability, individuals with ASD experience difficulties securing employment and working in their communities (Chen et al., 2015; Wilczynski et al., 2013). These poor employment outcomes are seen in young adults with ASD, demonstrating difficult transitions from secondary education to employment. Data from the National Longitudinal Transition Study (NLTS-2) indicates extremely poor transition to employment outcomes for young adults with ASD (National Center for Special Education Research, 2023). In one study by Shattuck et al., (2012), over 50% of young adults with ASD did not transition to employment or post-secondary education. Using the same dataset, Roux et al. (2013), found individuals with ASD between the ages of 21-25 were less likely to have ever worked than their similar-aged peers with other developmental disabilities. Additionally, if they were employed, the individuals with ASD earned less in wages than their peers with other disabilities.

Employment and TBI

Employment is important for individuals with TBI to have meaningful and productive lives (Catalano et al., 2006). According to research, the rate of return to gainful employment following moderate-severe TBI varies widely, from 12.5% to 71% (Shames et al., 2007; Wehman et al., 1990; Wehman et al., 2005). This is likely because conceptualizing return to work as a dichotomous variable and using it as a proxy for functional capacity in patients with a history of moderate-severe TBI is likely an inaccurate way to assess patient outcomes (Cancelliere et al., 2014; Kristman et al., 2010; Stulemeijer et al., 2008). As noted previously, there are myriad outcomes associated with moderate-severe TBI, depending on the location of the injury (i.e., frontal lobe versus occipital lobe), development of co-morbid mental health conditions, and level of support/treatment available.

There is evidence that communication skills are positively associated with stable employment in skilled jobs after moderate-severe TBI (Meulenbroek & Turkstra, 2016), and reading comprehension, verbal memory, and language are significant correlates of work reentry (Ryan et al., 1992). Other research has identified predictive factors of employment stability following moderate-severe TBI, such as younger age, white race, preinjury employment status, higher annual earnings, male sex, higher education, and transportation independence postinjury at 1-year post-TBI (DiSanto et al., 2019). Some individuals with a history of moderate-severe TBI who return to work do not return to their preinjury level of employment, instead requiring modified duties or reduced hours, and there is some evidence that patients who do return to preinjury employment experience more cognitive, physical, and emotional symptoms compared to their TBI peers who did not return to preinjury employment (Silverberg et al., 2018).

The presence of mental health conditions, particularly depression and anxiety, in individuals with a history of moderate-severe TBI has been found to negatively impact employment status (Dawson et al., 2007). One study of 62 individuals found that depression was significantly associated with unemploy-

ment at an average of 99 months post-injury (Carroll et al., 2011). However, notably, it has also been found that symptoms of anxiety and depression are a *consequence* of unemployment in individuals who have experienced moderate-severe TBI, rather than the cause of unemployment (Whelan-Goodinson et al., 2010).

Assisting an individual who has experienced a moderate-severe TBI achieve their maximum degree of return to their pre-injury level of functioning, including employment, can be a complicated task. The ideal approach to rehabilitation involves a multi-disciplinary team of health professionals, vocational counselors, case management specialists, and community members and may include repeated disability evaluation, skills retraining, behavioral management, and drug therapy (Kahn-Bourne & Brown, 2003). Supported employment practices, including use of a vocational specialist or job coach, have been shown to increase employability and employment retention in individuals with TBI, as have specific accommodations offered by employers (Ahonle et al., 2020). Though, to be effective, these accommodations should target difficulties related to TBI symptoms, including helping the individual with keeping track of important information, minimizing fatigue, maintaining attention, staying organized, managing stress, and facilitating communication (Gordeau et al., 2020). In the case of an employer who is not able or willing to provide such accommodations, the result is increased rates of unemployment for individuals who have experienced moderate-severe TBI (Doctor et al., 2005; Theadom et al., 2017).

Implications and Future Directions

To our knowledge, this is one of the first contributions to the rehabilitation counseling literature reviewing the nuances of dual-diagnosis mental health conditions impacting spectrum disorders such as TBI and ASD and their subsequent impact on employment. Although research has frequently focused on employment interventions and outcomes for these populations, similarities across dual-diagnosis disabilities have not been presented for practical application by rehabilitation counselors. Rehabilitation professionals working in sectors ranging from vocational rehabilitation to forensics need to be knowledgeable about the factors that impact the level of functioning, particularly regarding employment, in individuals with disabilities. Although rehabilitation counseling has a rich history of viewing the client as a whole individual, additional work is needed to fully incorporate dual-diagnosis disabilities in treatment and planning.

Implications for Counseling Practice

Rehabilitation counselors may work in diverse practice settings, including clinical mental health, private practice, or VR agencies, and can provide impactful job-related services to individuals with dual-diagnosis disabilities. The high prevalence of mental health conditions such as anxiety and depression in individuals with ASD or TBI need to be considered when taking a holistic approach in counseling. However, all rehabilitation professionals should be knowledgeable about how to serve this growing population and their employment needs, especially when working in settings outside of VR. Continuing education for credentials like the Certified Rehabilitation Counselor (CRC), must include a focus on serving individuals with dual-diagnosis developmental disabilities and mental health conditions. Inclusion in continuing education will reach rehabilitation professionals working across counseling settings. Given the low employment outcomes for the dual diagnoses presented in this article, additional education is needed to help improve outcomes.

Although education of rehabilitation counselors is critical for them to serve individuals with dual-diagnosis disabilities, access to these counselors can be a barrier to individuals and their families. Access to rehabilitation counselors is difficult because of the documented lack of rehabilitation counselors across practice settings (e.g., Bishop, 2001; Frain et al., 2006; Herbert et al., 2023). VR agencies have experienced vacancies and retention issues of rehabilitation counselors because of factors such as low pay, limited career pathways, high caseload sizes, and administrative duties (Herbert et al., 2023; Landon et al., 2023; Zheng et al., 2017). While agencies in different settings are increasingly focused on hiring and retaining rehabilitation counselors to serve individuals with disabilities, profes-

sional organizations such as the American Rehabilitation Counselor Association (ARCA) and the International Association of Rehabilitation Professionals (IARP) should continue to advocate for the counseling specialty to draw prospective counselors.

Implications for Forensic Practice

Careful consideration must be given to all factors contributing to an individual's disability when evaluating future care needs and earning capacity in a forensic setting. A forensic vocational expert should be aware that person factors, job factors, and environmental factors interact to create myriad functional outcomes in individuals with developmental and acquired disability. Assessing an individual's job-related interests, aptitudes, and values can provide important information regarding the type of employment they would both enjoy and be qualified for and analyzing this information within the context of their documented deficits can guide the formulation of opinions regarding employability and earning capacity.

The high prevalence of mental health disorders in individuals with developmental disabilities and moderate-severe TBI indicates that mental health symptomatology should also be assessed, either through record review or questionnaires, when analyzing an individual's pre- and post-injury employability. Then, mental health future care needs should be considered as a possible mitigating factor when determining long-term employment outcomes. Similarly, a forensic vocational expert should be knowledgeable about the benefits of vocational rehabilitation with regard to improving the likelihood of returning to work, maintaining employment long-term, and increasing earning potential.

Implications for Research

There is an overall lack of research on employment outcomes and interventions for individuals with dual-diagnosis ASD or TBI and mental health disorders. Since rehabilitation professionals work in diverse settings, future research should focus on the understanding of dual-diagnosis populations across and within different types of rehabilitation work. The spectrum of severity for TBI and ASD present nuances and research is needed to understand the knowledge of rehabilitation counselors about the complexities of dual diagnosis. Additionally, as disability is infused in new counselor education standards from the Council for Accreditation of Counseling and Related Educational Programs (CACREP), it is important for future research to explore how counselor education is preparing rehabilitation professionals to work with dual-diagnosis populations in different counseling settings.

Conclusion

This article presented critical factors for understanding the intersection between disabilities that occur on a spectrum of severity (ASD or TBI) mental health conditions, and employment outcomes. Rehabilitation professionals must have a comprehensive understanding of these disabilities, prevalence of dual-diagnosis anxiety and depression, and the implications on gaining and maintaining employment. It is important to consider the implications for the different professional settings of rehabilitation counselors, including vocational rehabilitation, mental health counseling and forensic practice. Approaches using comprehensive and individualized assessment is standard practice for rehabilitation professionals in various settings and applies to the population of dual-diagnosis TBI or ASD and mental health conditions.

References

- Ahonle, Z. J., Barnes, M., Romero, S., Sorrells, A. M., & Brooks, G. I. (2020). State-federal vocational rehabilitation in traumatic brain injury: what predictors are associated with employment outcomes? *Rehabilitation Counseling Bulletin*, 63(3), 143–155. <https://doi.org/10.1177/0034355219864684>.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). <https://doi.org/10.1176/appi.books.9780890425596>.

- Anxiety and Depression Association of America. (2022). *Anxiety disorder facts and statistics*. <https://adaa.org/understanding-anxiety/facts-statistics>
- Austin, B. S., Fleming, A., Lee, C., & Pi, S. (2019). Vocational rehabilitation outcomes for individuals with intellectual disabilities and co-occurring psychiatric disorders. *Journal of Rehabilitation*, 85(4), 14-23.
- Bishop, M. (2001). Motivation to become a rehabilitation counselor with state-federal vocational rehabilitation program: Implications for rehabilitation administrators. *Journal of Rehabilitation Administration*, 25, 145-150.
- Brain Injury Association of America. (2023). *Facts about traumatic brain injury*. <https://www.biausa.org/brain-injury/about-brain-injury/basics>
- Brereton, A. V., Tonge, B. J., & Einfeld, S. L. (2006). Psychopathology in children and adolescents with autism compared to young people with intellectual disability. *Journal of Autism and Developmental Disorders*, 36(7), 863-870. <https://doi.org/10.1007/s10803-006-0125-y>
- Bond, G. R., & Drake, R. E. (2008). Predictors of competitive employment among patients with schizophrenia. *Current Opinion in Psychiatry*, 21(4), 362-369. <https://doi.org/10.1097/ycp.0b013e328300eb0e>
- Brown, M., Duff, H., Karatzias, T., & Horsburgh, D. (2011). A review of the literature relating to psychological interventions and people with intellectual disabilities: Issues for research, policy, education and clinical practice. *Journal of Intellectual Disabilities*, 15(1), 31-45. <http://dx.doi.org/10.1177/1744629511401166>
- Burke-Miller, J. K., Cook, J. A., Grey, D. D., Razzano, L. A., Blyler, C. R., Leff, H. S., Gold, P. B., Goldberg, R. W., Mueser, K. T., Cook, W. L. and Hoppe, S. K., (2006). Demographic characteristics and employment among people with severe mental illness in a multisite study. *Community Mental Health Journal*, 42(2), 143-159. <https://doi.org/10.1007/s10597-005-9017-4>
- Butterworth, J., Christensen, J., & Flippo, K. (2017). Partnerships in employment: Building strong coalitions to facilitate systems change for youth and young adults. *Journal of Vocational Rehabilitation*, 47(3), 265-276. <https://doi.org/10.3233/JVR-170901>
- Cancelliere, C., Kristman, V. L., Cassidy, J. D., Hincapié, C. A., Côté, P., Boyle, E., Carroll, L. J., Stålnacke, B. M., Nygren-de Boussard, C., & Borg, J., (2014). Systematic review of return to work after mild traumatic brain injury: Results of the international collaboration on mild traumatic brain injury prognosis. *Archives of Physical Medicine and Rehabilitation*, 95(3), S201-S209. <https://doi.org/10.1016/j.apmr.2013.10.010>
- Carroll, E., & Coetzer, R. (2011). Identity, grief and self-awareness after traumatic brain injury. *Neuropsychological Rehabilitation*, 21(3), 289-305. <https://doi.org/10.1080/09602011.2011.555972>
- Catalano, D., Pereira, A. P., Wu, M. Y., Ho, H., & Chan, F. (2006). Service patterns related to successful employment outcomes of persons with traumatic brain injury in vocational rehabilitation. *NeuroRehabilitation*, 21(4), 279-293.
- Centers for Disease Control and Prevention. (2022). *Disability impacts all of us*. <https://www.cdc.gov/ncbddd/disabilityandhealth>
- Chen, J. L., Leader, G., Sung, C., & Leahy, M. (2015). Trends in employment for individuals with autism spectrum disorder: A review of the research literature. *Review Journal of Autism and Developmental Disorders*, 2(2), 115-127.
- Chiocchio, F., & Frigon, J. Y. (2006). Tenure, satisfaction, and work environment flexibility of people with mental retardation. *Journal of Vocational Behavior*, 68(1), 175-187. <https://doi.org/10.1016/j.jvb.2004.11.004>

- Christensen, T. Ø. (2007). The influence of neurocognitive dysfunctions on work capacity in schizophrenia patients: a systematic review of the literature. *International journal of psychiatry in clinical practice*, 11(2), 89-101. <https://doi.org/10.1080/13651500600969061>
- Commission on Rehabilitation Counselor Certification. (2023). *Code of professional ethics for rehabilitation counselors*. <https://crrccertification.com/code-of-ethics-4/>
- Council for Accreditation of Counseling and Related Education Programs. (2016). *2016 CACREP standards*. <https://www.cacrep.org/for-programs/2016-cacrep-standards/>
- Corr, S., & Wilmer, S. (2003). Returning to work after a stroke: An important but neglected area. *British Journal of Occupational Therapy*, 66(5), 186-192.
- Crane, L., Adams, F., Harper, G., Welch, J., & Pellicano, E. (2019). 'Something needs to change': Mental health experiences of young autistic adults in England. *Autism*, 23(2), 477-493. <https://doi.org/10.1177/1362361318757048>
- Cuijpers, P., Van Straten, A., Andersson, G., & Van Oppen, P. (2008). Psychotherapy for depression in adults: A meta-analysis of comparative outcome studies. *Journal of Consulting and Clinical Psychology*, 76(6), 909. <https://doi.org/10.1037/a0013075>
- Dams-O'Connor, K., Spielman, L., Singh, A., Gordon, W. A., Lingsma, H. F., Maas, A. I., Manley, G. T., Mukherjee, P., Okonkwo, D. O., Puccio, A. M., & Schnyer, D. M., (2013). The impact of previous traumatic brain injury on health and functioning: A TRACK-TBI study. *Journal of Neurotrauma*, 30(24), 2014-2020. <https://doi.org/10.1089/neu.2013.3049>
- Dawson, D. R., Schwartz, M. L., Winocur, G., & Stuss, D. T. (2007). Return to productivity following traumatic brain injury: Cognitive, psychological, physical, spiritual, and environmental correlates. *Disability and Rehabilitation*, 29(4), 301-313. <https://doi.org/10.1080/09638280600756687>
- De Netto, R. K., & McKinlay, A. (2020). Impact of childhood traumatic brain injury on educational outcomes and adult standard of living. *Disability and Rehabilitation*, 42(17), 2444-2450. <https://doi.org/10.1080/09638288.2019.1637948>
- Department of Labor. (2019). *Employment of people with disabilities in 2018*. <https://www.bls.gov/opub/ted/2019/employment-of-people-with-a-disability-in-2018.htm>
- Developmental Disabilities Assistance and Bill of Rights Act. (2000). <https://www.congress.gov/bill/106th-congress/senate-bill/1809>
- Di Battista, A., Soo, C., Catroppa, C., & Anderson, V. (2012). Quality of life in children and adolescents post-TBI: A systematic review and meta-analysis. *Journal of Neurotrauma*, 29(9), 1717-1727. <https://doi.org/10.1089/neu.2011.2157>
- DiSanto, D., Kumar, R. G., Juengst, S. B., Hart, T., O'Neil-Pirozzi, T. M., Zasler, N. D., Novack, T. A., Dillahunst-Aspillaga C., Graham, K. M., Cotner, B. A., & Rabinowitz, A. R. (2019). Employment stability in the first 5 years after moderate-to-severe traumatic brain injury. *Archives of Physical Medicine and Rehabilitation*, 100(3), 412-421. <https://doi.org/10.1016/j.apmr.2018.06.022>
- Doctor, J. N., Castro, J., Temkin, N. R., Fraser, R. T., Machamer, J. E., & Dikmen, S. S. (2005). Workers' risk of unemployment after traumatic brain injury: A normed comparison. *Journal of the International Neuropsychological Society*, 11(6), 747-752. <https://doi.org/10.1017/s1355617705050836>
- Dutta, A., Gurvey, R., Chan, F., Chou, C. C., & Ditchman, N. (2008). Vocational rehabilitation services and employment outcomes for people with disabilities: A United States study. *Journal of Occupational Rehabilitation*, 18(4), 326-334. <https://doi.org/10.1007/s10926-008-9154-z>
- Elinson, L., Frey, W. D., Li, T., Palan, M. A., & Horne, R. L. (2008). Evaluation of customized employment in building the capacity of the workforce development system. *Journal of Vocational Rehabilitation*, 28(3), 141-158.

- Ellison, M. L., Klodnick, V. V., Bond, G. R., Krzos, I. M., Kaiser, S. M., Fagan, M. A., & Davis, M. (2015). Adapting supported employment for emerging adults with serious mental health conditions. *The Journal of Behavioral Health Services & Research*, 42(2), 206-222. <https://doi.org/10.1007/s11414-014-9445-4>
- Fann, J. R., & Tucker, G. J. (1995). Mood disorders with general medical conditions. *Current Opinion in Psychiatry*, 8(1), 13-18.
- Fann, J. R., Hart, T., & Schomer, K. G. (2009). Treatment for depression after traumatic brain injury: A systematic review. *Journal of Neurotrauma*, 26(12), 2383-2402. <https://doi.org/10.1089/neu.2009.1091>
- Frain, M., Ferrin, J. M., Rosenthal, D. A., & Wampold, B. (2006). A meta-analysis of rehabilitation outcomes based on education level of the counselor. *Journal of Rehabilitation*, 72 (1), 10-18.
- Gerhardt, P. F., Cicero, F., & Mayville, E. (2014). Employment and related services for adults with autism spectrum disorders. In F. R. Volkmar, B. Reichow, & J. C. McPartland (Eds.), *Adolescents and adults with autism spectrum disorders*. (pp. 105-119). Springer. http://dx.doi.org/10.1007/978-1-4939-0506-5_6
- Gmitroski, T., Bradley, C., Heinemann, L., Liu, G., Blanchard, P., Beck, C., Mathias, S., Leon, A., & Barbic, S. P. (2018). Barriers and facilitators to employment for young adults with mental illness: A scoping review. *BMJ Open*, 8(12), e024487. <https://doi.org/10.1136/bmjopen-2018-024487>
- Gourdeau, J., Fingold, A., Colantonio, A., Mansfield, E., & Stergiou-Kita, M. (2020). Workplace accommodations following work-related mild traumatic brain injury: What works? *Disability and Rehabilitation*, 42(4), 552-561. <https://doi.org/10.1080/09638288.2018.1503733>
- Grados, M. A., Vasa, R. A., Riddle, M. A., Slomine, B. S., Salorio, C., Christensen, J., & Gerring, J. (2008). New onset obsessive-compulsive symptoms in children and adolescents with severe traumatic brain injury. *Depression and Anxiety*, 25(5), 398-407. <https://doi.org/10.1002/da.20398>
- Hakulinen, C., McGrath, J. J., Timmerman, A., Skipper, N., Mortensen, P. B., Pedersen, C. B., & Agerbo, E. (2019). The association between early-onset schizophrenia with employment, income, education, and cohabitation status: nationwide study with 35 years of follow-up. *Social Psychiatry and Psychiatric Epidemiology*, 54, 1343-1351. <https://psycnet.apa.org/doi/10.1007/s00127-019-01756-0>
- Hedley, D., Uljarević, M., Foley, K. R., Richdale, A., & Trollor, J. (2018). Risk and protective factors underlying depression and suicidal ideation in Autism Spectrum Disorder. *Depression and Anxiety*, 35(7), 648-657. <https://doi.org/10.1002/da.22759>
- Herbert, J. T., Yoon, H. J., O'Shea, A., & Al Balushi, I. (2023). Recruitment and retention of state vocational rehabilitation counselors: A mixed methods analysis. *Journal of Rehabilitation*, 89(1), 61-71.
- Hollocks, M. J., Jian, W. L., Magiati, I., Meiser-Stedman, R., & Brugha, T. S. (2019). Anxiety and depression in adults with autism spectrum disorder: A systematic review and meta-analysis. *Psychological Medicine*, 49(4), 559-572. <https://doi.org/10.1017/s0033291718002283>
- Jennes-Coussens, M., Magill-Evans, J., & Koning, C. (2006). The quality of life of young men with Asperger syndrome: A brief report. *Autism: The International Journal of Research and Practice*, 10(4), 403-414. <https://doi.org/10.1177/1362361306064432>
- Jorge, R. E., Robinson, R. G., Arndt, S. V., Starkstein, S. E., Forrester, A. W., & Geisler, F. (1993). Depression following traumatic brain injury: A 1-year longitudinal study. *Journal of Affective Disorders*, 27(4), 233-243. [https://doi.org/10.1016/0165-0327\(93\)90047-n](https://doi.org/10.1016/0165-0327(93)90047-n)
- Jorge, R. E., Robinson, R. G., Starkstein, S. E., & Arndt, S. V. (1994). Influence of major depression on 1-year outcome in patients with traumatic brain injury. *Journal of Neurosurgery*, 81(5), 726-733. <https://doi.org/10.3171/jns.1994.81.5.0726>

- Khan-Bourne, N., & Brown, R. G. (2003). Cognitive behaviour therapy for the treatment of depression in individuals with brain injury. *Neuropsychological Rehabilitation*, 13(1-2), 89-107. <https://doi.org/10.1080/09602010244000318>
- Kessler, R. C. (2012). The costs of depression. *Psychiatric Clinics*, 35(1), 1-14. <https://doi.org/10.1016/j.psc.2011.11.005>
- Koch, L., Egbert, N., Coeling, H., & Ayers, D. (2005). Returning to work after the onset of illness: Experiences of right hemisphere stroke survivors. *Rehabilitation Counseling Bulletin*, 48(4), 209-218.
- Konrad, A. M., Moore, M. E., Ng, E. S., Doherty, A. J., & Breward, K. (2013). Temporary work, underemployment and workplace accommodations: Relationship to well-being for workers with disabilities. *British Journal of Management*, 24(3), 367-382. <https://doi.org/10.1111/j.1467-8551.2011.00809.x>
- Kowalske, K., Plenger, P. M., Lusby, B., & Hayden, M. E. (2000). Vocational reentry following TBI: an enablement model. *The Journal of Head Trauma Rehabilitation*, 15(4), 989-999. <https://doi.org/10.1097/00001199-200008000-00003>
- Kristman, V. L., Cote, P., Hogg-Johnson, S., Cassidy, J. D., Eerd, D. V., Vidmar, M., Rezai, M., & Wennberg, R. A. (2010). The burden of work disability associated with mild traumatic brain injury in Ontario compensated workers: A prospective cohort study. *The Open Occupational Health & Safety Journal*, 2(1), 1-8. <http://dx.doi.org/10.2174/1876216601002010001>
- Ilie, G., Trenholm, M., Boak, A., Mann, R. E., Adlaf, E. M., Asbridge, M., Hamilton, H., Rehm, J., Rutledge, R., & Cusiman, M. D. (2020). Adolescent traumatic brain injuries: Onset, mechanism and links with current academic performance and physical injuries. *PLoS one*, 15(3), e0229489. <https://doi.org/10.1371/journal.pone.0229489>
- Landon, T. J., Phillips, B. N., McKnight, M., Sabella, S. A., & Kline, K. M. (2023). The impact of organizational factors and professional identity on turn over intent in state vocational rehabilitation agencies. *Rehabilitation Counseling Bulletin*. Advance online publication. <https://doi.org/10.1177/00343552231155215>
- Luis, C. A., & Mittenberg, W. (2002). Mood and anxiety disorders following pediatric traumatic brain injury: A prospective study. *Journal of Clinical and Experimental Neuropsychology*, 24(3), 270-279. <https://doi.org/10.1076/jcen.24.3.270.982>
- Lysaght, R. M., & Cobigo, V. (2014). Enhancing the quality of life of marginalized populations through employment. *International Public Health Journal*, 6(4), 301-310.
- Maddox, B. B., & Gaus, V. L. (2019). Community mental health services for autistic adults: Good news and bad news. *Autism in Adulthood*, 1(1), 15-19. <https://doi.org/10.1089/2Faut.2018.0006>
- Malik-Soni, N., Shaker, A., Luck, H., Mullin, A. E., Wiley, R. E., Lewis, M. S., Fuentes, J., & Frazier, T. W. (2022). Tackling healthcare access barriers for individuals with autism from diagnosis to adulthood. *Pediatric Research*, 91(5), 1028-1035. <https://doi.org/10.1038/s41390-021-01465-y>
- Mason, D., McConachie, H., Garland, D., Petrou, A., Rodgers, J., & Parr, J. R. (2018). Predictors of quality of life for autistic adults. *Autism Research*, 11(8), 1138-1147. <https://doi.org/10.1002/2Faur.1965>
- Mayer, M. J., & Van Acker, R. (2009). Historical roots, theoretical and applied developments, and critical issues in cognitive-behavior modification. In M. J. Mayer, J. E. Lochman, & R. Van Acker (Eds.), *Cognitive-behavioral interventions for emotional and behavioral disorders: School-based practice* (pp. 3-28). The Guilford Press.
- McAlpine, D. D., & Warner, L. (2002). Barriers to employment among persons with mental illness: A review of the literature. *Center for Research on the Organization and Financing of Care for the Severely Mentally Ill, Institute for Health, Health Care Policy and Aging Research, Rutgers University*. <https://www.researchgate.net/publication/241297110> Barriers to Employment among Persons with Mental Illness A Review of the Literature

- McConachie, H., Mason, D., Parr, J. R., Garland, D., Wilson, C., & Rodgers, J. (2018). Enhancing the validity of a quality of life measure for autistic people. *Journal of Autism and Developmental Disorders*, 48, 1596-1611. <https://doi.org/10.1007/s10803-017-3402-z>
- McLean, S. A., Kirsch, N. L., Tan-Schriner, C. U., Sen, A., Frederiksen, S., Harris, R. E., Maixner, W. and Maio, R. F. (2009). Health status, not head injury, predicts concussion symptoms after minor injury. *The American Journal of Emergency Medicine*, 27(2), 182-190. <https://doi.org/10.1016/j.ajem.2008.01.054>
- Meulenbroek, P., & Turkstra, L. S. (2016). Job stability in skilled work and communication ability after moderate-severe traumatic brain injury. *Disability and Rehabilitation*, 38(5), 452-461. <https://doi.org/10.3109/09638288.2015.1044621>
- Migliore, A., Butterworth, J., Nord, D., Cox, M., & Gelb, A. (2012). Implementation of job development practices. *Intellectual and Developmental Disabilities*, 50(3), 207-218. <https://doi.org/10.1352/1934-9556-50.3.207>
- Milders, M. (2019). Relationship between social cognition and social behaviour following traumatic brain injury. *Brain Injury*, 33(1), 62-68. <https://doi.org/10.1080/02699052.2018.1531301>
- National Institute of Mental Health. (2020). *Statistics on mental illness*. <https://www.nimh.nih.gov/health/statistics/mental-illness>
- National Center for Special Education Research. (2023). *National longitudinal transition study-2 (NLTS2)*. <https://ies.ed.gov/ncser/projects/nlts2/>
- O’Keeffe, F., Dunne, J., Nolan, M., Cogley, C., & Davenport, J. (2020). “The things that people can’t see:” The impact of TBI on relationships: An interpretative phenomenological analysis. *Brain Injury*, 34(4), 496-507. <https://doi.org/10.1080/02699052.2020.1725641>
- Pete, J. P., Diallo, A., Kaya, C., Brooks, J., Allen, M., Bezyak, J., & Chan, F. (2015). Vocational rehabilitation as a public health intervention for young African American men with substance use disorders. *Journal of Vocational Rehabilitation*, 43(2), 149-157. <https://psycnet.apa.org/doi/10.3233/JVR-150764>
- Pinto, A. D., Hassen, N., & Craig-Neil, A. (2018). Employment interventions in health settings: A systematic review and synthesis. *Annals of Family Medicine*, 16(5), 447-460. <https://doi.org/10.1370/afm.2286>
- Popernack, M. L., Gray, N., & Reuter-Rice, K. (2015). Moderate-to-severe traumatic brain injury in children: Complications and rehabilitation strategies. *Journal of Pediatric Health Care*, 29(3), e1-e7.
- Power, P. W., & Hershenson, D. B. (2003). Work adjustment and readjustment of persons with mid-career onset traumatic brain injury. *Brain Injury*, 17(12), 1021-1034. <https://doi.org/10.1080/0269905031000110526>
- Pruett, S. R., Swett, E. A., Chan, F., Rosenthal, D. A., & Lee, G. K. (2008). Empirical evidence supporting the effectiveness of vocational rehabilitation. *Journal of Rehabilitation*, 74(2), 56-65.
- Purnima, S., & Ochocka, J. (2009). Bridging the gap between dreams and realities related to employment and mental health: Implications for policy and practice. *Canadian Journal of Community Mental Health*, 23(1), 75-89. <https://doi.org/10.7870/cjcmh-2004-0006>
- Regenold, M., Sherman, M. F., & Fenzel, M. (1999). Getting back to work: Self-efficacy as a predictor of employment outcome. *Psychiatric Rehabilitation Journal*, 22(4), 361-367. <https://psycnet.apa.org/doi/10.1037/h0095214>
- Rimmerman, A., Botuck, S., Levy, J. M., & Royce, J. M. (1996). Job placement of urban youth with developmental disabilities: Research and implications. *Journal of Rehabilitation*, 62(1), 56-65.
- Rao, V., & Lyketsos, C. G. (2002). Psychiatric aspects of traumatic brain injury. *Psychiatric Clinics*, 25(1), 43-69. [https://doi.org/10.1016/s0193-953x\(03\)00052-2](https://doi.org/10.1016/s0193-953x(03)00052-2)

- Rose, J., Saunders, K., Hensel, E., & Kroese, B. S. (2005). Factors affecting the likelihood that people with intellectual disabilities will gain employment. *Journal of Intellectual Disabilities*, 9(1), 9-23. <https://doi.org/10.1177/1744629505049725>
- Roux, A. M., Shattuck, P. T., Cooper, B. P., Anderson, K. A., Wagner, M., & Narendorf, S. C. (2013). Postsecondary employment experiences among young adults with an autism spectrum disorder. *Journal of the American Academy of Child & Adolescent Psychiatry*, 52(9), 931-939. <https://doi.org/10.1016/j.jaac.2013.05.019>
- Ryan, T. V., Sautter, S. W., Capps, C. F., Meneese, W., & Barth, J. T. (1992). Utilizing neuropsychological measures to predict vocational outcome in a head trauma population. *Brain Injury*, 6(2), 175-182. <https://doi.org/10.3109/02699059209029656>
- Saunders, J. (2005). Case management in the public rehabilitation program. In F. Chan, M. J. Leahy, & J. L. Saunders (Eds.), *Case Management for Rehabilitation Health Professionals* (2nd ed.). Aspen Professional Services.
- Saunders, J. L., Leahy, M. J., & Frank, K. A. (2000). Improving the employment self-concept of persons with disabilities: A field-based experiment. *Rehabilitation Counseling Bulletin*, 43(3), 142-149. <https://psycnet.apa.org/doi/10.1177/003435520004300303>
- Seel, R. T., Macciocchi, S., & Kreutzer, J. S. (2010). Clinical considerations for the diagnosis of major depression after moderate to severe TBI. *The Journal of Head Trauma Rehabilitation*, 25(2), 99-112. <https://doi.org/10.1097/htr.0b013e3181ce3966>
- Shames, J., Treger, I., Ring, H., & Giaquinto, S. (2007). Return to work following traumatic brain injury: Trends and challenges. *Disability and Rehabilitation*, 29(17), 1387-1395. <https://doi.org/10.1080/09638280701315011>
- Shattuck, P. T., Narendorf, S. C., Cooper, B., Sterzing, P. R., Wagner, M., & Taylor, J. L. (2012). Postsecondary education and employment among youth with an autism spectrum disorder. *Pediatrics*, 129(6), 1042-1049. <https://doi.org/10.1542/peds.2011-2864>
- Silverberg, N. D., Panenka, W. J., & Iverson, G. L. (2018). Work productivity loss after mild traumatic brain injury. *Archives of Physical Medicine and Rehabilitation*, 99(2), 250-256. <https://doi.org/10.1016/j.apmr.2017.07.006>
- Simonoff, E., Pickles, A., Charman, T., Chandler, S., Loucas, T., & Baird, G. (2008). Psychiatric disorders in children with autism spectrum disorders: prevalence, comorbidity, and associated factors in a population-derived sample. *Journal of the American Academy of Child & Adolescent Psychiatry*, 47(8), 921-929. <https://doi.org/10.1097/chi.0b013e318179964f>
- Siu, A. M. H. (1998). Predicting employment outcomes for people with chronic psychiatric illness. *Occupational Therapy in Mental Health*, 13(4), 45-58.
- Smith, I. C., Ollendick, T. H., & White, S. W. (2019). Anxiety moderates the influence of ASD severity on quality of life in adults with ASD. *Research in Autism Spectrum Disorders*, 62, 39-47. <https://doi.org/10.1016/j.rasd.2019.03.001>
- Solomon, C. (2020). Autism and employment: Implications for employers and adults with ASD. *Journal of Autism and Developmental Disorders*, 50(11), 4209-4217. <https://doi.org/10.1007/s10803-020-04537-w>
- Sowers, J., Miliken, K., Cotton, P., Sousa, S., Dwyer, L., & Kouwenhoven, K. (2000). A multielement approach to creating change in a state employment system. In J. Nisbet & D. Hagner (Eds.), *Part of the community: Strategies for including everyone* (pp. 203-236). Paul H. Brookes.
- Stulemeijer, M., Van der Werf, S., Borm, G. F., & Vos, P. E. (2008). Early prediction of favourable recovery 6 months after mild traumatic brain injury. *Journal of Neurology, Neurosurgery & Psychiatry*, 79(8), 936-942. <https://doi.org/10.1136/jnnp.2007.131250>
- Szymanski, E., & Parker, R. M. (2010). *Work and disability: Contexts, issues, and strategies for enhancing employment outcomes for people with disabilities* (3rd ed.). Pro-Ed.

- Theadom, A., Barker-Collo, S., Jones, K., Kahan, M., Te Ao, B., McPherson, K., Starkey, N., Feigin, V., Kydd, R., Barber, P.A., & Parag, V. (2017). Work limitations 4 years after mild traumatic brain injury: A cohort study. *Archives of Physical Medicine and Rehabilitation*, 98(8), 1560-1566. <https://doi.org/10.1016/j.apmr.2017.01.010>
- Tsang, H. W., Leung, A. Y., Chung, R. C., Bell, M., & Cheung, W. M. (2010). Review on vocational predictors: a systematic review of predictors of vocational outcomes among individuals with schizophrenia: An update since 1998. *Australian & New Zealand Journal of Psychiatry*, 44(6), 495-504. <https://doi.org/10.3109/00048671003785716>
- Ung, D., Selles, R., Small, B. J., & Storch, E. A. (2015). A systematic review and meta-analysis of cognitive-behavioral therapy for anxiety in youth with high-functioning autism spectrum disorders. *Child Psychiatry & Human Development*, 46, 533-547. <https://doi.org/10.1007/s10578-014-0494-y>
- U.S Department of Labor. (2023). *Disability employment statistics*. <https://www.dol.gov/agencies/odep/research-evaluation/statistics>
- Van Heijst, B. F., & Geurts, H. M. (2015). Quality of life in autism across the lifespan: A meta-analysis. *Autism*, 19(2), 158-167. <https://doi.org/10.1177/1362361313517053>
- Vasa, R. A., Gerring, J. P., Grados, M., Slomine, B., Christensen, J. R., Rising, W., Denkla, M., & Riddle, M. A. (2002). Anxiety after severe pediatric closed head injury. *Journal of the American Academy of Child & Adolescent Psychiatry*, 41(2), 148-156. <https://doi.org/10.1097/00004583-200202000-00008>
- Vestling, M., Tufvesson, B., & Iwarsson, S. (2003). Indicators for return to work after stroke and the importance of work for subjective well-being and life satisfaction. *Journal of Rehabilitation Medicine*, 35, 127-131. <https://doi.org/10.1080/16501970310010475>
- Wang, P. S., Lane, M., Olfson, M., Pincus, H. A., Wells, K. B., & Kessler, R. C. (2005). Twelve-month use of mental health services in the United States: Results from the National Comorbidity Survey Replication. *Archives of General Psychiatry*, 62(6), 629-640. <https://doi.org/10.1001/archpsyc.62.6.629>
- Warden, D. L., Gordon, B., McAllister, T. W., Silver, J. M., Barth, J. T., Bruns, J., Drake, A., Gentry, T., Jagoda, A., Katz, D. I., & Kraus, J. (2006). Guidelines for the pharmacologic treatment of neurobehavioral sequelae of traumatic brain injury. *Journal of Neurotrauma*, 23(10), 1468-1501. <https://doi.org/10.1089/neu.2006.23.1468>
- Watkin, C., Phillips, J., & Radford, K. (2020). What is a 'return to work' following traumatic brain injury? Analysis of work outcomes 12 months post TBI. *Brain injury*, 34(1), 68-77. <https://doi.org/10.1080/02699052.2019.1681512>
- Wehman, P. H., Jeffrey S. Kreutzer, M. D. West, P. D. Sherron, N. D. Zasler, C. H. Groah, H. H. Stonnington, C. T. Burns, & P. R. Sale. (1990). Return to work for persons with traumatic brain injury: A supported employment approach. *Archives of Physical Medicine and Rehabilitation*, 71(13), 1047-1052.
- Wehman, P., Targett, P., West, M., & Kregel, J. (2005). Productive work and employment for persons with traumatic brain injury: What have we learned after 20 years?. *The Journal of Head Trauma Rehabilitation*, 20(2), 115-127. <https://doi.org/10.1097/00001199-200503000-00001>
- Wehman, P., Chan, F., Ditchman, N., & Kang, H.-J. (2014). Effect of supported employment on vocational rehabilitation outcomes of transition-age youth with intellectual and developmental disabilities: A case control study. *Intellectual & Developmental Disabilities*, 52(4), 296-310. <https://doi.org/10.1352/1934-9556-52.4.296>
- Whelan-Goodinson, R., Ponsford, J. L., Schönberger, M., & Johnston, L. (2010). Predictors of psychiatric disorders following traumatic brain injury. *The Journal of Head Trauma Rehabilitation*, 25(5), 320-329. <https://doi.org/10.1097/htr.0b013e3181c8f8e7>

- White, S. W., Oswald, D., Ollendick, T., & Scahill, L. (2009). Anxiety in children and adolescents with autism spectrum disorders. *Clinical Psychology Review*, 29(3), 216-229.
<https://doi.org/10.1016%2Fj.cpr.2009.01.003>
- Wilczynski, S. M., Trammell, B., & Clarke, L. S. (2013). Improving employment outcomes among adolescents and adults on the autism spectrum. *Psychology in the Schools*, 50(9), 876-887.
<https://doi.org/10.1002/pits.21718>
- World Health Organization. (2002). *World mental health report, 2002*.
<https://www.who.int/teams/mental-health-and-substance-use/world-mental-health-report>
- Zablotsky, B., Black, L. I., Maenner, M. J., Schieve, L. A., Danielson, M. L., Bitsko, R. H., Blumberg, S. J., Kogan, M. D., & Boyle, C. A. (2019). Prevalence and Trends of Developmental Disabilities among Children in the United States: 2009-2017. *Pediatrics*, 144(4), e20190811.
<https://doi.org/10.1542/peds.2019-0811>
- Zheng, L. X., Talley, W. B., Faubion, C. W., & Lankford, G. M. (2017). The climate of job satisfaction: The relationship between extrinsic job factors and satisfaction among community rehabilitation program professionals. *Journal of Rehabilitation*, 83(1), 23-30.
<https://doi.org/10.1542%2Fpeds.2019-0811>

Author Notes

Correspondence concerning this article should be sent to Dr. Aryn Taylor, Department of Rehabilitation and Human Services, College of Natural and Health Sciences, 1826 10th Ave, Greeley, CO 80639. Email: aryn.taylor@unco.edu

Aryn Taylor, PhD, CRC, LPCC is an Assistant Professor in Rehabilitation Counseling Sciences at the University of Northern Colorado. Her primary research interests include transition-age youth, dual-diagnosis, and supervision practices in rehabilitation counseling. Dr. Taylor is a Certified Rehabilitation Counselor and a Licensed Professional Counselor Candidate in Colorado. Her publications include peer-reviewed journals, book chapters, and she has presented at local, state, national, and international conferences.

Amber Allison, PhD, CLCP is a Life Care Planner and Director of Research at Vocational Diagnostics, Inc. (VDI). Amber has eight years of experience as a Certified Life Care Planner (CLCP) and is a member of the International Association of Rehabilitation Professionals (IARP). She became a licensed psychologist in Louisiana in 2016 and in Colorado in 2020. She has been involved in the preparation of life care plans for adults and children who have experienced catastrophic injury, including brain injury, spinal cord injury, birth defects, chronic pain, and amputation. Her research primarily focuses on psychological factors affecting chronic pain presentation. She has published research in peer-reviewed journals, presented research at conferences nation-wide, and authored several book chapters.

Aubrey Corwin, MS, LPC, CRC, CLCP, is the CEO/Director of Vocational Diagnostics, Inc. (VDI). She is a vocational rehabilitation and life care planning expert, and she testifies as an expert in cases involving both loss of earning capacity and life care planning nationwide. She manages all matters involving evaluation of earning capacity and life care planning for cases of personal injury (to include catastrophic injury), medical negligence/malpractice, pediatrics, birth injury, toxic torts, environmental injury, product liability, labor and employment, and family law/domestic relations. She is a Licensed Professional Counselor (LPC); a Certified Rehabilitation Counselor (CRC); a Certified Life Care Planner (CLCP); and a former Certified Guidance Counselor. She is past Co-Chair of the Forensic Section of the International Association of Rehabilitation Professionals (IARP) and past Forensic Representative to the IARP International Board of Directors. She is also a member of the American Board of Vocational Experts (ABVE).