



Positive Affect, Community Participation, Social Support, and Functional Independence in Stroke Survivors with and without Aphasia: A Network Approach

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Introduction

Participation in social activities after stroke is important for preventing isolation, lowering depression risk, and improving rehabilitation outcomes. The International Classification of Function defines participation as being involved in a life situation. Participation by stroke survivors can be impacted by their motor ability, cognition, and emotional factors, such as positive affect (Berges et al., 2012). Stroke survivors who have aphasia may have further difficulty in participating in social activities due to impairments in their communicative functioning (Dalemans et al., 2010). While these factors have been shown to impact participation, few studies have investigated the interaction of these various factors. Therefore, this study sought to better understand the interaction of positive affect, community participation, social support, and functional independence in stroke survivors, with and without aphasia.

Method

Data from 441 stroke survivors (3 months post-discharge), of which 184 were persons with aphasia, were obtained from the *Stroke Recovery in Underserved Populations 2005-2006* database (Ostir et al., 2016). Positive affect was captured by the CES-D screen (Radloff, 1977; i.e., felt as good as others, enjoyed life, felt happy, and felt hopeful for future). Community participation was captured by the PAR-PRO survey (Ostir, et al., 2006; i.e., participation in socializing outside the home, socializing inside the home, hobbies, and religious activities). Social support was captured by the Duke-UNC Functional Social Support survey (Broadband, et al., 1988). Functional independence was captured by the Functional Independence Measure (Keith, et al., 1987; i.e., communication, social cognition, and motor abilities). We used network analysis (e.g., Fried et al., 2017) to model the complexity between these variables and postulate whether intervening on one variable may impact another variable. Furthermore, we also investigated whether these variables grouped into different communities (or sub-groups) and which variables served as “bridges” between the communities. Lastly, we also explored whether there is a difference between the networks of stroke survivors with and without aphasia.

Results

Figure 1 displays the resulting network. We found that social cognition was the most important variable, with a strong connection to functional communication. We identified four communities, which we labelled cognitive-communication, functional/social communication, positive affect, and personal identity, with functional support as an important bridging variable. Furthermore, all connections were positive, except between socializing outside the home and motor abilities. Lastly, we found no difference in the network structure ($p = .72$) or connectivity ($p = .26$) between networks of those with and without aphasia.

Conclusion

Our results replicate previous findings that impairment in motor functioning is critical to socializing outside the home, which highlights the importance of mobility for participation. Similarly, improving functional support may improve different facets of participation, given its central role in the network. While positive affect did not have as significant of an impact on network structure, positive affect variables were still connected to the rest of the network, suggesting their subtler role on participation. Finally, no difference between stroke survivors with and without aphasia was surprising, and needs further consideration.

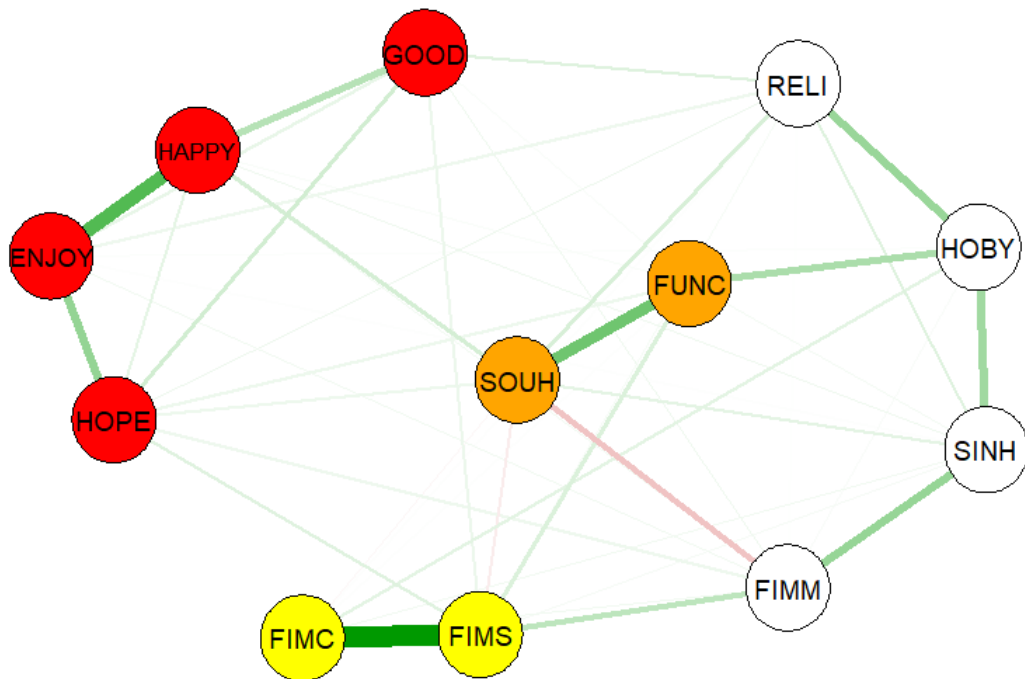
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Figure 1.
 Network of Positive Affect, Social Support, Functional Independence, and Community Participation in Persons with Aphasia



GOOD: felt as good as others, ENJOY: enjoyed life, HAPPY: felt happy, HOPE: felt hopeful for future, FIMC: Functional Independence Measure: Communication, FIMS: Functional Independence Measure: Social Cognition, FIMM: Functional Independence Measure: Motor Abilities, SOUH: socializing outside the home, SINH: socializing inside the home, HOBY: hobbies, RELI: religious activities, and FUNC: Duke-UNC Functional Support survey.