Feature

# *Feedback on a Multimodal Cognitive Intervention for Adults Aging With HIV: A Focus Group Study*

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*Nearly 50% of adult persons living with HIV (PLWH) experience HIV-associated neurocognitive disorder (HAND), which is associated with deteriorating brain health and cognitive functioning. Multimodal interventions that simultaneously improve physical activity, nutrition, and sleep hygiene may be of value for adult PLWH, especially as they age and become vulnerable to HAND. We used four focus groups of PLWH (N = 30; ages ≥ 50 years) to solicit feedback about Cognitive Prescriptions, a multimodal cognitive intervention. Lifestyle and health behaviors pertaining to Cognitive Prescriptions were assessed, including: (a) physical activity, (b) mental activity, (c) nutrition, (d) social engagement, (e) emotional health, (f) sleep hygiene, and (g) substance use. When presented a template of the intervention, participants expressed favorable opinions and remarked they would want to work with a clinician, paraprofessional, or peer to implement such a program into their own daily routines. From this, implications for practice and research are provided.*

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As the HIV epidemic continues, nurses will be providing care to an increasing number of older adults living with HIV who are experiencing cognitive problems that interfere with medication adherence, attending clinic appointments, instrumental activities of daily living, and even driving ability (Vance, Fazeli, Ball, Slater, & Ross, 2014; Vance, Fazeli, & Gakumo, 2013). Approximately 52% to 59% of adult persons living with HIV (PLWH) experience HIV-associated neurocognitive disorder (HAND) at any given time (Bonnet et al., 2013; Heaton et al., 2010). Given that by 2020 70% of PLWH will be 50 years of age and older (U.S. Senate Special Committee on Aging, 2013), concerns mount that normal age-related cognitive declines may interact with neurological sequelae of HIV to increase the prevalence and severity of HAND (Hardy & Vance, 2009; Vance et al., 2013). Thus,

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developing practical interventions to protect and improve brain health and cognition in adults aging with HIV is important to maintain everyday functioning and quality of life.

Cognitive aging and neuroscience literature has provided evidence that lifestyle and health behavior choices promote not only physical health, but brain health and cognition as well. Such lifestyle and health behaviors include: (a) physical activity, (b) mental activity, (c) nutrition, (d) social engagement, (e) emotional health, (f) sleep hygiene, and (g) substance use (Malaspina et al., 2011; Shaffer, 2016; Vance & Burrage, 2006; Vance, Eagerton, Harnish, McKie-Bell, & Fazeli, 2011; Vance, Fazeli, Moneyham, Keltner, & Raper, 2013). Such evidence has also been observed in the HIV literature. For example, in a sample of 139 adults with HIV, Fazeli and colleagues (2014) observed that the prevalence of HAND decreased significantly as adults engaged in a greater number of the following lifestyle factors: physical activity (a strenuous activity within the past 72 hours), mental activity (full- or part-time employment status), and social engagement (frequent social activity). These researchers observed that if participants engaged in none, one, two, or three lifestyle factors, the prevalence of HAND decreased significantly from 63%, 51%, 33%, and 20%, respectively. These data suggest that active engagement in lifestyle and health behaviors is neuroprotective and benefits brain health and cognition.

Capitalizing on the brain health and cognitive benefits of active engagement in lifestyle and health behaviors, multimodal approaches have been developed to modify various levels of engagement in several lifestyle and health behaviors. The basic premise underlying multimodal approaches is that brain health and cognition can benefit from modifying multiple lifestyle and health behaviors; each behavior may have a unique mechanism that supports brain health and cognition and, by changing multiple behaviors, synergistic benefits may emerge. For example, increasing physical activity may improve cardiovascular function, which increases blood flow and metabolism in the brain (Radak et al., 2016) as well as brain-derived neurotrophic factors (Byun & Kang, 2016). Increasing mental activity may facilitate neurogenesis and neuroplasticity, changing the neuronal environment (i.e., increased brain-derived neurotrophic factor, changes in brain structure volumes; Shah, Weinborn, Verdile, Sohrabi, & Martins, 2017; Sun et al., 2016). Additionally, changing one's diet to include more fruits and vegetables rich in antioxidants may reduce neuroinflammation (Islam et al., 2017; Wärnberg, Gomez-Martinez, Romeo, Díaz, & Marcos, 2009). These lifestyle and health behavior changes may produce a greater benefit synergistically than each lifestyle and health behavior change alone.

Several examples of multimodal interventions exist in the literature. In the Agewell Trial, 75 community-dwelling adults 50 years of age and older, without HIV or any obvious neurological disorder, were randomized to one of three groups to determine if goal setting of certain lifestyle factors could improve cognition and delay dementia over a 12-month period (Clare et al., 2015). The groups included: a control group ($n = 27$), a goal-setting group ($n = 24$), or a goal setting with mentoring group ($n = 24$). Goal setting emphasized behaviors that targeted improvement for nutrition, health, cognition, physical, and social activities to bolster neuroplasticity, brain health, and cognition. In both goal-setting groups, improvements were observed in memory, executive function, balance, agility, flexibility, grip strength, aerobic activity, and cholesterol.

Capitalizing on this multimodal approach, Vance and colleagues (2011) proposed a similar approach for nurses, called "Cognitive Prescriptions," in which goals in seven lifestyle and health behaviors (e.g., physical activity, sleep hygiene; see Figure 1) could be developed and monitored by the client in order to improve overall health and quality of life, but with the proximal goal of improving or maintaining brain health and cognition. The behavioral goals were explicit and measureable in order to facilitate ease in engaging and monitoring the success of the goal. As seen in Figure 1, as an example of a typical Cognitive Prescription, simple but specific measurable behavioral goals were set (e.g., go for a 30-minute walk three times a week). Participants were asked to display their explicitly stated goals in a prominent place in their dwellings, such as on the refrigerator, bathroom mirror, or bedroom door, so that the goals could remain salient to the client. In so doing, clients were reminded of their behavioral goals, and