

## **METHODS OF THE ISA**

The original ISA sample, recruited in 2003/2004, comprised persons who were 65 years or older living in households within communities spread across the Yoruba-speaking South-Western and North-Central regions of Nigeria. The cohort was beefed up in 2007, this time with persons aged 60 years or older.

The setting of the ISA spans eight contiguous states in Nigeria: Ekiti, Kogi, Kwara, Lagos, Ondo, Ogun, Osun and Oyo States, with a population of over 25 million (or approximately 22% of the Nigerian population at the time of study). Within the context of Nigeria, these regions were relatively better resourced for mental health services with about 3 psychiatrists to a population of one million at the time of the study. Notably, most of these specialists were located in about 6 urban centres. Ibadan Study of Ageing respondents were community-dwelling, non-institutionalized, fluent in the language of the study (Yoruba), able to undergo a face-to-face interview and all provided informed consent

### ***Sampling and National representativeness***

Selection of respondents was done using a multistage cluster sampling of Local Government Areas (LGAs), followed by enumeration areas (geographical units demarcated by the National Population Commission) within the LGAs, and households in the enumeration areas. Stratification was implemented on the basis of state and size of LGAs.

Households included in the ISA were randomly generated from a computer listing of all eligible households in the selected enumeration areas. The list of eligible households was compiled during a pre-study enumeration conducted by the research team. The enumeration was done by physically visiting all residential buildings in the

selected enumeration areas and identifying those households with persons aged 65 years or over through the interview of an informant found in the buildings.

When the household had more than one eligible person, the eligible respondent per household was selected using the Kish method selection. This was conducted by the interviewer after taking and recording a list of all members of the household. When the person so selected refused to participate, no replacement was chosen in the same household.

National representativeness of the ISA sample was achieved through the application of poststratification sampling weights in accordance with the stratified multistage sampling procedures. Post-stratification adjustments were applied to correct for gender and age differences between the sample and the Nigerian national population.

### ***Quality control measures in the ISA***

The interviews at the baseline were conducted by 24 trained interviewers and by 16 at the follow-up waves. All of the interviewers at baseline had at least a high school education. The follow-up assessments were conducted by research assistants with at least a university degree. For both the baseline and follow-up assessments, research workers received one week of training, respectively, consisting of didactic training as well as role plays. The training was followed by pilot interviews conducted in a local government not in the sampling frame and subsequent debriefing sessions.

Strict quality control measures were implemented all through the various stages of the study. Day to-day implementation of the field work, including adherence to study protocol, was monitored by supervisors (1 supervisor to 4 interviewers) who had undergone the same training as the interviewers. Random checks of completed interviews were conducted on at least 10% of the assessments completed by each

interviewer as well as random confirmatory checks of respondents reported not to be available for assessment. At follow-up, supervisors were also responsible for conducting physical evaluations such as blood pressure, anthropometry, physical performance and mobility. During the fieldwork, regular sessions were held with interviewers and supervisors to review study procedure.

All instruments used in the study were translated into the local Yoruba language (using the iterative back-translation method) and subjected to cultural adaptation. At every stage of the study, information about the aims, scope and duration of assessments were provided to prospective participants. Only persons providing consent, mostly verbal or thumbprinting and witnessed by a next-of-kin (either because of illiteracy or by choice), were included in the study. The ISA protocol was evaluated and approved by the joint ethics committee of the University of Ibadan and the University College Hospital, Ibadan.

### ***Measurements completed in the ISA***

The cross-sectional survey of the ISA was conducted between November 3, 2003, and August 27, 2004, on a total of 2152 respondents (of which 2149 were complete). Following the completion of the cross-sectional study, annual follow-up of the ISA cohort was implemented in three waves in 2007, 2008 and 2009. Figure 2 shows the details of the recruitment and follow-up of the cohort.

Face to face interviews were carried out in the homes of participants to assess a range of domains including sociodemographic details, economic positions, social contacts with family/friends, engagement in family/community activities, MDD, dementia, chronic medical and pain conditions, physical disability, and lifestyle risk factors. The measures used and variables collected in the ISA cohort are presented in Table 1. The place of residence was classified according to the estimated numbers

of households in the location: rural (less than 12 000 households), semi-urban (12,000 to 20,000 households), and urban (greater than 20 000 households).

For the wealth index assessment of economic status of respondents, information was obtained on the possession of 21 personal household items such as chairs, clock, bucket, radio, television set, fans, stove or cooker, car, telephone, etc(2). The respondent's economic status was then categorized by relating their total possessions to the median number of possessions of the entire sample. The resulting categories are low for a ratio 0.5 or less to the median, low-average for a ratio of 0.5 – 1.0, high average for 1.0 – 2.0, and high if the ratio is over 2.0.

The Katz index of independence in activities of daily living (ADL) (3) was used to assess the ability of the ISA participants to perform ADL. It rates the participants' functional status by the adequacy in the performance of six functions: bathing, dressing, toileting, transferring, continence, and feeding. Assessment of instrumental activities of daily living was made by evaluating the ability of the participants to perform seven functions in the following areas: climbing a flight of stairs, reaching above the head to carry something weighing about 4.5 kg, stooping, gripping small objects with hands, shopping, and activities such as sweeping the floor with a broom or cutting grass. Each of the activities in the two domains (ADL and IADL) was rated: (1) can do without difficulty; (2) can do with some difficulty; (3) can do only with assistance; (4) unable to do activity. We classified as disabled, any respondent with a rating of 3 or 4 on any item. A subgroup of 37 respondents was assessed twice, about 7 days apart, to assess test-retest reliability of these disability markers. Agreement was generally very good to excellent, with a  $\kappa$  range of 0.65–1.0.

**Table 1: Variables collected in the ISA cohort**

Assessments	Data source	Variables	Baseline	Follow-up		
			Baseline 2003/04	Wave 1 (2007)	Wave 2 (2008)	Wave 3 (2009)
<b>Demographics</b>	Validated survey questionnaire	Age, Gender, Marital status, numbers of spouses, Place of residence, Religion, e.t.c	✓			
<b>Income and Living conditions</b>	Wealth index and other Validated proxies of economic status	Economic groups, List household items, Type of flooring, Walls of the house, Sources of water and energy supply	✓			
<b>Measures of Physical Health</b>	Anthropometry and Blood pressure measurement	Mid-arm circumference, Body mass index, Systolic, diastolic blood pressure	✓	✓	✓	✓
<b>Physical Activity and Mobility</b>	Self-report and direct measurement	Mobility difficulty, Gait speed, Chair stand test	✓	✓	✓	✓
<b>Social factors</b>	Validated scales	Social network, Social participation, Loneliness, Relative deprivation, Life satisfaction, Resilience, Perception of ageing, e.t.c.	✓	✓	✓	✓
<b>Lifestyle factors</b>	Validated questionnaires	Smoking, Alcohol, other illicit substances, Servings of fruit and vegetables	✓	✓	✓	✓
<b>Chronic medical conditions</b>	Self-report checklist and *Clinical Assessments	Heart disease, Hypertension, Diabetes, Respiratory disease, Vision impairment, Hearing impairment, stroke, *Parkinsonism, *Disorders of urological function, e.t.c.	✓	✓	✓	✓
<b>Chronic pain conditions</b>	Self-report checklist	Arthritis, Spinal, Headaches, Chest, Non-specific	✓	✓	✓	✓
<b>Depression</b>	Composite International Diagnostic Interview (3.0) and the Geriatric Depression Scale	DSM IV Major Depressive symptoms/severity	✓	✓	✓	✓
<b>Cognitive functioning</b>	Items in the Consortium to Establish a Registry for Alzheimer's Disease	Probable dementia, Cognitive reserve	✓	✓	✓	✓
<b>Physical functioning</b>	Katz Index, Adapted Nagi Physical performance scale	Activities of Daily Life (ADL), Instrumental ADL	✓	✓	✓	✓
<b>Suicidality</b>	Composite International Diagnostic Interview (3.0)	Lifetime, and Past year Suicidal ideation, plans, attempts	✓	✓	✓	✓

<b>Sleep disturbances and Falls</b>	Composite International Diagnostic Interview (3.0)	Any Insomnia, Early insomnia, Middle insomnia, Terminal Insomnia, Day-time somnolence, Number of falls	✓	✓	✓	✓
<b>Quality of life</b>	World Health Organization Quality of Life assessment instrument	Overall and domain specific quality of life: physical, psychological, social and environmental domains	✓	✓	✓	✓