

Multicenter Collection of Uniform Data on Patients With Cognitive Impairment in the Philippines: The Philippine Neurological Association One Database–Dementia (PNA1DB-Dementia) Protocol



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ABSTRACT

Introduction: Dementia has been a public health concern for several years. As the population continuously ages, the prevalence of dementia is

projected to significantly rise, thus governments will face an increasing demand for support services. Unfortunately, dementia is not recognized as a major public health concern in the Philippines. As the extent of the dementia epidemic needs to be further delineated in

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the Philippines, and research on dementia is still limited, a larger study is needed to provide more information about the disease burden. This will raise awareness and inform policy makers about the necessity of social and health care reform in dementia care.

We aimed to collect uniform data from patients with cognitive impairment and determine the frequency of dementia and mild cognitive impairment in the study population. These data are crucial for providing information to policy makers in the country.

Methods and Analysis: This is a multi-center, prospective, observational, non-interventional study and standing database of patients clinically diagnosed with Mild Cognitive Impairment (MCI) or dementia seen at the participating training institutions. Corresponding anonymized data on demographics, medical history, risk factors, level of functional impairment, diagnosis, baseline cognitive scores and management will be collected from each patient and entered into the database using a secure online data collection tool. Collective data will be extracted, summarized and analyzed every year with oversight provided by the Philippine Neurological Association (PNA).

Ethics and Dissemination: Approval from the ethics committees or institutional review boards (EC/IRB) was obtained from the Single Joint Research Ethics Board and all participating institutions.

The PNA1DB-Dementia initiative will be crucial in providing information to policy makers, to further enhance the implementation of the Mental Health Act. The dissemination of results will be conducted through scientific or public conferences and scientific journal publication.

Keywords: dementia, database, Philippines

Trial Registration: NCT05484960; ClinicalTrials.gov.

INTRODUCTION AND RATIONALE

Neurological disorders are the leading causes of death and disability worldwide, and Alzheimer's disease is one of the largest contributors of neurological disability-adjusted-life-years (DALY).[1] The increasing number of elderly people is steering the global rise in the prevalence of dementia. In 2050, there is an expected increase in the global number of people living with dementia to 152.8 million compared to 57.4 million cases in 2019. [2] The regional distribution of new dementia cases is highest in Asia.[3] There is a steeper increase in

the prevalence of dementia in lower middle-income countries, such as the Philippines, compared to high income countries from 2015 to 2050, ie, 223% compared to 116%, respectively.[3,4]

The prevalence of dementia in the Philippines is 10.6%,[5] higher than the rate seen in Southeast Asian countries.[6] The age standardized prevalence of dementia is 14.2% in the country compared to the 7.6% estimate for Southeast Asia.[7] The impact of this condition permeates from the individual, the family, caregiver/s and the community. The significant direct and indirect financial impact of this condition has become increasingly burdensome and most dementia syndromes are chronic. The projected rise of the economic burden of Alzheimer's disease and related disorders is \$4.7 trillion in 2030 and \$27.3 trillion in 2050 from \$2.8 trillion in 2019.[8] Low- and middle-income countries account for the majority of economic burden.[8]

Pharmacological management of Alzheimer's disease has limited efficacy and treatment of other dementias remain elusive. Several risk factors were found to be highly associated with dementia and modifying these may prevent or delay up to 40% of dementias.[9] Thus, there has been a great shift in the focus on clinical trials involving multimodal approaches in the management of dementia. The Finnish Geriatric Intervention Study to Prevent Cognitive Impairment and Disability (FINGER), Prevention of Vascular Dementia by Intensive Care (preDIVA) and Multidomain Alzheimer Preventive Trial (MAPT) focus on this multidomain type of intervention.[10] Modifiable risk factors should be identified in individuals with cognitive impairment for proper management, which may mitigate dementia as an outcome.

Mild cognitive impairment (MCI) is an equally important condition, as it is a possible transitional state prior to dementia. This has become an ideal target for therapeutic interventions. In the Health and Retirement Study, there was a 10% prevalence of dementia and 22% for MCI.[11] In a systematic review of epidemiological studies, the global prevalence of MCI was found to be 15%. [12] A significant number of individuals are at risk of progressing to dementia. With the ageing population, there is a higher number of individuals projected to have MCI since increasing age is strongly associated with this condition.[11,12]

An epidemiological study in the Philippines revealed an association between cardiovascular risk factors and vascular dementia but not Alzheimer's

disease, with the majority of men and women having at least one cardiovascular risk factor.[5] Hypertension and dyslipidemia were also found to be present in a significant number, ie, 66.7% and 64.1%, respectively, of Filipino patients with MCI.[13]

Rationale for the study

Dementia is a common neurological condition that usually affects elderly individuals leading to loss of independence, reduced quality of life, premature mortality, significant caregiver burden and high levels of healthcare utilization and cost.[14] As the population continuously ages, the prevalence of dementia is projected to increase significantly, and governments will face an increasing demand for support services. Unfortunately, dementia is not recognized as a major public health concern in the Philippines. As the extent of the dementia epidemic needs to be further delineated in the Philippines, and research on dementia is still limited, a larger study is needed to provide more information about the disease burden. This will raise awareness and inform policymakers about the necessity of social and healthcare reform in dementia care.[5] The expenses incurred in the diagnosis and care of patients with dementia are primarily shouldered by the family, since the national health insurance of the country, PhilHealth, does not cover outpatient care.

Knowledge of attributable risks of major risk factors to specific dementia subtypes is key to developing intervention programs to address the dementia epidemic in the Filipino population. This includes adequately addressing the high prevalence of cardiovascular risk factors as well. [15] Like many other low middle income countries (LMIC), the Philippines has been undergoing an epidemiological transition caused by lifestyle changes and behaviors associated with industrial and economic development, such as increases in high dietary fat and sugar, sedentary lifestyles and tobacco use. These changes have increased the prevalence of obesity, hypertension, diabetes and hypercholesterolemia over the last three decades. [15] Owing to the high prevalence of these specific risk factors, the Filipino population can be considered a high-risk population for developing dementia.

Addressing these identified risk factors may gradually reduce the projected increase in the number of dementia cases by 2050. Modifying risk factors

for dementia may have led to this reduction. The decreasing age-specific incidence of dementia may be attributed to improvements in living conditions, education and healthcare.[16] The Rotterdam study attributes this to possible better control of vascular risk factors over time, with increase in the use of antithrombotic and lipid-lowering drugs.[17] In parallel, brain MRIs showed fewer lacunar infarcts. [17] It is probable that improved cardiovascular risk management would be associated with a reduced incidence, but stable prevalence (or a prevalence that is decreasing less markedly than incidence) of dementia as populations affected by dementia would live longer.[17]

Cardiovascular risk factors are common in Filipinos. [18,19] Ischemic heart disease is the leading cause of mortality in the Philippines,[20] a condition that is strongly associated with vascular risk factors. Future rates of dementia prevalence and incidence in the country may be controlled by addressing modifiable risk factors that could delay or, if possible, prevent the development of dementia.[14]

In order for the Philippine Neurological Association (PNA) to understand and take the lead in identifying areas of improvement, guiding public health policies in dementia and recommending/directing resources to areas in need, standardized data collection on "real-world" practice and observation of clinical outcomes are needed, akin to the purpose of conducting audits. The information required to achieve this goal includes data on the prevalence and demographics of cognitively impaired patients, and risk factors associated with cognitive impairment and management. These data will be crucial in providing information to policy makers in the Department of Health and PhilHealth with the ultimate goal of providing an adequate health delivery system to patients with cognitive impairment and lessening the burden of care, especially for affected families.

Objectives

The primary objective is to determine the frequency of dementia and mild cognitive impairment in the study population.

The secondary objectives are:

1. To determine the frequency of different types of dementia in the study population.

2. To determine the frequency of risk factors for dementia in the study population (age, sex, educational attainment, family history, physical activity, smoking history, alcohol consumption, cardiovascular and cerebrovascular risk factors, chemical exposure, substance abuse, previous psychiatric conditions and hearing impairment).
3. To describe the demographic characteristics of patients with dementia or mild cognitive impairment as to age at the time of diagnosis, age at onset of symptoms, sex, level of income (patient or caregiver), location of clinic or hospital, current or previous occupation, educational attainment and neurological examination findings.
4. To categorize dementia severity in each subtype as mild, moderate or severe based on the initial Mini Mental State Exam (MMSE) score at the time of diagnosis.
5. To describe the types of diagnostic tests commonly performed at the time of diagnosis, including neuroimaging, blood tests and EEG.
6. To identify pharmacologic and nonpharmacologic modalities of treatment currently being used in the treatment of dementia.

METHODS AND ANALYSIS

Study design

This is a pragmatic, multi-center, prospective, observational, non-interventional study on standing database of patients with cognitive impairment seen at the training institution.

Patient population

All patients who will be seen at the 11 accredited adult neurology residency training institutions in the Philippines and clinically diagnosed with MCI or dementia by their neurologists will be invited to participate in the study. Patients are eligible for inclusion in the study if they fulfilled all the inclusion criteria and none of the exclusion criteria.

Inclusion Criteria

- Patients with cognitive impairment diagnosed with MCI or dementia.
- 18 years or older.
- Must be a Filipino citizen.
- Seen and evaluated at the participating hospital by a neurologist.

- If required by the institutional review board or ethics committee, signed or verbal informed consent for participation in the study will be obtained from the patient or a legal representative.

Exclusion Criteria

- Any condition that, in the study investigator's opinion, may jeopardize the patient through his/her participation in this study or affect the validity of the study results.

Study procedures

The investigators will confirm the diagnosis and explain the study as well as the patient information sheet to the patient and/or legal representative. All eligible patients will be assigned the study identification number. Data will be collected by the investigators as the patient undergoes routine clinical evaluation. Corresponding anonymized data on demographics, medical history, risk factors, level of functional impairment, diagnosis, baseline cognitive scores and management will be collected from each patient and entered into the database using a secure online data collection tool. Patients who will withdraw their participation verbally or in writing are excluded from further participation by the investigator. Withdrawal from the study, including the date, time and reason for withdrawal will be properly documented. Withdrawn participants will not have their clinical data included in the database.

Collective data will be extracted, summarized and analyzed every year with oversight provided by the PNA. To assess trends and changes over time, data collection for this study will span five years from study initiation, after which the utility of an extension or re-implementation of the study will be assessed by the PNA.

Data collection commenced on 08 December 2021.

Case ascertainment

Mild cognitive impairment (MCI) is a condition in which individuals manifest cognitive impairment with minimal to no impairment in instrumental activities of daily living (IADL). MCI can be considered as the first clinical expression of Alzheimer's disease (AD). It is important to note, however, that it can also be due to other disease processes such as

Mild Cognitive Impairment

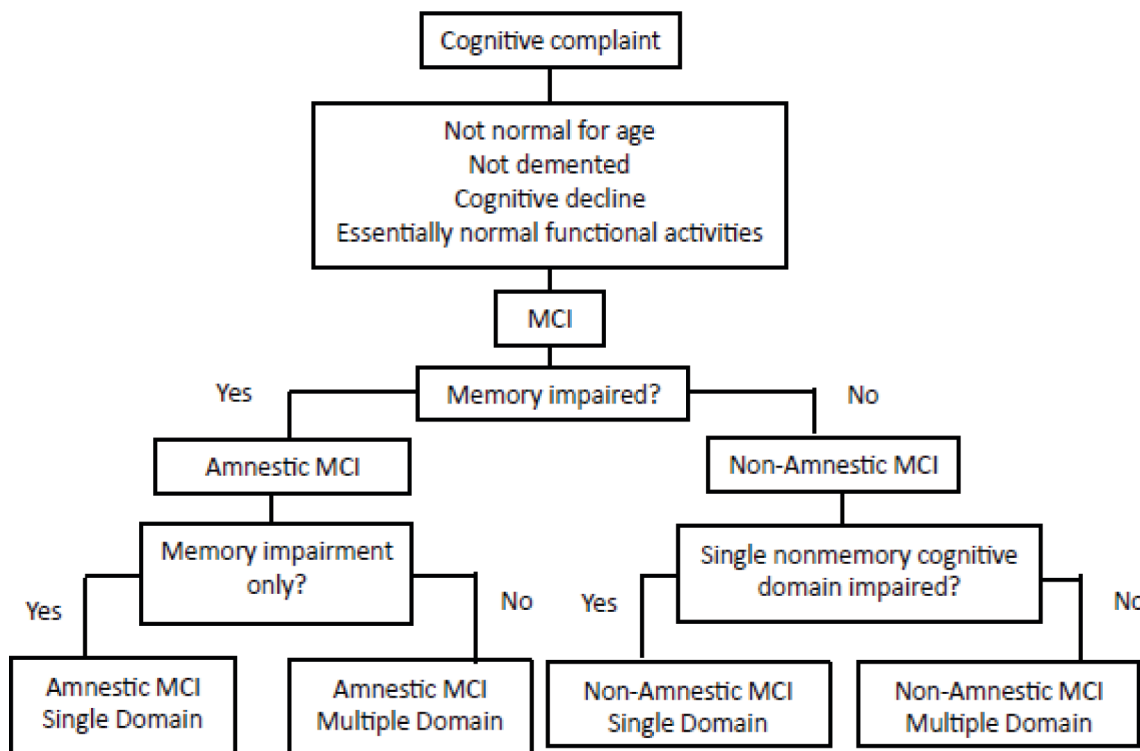


Figure 1: Flow chart of decision process for making diagnosis of subtypes of mild cognitive impairment (Petersen R. 2004[22]). Reproduced with permission.

other neurologic, neurodegenerative, systemic, or psychiatric disorders. The term amnestic MCI (aMCI) refers to a syndrome in which memory dysfunction predominates; in non-amnestic MCI, impairment of other cognitive domains (eg, language, visuospatial, executive) is more prominent.[21]

Petersen proposed the clinical subtypes of MCI to broaden the concept and include prodromal forms of a variety of dementias. It has been suggested that the diagnosis of MCI can be made similar to the clinical diagnoses of dementia and AD. This algorithm was created to assist the clinician in identifying subjects and subclassifying them into various types of MCI[22](Figure 1).

Dementia is characterized as an acquired loss of cognitive function (memory, language, executive function, attention, orientation, visuospatial/contraction), accompanied by behavioral changes that are sufficient to interfere with a person’s daily life and activities. The diagnosis of dementia encompasses the spectrum of severity, from the mildest to the most severe stages of dementia. [23] The group will use the National Institute on

Aging Alzheimer’s Association (NIA-AA) All Cause Dementia Criteria (Figure 2).

To differentiate the possible etiology of dementia, Table 1 (below) from the Practice Recommendations for the Diagnosis, Management and Prevention of Dementia of the Dementia Council of the Philippine Neurological Association [16] will be followed.

Clinical diagnosis will be made based on the criteria set by investigators. Clinical history and bedside objective assessment in the form of the Montreal Cognitive Assessment-Philippines (MoCA-P) or Mini Mental Status Examination-Philippines (MMSE-P) with a neuroimaging study (if done) and the Modified Hachinski Ischemic Score (HIS) will support the diagnosis.

The MoCA-P will be used as an objective screening tool, with cut-off score of less than 21 (level of education adjusted) to indicate the presence of cognitive impairment.[24,25] If the MMSE-P validated cut-off score is less than 24, it indicates cognitive impairment.[26] The staging will follow the adapted cut-off scores as follows: mild dementia (MMSE score 21-23); moderate dementia (MMSE

1. Interfere with the ability to function at work or at usual activities; and
2. Represent a decline from previous levels of functioning and performing; and
3. Are not explained by delirium or major psychiatric disorder;
4. Cognitive impairment is detected and diagnosed through a combination of: (1) history-taking from the patient and a knowledgeable informant and (2) an objective cognitive assessment, either a "bedside" mental status examination or neuropsychological testing. Neuropsychological testing should be performed when routine history and bedside mental status examination cannot provide a confident diagnosis.
5. The cognitive or behavioral impairment involves a minimum of two of the following domains:
 - a. Impaired ability to acquire and remember new information - symptoms include repetitive questions or conversations, misplacing personal belongings, forgetting events or appointments, getting lost on a familiar route.
 - b. Impaired reasoning and handling of complex tasks, poor judgment - symptoms include poor understanding of safety risks, inability to manage finances, poor decision-making ability, inability to plan complex or sequential activities.
 - c. Impaired visuospatial abilities - symptoms include inability to recognize faces or common objects or find objects in direct view despite good acuity, inability to operate simple implements, or orient clothing to the body.
 - d. Impaired language functions (speaking, reading, writing) - symptoms include difficulty thinking of common words while speaking, hesitations; speech, spelling and writing errors.
 - e. Changes in personality, behavior, or comportsment - include: uncharacteristic mood fluctuations such as agitation, impaired motivation, initiative, apathy, loss of drive, social withdrawal, decreased interest in previous activities, loss of empathy, compulsive or obsessive behaviors, socially unacceptable behaviors.

Figure 2: Criteria for all-cause dementia: Core clinical criteria (McKhann GM, et.al. 2011 [23])

score 11-20) and severe dementia (MMSE score 0-10).

The modified HIS is a simple clinical tool currently used to differentiate between types of dementia (primary degenerative, vascular, or multi-infarct, mixed type). A score of 2 or less is typical of Alzheimer's disease. The higher the score, the greater is the risk of vascular dementia. A total score of 4 or more was used by Rosen, et.al. as the cutoff point in validation studies.[27]

Data collection and outcomes

The study team will provide access to a password-protected online site containing a web-based electronic case report form (eCRF) for data entry. The eCRF is considered as source documents. No verification of the hospital medical records will be performed.

Completed electronic case report forms (eCRF) in English will be required for each patient included in the study, and will be used to transmit the required information collected to the sponsor. The sponsor will supply the study site with secured access to the

eCRF system and I will arrange to train appropriate study site personnel in its use. Data will be entered directly or from original records onto the eCRF. When direct data entry into the eCRF is inappropriate or impractical, information may be collected first on paper and subsequently transcribed into the eCRF by study site personnel.

Appendix 1 lists the data fields that need to be completed. The outputs and outcomes collected in this study are as follows:

- Number of patients diagnosed clinically with MCI or dementia
- Risk factors
- Severity of cognitive impairment
- Diagnostic and pharmacologic and non-pharmacologic management

The study investigator will review data entered into the eCRF for completeness and accuracy. By electronically entering data in the eCRF using their study login accounts, the investigators retain full responsibility for the accuracy and authenticity of data entered in the eCRF. Every effort will be made to ensure that data are accurate and complete.

Table 1: Different clinical features of major dementias

Disease	Initial Symptom	Cognitive Features	Behavioral and Psychological Symptoms	Neurologic Findings	Neuroimaging
AD	Memory impairment	Episodic memory loss	None initially	Initially, no focal deficits	Entorhinal cortex and hippocampal atrophy
Vascular	Variable; Frequently sudden, but can be slowly worsening. Focal weakness, falls, apathy	Frontal/dysexecutive, cognitive slowing, memory can be initially spared	Apathy, delusions, anxiety	Usually with motor slowing, spasticity Can be normal	Cortical and/or subcortical infarctions, strategic infarct, confluent white matter disease
DLB	Visual hallucinations, REM sleep disorder, delirium, Capgras' syndrome, parkinsonism, fluctuating cognition	Early executive dysfunction, eventual memory impairment; Delirium prone	Visual hallucinations, depression, sleep disorder, delusions	Parkinsonism	Posterior parietal atrophy; Hippocampi larger than in AD
PDD	Cognitive symptoms after at least a year of established PD	Early executive dysfunction, eventual memory impairment; Delirium prone	Depression, hallucination, sleep disorder	Parkinsonism	Posterior parietal atrophy; Hippocampi larger than in AD
FTD	Apathy, poor judgment/insight, speech/language dysfunction, hyperorality	Frontal/executive dysfunction, Language deficit; Drawing may be spared	Apathy, disinhibition, hyperorality, euphoria, depression	Vertical gaze palsy, axial rigidity, dystonia, alien hand, or MND may be present	Frontal, insular and/or temporal atrophy; Relative sparing of the posterior parietal lobe
CJD	Dementia, mood, anxiety, movement disorders	Variable; Frontal/executive dysfunction, focal cortical, memory impairment	Depression, anxiety	Myoclonus, rigidity, parkinsonism	Cortical ribboning and/or basal ganglia or thalamus hyperintensity on DWI/FLAIR MRI
HAND	Cognitive impairment in HIV positive patients	Executive dysfunction, attention, concentration, memory, language impairment	Depression, personality change, irritability, emotional lability	Slowed movement; incoordination;	Prominent white matter changes throughout the brain

Abbreviations: AD, Alzheimer's disease; CJD, Creutzfeldt-Jakob disease; DLB, dementia with Lewy bodies; REM, Rapid eye movement; PDD, Parkinson's disease dementia; FTD, frontotemporal dementia; HAND, HIV-associated neurocognitive disorder; MND, Motor Neuron Disease; DWI/FLAIR, Diffusion-Weighted Imaging/Fluid-Attenuated Inversion Recovery;

Modified from: Anlacan M, Ramirez MTC, Soliven JAR, Tangco, MVT. ADAP Recommendations on the Diagnosis, Prevention & Management of Alzheimer's disease. Second edition. Reproduced with Permission.

Data monitoring and quality

The investigators and PNA will be responsible for implementing and maintaining quality assurance, quality control and overall integrity in the study. Study data will be captured in a standardized format according to the study sites' standard operating procedures, as specified in the study protocol and documentation procedures.

The electronic data-capturing system or eCRF will be considered as source document for this study. The PNA and study team will have access to the anonymized data in the eCRF, which is considered the source document in this study. Neither the central study team nor the PNA will have access to individual patient's medical records or documents. The participating site study team may have access

to their usual standard practice. The eCRF used in this study will comply with applicable local data protection law. The resulting datasets will be produced by the study data manager.

Site investigators will ensure the accuracy, completeness and timeliness of data recording to allow appropriate data queries and reporting.

A study monitor, whether an employee of the sponsor or a designated representative, may follow this study closely and visit the study site at periodic intervals, in addition to maintaining the necessary telephone contact and written communications. The monitor will maintain current knowledge of the study through regular observation, review of study records and source documentation, and discussion with the investigator and study site personnel.

The study data will be available for monitoring or reviewing sponsors and regulatory authorities. Quality assurance auditors, employees of the sponsor or its designated representative, may evaluate the conduct of the study at the study site. These entities must have access to any study report and documentation. Sponsor audit reports will be kept confidential.

The study investigator and data manager will review the trial data in the eCRF for consistency of data entered in the study.

The collection design, data monitoring and quality used in this study will be similar across all the different PNA databases, including the published Stroke Database protocol.[28]

Sample size estimates

No formal sample size calculation was performed for this study because the objectives were to determine the frequency of cognitive impairment diagnosed with MCI or dementia in the study population.

Statistical analyses

Since this study is not designed to test a hypothesis, but rather to determine real world conditions, data will be summarized using descriptive statistics, that is, means, standard deviations, medians, minimums and maximums for continuous variables, and frequency distribution and percentages for discrete variable. Comparative analyses may be performed when necessary, using appropriate statistical

methods, such as chi-square for comparison of proportions and T-tests for comparison of means.

A full description of the methods of analysis and study populations will be presented in the annual statistical analysis reports with the corresponding summary tables, listings and figures.

The number of cognitively impaired patients will be compared to the total number of patients in the participating sites. The data collected will primarily provide frequency of dementia and mild cognitive impairment in the study population. This will eventually provide crucial information for policy makers to plan for health and policy needed to deal with the aging population. This will also provide data to be used for social awareness and advocacy development.

Outcomes will be compared to data from the previous years (whenever available) and rates from published studies.

Risk factors will also be analyzed as there are several known and established risk factors for dementia that are not properly addressed in the country. Logistic regression with multivariate analysis will be used to determine the association between various demographic/risk factors and MCI and dementia.

Ethics

This study will be guided by the principles of Good Clinical Practice (GCP) as described in the International Council for Harmonization (ICH) Guideline E6 (R2), the National Ethical Guidelines for Health and Health-Related Research 2017 and in accordance with local regulations.[9,10] Approval from the ethics committee (EC) or institutional review board (IRB) of the study site will be obtained prior to initiating the study. This study was approved by the Single Joint Research Ethics Board of the Department of Health, Philippines (SJREB-2021-85) and the EC/IRB of each institution, namely the Baguio General Hospital and Medical Center Research Ethics Committee, Chong Hua Hospital Institutional Review Board, East Avenue Medical Center Institutional Ethics Review Board, Jose R. Reyes Memorial Medical Center Institutional Review Board, Makati Medical Center Institutional Review Board, Quirino Memorial Medical Center Research Ethics Board, The Medical City Institutional Review Board, University of the East Ramon Magsaysay Memorial Medical Center Ethics

Review Committee, University of the Philippines Manila Research Ethics Board and the University of Santo Tomas Hospital Research Ethics Committee.

This study is observational, non-interventional and will not investigate any product's effect, efficacy or safety. Since (1) the study involves no more than minimal risk to subjects, (2) the principal risk of harm to the subject would be a breach of confidentiality, and (3) the subject's signature on the informed consent document will be the only record linking the subject to the research, the investigators shall request for a waiver of informed consent in this study from the EC or IRB, based on the same principle underlying certain provisions in the National Ethical Guidelines for Health and Health-Related Research 2017 and the Code of Federal Regulation (Federal Policy for the Protection of Human Subjects or the "Common Rule").[10,11]

If the waiver of written consent is affirmed by the EC or IRB, a standardized written information about the study will be provided to all subjects or legal representative upon inclusion into the study and the subjects' participation in the study will be documented.

If the EC or IRB requires written consent from all participants, inclusion bias in the study may lead to failure to meet the study objectives. Site participation and its potential effect on overall data will be considered and assessed by the principal investigators and PNA. If allowed to proceed, only the informed consent form approved by the EC or IRB will be used and signed by the subject prior to inclusion in the study and before any study-related data collection is performed. Each prospective subject or legal representative will be given a full explanation of the study, allowed to read the informed consent form, provided ample time to decide and opportunity to ask questions about the study. Once the investigator is assured of the subject's understanding of the study procedures and implications of his/her participation in the study, subjects may provide consent by signing and dating the informed consent form. A copy of the signed informed consent form will be provided to each participant.

Dissemination

Dementia has been a public health concern over the years; thus, it was included as a priority condition

in the Mental Health Act (RA No.11036) in 2018. The promotion of services and protection of the vulnerable population have been halted due to the pandemic.

The PNA1DB-Dementia initiative together with other PNA1DB initiatives such as the stroke database[28] will provide data that will be crucial in providing information to policy makers in the country, to further enhance implementation of the Mental Health Act.

The dissemination of results will be conducted through scientific or public conferences and scientific journal publication.

Collaborators: PNA1DB-Dementia Disease Study Management Group members and participating sites

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Competing interests: PNA1DB is a not-for-profit initiative. Committee members, investigators and collaborators may have been involved in previous studies wherein potential conflicts of interests were declared within the original publications.

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APPENDIX

1. PNA1DB-Dementia Data Fields

Birthdate	
Sex (biological)	Male Female
Age of onset of cognitive symptoms	
Age at the time of diagnosis	
Race/Ethnicity	Filipino Mixed (specify) _____
Civil status	
Occupation	Homemaker Currently employed Currently unemployed Retired Never worked
Employment status	Full time Part time Retired Unemployed
Level of income per month (in Philippine Peso) (Patient or financial provider)	<10,000 10,000-20,000 20,000-50,000 50,000-100,000 >100,000
Educational attainment (in years)	
Hospital's full name (where data is collected)	

2. Family History	
Family history of dementia (1 st degree relative)	Parents Siblings Children Unknown
Family history of dementia (type of dementia, if diagnosed)	Alzheimer’s Disease Other diagnosis (specify) _____ Not formally diagnosed
3. Health History	
Physical activity	Sedentary or inactive Light (<i>walking, light household work</i>) Moderate (<i>brisk walking, heavy household work like vacuuming and gardening, slow cycling, sports</i>) Vigorous (<i>jogging or running, brisk cycling, swimming, heavy gardening, tennis</i>)
Functional status	No decline in ADLs (independent) Decline in performing basic ADLs (eg, grooming, bathing, dressing, feeding) Decline in performing instrumental ADLs (eg, balancing finances, prepares meals, uses the telephone, travels independently)
History of smoking	Previous smoker Current smoker (within 30 days) Never smoked Unknown
If smoking, number of pack year	
History of alcohol use	Previous alcohol drinker Current alcohol drinker (within 30 days) Non-alcoholic drinker Unknown
If alcoholic drinker (current and previous)	Occasional or social drinker (1-2/month) Moderate drinker (once/week) Heavy drinker (few times/week or almost daily)
Presence of vascular risk factors	Hypertension Type 2 DM Hypercholesterolemia
If with vascular RF	good control poorly controlled unknown
Cardiovascular disease (prior events)	Heart attack Atrial fibrillation Angioplasty or endarterectomy or stent Cardiac bypass procedure Pacemaker and/or defibrillator Angina Heart valve replacement or repair Unknown
Cerebrovascular disease	Stroke Transient ischemic attack Unknown
Number of previous strokes	
Types of strokes	Ischemic Hemorrhagic Both Unknown
Number of previous TIAs	

Neurologic conditions	Parkinson's disease Other Parkinsonism disorder Seizures Traumatic brain injury Unknown
Other medical conditions	B12 deficiency Thyroid disease Elevated plasma homocysteine Sleep apnea REM sleep behavior disorder Other sleep behavior disorder Unknown
Chemical exposure (occupational)	
If yes, specify	
Substance abuse	
Psychiatric conditions (diagnosed or treated by a physician)	Posttraumatic stress disorder Bipolar disorder Schizophrenia Depression Anxiety Obsessive compulsive disorder Developmental neuropsychiatric disorder (ASD/ADHD/dyslexia) Other psychiatric disorders Unknown
If with depression	Active in the last two years More than 2 years ago Unknown
4. Physical and Neurological Exam	
Hearing impairment	
Visual impairment	
Body mass index	
Pertinent neurologic findings (excluding cognitive function)	
5. Modified Hachinski Ischemic Scale	
Abrupt onset of dementia (2) History of stroke (2) Focal neurological signs (2) Focal neurological symptoms (2) Stepwise deterioration (1) Somatic complaints (1) Emotional incontinence (1) Hypertension (past or present) (1)	Likely AD (total score <2) Likely mixed dementia (total score 3-4) Likely vascular dementia (total score >4)
6. Neuroimaging	
Neuroimaging done	
If done, summary of report	
7. Other Diagnostics	
Blood tests	
EEG	
Other diagnostics (CSF analysis, blood biomarkers, PET scan, etc.)	
8. Diagnosis	
Mild cognitive Impairment	Mild cognitive impairment (NOS) MCI – amnesic, single domain MCI – multiple domain with amnesia MCI – single domain non-amnesic MCI – multiple domain non-amnesic Impaired, but not MCI

Dementia	Alzheimer's disease dementia Dementia with Lewy bodies Vascular cognitive impairment or dementia Parkinson's disease dementia Impairment due to alcohol abuse Dementia of undetermined etiology Behavioral variant frontotemporal dementia Primary progressive aphasia Clinical progressive supranuclear palsy Clinical corticobasal degeneration Huntington's disease Clinical prion disease Cognitive dysfunction from medications Cognitive dysfunction from medical illness Depression Other major psychiatric illness Hydrocephalus Traumatic brain injury CNS neoplasm Mixed Unknown
If mixed dementia, specify	
9. Cognitive Scores	
MoCA-P	
MMSE-P	
10. Stage of Dementia	
Stage by MMSE score	Mild (21-23) Moderate (11-20) Severe (0-10)
11. Management	
Pharmacologic	Donepezil Memantine Ginkgo biloba Others (specify) _____
Non-Pharmacologic	Cognitive stimulation therapy Behavioral therapy Reminiscence therapy others (specify) _____