

## Sigma Theta Tau International's 29th International Nursing Research Congress

### Nurse-Led Cognitive Training in Chronic Illness: An Integrative Review

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**Purpose:** The prevalence of cognitive impairment worldwide is expected to double by 2050, with the majority of those affected living in developing countries (Mavrodaris, Powell, & Thorogood, 2013). Although there are evidence-based recommendations for cognitive training for conditions such as traumatic brain injury and stroke, there are no specific recommendations for patients with cognitive problems related to non-central nervous system chronic conditions such as diabetes and heart failure. Nurses who help manage these conditions are focused on identifying patients who may be at risk of complications, promoting symptom management, and preventing further decline. Nurses have been at the forefront of developing and testing a variety of interventions, but the findings of these studies have not been summarized. An integrative review of the cognitive training literature was conducted to identify characteristics of effective nurse-led interventions to improve cognitive function in people with non-central nervous system chronic conditions.

**Methods:** An integrative review of intervention studies published between 2007 and 2017 was conducted from four major electronic databases: Ovid MEDLINE, PubMed, Web of Science, and the Cumulative Index of Nursing and Allied Health Literature (CINAHL) using the keywords: cognitive training, chronic disease, cognitive intervention, and nurse-led. The first review of abstracts and titles yielded 203 results. Out of those articles, 6 met the inclusion criteria: (a) the study was published in English, (b) the study focused on testing an intervention to improve cognitive function, (c) the study focused on chronic illnesses such as diabetes or heart failure that are not neurologic in origin. Studies were excluded if they (a) presented no original data or were review articles, (b) focused on central nervous system conditions such as traumatic brain injury or multiple sclerosis. The research questions focused on characteristics of the interventions and participants, types of neurological tests used, and outcomes.

**Results:** Six articles met inclusion criteria and described projects testing online and/or classroom-based cognitive training for persons with obesity, heart failure, diabetes, or cancer (Pressler et al., 2011; Von Ah et al., 2012; Beck et al., 2013; Pressler et al., 2015; Becker et al., 2017; Park et al., 2017). Studies took place in Canada, Korea, or the United States and sample sizes ranged from 25 to 228. Participants' ages ranged from 35 to >70 years. Interventions ranged in length from 6 weeks to 4 months and taught memory training strategies, speed of processing training, and/or cognitive strategies to facilitate adaptive coping. Five studies included an online training component similar to larger scale cognitive training trials in healthy adults such as the Advanced Cognitive Training for Independent and Vital Elderly (ACTIVE) study (Rebok et al., 2014). Number of cognitive performance tests used ranged from three to nine. Despite the breadth of cognitive domains tested, significant improvements were seen only in memory ( $n = 3$ ) and processing speed ( $n = 3$ ). However, the variety of cognitive performance measures used made comparisons difficult.

**Conclusion:** Ultimately nurses need to be equipped with evidence-based knowledge on methods of improving cognitive performance. At this time, recommendations for use of cognitive training interventions are tentative until larger scale randomized controlled trials are completed. Use of standardized cognitive batteries such as the NIH-Toolbox is recommended to increase consistency and facilitate comparison of results. Additionally, since cognitive dysfunction in chronic illness is a global issue, future work should focus on the groups traditionally underrepresented in this kind type of research.

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**Title:**

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**Keywords:**

chronic disease, cognitive training and nurse-led

**References:**

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**Abstract Summary:**

The prevalence of cognitive impairment worldwide is expected to double by 2050, with the majority of those affected living in developing countries. An integrative review of the literature was conducted to analyze interventions used to improve cognitive function in people with chronic illness.

## **Content Outline:**

### I. Introduction

- A. Rates of cognitive impairment are increasing and expected to double by 2050.
- B. Cognitive training interventions have been developed for adults with non-central nervous system related chronic conditions, but the results have not been summarized.
- C. A review of the literature was conducted to summarize the characteristics of nurse-led interventions to improve cognitive function in people with non-central nervous system chronic conditions.

### II. Body

A. An integrative review of studies published between 2007 and 2017 was conducted using four electronic databases

- 1. Inclusion criteria: published in English, tested interventions to improve cognitive function, focused on non-central nervous system conditions.
- 2. Exclusion criteria: presented no original data, focused on central nervous system conditions.

### B. Results

- 1. Six articles met inclusion criteria.
- 2. Interventions used classroom-based as well as online methods of cognitive training and took place in North America and Korea.
- 3. Significant improvements were seen in memory performance and processing speed.
- 4. A variety of neurocognitive performance tests were used which made comparisons across studies difficult.

### III. Conclusion

- A. Recommendations for cognitive training in non-central nervous system chronic conditions are tentative.
- B. Use of standardized cognitive batteries within larger scale trials is recommended.
- C. Future work should focus on groups traditionally underrepresented by this type of research.

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**Professional Experience:** 2003 - present -- Clinical Nurse Specialist, Texas Diabetes & Endocrinology, Austin, TX 2013 - present -- Assistant Professor of Clinical Nursing, School of Nursing, The University of Texas at Austin, Austin, Texas Responsible for development of a cognitive training intervention for people with diabetes. Author of 7 publications relating to cognitive function and chronic disease.

**Author Summary:** Dr. Cuevas has been an Advanced Practice Nurse for 15 years working with people with diabetes. She recently completed a small study that looked at the relationship between perceived cognitive function and diabetes self-management. She is now hard at work on a new study funded by an NIH-funded Center that adapts a computer-assisted cognitive rehabilitation intervention for people with diabetes.