

Supplementary Material

Population-Based Mini-Mental State Examination Norms in Adults of Mexican Heritage in the Cameron County Hispanic Cohort

Supplementary Table 1. Variable Definitions

Variable	Definition
MMSE score	<p>The Mini-Mental State Examination (MMSE) is a test that clinicians and researchers use to assess cognitive impairment in participants. The test is made up of 30 questions, usually takes 10 minutes to conduct, and has been universally administered for decades in multiple languages. The test measures orientation, registration, attention and calculation, recall, repetition, and commands. Scores 24-30 are considered normal. According to Crum et al. (1993), a participant is considered cognitively impaired if their score is at or below 23.</p> <p>For our cohort, participants were administered the MMSE in either Spanish or English, depending upon the participant’s preferred language. For the attention component of the MMSE, participants were asked to perform the serial 7 subtraction test, as well as a backwards spelling test using the word “world” or “mundo.” Of the two, the test with the greatest score was used in the final calculation for the final MMSE score.</p> <p>Crum RM, Anthony JC, Bassett SS, Folstein MF. Population-Based Norms for the Mini-Mental State Examination by Age and Educational Level. <i>JAMA</i>. 1993;269(18):2386–2391. doi:10.1001/jama.1993.03500180078038</p>
Annual household income	<p>Annual household income per capita was calculated by totaling the income of all persons in the household, divided by the number of persons in the household.</p> <p>Unadjusted annual household income is the amount of income in a household within one year.</p> <p>The annual household income of each participant (after adjusting for the participant’s household size) was compared to the federal poverty level (FPL) (ASPE) for the year of that participant’s baseline visit (e.g., the 2007 FPL values were used for participants whose baseline visit was in 2007).</p> <p>Office of the Assistant Secretary for Planning and Evaluation (ASPE). Prior HHS Poverty Guidelines and Federal Register References. Office of the Assistant Secretary for Planning and Evaluation website. https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines/prior-hhs-poverty-guidelines-federal-register-references. Accessed August 22, 2022.</p>

Occupational skill level (ISCO-08 Classification)	<p>Participants were asked “what have you done for the majority of your working life?” We then used the International Standard Classification of Occupations (ISCO) by the International Labour Organization to classify occupation based on skill level. Skill level is a broad measure that refers to an occupations’ intricacy, involvement, and number of tasks.</p> <p>Skill levels 3 and 4 are considered “high” (managers, professionals, and technicians and associate professionals).</p> <p>Level 2 is synonymous with “medium” (clerical support workers, service and sales workers, skilled agricultural forestry and fishery workers, craft and related trade works, and plant and machine operators and assemblers).</p> <p>Level 1 is suggestive of “low” (elementary occupations) according to the ISCO scale.</p> <p>For this manuscript, we also included another level for persons without “no current occupation” or “student”. Participants who identified as military (n=8) were included in the “NA” group.</p> <p>International Labor Organization. International Standard Classification of Occupations: Structure, group definitions and correspondence tables. Geneva, Switzerland. International Labor Organization; 2012. Available at https://www.ilo.org/ilostat-files/ISCO/newdocs-08-2021/ISCO-08/ISCO-08%20EN%20Vol%201.pdf</p>
Language used at home	<p>Participants were asked what language they spoke at home. We further consolidated the answers into three separate groups:</p> <ul style="list-style-type: none"> - “Only Spanish” or “mostly Spanish” - “Only English” or “mostly English” - “Both English and Spanish equally”
Marital status	<p>Participants were asked their marital status. We further collapsed all the answers into three separate groups:</p> <ul style="list-style-type: none"> - Single or never married - Married - Divorced, separated, or widowed
Type II diabetes mellitus	<p>Participants are considered diabetic if the participant reports that a healthcare provider has diagnosed them with diabetes, or if they answered yes to the questions “Are you taking diabetes medication?”. We further separated this group into controlled and uncontrolled based on American Diabetes Association (ADA) guidelines. The controlled group has a Hemoglobin A1C (HbA_{1c}) level of less than 6.5% and a fasting blood glucose level of less than 126 mg/dL. The uncontrolled group has a HbA_{1c} level greater than or equal to 6.5% or a fasting blood glucose level greater than or equal to 126 mg/dL.</p> <p>If the participant had never been told that they have diabetes by a healthcare provider and the participant is not taking diabetes medications, but the HbA_{1c} level is greater than or equal to 6.5%, or the fasting blood glucose level is greater than or equal to 126 mg/dL, then the participant is classified as having undiagnosed diabetes. Finally, if the participant had never been told that they have diabetes by a healthcare provider, the participant is not taking diabetes medications, and the participant has a HbA_{1c} level less than 6.5% and a fasting blood glucose level of less than 126 mg/dL, then the participant is classified as non-diabetic.</p> <p>The composite variable is coded “NA” if that participant lacks data for all component variables.</p> <p>American Diabetes Association; <i>Standards of Medical Care in Diabetes—2022</i> Abridged for Primary Care Providers. <i>Clin Diabetes</i> 1 January 2022; 40 (1): 10–38. https://doi.org/10.2337/cd22-as01</p>

Hypertension	<p>Participants are considered hypertensive if the participant reports that a healthcare provider diagnosed them with hypertension, or if they are taking anti-hypertensive medications. We further separated this group into controlled and uncontrolled. Based on current American Heart Association (AHA) guidelines, the controlled group has a systolic blood pressure of less than 130 mmHg, and a diastolic blood pressure of less than 80 mmHg. The uncontrolled group has a systolic blood pressure greater than or equal to 130 mmHg, and a diastolic blood pressure greater than or equal to 80 mmHg.</p> <p>If the participant was never told that they have hypertension by a healthcare provider, and the participant is not taking anti-hypertensive medications, but the systolic blood pressure is greater than or equal to 130 mmHg and a diastolic blood pressure is greater than or equal to 80 mmHg, then the participant is classified as having undiagnosed hypertension.</p> <p>If the participant was never told that they have hypertension by a healthcare provider, the participant is not taking anti-hypertensive medications, and the participant has a systolic blood pressure of less than 130 mmHg and a diastolic blood pressure of less than 80 mmHg, then the participant is classified as being normotensive.</p> <p>Arnett DK, Blumenthal RS, Albert MA, Buroker AB, Goldberger ZD, Hahn EJ, Himmelfarb CD, Khera A, Lloyd-Jones D, McEvoy JW, Michos ED, Miedema MD, Muñoz D, Smith SC Jr, Virani SS, Williams KA Sr, Yeboah J, Ziaeian B. 2019 ACC/AHA guideline on the primary prevention of cardiovascular disease: a report of the American College of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. <i>Circulation</i>. 2019;140:e596–e646. DOI: 10.1161/CIR.0000000000000678</p>
Dyslipidemia	<p>Participants are determined to have dyslipidemia if they meet any of the following criteria:</p> <ul style="list-style-type: none"> ● Total cholesterol level is greater than or equal to 200 mg/dL. ● Low-density lipoprotein level is greater than or equal to 130 mg/dL. ● High-density lipoprotein level is less than 40 mg/dL and the participant is male. ● High-density lipoprotein level is less than 50 mg/dL and the participant is female. ● Triglyceride level is greater than or equal to 150 mg/dL. ● If the participant states that they have a history of hypercholesterolemia.
Cerebrovascular disease	<p>The participant is considered positive for cerebrovascular disease if they endorse a history of physician-diagnosed stroke, transient ischemic attack (TIA), or a history of carotid endarterectomy surgery.</p> <p>If none of the component variables is “TRUE” and at least one of the variables is “FALSE”, then the composite is coded “FALSE”.</p> <p>The composite variable is coded “NA” only if all component variables are missing (i.e., coded “NA”).</p>
Coronary artery disease	<p>Participants are considered positive for a history of ischemic heart disease if they endorse a history of myocardial infarction, coronary bypass surgery, or coronary stent surgery, or if they have had physician diagnosed angina.</p> <p>If none of the component variables is “TRUE” and at least one of the variables is “FALSE”, then the composite is coded “FALSE”.</p> <p>The composite variable is coded “NA” only if all component variables are missing (i.e., coded “NA”).</p>

Obesity	<p>The waist to height ratio (WHtR) is calculated by dividing the waist measurement by the height measurement. If the ratio is greater than 0.5, then the participant is considered obese. If the ratio is less than or equal to 0.5, then the participant is not considered obese.</p> <p>Body mass index (BMI) is calculated by using the formula: weight (pounds) / [height (inches)]² x 703. A BMI of 30 and over is considered obese.</p> <p>Centers for Disease Control and Prevention. Calculating BMI Using the English System. Centers for Disease Control and Prevention website. https://www.cdc.gov/nccdphp/dnpao/growthcharts/training/bmiage/page5_2.html. Accessed August 22, 2022.</p>
Kidney disease	<p>Participants were considered to have a history of/ or have kidney disease if they answered yes to any of the following:</p> <ul style="list-style-type: none"> - History of hospitalization for kidney disease - History of dialysis <p>Or if their laboratory results were either of the following:</p> <ul style="list-style-type: none"> - Estimated Glomerular Filtration Rate (eGFR) < 60 mL/min/1.73 m² - Albumin-to-creatinine ratio (ACR) > 30 mg/g <p>If none of the component variables is “TRUE” and at least one of the variables is “FALSE”, then the composite is coded “FALSE”.</p> <p>The composite variable is coded “NA” only if all component variables are missing (i.e., coded “NA”).</p>
Depression symptoms	<p>Depressive symptoms were measured by the Center for Epidemiologic Studies Depression (CES-D) scale. The CES-D is a 20 question screening test for depression that is self-administered by participants. For each question, participants choose from four possible answers: “rarely or none of the time,” “some or a little of the time,” “occasionally or a moderate amount of the time,” and “most or all of the time.” As recommended by Vilagut et al. (2016), we considered CES-D scores ≥20 to be a positive screen for depression.</p> <p>Vilagut G, Forero CG, Barbaglia G, Alonso J. Screening for Depression in the General Population with the Center for Epidemiologic Studies Depression (CES-D): A Systematic Review with Meta-Analysis. <i>PLoS One</i>. 2016;11(5): e0155431. doi:10.1371/journal.pone.0155431</p>
Generalized anxiety symptoms	<p>Participants were asked to fill out the Zung’s Self-Rating Anxiety Scale (SAS), a screening tool for measurement of generalized anxiety symptoms. There are 4 possible choices for each of the 20 questions: “a little of the time,” “some of the time,” “good part of the time,” and “most of the time.” A SAS score ≥36 is defined as a positive screen for an anxiety disorder (Dunstan, 2020). Participants were not included in this category if they have an SAS less than 36.</p> <p>Dunstan DA, Scott N. Norms for Zung’s self-rating anxiety scale. <i>BMC Psychiatry</i>. 2020; 20(1): https://doi.org/10.1186/s12888-019-2427-6</p>
Cigarette use (pack years)	<p>To create the variable “Pack Years”, we multiplied the number of years that the participant smoked with the participant-reported average number of cigarettes per day. We then divided by 20, which is the average number of cigarettes per pack in the US.</p>

Alcohol use (number of alcoholic drinks per day)	CCHC participants were asked the number of standard alcoholic drinks (12 oz. beer, 8 oz. wine cooler, 4 oz. wine, or 1 oz. liquor) consumed each week. The total was divided by 7 to obtain an estimated daily number of alcoholic drinks consumed.
Self-perceived general health	Participants were asked to rate their overall health. These were the categories they were given: 1=Excellent 2=Very good 3=Good 4=Fair 5=Poor
Influenza vaccination	Self-reported answer on if the participant received the influenza vaccine at the baseline visit.
MET-adjusted minutes of moderate or strenuous exercise in a typical week	<p>Metabolic equivalents of task (MET) is a measurement of physical activity that takes into account the activity intensity, and duration (Wu, 2016). The higher the MET level, the more energy is expelled during activity. A participant may perform from light (< 3 METs), to moderate (3-6 METs), to vigorous (\geq 6 METs) exercise. The MET is then multiplied by the amount of time spent performing that activity. For example, walking at 3 miles per hour (an activity that is associated with 3 METs) for 30 minutes yields 90 MET-minutes. The US Department of Health and Human Services and the American Heart Association (AHA) 2007 guidelines recommends at least 450 MET-minutes of moderate to strenuous activity per week (Haskell, 2007; HHS, 2018). Participants in the CCHC completed the International Physical Activity Questionnaire short-form (IPAQ) or the Godin Leisure-Time Exercise Questionnaire to measure the number of MET-minutes they typically exert per week.</p> <p>For this variable, we presented both the MET-minutes of moderate or strenuous activity in a typical week and the percentage of participants that meet the AHA's 2007 guidelines (Haskell, 2007).</p> <p>Haskell WL, Lee IM, Pate RR, et al. Physical activity and public health: updated recommendation for adults from the American College of Sports Medicine and the American Heart Association. <i>Med Sci Sports Exerc.</i> 2007;39(8):1423-1434. doi:10.1249/mss.0b013e3180616b27 U.S. Department of Health and Human Services (HHS). <i>Physical Activity Guidelines for Americans, 2nd edition.</i> Washington, DC: U.S. Department of Health and Human Services; 2018. Accessed at https://health.gov/sites/default/files/2019-09/Physical_Activity_Guidelines_2nd_edition.pdf.</p>
Family history of cerebrovascular disease (stroke, TIA, or carotid endarterectomy)	<p>If the participant endorses that a biological parent or a biological sibling had a stroke, TIA, or carotid artery surgery, the participant is considered to have a family history of the disease and procedure.</p> <p>If none of the component variables is "TRUE" and at least one of the variables is "FALSE", then the composite is coded "FALSE".</p> <p>The composite variable is coded "NA" only if all component variables are missing (i.e., coded "NA").</p>

Family history of cardiovascular disease or surgery	<p>If the participant endorses that a biological parent or a biological sibling had a myocardial infarction or coronary artery bypass surgery, the participant is considered to have a family history of the disease and procedure.</p> <p>If none of the component variables is “TRUE” and at least one of the variables is “FALSE”, then the composite is coded “FALSE”.</p> <p>The composite variable is coded “NA” only if all component variables are missing (i.e., coded “NA”).</p>
Family history of diabetes	<p>If the participant endorses that a biological parent or a biological sibling has taken an antidiabetic medication or was diagnosed by a physician with diabetes or “high blood sugar,” the participant is considered to have a family history of the disease.</p> <p>If none of the component variables is “TRUE” and at least one of the variables is “FALSE”, then the composite is coded “FALSE”.</p> <p>The composite variable is coded “NA” only if all component variables are missing (i.e., coded “NA”).</p>
Family history of hypertension	<p>If the participant endorses that a biological parent or a biological sibling has taken an antihypertensive medication or was diagnosed by a physician with hypertension or “high blood pressure,” the participant is considered to have a family history of the disease.</p> <p>If none of the component variables is “TRUE” and at least one of the variables is “FALSE”, then the composite is coded “FALSE”.</p> <p>The composite variable is coded “NA” only if all component variables are missing (i.e., coded “NA”).</p>

Labs	<p>C-Reactive Protein (CRP): A protein that increases with inflammation in the body. Participants with increased CRP have an increased risk of cardiovascular disease.</p> <p>Interleukin-1 (IL-1): A cytokine that helps to regulate immune and inflammatory responses with acute local injuries, as well as in the central nervous system.</p> <p>Interleukin-8 (IL-8): A chemokine that recruits neutrophils and is associated with inflammation.</p> <p>Interleukin-6 (IL-6): A cytokine that promotes inflammation, and helps to create fever. It has been found around the amyloid plaques of Alzheimer’s disease participants.</p> <p>Tumor necrosis factor (TNFα): A adipokine and a cytokine that is associated with insulin resistance and type 2 diabetes mellitus.</p> <p>Soluble receptor for advanced glycation end-products (sRAGE): A protein that is involved with chronic inflammatory processes.</p> <p>Adiponectin: A hormone that is released from adipose tissue to help decrease inflammation, as well as increase insulin sensitivity.</p> <p>Leptin: A hormone that is released from adipose tissue to decrease hunger.</p> <p>Resistin: A hormone that is secreted by adipose tissue, and is associated with an increased risk of cardiovascular disease and insulin resistance.</p> <p>Alpha-lipoprotein (ALP): A protein and lipid that is a risk factor for cardiovascular disease.</p> <p>Homeostasis Model Assessment for β-Cell Function (HOMA β): A clinical tool used to estimate insulin resistance and β cell function in the pancreas.</p> <p>Homeostatic Model Assessment for Insulin Resistance (HOMA IR): A clinical tool used to indicate insulin resistance levels. The model uses fasting blood sugar and insulin levels to calculate insulin resistance.</p> <p>All the following were performed at a Clinical Laboratory Improvement Amendment (CLIA) certified lab.</p>
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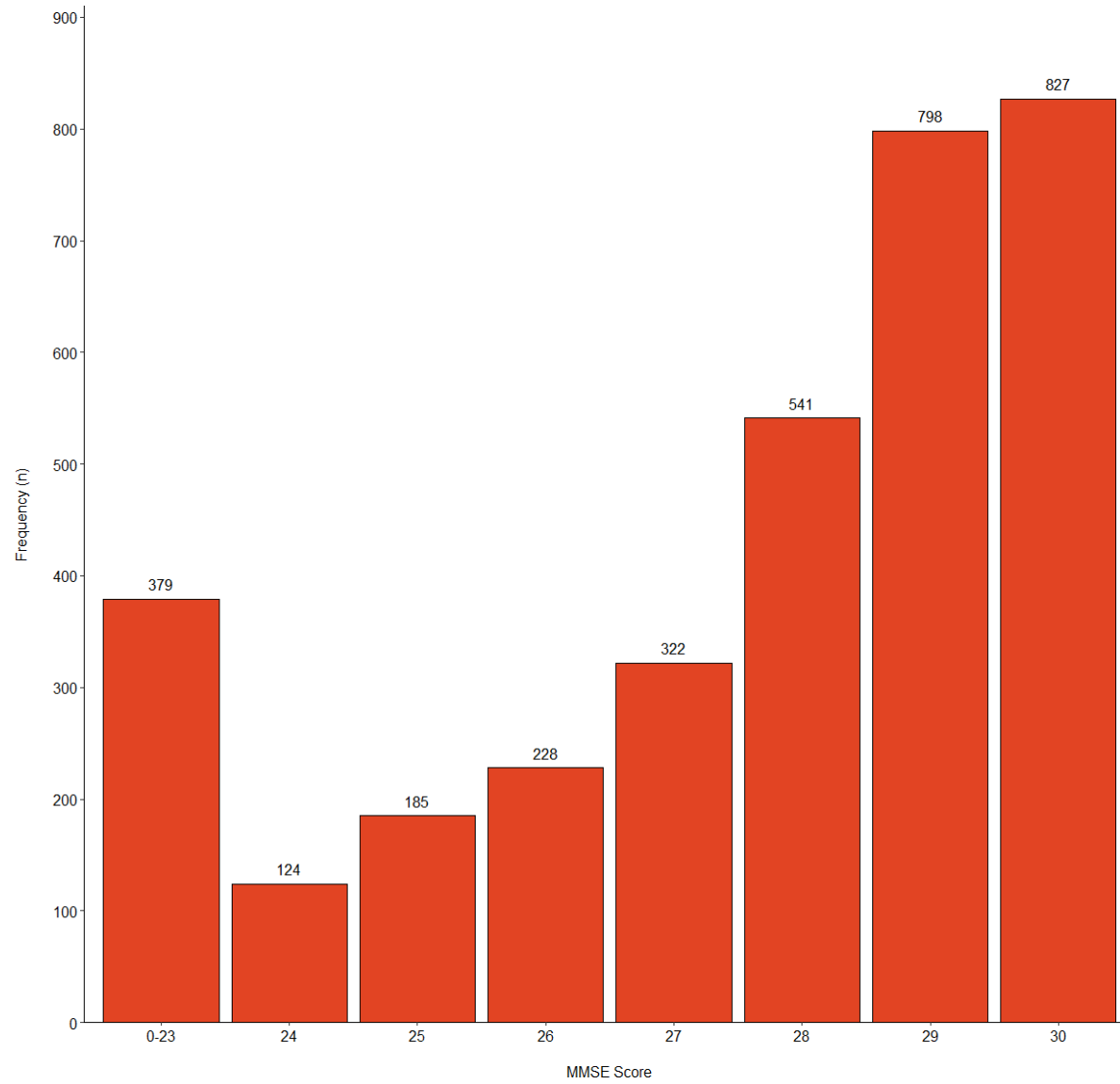
Supplementary Table 2. Age and MMSE Eligibility Criteria of Phase III Clinical Trials for Patients with Prodromal or Mild Alzheimer Disease (AD).

Disease Modifying Therapy	Trial Registry NCT#	Year	Study Population (MCI, mild AD, etc.)	Eligible MMSE Scores		Eligible Ages	
				Min	Max	Min	Max
Aducanumab	NCT02477800	2015	MCI due to AD or mild AD	24	30	50	85
Aducanumab	NCT02484547	2015	MCI due to AD or mild AD	24	30	50	85
Lecanemab	NCT03887455	2019	MCI due to AD or mild AD	22	30	50	90
Crenezumab	NCT02670083	2016	MCI due to AD or mild AD	22	30	50	85
Crenezumab	NCT03114657	2017	MCI due to AD or mild AD	22	30	50	85
Elenbecestat	NCT02956486	2016	MCI due to AD or mild AD	24	30	50	85
Elenbecestat	NCT03036280	2017	MCI due to AD or mild AD	24	30	50	85
Gantenerumab	NCT01224106	2010	MCI due to AD	24	30	50	85
Gantenerumab	NCT02051608	2013	Mild AD	NA	NA	50	90
Gantenerumab	NCT03443973	2017	MCI due to AD or mild AD	22	30	50	90
Gantenerumab	NCT03444870	2017	MCI due to AD or mild AD	22	30	50	90
Lanabecestat	NCT02245737	2014	MCI due to AD or mild AD	20	30	55	85
Lanabecestat	NCT02783573	2015	Mild AD	20	26	55	85
LMTM	NCT01689233	2012	Mild AD	20	26	NA	89
Solanezumab	NCT01900665	2013	Mild AD	20	26	55	90
Solanezumab	NCT02760602	2016	MCI due to AD	NA	NA	55	85
Tarenflurbil (r-flurbiprofen)	NCT00105547	2005	Mild AD	20	26	55	NA
Tarenflurbil (r-flurbiprofen)	NCT00322036	2006	Mild AD	20	26	55	NA
Verubecestat	NCT01953601	2012	MCI due to AD	24	30	50	85

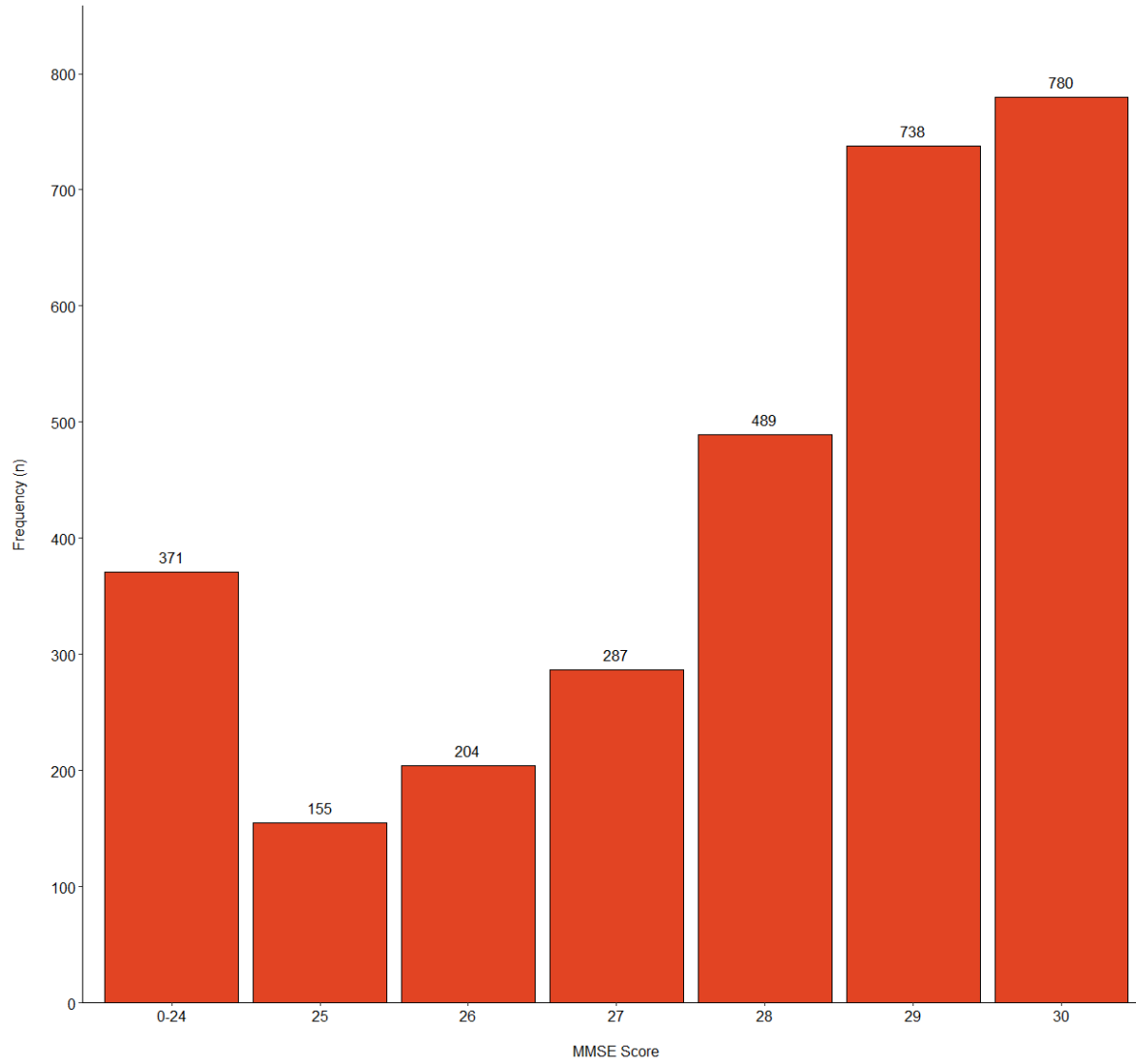
Table adapted from a systematic review of phase II and III drug trials for prodromal, mild, or moderate Alzheimer’s disease (Franzen et al., 2022). Trials were included in this table if they were in phase III, did not enroll patients with moderate AD, and did not exclusively enroll patients with dominantly inherited Alzheimer’s disease. Franzen S, Smith JE, van den Berg E, Rivera Mindt M, van Bruchem-Visser RL, Abner EL, Schneider LS, Prins ND, Babulal GM, Papma JM. Diversity in Alzheimer's disease drug trials: The importance of eligibility criteria. *Alzheimers Dement.* 2022 Apr;18(4):810-823. doi: 10.1002/alz.12433.

Supplementary Figure 1. Frequency Distributions of MMSE Levels After Aggregation of Lowest Decile for Random Forest Pre-Processing

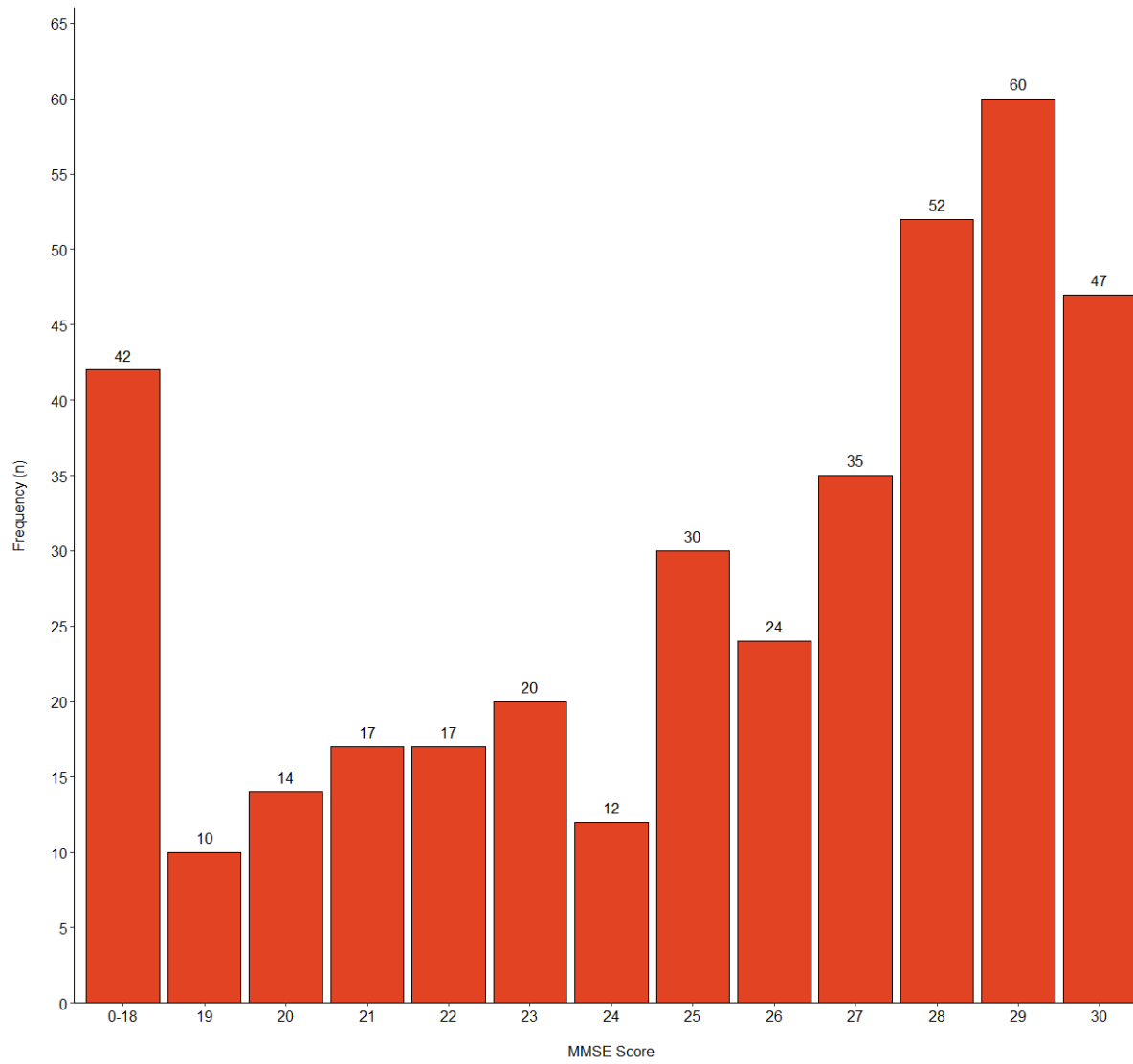
A) All adults



**B) Adults 18-64
years old**



C) Adults ≥ 65
years old



Supplementary Table 3. Full list of Feature Importance Results from Random Forest Analyses

Variable	18-64	65+	All adults
Education Level	0.805	0.590	0.772
Age at visit	0.194	0.210	0.377
MET-adjusted minutes	0.271	-0.279	0.279
C-reactive protein	0.305	NA	0.263
Positive anxiety screening	0.045	0.122	0.081
Waist to Height Ratio	0.101	-0.026	0.062
Positive depression screening	0.066	0.212	0.062
Hypertension	0.024	-0.019	0.054
Alcohol use	0.082	0.002	0.050
Annual household income per capita	0.029	0.269	0.048
Occupational skill level	0.054	0.045	0.043
Type II diabetes mellitus	0.039	0.038	0.041
Kidney disease	0.024	-0.239	0.035
Family history of stroke, TIA, or carotid endarterectomy (Cerebrovascular disease)	0.036	-0.066	0.034
Family history of hypertension	0.022	0.049	0.031
Gender	-0.017	0.033	0.016
Family history of diabetes	0.013	-0.085	0.010
Dyslipidemia	0.003	-0.010	-0.004
Stroke or TIA or carotid endarterectomy (Cerebrovascular disease)	-0.018	-0.075	-0.015
Coronary artery disease (Cardiovascular disease)	-0.019	-0.069	-0.022
Family history of cardiovascular disease or surgery	-0.015	-0.112	-0.026
Homeostatic Model Assessment for Insulin Resistance (HOMA IR)	-0.096	0.131	-0.103
Homeostasis model assessment- beta (HOMA β)	-0.116	-0.146	-0.107
Self-perceived general health	-0.200	-0.435	-0.145
Language used at home	-0.228	-0.264	-0.202

All the variables included in the random forest models, including those with the negative features of importance, are incorporated into this table. All three age-based models used the same covariates *EXCEPT* for CRP (which was not included in the 65+ model).

Supplementary Form 1. Mini-Mental State Examination (MMSE) Form Used in the Cameron County Hispanic Cohort (CCHC)

**The Mini-Mental State Exam (MMSE)
La Mini-Prueba de Condiciones Mentales**

(Translated and Adapted from Standard Version: Folstein, Folstein, & McHugh, 1975)

Participant/Participante: _____
Date/Fecha: _____ Time/Hora (24hrs): _____
Birthdate (mm/dd/yyyy)/Fecha de Nacimiento (mm/dd/aaaa): ____/____/____
Sex/Sexo (M/F): _____ Education (years)/Educación (años): _____
Race (check all that apply)/Raza (indique todas las que apliquen):
Caucasian/Caucásico(a), Black/Negro(a), Hispanic/Hispano(a),
Asian/Asiático(a), Other/Otro: _____
Examiner/Examinador(a): _____

(Correct/Incorrect)
(Correcto/Incorrecto)

Orientation Questions / Preguntas de Orientación:

Ask the participant the following questions [Hágale las siguientes preguntas al participante]:

- / **1** What is today's date? [¿Cuál es la fecha de hoy?]
/ **2** What is the month? [¿Cuál es el mes?]
/ **3** What is the year? [¿Cuál es el año?]
/ **4** What day of the week is today? [¿Qué día de la semana es?]
/ **5** What season is it? [¿Cuál es la estación del año?]

Comments: _____ **DATE/FECHA:** ____/5

- / **6** What is the name of this place (clinic)?
[¿Cuál es el nombre de este lugar (clínica)?]
/ **7** What floor are we on? [¿En qué piso estamos?]
/ **8** What city are we in? [¿En qué ciudad estamos?]
/ **9** What county are we in? [¿En qué condado estamos?]
/ **10** What state are we in? [¿En qué estado estamos?]

Comments: _____ **PLACE/LUGAR:** ____/5

Immediate Recall / Memoria Inmediata:

Ask the participant if you may test his/her memory. Tell the participant you want him/her to remember 3 words; then say "ball", "flag", "tree" clearly and slowly, about 1 second for each. After you have said all 3 words, ask him/her to repeat them. The first repetition determines the score (0-3), but keep saying them until he/she can repeat all 3, giving him/her up to 6 tries. (If he/she does not eventually learn all 3, recall cannot be meaningfully tested.)

[Pregúntele al participante si le puede examinar su memoria. Dígale al participante que quiere que el/ella recuerde 3 palabras; luego diga clara y lentamente "pelota", "bandera", "árbol", dándole aproximadamente 1 segundo por cada palabra. Después de que haya dicho las 3 palabras, pídale a el/ella que las repita. La primera repetición determina la puntuación (0-3), pero siga diciéndolas hasta que el/ella pueda repetir las tres

palabras, dándole hasta 6 intentos. (Si el/ella finalmente no se aprende las tres palabras, su memoria no puede ser examinada de una manera significativa.)]

- / **11** BALL [PELOTA]
/ **12** FLAG [BANDERA]
/ **13** TREE [ÁRBOL]

Note # of trials/Anote # de intentos: _____

Immediate Recall/Memoria Inmediata: _____/3

Comments: _____

(Correct/Incorrect)
(Correcto/Incorrecto)

Attention: (A) Serial 7's / Atención: (A) Series de 7:

Ask the participant to begin with 100 and count backwards by 7. Stop after 5 subtractions. Score the correct subtractions.

[Pídale al participante que empiece con 100 y que cuente hacia atrás restándole 7 a cada número. Pare después de 5 restas. Anote la puntuación de las restas correctas.]

- / **14** "93"
/ **15** "86"
/ **16** "79"
/ **17** "72"
/ **18** "65"

(A) Serial 7's Total /

(A) Series de 7 Total: _____/5

Comments: _____

Attention: (B) "World" / Atención: (B) "Mundo":

Ask the participant to spell the word "WORLD" backwards. The score is the number of letters in correct position. For example, "DLROW" is 5, "DLORW" is 3, "LROWD" is 0.

[Pídale al participante que deletree la palabra "MUNDO" al revés. La puntuación se da por cada letra que esté en la posición correcta. Por ejemplo, "ODNUM" es un 5, "ODUNM" es un 3, "DNUMO" es un 0.]

- / **19** "D" ["O"]
/ **20** "L" ["D"]
/ **21** "R" ["N"]
/ **22** "O" ["U"]
/ **23** "W" ["M"]

(B) "World" Total /

(B) "Mundo" Total: _____/5

Attention: Greater score of (A) or (B) /

Atención: La puntuación más alta de (A) o (B): _____/5

Comments: _____

Delayed Verbal Recall / Memoria Verbal Retrasada:

Ask the participant to recall the 3 words you previously asked him/her to remember. (The order of recall is not relevant for scoring.)

[Pídale al participante que recuerde las 3 palabras que le pidió que repitiera anteriormente. (El orden en el que se acuerde no es importante para la puntuación.)]

- / **24** BALL [PELOTA]
/ **25** FLAG [BANDERA]
/ **26** TREE [ÁRBOL]

Delayed Verbal Recall/Memoria Verbal Retrasada: _____/3

Comments: _____

Naming / Nombrar:

Show the participant a wrist watch and ask him/her what it is. Repeat for pencil.

[Enséñele al participante un reloj de pulsera y pregúntele a el/ella qué es. Haga lo mismo para el lápiz.]

/ **27** WATCH [RELOJ]

/ **28** PENCIL [LÁPIZ]

Naming/Nombrar: ____/2

Comments: _____

Repetition / Repetición:

Ask the participant to repeat: "No ifs, ands, or buts." (Accept: "no if and or but")

[Pídale al participante que repita: "No hay peros que valgan" (Se acepta: "no hay pero que valga")]

/ **29** REPETITION [REPETICIÓN]

Repetition/Repetición: ____/1

Comments: _____

(Correct/Incorrect)

(Correcto/Incorrecto)

3-Stage Command / Orden de 3 Etapas:

Give the participant a plain piece of paper and say, "Take the paper in your hand, fold it in half, and put it on the floor."

[Déle al participante una hoja de papel y dígale, "Tome el papel en su mano, dóblelo a la mitad, y póngalo en el piso."]

/ **30** TAKES [TOMAR]

/ **31** FOLDS [DOBLAR]

/ **32** PUTS [PONER]

3-Stage Command/Orden de 3 Etapas: ____/3

Comments: _____

Reading / Lectura:

Hold up the card reading: "Close your eyes," so that the participant can see it clearly. Ask him/her to read it and do what it says. Score correctly if the participant actually closes his/her eyes.

[Levante la tarjeta que diga: "Cierre los ojos", de tal manera que el participante la pueda ver claramente.

Pídale a el/ella que la lea y que haga lo que dice. Déle la puntuación si el participante realmente cierra sus ojos.]

/ **33** CLOSES EYES [CIERRA LOS OJOS] Reading/Lectura: ____/1

Comments: _____

Writing / Redacción:

Give the participant a piece of paper and ask him/her to write a sentence. It is to be written spontaneously. It must contain a subject and a verb to be sensible. Correct grammar and punctuation are not necessary.

[Déle al participante una hoja de papel y pídale a el/ella que redacte una oración. Debe de ser redactada de manera espontánea. Debe de contener un sujeto y un verbo para poder tener sentido. No es necesario que tenga la gramática y puntuación correcta.]

34 SENTENCE [ORACIÓN]

Writing/Redacción: ____/1

Comments: _____

Language (Sum of #'s 27 – 34)/Lenguaje (Sumar de los #'s 27 – 34): ____/8

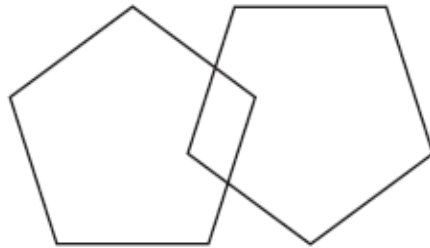
Pentagons / Pentágonos:

Give the participant a piece of paper and ask him/her to copy (without tracing) the picture of the intersecting pentagons shown below.

[Déle al participante una hoja de papel y pídale a el/ella que copie (sin calcar) el dibujo de los pentágonos cruzados que se muestra más abajo.]

35 PENTAGONS [PENTÁGONOS]

Pentagons/ Pentágonos: ____/1



MMSE (total): ____/30

Comments _____

ASSESS level of consciousness along a continuum (Alert / Drowsy / Stupor / Coma): _____

EVALÚE el nivel de conocimiento a lo largo de una serie continua (Alerta / Soñoliento(a) / Aturdido(a) / Coma)

Examiner/Examinador(a): Language(s) used for this test / Idioma(s) usada(s) para esta prueba:

- 1= English / Inglés 2= Spanish / Español 3= Both / Ambos
