Title:
Cognitive Reserve and Memory Compensation Strategies in Mexican Older Adults

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Abstract Summary:

Description of memory compensation strategies used by a sample of older adults in relation to their cognitive reserve (years of education, working activities, and leisure activities).

Learning Activity:

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<th>LEARNING OBJECTIVES</th>
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<td>Learn about the memory compensation strategies used by a sample of older adults.</td>
<td>Description o each of the memory compensation strategies, providing examples.</td>
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<td>Provide insights on how nursing could encourage or train older adults in the usage of innovative memory compensation strategies.</td>
<td>Discussion of training activities, but mainly interacting with nurses interested in the poster.</td>
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Abstract Text:

Introduction. The important increment of older adults proportion, has become a big challenge for public health (Barrio, 2012), due to their body changes as part of the aging process. Among these changes there are certain structural modifications in the brain (Tabloski, 2010; Tortora & Derrickson, 2006; Villa, 2014), which may affect cognition and favor the development of dementia. Despite the fact that cognitive problems have a low lethality, their importance lies in the considerable harm to life quality, functionality, and independence of the aging population (Lozano et al., 2013).

Nursing represents a main piece to identify people prone to develop cognitive problems assessing cognitive reserve and memory compensatory strategies used by older adults. Cognitive reserve refers to “individual differences in how people process tasks that allow them to cope better than others with brain pathology” (Stern, 2009). Cognitive reserve relates to individual’s life experiences which depend on years of education, occupation and leisure activities. Cognitive reserve serves as a protective mechanism for cognition because it helps activation and use of neuronal alternative nets which contribute to maintenance of cognitive functionality despite impairments of brain structures (Parra, 2014; Stern, 2009; Tucker & Stern, 2013).
Memory compensation strategies are defined as those “processes which help to reach cognitive adaptation in front of the decline of memory capacity” (Mayordomo, Sales & Meléndez, 2015; Meléndez, Mayordomo, Sales, Cantero & Viguer, 2012). There are five different types of memory compensation strategies: a) external, which allows the use of writing support, such as notes, lists, calendars, or agendas; b) internal, referred to the use of mnemotechnics by repeating information constantly or the association of words to persons, pictures or drawings to improve memories; c) time, means doing tasks slowly or in repeated occasions, for example reading more than once a text, or reading slowly an article from the journal, in order to remember it; d) confidence, implies asking another person such as a family member, a friend or acquaintance for help in order to remember dates, main events or situations; e) effort, is concentrating on the task, to be able to develop it, for example remembering a conversation, a telephone number or a meeting (Dixon, Hopp, Cohen, Frias de, & Backman, 2003).

Nowadays there is not enough scientific evidence focused in studying these concepts in older adult's population. Therefore, the study of cognitive reserve level and memory compensation strategies in older adults, represent an area of opportunity to be assessed by nurses working in the community and identifying vulnerable older adults who may further benefit from compensation strategies training.

Aim. To identify the strength and direction of the associations between cognitive reserve and memory compensation strategies in older adults attending a day care center in Monterrey, Nuevo León México.

Methodology. The design was cross sectional. A non-probabilistic sampling was used. The sample size was 113 participants. All the older adults able to write, read, and listen the voice of the interviewer, and accepted to participate in the study were included. Older adults with visual disabilities were excluded due to tasks required in the cognitive test. All participants signed informed consent, and the study was approved by Ethics Committee, registered (FAEN-M-1191) of College of Nursing, Universidad Autónoma de Nuevo León. Socio demographic data was registered in a data sheet. The adapted Spanish version of the Cognitive Reserve Index Questionnaire (Nucci, Mapelli, & Mondini, 2005), was applied. This index is integrated by three subscales: years of education, years of working activity, and frequency of leisure activities. Cutoff points are: ˂ 114 = low cognitive reserve, and ˃ 115 = high cognitive reserve. Memory Compensation Questionnaire (Meléndez, Mayordomo, Sales, Cantero, & Viguer, 2012) was applied to learn about the memory strategies used by participants. This questionnaire measures the frequency of use of the five memory compensation strategies (internal, external, time, effort, and confidence). The Montreal Cognitive Evaluation (Nasreddine et al., 2005), was used to determinate the cognitive status and classified as normal cognitive state = ˃ 26 points or slight cognitive impairment = ˂ 25 points). The data analysis were done using descriptive statistic, Spearman correlation coefficients, and multivariate linear regression models using backward method.

Results. Mean age was 72 years (SD = 7.34) and of years of education was 5.09 years (SD = 3.55). Sixty eight percent (n = 77) of the participants showed scores below the cutoff point for slight cognitive impairment, and 69% (n = 78) showed a low cognitive reserve with a mean of 103.39 points (SD=6.24). The compensation strategy most used was time (Mean = 3.14, SD = 1.34), subsequent strategies were: external (Mean = 2.76, SD = 1.05), effort (Mean = 2.58, SD = 1.04), internal (Mean = 2.38, SD=.78), and confidence (Mean = 2.15, SD=.93). Only the external strategy showed a significant but weak relation to cognitive reserve (r = .19, p < .05). Years of education were associated to cognitive reserve F (2,112) = 36.5, p < .001, the explained variance was 38%. Years of education F (1,111) 4.78, p = .01, contributed to the explained variance of the confidence, and effort memory compensation strategies (5.6%, and 5.2%), respectively.

Conclusions. Years of education of studied participants was low, and explained an important portion of the variance of low cognitive reserve. Time was the compensation strategy with a higher mean followed
by the external strategy. This means they need more time to complete tasks, and use of written cues to remember appointments, events, etc. The compensation strategies did not correlate to cognitive reserve, except for the external strategy. Overall model of years of education contributed to the explained variance of cognitive reserve, and particularly to the confidence and effort memory compensation strategy. Nurses could participate encouraging and training older adults in the use of compensation strategies and further explore how daily live of older adults may benefit.