**Research Article**

**Community Health Care Nurse’s Knowledge of Alzheimer’s Disease And Risk: A Preliminary Study**

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**Abstract**

Alzheimer’s Disease (AD) is considered the plague of the 21st century. Dementia prevention takes a life-course approach. Known modifiable risk factors that may influence the trajectory of developing AD begins almost 20 years before symptom onset providing a critical window for intervention. Community health nurses play a pivotal role in managing patients’ global health. Understanding and improving community health nurses’ knowledge about the trajectory of AD may improve patients long term outcomes. This study aims to explore community health nurses’ knowledge and understanding of AD using the Alzheimer’s Disease Knowledge Scale. A quantitative cross-sectional design using descriptive statistics and questionnaires. The target population for this study is registered professional nurses working in community-based primary care settings in the United States. A web-based survey (n=194) found that 53% had a course covering geriatrics nursing, including dementia care; however, 74% reported needing more education about the disease. Understanding nurses’ knowledge related to risk reduction may provide opportunities for enhanced public education efforts.

**Keywords:** Alzheimer’s disease; Nursing education; Risk reduction

**Introduction**

Alzheimer’s Disease (AD) is considered the plague of the 21st century. Globally, an astounding 45 million people suffer from the disease or related disorders [1]. In the United States, almost 5.8 million experience the syndrome, and it is projected to surge to 14.8 million with the aging of the Baby-Boomer generation. The financial burden of caring for those stricken is in the billions. However, the emotional cost to patients and caregivers is devastating, as the repercussions are relentless once this insidious disease becomes apparent. When AD or other neurodegenerative dementias begin before age 65, there is usually a significant, sometimes autosomal dominant, genetic cause [2]. Late-life dementia is more likely to represent a complex mixture of diseases with heterogeneous etiologies resulting from the interaction between inherent genetic risk and lifelong environmental exposures [3]. Intrinsic factors contributing to dementia in late life include vascular disease, AD, and alpha-synuclein pathologies such as Parkinson’s.

Science has established that the pathology of neurodegenerative dementias precedes symptom onset, sometimes by decades [4]. This has energized a significant interest in developing preventative intervention strategies that target earlier stages of disease aimed at lowering risk among younger populations. Raising awareness and engaging individuals in a mid-life appraisal can offer earlier identification of those with higher exposure, targeting those factors that can be potentially altered to lower risk. Modifiable risk factors for late-life cognitive decline can be categorized as cardiovascular (diabetes, hypertension, and obesity) or lifestyle-related habits (smoking, physical activity, diet, and mental and social activity). Thus far, controlled trials suggest that vascular risk management, exercise, and social or cognitive engagement, combined with the Mediterranean diet, may benefit cognition [5].

**Background**

Dementia prevention takes a life-course approach. Nurses play a pivotal role in managing patients’ health care and spend significantly more time with patients allowing them to assess for changes in cognition. Community and public health care nurses are likelier to interact with patients in the clinical setting and at home [6]. Limited research has explored these nurses’ knowledge of AD and associated risk factors.

Traditionally curricula focusing on geriatrics have needed to be improved in undergraduate nursing education. However, in the past 20 years, significant improvements have been made through targeted educational initiatives such as The National Hartford Center of Gerontological Excellence, whose mission is to prepare the nursing workforce to provide competent care for our aging society [7]. Therefore nurses may need additional training to be adequately prepared to recognize the early symptoms of AD and understand the importance of implementing early treatments that may improve quality of life. No studies have investigated community health or public health care nurses’ knowledge of AD to date. Measuring the level of nurses’ understanding could be essential in identifying gaps in care and providing the research evidence needed to implement additional training opportunities.

**Methods**

This study aimed to explore community and public health nurses’ knowledge of Alzheimer’s disease using the ADKS. A quantitative cross-sectional design using descriptive statistics and questionnaires. The target population for this study is registered professional nurses working in community-based primary care settings in the United States.

**Participants and Data Collection**

A convenience sample of nurses was recruited through national associations specific to public and community health, e.g., the Association of Public Health Nurses (APHN). An email was sent inviting registered professional nurses to participate in the study. Consent was obtained at the beginning of the survey. The Hunter College Institutional Review Board approved the study. Participants that consented to participate in the study accessed the survey by following an anonymous link accessed in an email. Descriptive demographic data and the ADKS was collected using an online survey format.

The Alzheimer's Disease Knowledge Scale (ADKS) [8] was chosen to evaluate knowledge because of its ease of use, demonstrated reliability and validity, and applicability for different groups of participants (general public, caregivers, and health professionals). The measure consists of 30 true/false items. The total score is the number answered correctly. Eighteen questions are “True,” and 12 are reverse scored as “False.” The original measures were designed to reflect that higher scores represent more AD knowledge.

The reliability of the ADKS by test-retest correlation = .81; internal consistency, as measured by the average inter-item correlation of α = .71, and content/predictive validity is considered adequate. The ADKS is divided into the following seven content domains: *life impact* (items 1, 11, and 28), *risk factors* (items 2, 13, 18, 25, 26, and 27), *symptoms* (items 19, 22, 23, and 30), *treatment and management* (items 9, 12, 24 and 29), *assessment and diagnosis* (items 4, 10, 20 and 21), *caregiving* (items 5, 6, 7, 15 and 16) and *course of the disease* (items 3, 8, 14 and 17) [9].

**Data Analysis**

A total of 194 registered professional nurses completed this study. They specified that they worked in the community health (89, 46 %) or public health (105, 54%) sector. Demographic data included 148 self-identified as female and 46 as male. The participants were Caucasian (136, 70.1%), African-American (18, 9.3%), Latino (13, 6.7%), Asian (15, 7.7%), and Other (12, 6.2%). Level of nursing education was reported as Associate’s degree ( 16), Bachelorette ( 130), Master (41, ) and Doctoral ( 7). Levels of experience in years were 0-5 years (49, 25%), 6-10 years (29, 15%), and greater than 10 (116, 60%).

Specific questions were asked regarding the inclusion of a geriatric course, including dementia care, during traditional nursing education training. Participants indicated that 53% (103.) had a class that covered care of older adults, including dementia; however, when asked whether they felt they needed more education about Alzheimer’s and related disorders, 74% (144) answered yes, despite 59% (114.5) indicating that they worked with this population weekly. The survey asked what sources they used to obtain current, up-to-date information about Alzheimer’s disease and related disorders. The majority, 71% (137.), reported continuing education, 10 % (19.) Alzheimer’s Association, and 19% (38.), Web sites. Analysis of the ADKS statements about Alzheimer’s disease demonstrated that ADKS M = 83.92 ± 10.19 (Table 1).

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|  | Content Domains | Questions | Percent answering correctly |
| 1 | Life Impact | 1, 11, and 28 | 89, 91, 81 m= 87 ± 5.29 |
| 2 | Risk factors | 2, 13, 18, 25, 26, and 27 | 65, 77, 68, 84, 63, 94 m= 75.1 ± 12.15 |
| 3 | Symptoms | 19, 22, 23, and 30 | 77, 87, 94, 84 m= 83.25 ± 7.8 |
| 4 | Treatment and management | 9, 12, 24, and 29 | 93, 87, 88, 100 m= 92 ± 5.94 |
| 5 | Assessment and diagnosis | 4, 10, 20, and 21 | 87, 94, 81, 91 m= 88.25 ± 5.61 |
| 6 | Caregiving | 5, 6, 7, 15, and 16 | 98, 77, 81, 72, 89 m= 83.4 ± 10.26 |
| 7 | The course of the disease | 3, 8, 14, and 17 | 70, 87, 91 m= 82.66 ± 11.15 |

**Conclusion**

The reported deaths attributed to AD nearly doubled between 2000 and 2019, increasing by almost 150% [10]. The lifetime risk or probability of developing the disease is about 1 in 5 (20%) for women and 1 in 10 (10%) for men [11]; however, these rates may be higher given the gaps in the science related to the COVID-19 pandemic.

Over the past two decades, advances in the scientific inquiry have led to evidence that supports that AD begins 20 years or more before the onset of overt symptoms. This new information opens up a significant opportunity for both prevention and the delay in the progression of the disease. Early detection through education and continued research is the key to prevention efforts, and educating nurses who care for, and counsel patients is essential. Improving nurses’ knowledge about AD prevention can likely expand the community’s knowledge and understanding of what therapies are available, which may be most effective, and at what points in the life course.

In 2020, The Lancet Commissions published specific prevention and intervention guidelines that include a multi-component approach to managing the disease, which may contribute to a 40 % reduction in dementia cases [12]. Nurses’ understanding and dissemination of what factors can influence dementia risk can potentially modify the trajectory of developing this devastating disease. Some modifiable risks include health promotion and disease prevention focusing on increasing physical activity, smoking cessation, managing cardiovascular health such as cholesterol and blood pressure, and promoting a healthy Mediterranean-based diet [4].

An essential consideration in discussing the ADKS is that the measure was developed in 2009, over ten years ago. Given advances in science, this tool may need to be updated to reflect current evidence-based updates in the field. The measure includes six questions specific to risk factors. In this study, participants answered three particular questions (2, 18, 26), with scores below the previously published means [8]. Survey participants answered the three questions based on the established risk of the poorest. In the last two decades, research findings support that improving modifiable lifestyle factors such as mental exercise can decrease risk or act as a protective factor from AD (number 2), managing high cholesterol (number 18), and lowering blood pressure may reduce a person’s risk of developing AD (number 26) [13]. Although a limitation of this study was a small sample size, the study provides preliminary information that warrants further research on the topic. Nurses’ ability to communicate this information to the public can not be overemphasized. Improving our understanding of knowledge gaps will allow for the development targeted educational programs to enhance care. As we embrace the significance of caring for those at an increased risk for AD, we must also acknowledge the importance of understanding nurses’ knowledge of factors that can improve quality of life and the role of the community and public health nurse.

**Disclosure Statement**

The author reported no potential conflict of interest.

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