



The Role of Employment on Neurocognitive Reserve in Adults With HIV: A Review of the Literature

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The benefits of employment are enormous; when employed, people naturally: (a) engage socially with the public and colleagues/co-workers, (b) learn new skills to increase job productivity and competence, (c) establish routines that can prevent lethargy and boredom and may regulate sleep and healthy behaviors, (d) are provided purposeful and meaningful activity that may prevent depression, and (e) gain income to pursue cognitively stimulating interests. All of these and other employment influences can provide an enriched personal and social environment that stimulates positive neuroplasticity and promotes neurocognitive reserve, which are particularly relevant to adults with HIV because (a) approximately 50% of adults with HIV experience observable cognitive impairments that can adversely affect everyday functioning such as medication adherence, and (b) approximately 45% of adults with HIV are unemployed and do not receive the neurocognitive benefits of employment. From these considerations, implications for health care research and nursing practice are provided.

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As HIV has become more manageable due to the effectiveness of the combination antiretroviral therapies that inhibit the replication of the virus, those living with HIV are now able to survive to older ages and have better health and prognoses (Vance, McGuiness, Musgrove, Orel, & Fazeli, 2011c). Yet many complexities, such as medication toxicity, multi-morbidities, and cognitive impairment, persist (Vance, 2010). HIV-associated neurocognitive disorders (HAND) remain quite prevalent, ranging from 52% to 59% of the adult population of people living with HIV infection (Bonnet et al., 2013; Heaton et al., 2010). The severity of HAND varies from asymptomatic neurocognitive disorder (33%), mild

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neurocognitive disorder (12%), confounded neurocognitive disorder (5%), to AIDS-related dementia (2%; Heaton et al., 2010). Many factors contribute to such cognitive deficits, including poor education, the presence of metabolic and psychiatric comorbidities, substance use and abuse, and APOE-4 genotype, to name a few (Malaspina et al., 2011). One factor that has rarely been investigated is employment, which can be referred to as occupation.

Many adults with HIV have stopped working or have had limited employment for a variety of reasons, such as psychiatric problems, poor health, stigma, and limited education. In a sample of 925 adults with HIV, Ezzy, de Visser, and Bartos (1999) found that 71% left work for psychosocial reasons and half left for declining health. According to one study, only 20% of gay men with HIV were continuously employed full time over a 30-month period, while 40% were continuously unemployed during this period (Rabkin, McElhiney, Ferrando, van Gorp, & Lin, 2004). This is unfortunate because being employed provides cognitive stimulation, which may facilitate enhanced cognitive functioning in adults, especially for adults with HIV (Fazeli et al., 2014). As seen in Figure 1, five mechanisms are proposed in which active employment exerts a positive influence on brain health and neurocognition. These include social engagement, learning new skills, established routine, purpose/meaning, and increased income. All of these mechanisms, separately or in tandem, can directly and indirectly influence brain health, thus helping those with HAND protect, maintain, or even improve their neurocognition. But, with limited employment, individuals may lack intellectual and social engagement, and instead replace those with cognitively poor activities such as having (a) unfocused time to ruminate, (b) a lack of purpose or meaning in life, (c) a lack of structure to fill time, and (d) limited income to explore intellectually stimulating activities such as vacations. All of these may lead to depression and anxiety, which have been shown to be detrimental to cognitive health and to produce cognitive impairments (Vance, Larsen, Egerton, & Wright, 2011b).

The purpose of this article is to provide an overview of the impact in which cognitive reserve is influenced by employment. From this overview, the social and behavioral context of HIV is examined as it re-

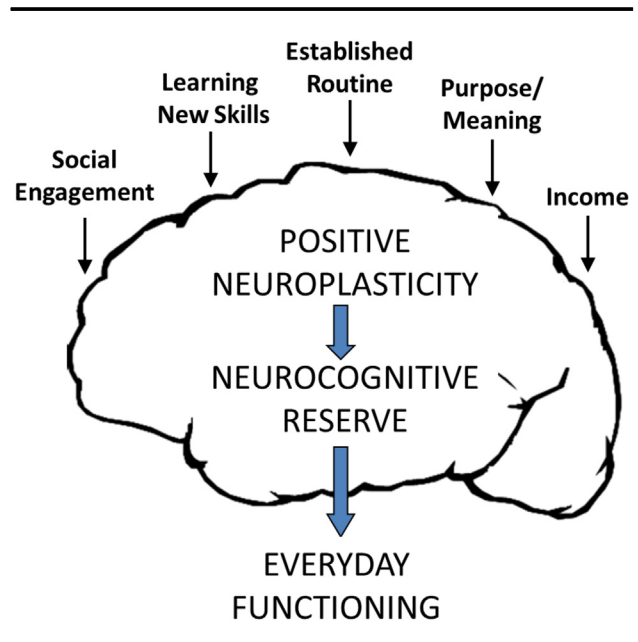


Figure 1. Mechanisms in which employment exerts a positive influence on brain health.

lates to decreased employment and its influence on neurocognitive reserve and functioning. Practical implications such as seeking alternative engagement, including part-time work or volunteer work, are considered. Research implications are also presented.

Neurocognitive Reserve

Neurocognitive reserve, also known as brain reserve, refers to how well the brain can absorb physiological insults from injury, disease, disuse, and/or aging and yet maintain its normal function. Generally, greater neurocognitive reserve is linked to stronger, more sophisticated, and denser connections between neurons. As physiological insults accumulate, damaged neuronal pathways become less efficient in processing information, which hinders neurocognitive functioning. Yet, if there is robust neurocognitive reserve, adjacent and unaffected neuronal pathways may be used, allowing neurocognitive function to continue despite neurological damage. This process of neurocognitive reserve parallels the process of organ reserve. For example, as observed with the heart, when some arteries are

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