ORIGINAL ARTICLE

Knowledge and Attitude of Filipino Caregivers of Patients with Dementia Admitted for other Health Issues in a Tertiary Hospital in Metro Manila: A Descriptive Cross-sectional Study

Raymond U. Tan, MD, MBA and Grace O. Orteza, MD

The Medical City

ABSTRACT

Background and Objectives. The demographic background, level of knowledge, and attitude of caregivers are pillars of care in dementia. Family and non-family members take on this role. Studies have been done on their knowledge and attitude, but none have focused on them during hospitalization, wherein greater stress is imposed on both the caregiver and the patient. This study aims to determine the profiles, and its association with knowledge, and attitudes of caregivers of hospitalized patients with dementia in a tertiary hospital in Metro Manila.

Methods. A single-center descriptive cross-sectional design using Demographic profile Questionnaire, Alzheimer's Disease Knowledge Scale (ADKS), and Dementia Attitude Scale (DAS) were used on Filipino caregivers of inpatients with dementia in Metro Manila. Simple and multivariable linear regression were used to assess demographic factors in relation to the attitude and knowledge of the caregivers.

Results. Eighteen females with a mean age of 49 (SD=8) years old participated. Ten participants completed college. Six (33.3%) of the respondents were family members, five (27.8) % were occupational caregivers, four (22.2%) were house-helps, and two (11.1%) were nurses. Majority (66%) had 3-10-year duration of caregiving. Mean score of knowledge scale is 21.17 out of 30. Age, education, caregiver role, and attitude were positively associated with knowledge. The mean score for attitude level is 119.83 out of 140. Age, education, duration, caregiving role, patient's age, and knowledge were positively associated with attitude; with education being statistically significant (p=0.046).

Conclusion. Caregivers exhibited reasonable knowledge for such caregivers to carry out their duties on inpatients with dementia at an adequate level, with several factors correlating positively, indicating areas for improvement. Their attitude scores revealed positive disposition; with education emerging as statistically significant. Continuing education and targeted interventions can further enhance quality of caregiving.

Keywords: dementia, Alzheimer's disease, caregiver burden, attitude, knowledge, Filipino caregiver, Philippines

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Corresponding author: Raymond U. Tan, MD, MBA
The Medical City, Ortigas Avenue,
Pasig City, Metro Manila, Philippines
Email: raymonduytan@gmail.com
ORCiD: https://orcid.org/0000-0002-6639-9646

INTRODUCTION

Dementia is a chronic debilitating disease that requires costly long-term care. It is considered as a leading contributor to care dependence among older people.[1] According to WHO, there are currently more than 55 million people with dementia worldwide and over 60% live in low- and middle-income countries, including the Philippines. Around 10 million new cases are diagnosed per year. In 2019, the cost of dementia globally was estimated to be at 1.3 trillion US dollars and 50% of such costs are attributable to care provided by caregivers.[2] Caregiving then represents itself as a pillar of management for patients with dementia. Caregiving can be formal in which a caretaker is hired and paid to watch over a patient[3], while informal care-giving means typically unpaid assistance with patient personal care, basic functional and instrumental activities of the patient's daily living by a family member, friend (or any other individual) having no / reduced formal training or experience with caregiving duties[4]. Despite efforts to establish policies and guidelines for screening, diagnosis, and management of this morbidity-inducing condition, the pivotal role of caregivers cannot be overlooked, and is another essential component in successful dementia management strategies. Caregivers, who are often family members, bear the responsibility of providing care and support to dementia patients, both at home and in hospitals. Dementia is an umbrella diagnosis used to describe a set of symptoms that affect cognitive abilities, memory, thinking, and/or behavior; it has various types with Alzheimer's disease being the most common one. Alzheimer's disease and Alzheimer's dementia has been used interchangeably and are synonymous to each other.

Both in the early and late stages, dementia require care and commitment to provide supervision and support. In this condition, patients can exhibit behavioral disturbances that not only increase the difficulty of caregiving but also adds on pressure and strain on the wellbeing.[5] In an article by Ogena, old age dependents in the Philippines are expected to increase from 17% in 2010 to 43% in 2045 while the cases of dementia may also triple.[6] With such a commitment to both old-age dependents and persons with dementia, family members who are preoccupied with work and their own family pass on the duties of caregiving; alternated amongst children, siblings, or other family relatives.

In the Philippines, house-help caregivers can be classified as informal caregivers, wherein he or she is already a house-help, that ends up with additional caregiving duties to the dementia patient living in that household.[3] Others would opt to hire a formal caregiver, in the form of an allied healthcare worker such as a private nurse or one that has already experience in dementia facilities.[3] Such care could be different depending on the background of the caregiver and depending on the training they have gotten or are getting. With this, more than the sex and age; the duration, setting, and current satisfaction of care should also influence what kind of care is being given.[7] From qualitative studies, it has been reported that perceived tiredness, lack of time, worry about balancing family, and care and work responsibilities as signs of strain in employment.[8,9]

According to one particular study, knowledge of dementia has been shown to vary amongst caregivers such that poor understanding of dementia can result in suboptimal care, while increasing unnecessary agitations or anxiety.[10] This study performed a systematic review of 20 investigations focusing on the varying staff training interventions that were required in order to decrease the level of psychological / behavioral symptoms manifested by dementia patients being managed by such caregivers.[10] Because of this, reliable assessment of knowledge becomes important for patient well-being and in training of caregivers. One scale that has been used for assessing knowledge and misconceptions of Alzheimer's disease is the Alzheimer's Disease Knowledge Scale (ADKS) which consists of 30 true or false statements related to seven domains of knowledge that include risk factors, symptoms, assessment/diagnosis, course of disease, management, and caregiving.[11] During reliability testing, test-retest reliability coefficient was 0.81, $p<.001$, suggesting adequate test-retest reliability.[11] In terms of predictive validity, correlation was tested by looking into self-reported knowledge about dementia. Respondents were seen to have variability in their knowledge scores wherein people who had training or experience had better scores.[11] ADKS has also been used in the general population in the UK, USA, Norway, and South Korea.[12–16] However, as mentioned in another study, true-false questionnaires are unable to fully distinguish between true misconceptions and knowledge.[17] Hence, the tool was updated with a "don't understand" option that would delineate misconception (incorrect response) and lack of knowledge (don't know)[18] (Appendix A). Having this option then suggests that a "don't understand" answer may lessen misconception while decreasing inflated true knowledge on guesses that were correct.[18] One study in 2020 revealed that of 170 adult individuals who consulted at a tertiary government hospital in the Philippines, only 27% were knowledgeable of dementia and majority (95%) showed accepting attitudes towards people with dementia.[19] In another study in Japan in 2022, ADKS was used where results suggested that most caregivers in their country had a reasonable level of knowledge about dementia, scoring high in terms of symptoms and management, while scoring lowest at assessment and diagnosis.[20]

More than knowledge, attitude also plays an important role in caring for patients. An attitude is a response to a person that combines three components: emotional, cognitive, and behavioral such that each carry with it pleasurable to unpleasurable affect, favorable to unfavorable cognition, and supportive to hostile behavior.[21] Multiple studies have also found that patients with dementia were viewed more negatively than those without by informal caregivers and formal caregiving nursing home workers alike.[22,23] Meanwhile, health professionals and community members who have regular contact with dementia patients have more positive responses, especially when they are in a program that strengthens communication and creative expression.[24,25] Consequently, it has been suggested that meaningful contact with people with dementia can promote attitude change. One such tool to assess for attitude is the Dementia Attitude Scale (DAS), which was developed using structured interviews, exploratory factor analysis, convergent validity testing, and confirmatory factor analysis.[26] For its strength, its reliability was consistently above 0.8, replicability of the factor structure across samples, convergent validity, practical length, and ease of administration.[26]

With individuals suffering from dementia being admitted to medical institutions for other health issues, caregivers experience an increased load of responsibility due to the additional care required for these concurrent diseases.[27] Although past research has investigated the understanding and perspectives of caregivers for dementia patients, none have concentrated on caregivers - specifically for those who are hospitalized - where dementia might be overshadowed by attention to other medical issues. This study's advantage lies in its potential to enhance understanding and awareness among the investigators, caregivers, and family members who are managing both dementia and other medical ailments.

Consequently, this study's objective is to determine the profiles and its association with knowledge, and attitudes of primary caregivers of hospitalized patients with dementia in a tertiary hospital in Metro Manila.

MATERIALS AND METHODS

Research Design and Procedure

This was a single-center, descriptive cross-sectional design study with data collection done from August to September of 2023. This study determined the knowledge and attitudes of Filipino caregivers of hospitalized patients with Alzheimer's dementia. Prior to data collection, the study's objective was explained to the respondents, and they were asked for consent to participate with assurance of confidentiality. Data collection was conducted using both face to face and call. Structured demographics questionnaire, followed by the ADKS and DAS questionnaires were used. The investigator informed the respondents that they could clarify questions/statements that they could not understand. Withdrawal from the study was allowed if any distress (psychological discomfort in disclosing personal data) during answering of the forms occurred or if participant is unable to finish at least 75% of the questions. At the end of the survey period, data was compiled and exported to Excel and Stata 17 was used for the analysis.

Participants

The current study targeted caregivers of hospitalized patients with Alzheimer's dementia from August to September 2023. These patients were admitted under the service of Internal Medicine or Neurology. Inclusion criteria included male or female primary caregivers above 18 years old, able to read and understand basic English language, and those in care of a patient diagnosed by a Neurologist to have Alzheimer's dementia. Caregivers can be family members, relatives, or hired caregivers who are taking care of the patient at home and during the hospital admission. Caregivers who are relievers or temporary watchers, or those with symptoms of dementia or other debilitating medical conditions were excluded.

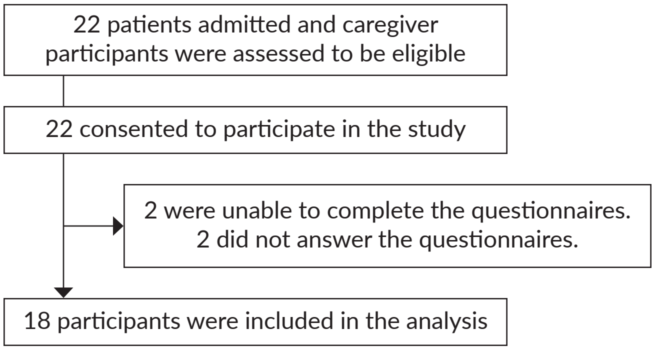

Figure 1. Participant inclusion and exclusion.

Based on the admissions or referrals of patients with dementia, the study used purposive sampling that found 22 respondents who fulfilled the inclusion criteria and completed the questionnaires. As seen on Figure 1, 22 of them consented to taking part in the study. However, two participants had incomplete responses on the answer key while another two did not answer the questionnaire up until the patient was discharged. The four who were excluded did not specify reasons on why they did not complete or answer the questionnaire. A total of 18 respondents were included in the study.

Data Collection and Management

Participant Demographics

A structured close-ended questionnaire was used to retrieve the socio-demographic information of the caregiver. The collected variables include:

1. Name (Initials), Age, Sex, Address
2. Previous training on caregiving
3. Education (High school and below, College and above, Vocational course)
4. Income
5. Duration of caregiving role
6. Caregiver role
7. Sex, age, diagnosis of patient

Dementia Attitude Scale (DAS) (Appendix B)

This consisted of 20 items on a seven-point Likert scale with responses ranging from strongly disagree to strongly agree and represented the affective, behaviors, and cognitive components of the caregiver's attitude toward dementia. The total scores ranged from 20 to 140, with higher scores pointing to a more positive attitude. Six items (2,6,8,9,16,17) were negatively worded and reverse scored.

Alzheimer's Disease Knowledge Scale Questionnaire (Appendix C)

This questionnaire, designed for students, health care professionals, and the general population, consisted of 30 true/false items to assess knowledge about dementia. This scale covered risk factors, assessment, diagnosis, symptoms, course, life impact, caregiving, and treatment/management.

Responses were encoded to an Excel file for safe storage and safekeeping and will be available to the investigator and co-author.

Statistical Analysis

Descriptive statistics was done for the variables of interest. Proportions and frequencies were reported for categorical variables while range and appropriate measure of central tendency were reported for continuous variables. Simple linear regression was conducted to assess the relationship of each predictor variable with each of the outcome variables (knowledge and attitude) where coefficients and their respective 95% confidence intervals (CI), standard errors (SE), and p-values were presented. All predictor variables except sex and previous caregiving role were fitted into the multivariable linear regression model where coefficients (β), 95% CIs, SE, and p-values were also reported. All analyses were performed using Stata 14 and a 0.05 alpha level was used throughout. p-values less than or equal to 0.05 was considered significant; otherwise, no significant relationship.

Ethical Considerations

This research received ethical approval from the Institutional Review Board of The Medical City. All procedures performed in this study involving human participants were in accordance with the ethical standards of the institution.

RESULTS

Characteristics of the Sample

Table 1 showed the general characteristics of the caregivers of patients with Alzheimer's dementia. The total number of caregiver responses were 18, with a mean age of 49 years old. Overall, 33.3% were 46 to 55 years old, and all were females. In terms of highest educational level attained, ten participants completed college. All had previous caregiving roles and 33.3% were first degree family members, either a parent, child, or sibling. Four (22%) were hired house-help, two (11%) were private nurses, and one (5%) was a second-degree family relative. Concerning duration of caregiving role, equal proportion among the participants had 3 to 5 years (33.3%) or 5 to 10 years (33.3%) of caregiving role, in order to discern experience level. The mean age of the patients was 79 while 8 are male and 10 are female. In terms of income, only two responded; one in the 9,100-18,200 range and the other in the 18,200 – 36,400 range. The other respondents did not disclose their income. Participant age ranged between 26 and 65 years.

Knowledge on Alzheimer's Disease

The overall mean ADKS score of the caregivers was 21.17 out of 30 (70.6%). The median score was 21 ranging from 15 to 30. This suggests an average level of knowledge on AD among the caregivers with varying knowledge scores by domain (highest to lowest) as follows: life impact (mean=2.78; SD=0.43); symptoms (mean=3.67; SD=0.59); treatment (mean=3.11; SD=0.76); diagnosis (mean=3.0; SD=0.77); course of the disease (mean=2.83; SD=0.92); caregiving (mean=2.61; SD=0.85); and risk factors (mean=3.17; SD=1.10) (Table 2).

Table 1. Characteristics of Caregiver (n=18)

Characteristic	Frequency (%)
Age group	
26-35	3 (16.7)
36-45	5 (27.8)
46-55	6 (33.3)
56-65	4 (22.2)
Level of education	
High school and below	8 (44.4)
College and above	6 (33.3)
Vocational course	4 (22.2)
Previous work on caregiving	
Yes	18 (100.0)
No	0
Duration of caregiving role	
Less than 1 year	0
1-3 years	2 (11.1)
3-5 years	6 (33.3)
5-10 years	6 (33.3)
Above 10 years	4 (22.2)
Caregiver role	
First degree family member (parent, child, sibling)	6 (33.3)
Second degree family member	1 (5.6)
Distant relative	5 (27.8)
Hired house help	4 (22.2)
Hired private nurse	2 (11.1)
Age of patient, mean (SD)	79 (8)

Table 2. Knowledge on Alzheimer's Disease (n=18)

Domain	No. of Items	Mean (SD)	Median (IQR)
Life Impact	3	2.78 (0.43)	3 (2-3)
Risk Factors	6	3.17 (1.10)	3 (2-6)
Symptoms	4	3.67 (0.59)	4 (2-4)
Treatment	4	3.11 (0.76)	3 (2-4)
Diagnosis	4	3.00 (0.77)	3 (2-4)
Caregiving	5	2.61 (0.85)	3 (1-5)
Course of the Disease	4	2.83 (0.92)	3 (1-4)
Overall ADKS Score	30	21.17 (3.43)	21 (15-30)

Attitude towards Alzheimer's Disease

Regarding attitude towards Alzheimer's disease (Table 3), the overall mean DAS score of the caregivers was 119.83 (SD=6.52) out of 140 (85.6%). The median score was 121.5 ranging from 106 to 127. This suggests a generally positive attitude towards AD among the caregivers with most participants agreeing that people with ADRD can feel when others are kind to them (mean=6.89; SD=0.32); it is

Table 3. Attitude towards Alzheimer's Disease (n=18)

Item	Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree	I don't understand	Mean (SD)
It is rewarding to work with people who have ADRD.	0	0	0	0	5 (27.8)	8 (44.4)	5 (27.8)	0	6.0 (0.77)
I am afraid of people with ADRD.	9 (50.0)	8 (44.4)	1 (5.6)	0	0	0	0	0	1.58 (0.61)
People with ADRD can be creative.	0	2 (11.1)	7 (38.9)	5 (27.8)	4 (22.2)	0	0	0	3.61 (0.98)
I feel confident around people with ADRD.	0	0	5 (27.8)	4 (22.2)	5 (27.8)	4 (22.2)	0	0	4.44 (1.15)
I am comfortable touching people with ADRD.	0	0	0	0	2 (11.1)	10 (55.6)	6 (33.3)	0	6.22 (0.65)
I feel uncomfortable being around people with ADRD.	13 (72.2)	4 (22.2)	1 (5.6)	0	0	0	0	0	1.58 (1.22)
Every person with ADRD has different needs.	0	0	0	0	0	4 (22.2)	14 (77.8)	0	6.78 (0.43)
I am not very familiar with ADRD.	8 (44.4)	9 (50.0)	1 (5.6)	0	0	0	0	0	1.95 (1.58)
I would avoid an agitated person with ADRD.	0	5 (27.8)	3 (16.7)	5 (27.8)	4 (22.2)	1 (5.6)	0	0	3.89 (1.76)
People with ADRD like having familiar things nearby.	0	0	0	0	0	8 (44.4)	10 (55.6)	0	6.56 (0.51)
It is important to know the past history of people with ADRD.	0	0	0	0	0	2 (11.1)	16 (88.9)	0	6.89 (0.32)
It is possible to enjoy interacting with people with ADRD.	0	0	0	0	2 (11.1)	8 (44.4)	8 (44.4)	0	6.33 (0.69)
I feel relaxed around people with ADRD.	0	0	0	2 (11.1)	8 (44.4)	7 (38.9)	1 (5.6)	0	4.39 (0.78)
People with ADRD can enjoy life.	0	1 (5.6)	0	0	5 (27.8)	9 (50.0)	3 (16.7)	0	5.67 (1.14)
People with ADRD can feel when others are kind to them.	0	0	0	0	0	2 (11.1)	16 (88.9)	0	6.89 (0.32)
I feel frustrated because I do not know how to help people with ADRD.	6 (33.3)	11 (61.1)	1 (5.6)	0	0	0	0	0	2.47 (3.32)
I cannot imagine taking care of someone with ADRD.	12 (66.7)	3 (16.7)	3 (16.7)	0	0	0	0	0	2.32 (3.64)
I admire the coping skills of people with ADRD.	0	1 (5.6)	0	0	0	3 (16.7)	14 (77.8)	0	6.56 (1.20)
We can do a lot now to improve the lives of people with ADRD.	0	0	0	0	1 (5.6)	5 (27.8)	12 (66.7)	0	6.61 (0.61)
Difficult behaviors may be a form of communication for people with ADRD.	0	0	0	0	2 (11.1)	9 (50.0)	7 (38.9)	0	6.28 (0.67)
Overall DAS Score, mean (SD); median (IQR)	119.83 (6.52); 121.5 (106-127)								

important to know the past history of people with ADRD (mean=6.89; SD=0.32); and, every person with ADRD has different needs (mean=6.78; SD=0.43). Additionally, most participants disagreed that they are afraid of people with ADRD (mean=1.58; SD=0.61), or they feel uncomfortable being around people with ADRD (mean=1.58; SD=1.22), or they are not very familiar with ADRD (mean=1.95; SD=1.58). No one answered the *I don't understand* option (Table 3).

Factors Associated with Knowledge on Alzheimer's Disease

From the adjusted analysis in Table 4 (multiple linear regression), age (β=0.852), education level (β=2.041), caregiver role (β=0.315), and attitude towards AD (β=0.050) were positively associated with knowledge on AD; whereas, duration of caregiving role (β=-0.077), and patient's age (β=-0.144) were negatively associated with knowledge. However, no variable revealed to be statistically significant.

Factors Associated with Attitude towards Alzheimer's Disease

Assessing factors related to attitude towards AD from the adjusted analysis (Table 5), age (β=0.388), education level (β=4.229), duration of caregiving role (β=2.174), caregiver role (β=0.308), patient's age (0.067), and knowledge on AD (β=0.142) were all positively associated with attitude towards AD. Education level (p=0.002) and duration of caregiving role (p=0.037) were both independently associated with attitude towards AD. After adjusting for other variables in the model, only level of education was significantly associated with attitude towards AD (p=0.046). This implies that for every one (1) unit increase in the level of education, DAS score is increased by 4.229 points, thus, suggesting a more positive attitude towards AD.

Table 4. Unadjusted and Adjusted Analyses of Factors Associated with Knowledge on Alzheimer's Disease (n=18)

Variable	Unadjusted analysis^{a}				Adjusted analysis^{b}			
	β	SE	95% CI	*p*-value	β	SE	95% CI	*p*-value
Age group	0.392	0.822	-1.351, 2.135	0.640	0.852	0.818	-0.949, 2.652	0.320
Level of education	1.950	0.943	-0.050, 3.950	0.055	2.041	1.243	-0.696, 4.777	0.129
Duration of caregiving role	0.438	0.878	-1.424, 2.299	0.625	-0.077	0.998	-2.275, 2.120	0.940
Caregiver role	-0.048	0.449	-1.001, 0.904	0.916	0.315	0.482	-0.745, 1.375	0.527
Patient's age	-0.131	0.108	-0.359, 0.098	0.243	-0.144	0.157	-0.489, 0.202	0.380
Attitude towards AD	0.177	0.124	-0.085, 0.441	0.171	0.050	0.186	-0.358, 0.459	0.791

^{a} Simple linear regression
^{b} Multiple linear regression, adjusted for all variables in the model
*** Significant at 0.05 alpha level*
R^2: 0.368

Table 5. Unadjusted and Adjusted Analyses of Factors Associated with Attitude towards Alzheimer's Disease (n=18)

Variable	Unadjusted analysis^{a}				Adjusted analysis^{b}			
	β	SE	95% CI	*p*-value	β	SE	95% CI	*p*-value
Age group	-0.884	1.377	-3.804, 2.035	0.530	0.388	1.406	-2.708, 3.483	0.788
Level of education	5.250	1.441	2.196, 8.304	0.002**	4.229	1.877	0.097, 8.361	0.046**
Duration of caregiving role	3.125	1.378	0.205, 6.045	0.037**	2.174	1.754	-1.688, 6.037	0.241
Caregiver role	-0.210	0.838	-1.985, 1.566	0.806	0.308	0.804	-1.461, 2.078	0.709
Patient's age	0.037	0.151	-0.283, 0.356	0.812	0.067	0.243	-0.468, 0.602	0.788
Knowledge on AD^{h}	0.641	0.460	-0.335, 1.617	0.183	0.142	0.543	-1.054, 1.338	0.799

^{a} Simple linear regression
^{b} Multiple linear regression, adjusted for all variables in the model
*** Significant at 0.05 alpha level*
R^2: 0.506

DISCUSSION

The results of ADKS amongst respondents showed an average knowledge score of 21/30, garnering 70% of the items. This shows that although caregivers are generally knowledgeable, room for improvement still exists. Among the questions, respondents were more knowledgeable on dementia's life impact on the patient and its symptoms, creating more potential for empathy and understanding.[24] Such factors can then lead to improved care and management for the patient.[24] Knowledge on these can come from the education of the neurologist, or from their involvement in seeing first-hand the signs of dementia. More so, with the Philippines being a family-centered culture, with strong foundations on emotional care and support, caregivers are more able to grasp and easily recognize the impact of dementia on life and its symptoms, making such knowledge a foundation when educating caregivers.[28,29] The question with majority of respondents answering incorrectly is on the statement "*When people with Alzheimer's disease begin to have difficulty taking care of themselves, caregivers should take over right away.*" The inclination of respondents who are caregivers to select "true" might be attributed to their perception of their caregiving role.[30] Caregivers often assume a more proactive role, going beyond assistance to assuming the patients' tasks. This approach is driven not only by the aim to prevent errors or accidents but also to facilitate the patient's situation. Nonetheless, this complete takeover could potentially impede the patient's opportunity to relearn or practice familiar tasks. Furthermore, it limits the patient's ability to fully exploit their learning potential. Another statement that majority had a misconception about is "*It has been scientifically proven mental exercise can prevent a person from getting Alzheimer's disease*" and "*When people with Alzheimer's disease repeat the same question or story, several times, it is helpful to remind them that they are repeating themselves.*" The first may be because of how physicians advise older adults to engage in mentally stimulating activities as a way of reducing their risk of dementia. Despite the lack of evidence in dementia prevention, doctors still recommend mental activity because no harm is done to the patient.[31] The author also warned and raised the possibility of false hope and self-blame when there is failure to engage in mental activities in the past that the patient sees dementia as his or her own doing. Epidemiological studies have found that among patients, high education, leisure activities, and intellectually challenging daily activities had a lower prevalence and incidence of Alzheimer's disease, but it was noted that multiple confounders are present that they cannot conclude that mental practice prevents dementia.[32–34]

Instead, brain health is determined by an interplay of genetics, environmental influences, and behavioral health.[35] Secondly, on the statement *when people with Alzheimer's repeat the same question, it is helpful in reminding them that they are repeating themselves*, people may see this as trying to have the patient learn from their mistakes. Studies have shown that listening and understanding, more than highlight the repetitions is more helpful for the patient.[36]

Factors that were positively associated with knowledge include age, educational level, caregiver role, and attitude. Age in relation to knowledge may be attributed to the accumulation of experiences and exposure to information over time, leading to a higher level of knowledge. In terms of education, respondents who are more educated may have been equipped with higher thinking skills and better ability in analyzing and retaining information, thus, leading to a higher level of knowledge for dementia. Caregiver role in being a family member is also associated with knowledge because of the more genuine empathy and involvement, leading to deeper understanding of the disease. Rather than work, family may feel caregiving as an obligation. Lastly, having a positive attitude means increased openness to learning and experiencing, leading to motivation in seeking out and retaining relevant information. On the other hand, duration of caregiving, and a lower age are negatively associated with knowledge. The decrease of firsthand experience and encounter may explain such association. No variable was found to be statistically significant. No one also answered the "I don't understand" option, indicating that respondents had understood the question.

For the mean scores of domains, respondents did well on life impact, symptoms, treatment, diagnosis, as opposed to scoring lower on risk factors, caregiving, and course of the disease. These highlight the need to focus on these when educating the patient, the family, and the caregivers. Scoring highly on treatment and diagnosis still holds important as they can be used by families to gauge whether a consult is already needed, while improving the rest should aid in the overall well-being of the patient and people around.

On the caregivers' attitude, respondents scored an average of 119 out of 140, indicating that they have a generally positive attitude with regards dementia. Among the statements, three of the most agreed include 1) *People with ADRD can feel when others are kind to them*, 2) *It is important to know the history*, and 3) *Every person with ADRD has different needs*. The first statement highlights how caregivers carry empathy towards their patients[37], highlighting the quality as being a result and or a requirement of the job. This kind of attitude may guide the caregiver into being kind, as they know that patients actually feel acts of kindness. Secondly, being aware of the importance of knowing a patient's history may make the caregiver feel closer to the patient.[38] Third, caregivers have the awareness that every person with ADRD has different needs, highlighting the attitude that care can be adjusted depending on how their patient is while also opening the possibility of exploring and improving on their approaches to care.[39,40] Likewise, majority of respondents disagreed with the negative statements including 1) *that they are afraid of people with ADRD*, 2) *that they feel uncomfortable with them,* and 3) *that they cannot imagine taking care of someone with ADRD*. Scoring negatively on such statements highlights that the respondents are apt to comfortably taking care of patients with dementia.

For factors associated with attitude towards Alzheimer's dementia; age, education, duration of caregiving, role, patient's age, and knowledge are positively associated with attitude towards Alzheimer's dementia. The more positive attitude can stem from caregivers who are older, those with a higher level of education, longer duration of caregiving, state of being family, higher patient age, and those with increased knowledge scores. Just as with how knowledge is gained, favorable attitude is also developed for the caregivers as experience is accumulated. Education and caregiving role were found independently associated with attitude, while only education was significantly associated with positive attitude towards AD.

The study's limitations include the absence of a validated tool in Tagalog version. Another limitation is the one-month duration of data collection for patients, limited by the author's scheduled presence in the venue of data collection. It is important to acknowledge that the presence of individuals with mixed forms of dementia among whom the caregivers take care of could serve as a confounding factor. Selection bias is also a limitation given the purposive sampling method used in this study. Furthermore, this study was limited to caregivers of in-patients, though possible future study of caregivers focusing on out-patients would provide additional insight into this research niche.

CONCLUSION

Overall, this study demonstrated that family members of the older age brackets with possession of higher level of education, longer duration of caregiving, and good source of knowledge have an ideal attitude. Furthermore, among these qualities, education is the most important; serving as a good foundation that further strengthening will lead to a more favorable attitude in caregiving. Several factors correlate positively with caregivers' knowledge: age, educational level, caregiving role, and attitude. Although statistical significance is lacking, these trends may explain components of the knowledge-acquiring process.

While caregivers generally possess a reasonable level of knowledge and exhibit positive attitudes, continuous education and targeted interventions could further enhance their effectiveness in providing care. Recognizing the interplay between caregivers' characteristics and their attitudes can guide the development of tailored educational programs, ultimately improving the overall well-being and quality of life for dementia patients and their families.

Statement of Authorship

Both authors certified fulfillment of ICMJE authorship criteria.

Author Disclosure

Both authors declared no conflicts of interest.

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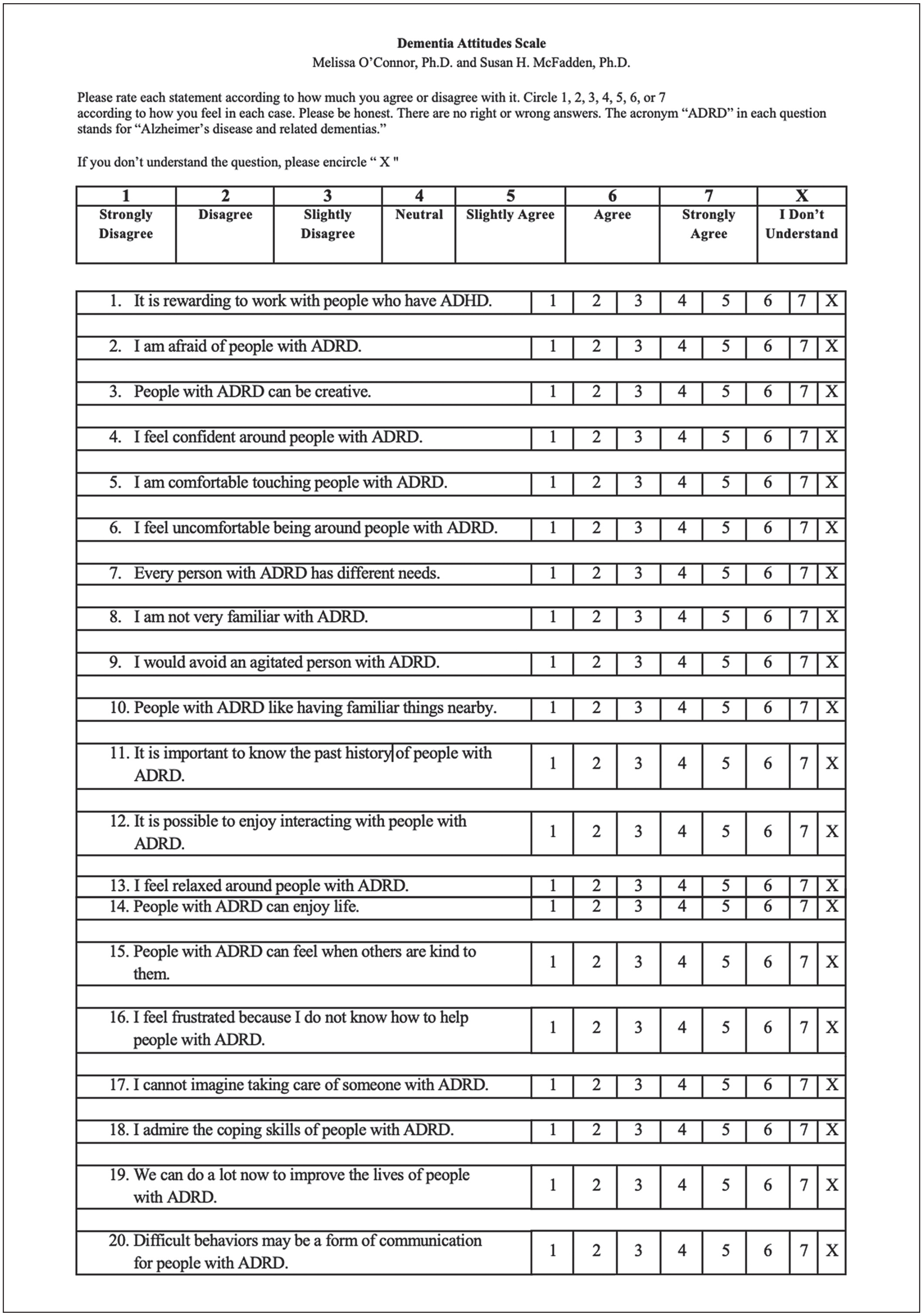
APPENDICES

Appendix A. Dementia Attitude Scale with "I Don't Understand" Option



Dementia Attitudes Scale

Melissa O'Connor, Ph.D. and Susan H. McFadden, Ph.D.

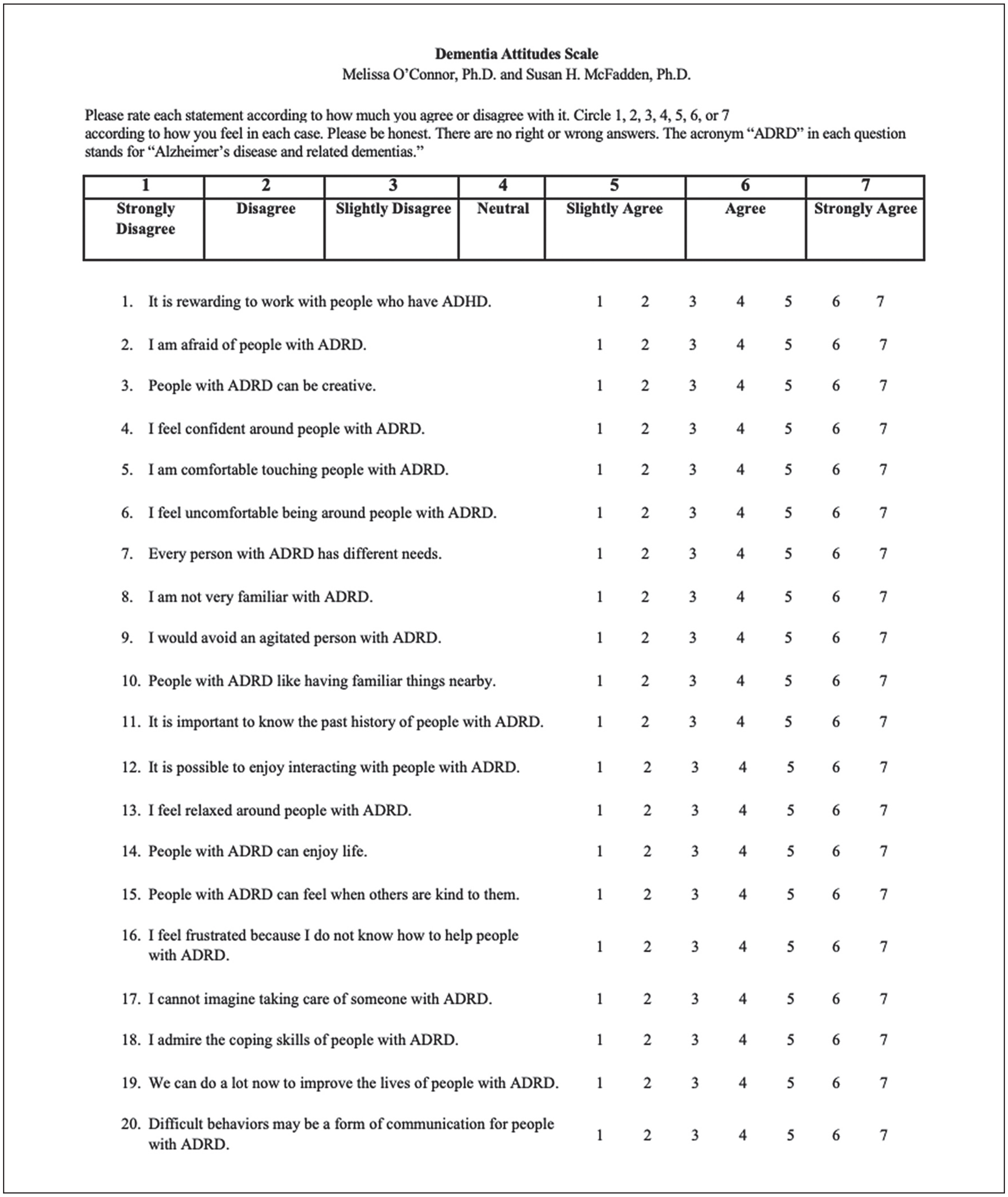
Please rate each statement according to how much you agree or disagree with it. Circle 1, 2, 3, 4, 5, 6, or 7 according to how you feel in each case. Please be honest. There are no right or wrong answers. The acronym "ADRD" in each question stands for "Alzheimer's disease and related dementias."

If you don't understand the question, please encircle " X "

1	2	3	4	5	6	7	X
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree	I Don't Understand

1. It is rewarding to work with people who have ADHD.	1	2	3	4	5	6	7	X
2. I am afraid of people with ADRD.	1	2	3	4	5	6	7	X
3. People with ADRD can be creative.	1	2	3	4	5	6	7	X
4. I feel confident around people with ADRD.	1	2	3	4	5	6	7	X
5. I am comfortable touching people with ADRD.	1	2	3	4	5	6	7	X
6. I feel uncomfortable being around people with ADRD.	1	2	3	4	5	6	7	X
7. Every person with ADRD has different needs.	1	2	3	4	5	6	7	X
8. I am not very familiar with ADRD.	1	2	3	4	5	6	7	X
9. I would avoid an agitated person with ADRD.	1	2	3	4	5	6	7	X
10. People with ADRD like having familiar things nearby.	1	2	3	4	5	6	7	X
11. It is important to know the past history of people with ADRD.	1	2	3	4	5	6	7	X
12. It is possible to enjoy interacting with people with ADRD.	1	2	3	4	5	6	7	X
13. I feel relaxed around people with ADRD.	1	2	3	4	5	6	7	X
14. People with ADRD can enjoy life.	1	2	3	4	5	6	7	X
15. People with ADRD can feel when others are kind to them.	1	2	3	4	5	6	7	X
16. I feel frustrated because I do not know how to help people with ADRD.	1	2	3	4	5	6	7	X
17. I cannot imagine taking care of someone with ADRD.	1	2	3	4	5	6	7	X
18. I admire the coping skills of people with ADRD.	1	2	3	4	5	6	7	X
19. We can do a lot now to improve the lives of people with ADRD.	1	2	3	4	5	6	7	X
20. Difficult behaviors may be a form of communication for people with ADRD.	1	2	3	4	5	6	7	X

Appendix B. Dementia Attitude Scale (DAS)



Dementia Attitudes Scale

Melissa O'Connor, Ph.D. and Susan H. McFadden, Ph.D.

Please rate each statement according to how much you agree or disagree with it. Circle 1, 2, 3, 4, 5, 6, or 7 according to how you feel in each case. Please be honest. There are no right or wrong answers. The acronym "ADRD" in each question stands for "Alzheimer's disease and related dementias."

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

1. It is rewarding to work with people who have ADHD.	1	2	3	4	5	6	7
2. I am afraid of people with ADRD.	1	2	3	4	5	6	7
3. People with ADRD can be creative.	1	2	3	4	5	6	7
4. I feel confident around people with ADRD.	1	2	3	4	5	6	7
5. I am comfortable touching people with ADRD.	1	2	3	4	5	6	7
6. I feel uncomfortable being around people with ADRD.	1	2	3	4	5	6	7
7. Every person with ADRD has different needs.	1	2	3	4	5	6	7
8. I am not very familiar with ADRD.	1	2	3	4	5	6	7
9. I would avoid an agitated person with ADRD.	1	2	3	4	5	6	7
10. People with ADRD like having familiar things nearby.	1	2	3	4	5	6	7
11. It is important to know the past history of people with ADRD.	1	2	3	4	5	6	7
12. It is possible to enjoy interacting with people with ADRD.	1	2	3	4	5	6	7
13. I feel relaxed around people with ADRD.	1	2	3	4	5	6	7
14. People with ADRD can enjoy life.	1	2	3	4	5	6	7
15. People with ADRD can feel when others are kind to them.	1	2	3	4	5	6	7
16. I feel frustrated because I do not know how to help people with ADRD.	1	2	3	4	5	6	7
17. I cannot imagine taking care of someone with ADRD.	1	2	3	4	5	6	7
18. I admire the coping skills of people with ADRD.	1	2	3	4	5	6	7
19. We can do a lot now to improve the lives of people with ADRD.	1	2	3	4	5	6	7
20. Difficult behaviors may be a form of communication for people with ADRD.	1	2	3	4	5	6	7

Appendix C. Alzheimer's Disease Knowledge Scale Questionnaire

ANSWER **TRUE** or **FALSE**.
If you don't understand the question, please write **?**

QUESTION NUMBER & ITEM	ANSWER (TRUE, FALSE, ?)
1. People with Alzheimer's disease are particularly prone to depression.	
2. It has been scientifically proven that mental exercise can prevent a person from getting Alzheimer's disease.	
3. After symptoms of Alzheimer's disease appear, the average life expectancy is 6 to 12 years.	
4. When a person with Alzheimer's disease becomes agitated, a medical examination might reveal other health problems that caused the agitation.	
5. People with Alzheimer's disease do best with simple instructions giving one step at a time.	
6. When people with Alzheimer's disease begin to have difficulty taking care of themselves, caregivers should take over right away.	
7. If a person with Alzheimer's disease becomes alert and agitated at night, a good strategy is to try to make sure that the person gets plenty of physical activity during the day.	
8. In rare cases, people have recovered from Alzheimer's disease.	
9. People whose Alzheimer's disease is not yet severe can benefit from psychotherapy for depression and anxiety.	
10. If trouble with memory and confused thinking appears suddenly, it is likely due to Alzheimer's disease.	
11. Most people with Alzheimer's disease live in nursing homes.	
12. Poor nutrition can make the symptoms of Alzheimer's disease worse.	
13. People in their 30s can have Alzheimer's disease.	
14. A person with Alzheimer's disease becomes increasingly likely to fall down as the disease gets worse.	
15. When people with Alzheimer's disease repeat the same question or story several times, it is helpful to remind them that they are repeating themselves.	
16. Once people have Alzheimer's disease, they are no longer capable of making informed decisions about their own care.	
17. Eventually, a person with Alzheimer's disease will need 24-hour supervision.	
18. Having high cholesterol may increase a person's risk of developing Alzheimer's disease.	
19. Tremor or shaking of the hands or arms is a common symptom in people with Alzheimer's disease.	
20. Symptoms of severe depression can be mistaken for symptoms of Alzheimer's disease.	
21. Alzheimer's disease is one type of dementia.	
22. Trouble handling money or paying bills is a common early symptom of Alzheimer's disease.	
23. One symptom that can occur with Alzheimer's disease is believing that other people are stealing one's things.	
24. When a person has Alzheimer's disease, using reminder notes is a crutch that can contribute to decline.	
25. Prescription drugs that prevent Alzheimer's diseases are available.	
26. Having high blood pressure may increase a person's risk of developing Alzheimer's disease.	
27. Genes can only partially account for the development of Alzheimer's disease.	
28. It is safe for people with Alzheimer's disease to drive, as long as they have a companion in the car at all times.	
29. Alzheimer's disease cannot be cured.	
30. Most people with Alzheimer's disease remember recent events better than things that happened in the past.	