Examining the relationship between executive functions, spoken discourse, and life participation outcomes in aphasia

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Background

Previous research suggests a strong relationship between executive functioning (EF) and language abilities in individuals with or without brain injury (Marini et al., 2011). This association, however, has been insufficiently studied in persons with aphasia (PWA), despite frequent reports of them demonstrating EF and spoken discourse difficulties (Andreetta et al., 2012; Murray, 2017). Furthermore, few studies have examined the role of such cognitive-linguistic difficulties on aphasia-related quality of life (QOL).

Aims

The specific aims of the current study were to examine in PWA: (1) the integrity of EF skills; (2) the quality of spoken discourse productions; and (3) the relationship between their EF and spoken discourse abilities with life participation/psychosocial outcomes.

Method

Twenty-two PWA (WAB-R AQ mean = 74.4; SD = 17) and 24 healthy controls (HC; MoCA mean = 27; SD = 1) completed tests examining a range of verbal and non-verbal EF skills including working memory (WM), inhibition, cognitive flexibility, planning, reasoning, self-monitoring, and retelling the Bear and the Fly story. Additionally, PWA and their caregivers completed the Sydney Psychological Reintegration Scale (SPRS-2) and the Assessment of Living with Aphasia (ALA) to evaluate life participation/psychosocial functioning.

Results and Discussion

Confirming prior research (e.g., Andreetta et al., 2012; Boyle, 2009; Nicholas & Connor, 2017), we found that PWA demonstrated significantly poorer scores on most verbal and nonverbal EF measures (all \( p < .03 \)) and produced significantly fewer correct information units, more word retrieval and grammatical errors, a smaller proportion of nouns, less lexically diverse language, fewer main concepts, and reduced organization in their discourse productions compared to HC (all \( p < .03 \)). Similar to Cruice et al. (2010), PWA had greater difficulty with life participation, community integration, and experienced more frequent environmental barriers. Impairments in initiation, planning, organization, cognitive flexibility, and self-monitoring were significantly related to compromised narrative performance (Marini et al., 2011). Further, poor life participation/psychosocial outcomes were linked to cognitive flexibility and self-monitoring difficulties (Ownsworth & Shum, 2008). Spoken discourse abilities were found to be more sensitive and better predictors of QOL than discrete language impairments (Elbourn et al., 2019).

Conclusion

Our findings indicate that PWA demonstrate verbal and nonverbal EF and micro- and macrolinguistic spoken discourse difficulties, which can present as barriers to social communication and reintegration, thus negatively impacting their QOL. It is important to evaluate EF, spoken discourse, and patient-reported outcomes in clinical practice to improve rehabilitation success and QOL of PWA.
References


