# IDENTIFYING DEMENTIA AND DEPRESSION IN THE ELDERLY: THE ROLE OF THE FAMILY

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## ABSTRACT

**Objective:** To measure the ability of family members to detect dementia/depression in their elderly relatives.

**Method:** Subjects diagnosed with dementia/depression were assessed with 10/66 dementia package. The Geriatric Depression Scale (GDS), Family Questionnaire (FQ) and the Functional Activities Questionnaire (FAQ) were used to interview the family members of the patients. These were then compared with cognitively normal individuals with high and low education.

**Results:** Seventy-six patients aged 60 – 69 participated in the study. Nearly 24% of all the subjects scored above the cut off score of the GDS. The FAQ, FQ and CSI – D (informant section) correlated significantly with the GMS organicity.

**Conclusion:** the FQ and FAQ may be used to indirectly screen elderly subjects who have cognitive deficits and dementia through their family co-residents. This will likely yield an increase in the detection of dementia/depression in elderly subjects who have limited access to direct contact with health care services.

**Key words:** Dementia, Depression, elderly, family members.

## INTRODUCTION:

Fully operationalised diagnostic criteria and use of structured interview schedules have greatly improved the identification of depression and dementia among the elderly in recent times. However, there continues to be concern among scientists and researchers whether the differences in prevalence rates of dementia in developing and developed countries are real or apparent, accountable in part perhaps by methods of identification.[1]

A recent publication by the 10/66 dementia network presents fairly comprehensive survey of methodological issues in dementia diagnosis and research in developing countries[1]. Assessment of cognitive decline and impairment in social or occupational functioning, both of which are necessary to define dementia are generally accepted to present great challenges in developing countries where the majority are non-literate. This has necessitated modifications and refinements in existing cognitive instruments to make them more feasible and valid in these populations. Such adaptations can be useful especially in research settings. Adaptations can be useful especially in research settings.

In practical terms however, potential dementia subjects in developing countries are not likely to present themselves for early assessment. In most cases it is family members who have reasons to be concerned about their elderly relation that will probably take the initiative to bring him or her for evaluation, likely following a circuitous search for miraculous cure[2,3]. This is true whether the family observation be cognitive or functional decline in such an elderly relation. The family therefore seems an important source in providing (the reliable and initial) information that may lead to the identification of dementia. The community-screening interview for Dementia (CSI-D) combines culture and education fair cognitive testing of the subject with an informant interview for evidence of cognitive and functional decline[4]. In a recent paper by the 10/66 network, it was demonstrated that the informant interview greatly increased the CSI-D sensitivity for identifying dementia[5]. Jorm and Korten[6] had previously shown the usefulness of informant interview in dementia diagnosis and this may even be more relevant in a non-literate population. A common method in dementia screening has focused mainly on subject cognitive testing especially in two-stage designs. For practical and economic reasons it may be easier to screen informants (rather than subjects) if reliable and valid methods are available. There have been a

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few reports of such informant "screening" as distinct from "formal" informant interview [7-10]

It has been strongly suggested that the modern anti-dementia drugs (i.e. cholinesterase inhibitors) are more beneficial and more likely to have an impact on disease progression if commenced early[11]. The emphasis should therefore be on early identification of Alzheimer's and other related dementia disorders. This can be difficult and challenging, especially in developing countries where early features of dementia may be ascribed to normal ageing process.

Nevertheless information about early cognitive and functional decline by co-residents of elderly subjects can raise the index of suspicion and lead to further assessment and identification of dementia. Henderson and Hupert have argued that since co-residents are familiar with the subjects' current and premorbid cognitive functional performance, they can be helpful in the assessment of mild dementia.[12] In this paper, we report a design to determine the ability of family members to observe and report cognitive and functional impairment in their elderly subjects with dementia. It will also describe the informant's report on cognitive/functional changes in their elderly relation who are normal and those who are depressed.

## MATERIALS AND METHODS:

THE SETTING: The data presented in this report were collected as part of the Anambra center 10/66 pilot on dementia diagnosis. The study was done at the mental health department of Nnamdi Azikiwe University Teaching Hospital (Eastern Nigeria). This university hospital is a modest 260-bed semi-urban tertiary health institution (for service, training and research) with a catchment area of about 3 million people. The study period was between January and November 2000.

The study design and methodology are fully described elsewhere[5]. In brief, all the participants were drawn from the community and had informants available for interview. Trained researcher and assistants administered the following (Vernacular ie Igbo Versions) assessments: the CERAD adapted ten word list learning task[13], the animal naming verbal fluency task from the CERAD, the community screening interview for Dementia[4] and the Geriatric mental state schedule (GMS AGECAT) [14]. The subjects with dementia and depression had been diagnosed by local clinicians and rated on the Clinical Dementia Rating Scale[15] and Montgomery, Asberg Depression rating scale[16], respectively. This represents the core 10/66 design. All the patients who were referred to the psychiatric clinic with a diagnosis of dementia were recruited. In addition the following measures were obtained;

1. The 15-item version of the Geriatric Depression Scale (GDS).[17] This short version of the

original 30-item GDS has been widely used and found to have the same psychometric properties as the full version[18]. Although we are not aware of its validation and established cut point in an African language/setting (the authors suggested 6; the concomitant use of the Montgomery, Asberg depression rating scale can provide convergent validity and reliability for the GDS.

2. The Family Questionnaire (FQ): This is a brief 5-item screening test developed by the National Chronic Care Consortium and the American Alzheimer's Association.[19] A family member (or care-giver) completes the questionnaire within one to minute/s. the FQ probes if the patient has trouble remembering clearly. Each question has a 3-point score (0 = not at all, 1= a little, 2 = severe). A score of 7-10 indicates probable cognitive impairment, and 3-6 possible cognitive impairment. It is suggested that a score of >3 should prompt consideration of more detailed (cognitive) evaluation.

3. The Functional Activities Questionnaire (FAQ): This is an informant-based measure of functional abilities[20]. The informant provides ratings of the target subject on 10 complex higher order activities; the ten questions can be completed within 2-3 minutes. The levels of performance assigned range from dependence to independence with a total scale of 0-30; the cut off point of 9 (ie dependent on 3 or more activities) has been suggested by the authors based on a normative sample[20]. A score of $\geq$ 9 indicates further, detailed cognitive evaluation.

4. The structured interview for the diagnosis of dementia of the Alzheimer type, multi-infarct dementia, and dementia of other aetiology according to ICD-10 and DSMIIIR (SIDAM). This was developed by Zaudig and his colleagues[21]. It is designed for symptomatic diagnosis and measurement of dementia according to DSMIIIR and ICD-10. There are two major parts: the first part consists of brief clinical overview probing about present complaints, drugs/alcohol, psychological symptoms, memory difficulties and family history of memory problems/trisomy -21 or intellectual problems. The second part has two sections: section one (performance) comprises a brief structured clinical interview, a range of cognitive tests, whereas section two comprises clinical judgement and third party (informant) information including personality change, degree of psychosocial impairment, level of consciousness, aetiology, course of the cognitive disturbance and severity. All SIDAM items rely on DSMII IR and ICD -10 algorithms and are fully operationalized to navigate the criteria for dementia as contained in the two manuals. The SIDAM score (SISCO)- a summary of orientation, memory, intellectual abilities, higher cortical function (verbal abilities,/calculation, constructional abilities, aphasia/apraxia) ranges from 0-55 (with a cut off

score of ($\leq$32) and allows a detailed measurement of even low levels of cognitive impairment and provides quantification of severity grading of cognitive dysfunction. It is a brief interview which can be completed within 20-25 minutes and is constructed to reliably separate those with DSMIIIR or ICD –10 dementia from those without.

## ANALYSIS:

Analyses were done only on items that were not initially included in the core 10/66 design (i.e. GDS, FQ, FAQ and SISCO scores). The statistical package for the social sciences (SPSS, version 10) was used.

## RESULTS:

THE SUBJECTS: A total of 76 people were recruited for the study. Their age ranged from 60 years and above. The breakdown is as follows: 60 – 64 years = 20; 65 – 69 years = 25; 70 –74 years = 17; 75 – 79 = 7; 80 – 84 = 4; 85 – 89 = 1; $\geq$ 90 years = 2. Their mean age was 68.3 years. Twelve of the subjects with dementia were married, 8 were widowed; details of the marital status of the other 3 groups of subjects were not available. Twenty of the subjects had dementia, 16 depression, 10 high education and no cognitive deficits, and 30 had low education and were cognitively normal).

Informant score on the CSI-D: the range of scores of the informants on the CSI_D (section B) were as follows: 0-5 = 55 subjects; 6-10 = 1; 11-15 = 10; 16-20 = 9, and > 20 = 1

FAQ: the FAQ score ranges were as follows: 0-4= 54 subjects; 5-8 =5; 9-12 =5; 13-16 = 4; 17-20 =5;21-24 =3. The total number of subjects who scored 9 and above (ie cut off point) was 17 (23.37%).

FQ: the ranges of FQ scores were: 0-2 =58; 3-4 =5; 5-6= 5; 7-8 =5; 9-10 =3. Total number of subjects who scored 3-6 = 10 (13.16%), 7-10 =8 (10.53%) and 3-10 = 18 (23.68%).

SISCO: The highest SISCO score was 25 with a range of 8-25. Three subjects scored 5-10; 4 scored 11-15; 2 scored 16-20 and one scored 21-25.

GDS: the range of scores was as follows: 0-5 = 58; 6-10 = 12; 11-15=6. Thus, the total number of subjects who scored 6 and above (cut off point) was 18 (23.68%).

GMS "organicity" scores: 0=44 subjects, 1=3 subjects, 2=4 subject, 3= 7 subjects, 4=5 subjects and 5=13 subjects.

CORRELATION: (Pearson, 2 tailed at 0.05 level):

The CSI-D informant section correlated with the subject's case- status (r=-.815), with age (r=0.233) and with organcity (r=0.826). "Organicity" correlated with case status (r= 0.6755), FAQ (r=0.398), FQ (r=0.330) and age (r= .340). The FAQ

correlated with case status (r=0.557), CSI-D informant section (r=0.340), FQ (r=0.925, with organicity (r=0.398) and SISCO (r = 0.667). The FQ correlated with case status (r= 0.511), CSI-D informant section (r = 0.285), FAQ (r=0.9250), and with organicity (r= 0.330).

GDS significantly correlated with the subjects case status (r = - .256) with depressed subject scoring the highest (P<.05). CSI-D informant section correlated with FAQ (r = 0.340), FQ (r=0.285).

Relationship between FQ, FAQ AND CSI–D.
Table 1 shows the cross tabulation of CSI-D informant section scores and FQ.

### Table 1: CSI-D, FQ CROSS-TAB FQ

| F | CSI-D | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|-------|---|---|---|---|---|---|---|---|---|---|----|
| 54 | 0-5 | 37 | 6 | 5 | 0 | 0 | 1 | 1 | 2 | 1 | 1 | 1 |
| 1 | 6-10 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 | 11-15 | 1 | 0 | 1 | 1 | 2 | 1 | 2 | 0 | 1 | 0 | 1 |
| 9 | 16-20 | 4 | 1 | 1 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 |
| 2 | 21-25 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Total | 43 | 7 | 8 | 1 | 4 | 2 | 3 | 3 | 2 | 1 | 2 |

Table 2 shows, the FAQ and CSI – D (informant section) cross-tabulation.

### Table 2: CSI – D, FAQ CROSS TAB. FAQ

| CSI-D | <5 | <10 | <15 | <20 | <25 |
|-------|-----|-----|-----|-----|-----|
| <5 | 48 | 0 | 2 | 4 | 1 |
| <10 | 1 | 0 | 0 | 0 | 0 |
| <15 | 2 | 1 | 4 | 2 | 1 |
| <20 | 5 | 3 | 0 | 0 | 1 |
| <25 | 0 | 1 | 0 | 0 | 0 |
| Total | 56 | 5 | 6 | 6 | 3 |

These 2 tables illustrate the relationship between CSI – D (Informant section), FQ and FAQ. These 3 instruments all focus on information about an elderly subject provided by an independent observer (informant) who stays with the subject..

Relationship between Dementia, Depression, High Education and Low Education.

Table 3 shows the number of subjects in each of the 4 groups (demented, depressed, highly educated cognitively unimpaired and lowly educated cognitively unimpaired) and their scores on the GDS.

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*Table 3:* **Relationship between dementia, depression, high education/cognitively normal and low education/cognitively normal**

| No Dementia | No Depression | No High Education | No Low Education | GDS score |
|---|---|---|---|---|
| 2 | 1 | 3 | 6 | 0 |
| 2 | 1 | 3 | 5 | 1 |
| 1 | 0 | 2 | 7 | 2 |
| 4 | 3 | 1 | 5 | 3 |
| 4 | 1 | 1 | 2 | 4 |
| 2 | 2 | 0 | 0 | 5 |
| 1 | 1 | 0 | 2 | 6 |
| 1 | 2 | 0 | 0 | 7 |
| 1 | 0 | 0 | 0 | 8 |
| 0 | 3 | 0 | 1 | 9 |
| 0 | 0 | 0 | 0 | 10 |
| 0 | 0 | 0 | 0 | 11 |
| 0 | 2 | 0 | 1 | 12 |
| 2 | 0 | 0 | 0 | 13 |
| 0 | 0 | 0 | 1 | 14 |
| 20 | 16 | 10 | 30 | |

Taking 6 as the cut score, 30% of the demented, 50% of the depressed, 0% of the highly educated cognitively normal and 16.7% of the lowly educated cognitively normal would be diagnosed as depressed. Definitions of low and high education are provided in the 10/66 paper[5].

## DISCUSSION

The implications for a common diagnostic approach to dementia in developing countries have been addressed by the 10/66 papers[1-5].

In many developing countries like Nigeria, there are no special geriatric or psychogeriatric medical services. In the same vein, there are no (special) arrangements for periodic medical examinations of the senior citizens. Elderly persons therefore have severely limited opportunities for specialist attention. This places family members in the best position to provide information about their elderly relatives. For cultural and social reasons, elderly persons, especially when not sound in health are expected not to be exposed and it is preferred that death occurs at home rather than the hospital. This tradition thus further reduces the chances of the elderly coming into contact with medical services. If older persons with dementia are to benefit from assessment and management, early detection is important. Most family members with elderly individuals who have dementia are most unlikely to bring them forward for medical services unless disruptive behavioural problems beyond their tolerance have arisen. To optimize any help that may be offered to an elderly demented Nigerian, the family will be heavily relied upon to provide early information. For the fact that majority of Nigerians abhor long interviews, brief screening instruments become handy.

The results of this investigation strongly suggest that the Family Questionnaire (FQ) and the Functional Activities Questionnaire (FAQ) will detect most individuals with dementia. Both instruments are extremely brief and are likely to command high acceptability in this environment. They are also very easy to administer. They can be incorporated into routine assessment of family members who come to medical attention if such families have elderly ones. Other opportunities of offering these instruments to family members with elderly relatives include religious meetings arranged by ministers (these are many in Nigeria), age grade meetings, town unions etc. Of course primary health care workers, community health officers, community health extension workers, traditional healers (including traditional 'ante-natal' clinic workers) can easily be taught to apply the FQ and FAQ. When the results of the instruments suggest the likelihood of cognitive disorder, the family members who have provided the information will be encouraged to contact secondary or tertiary health care professionals for further evaluation of the affected elderly ones. This is likely to lead to a high detection rate of dementia in the community so that appropriate management approaches are instituted.

Although all our subjects have previously been diagnosed by local clinicians, both the FQ and the FAQ contain questions that will apply in early stages of dementia. Incidentally, forgetfulness and other cognitive deficits are commonly viewed in this environment as normal ageing process. If the FAQ and FQ are further validated with a larger population, their wide spread use in Nigeria as suggested here becomes more useful.

The 10/66 group has shown that a combination of the CERAD, 10-word list learning, and CSI-D increases the sensitivity of recognizing dementia[5]. The advantages of the FQ and FAQ far outweigh the CSI-D (informant section) as screening instrument in Nigeria, largely because of their extreme brevity and ease of administration. To improve the detection of dementia, and better management of afflicted elderly individuals in Nigeria, we recommend a full validation of the FQ and FAQ and their widespread use in the country.

It seems evident from the SISCO result that the recommended cut score of 32 may not hold true for demented Nigerians. This may be due to items that may have questionable relevance for non-literate population. If the aim is simply to make a diagnosis of dementia, the SIDAM may be preferred to the GMS on account of its brevity. The GMS however is a more comprehensive instrument that detects other mental disorders in the elderly. Another advantage of

the SIDAM is that it directly rates the severity of cognitive deficit. The FAQ and FQ properly correlated with the GMS "organicity" and SISCO scores. This is a further evidence of the utility of FAQ and FQ in detecting cognitive disorder in the elderly.

It is generally recognized that the family plays the greatest role in the care of subjects with dementia, even in the developed countries. This is no doubt because family members are closest to elderly relatives. Their role should not be limited to care but be broadened to assist early detection through the use of simple instruments like the FQ and the FAQ. This way both dementia subjects and their family members will benefit optimally from available assessment and treatment opportunities.

Indirect screening of possible depression in elderly subjects through informant interview has not been investigated (as extensively as in dementia). In this study we did not use the GDS for informants. There is a complex relationship between dementia and depression in the elderly, for example both could co-exist or one could manifest as or complicate the other. Although depressed subjects in our study scored the highest GDS, only 50% of the subjects scored above the cut off score. This may imply that the GDS needs to be modified for our environment or the cut score adjusted accordingly with proper validation. Nearly 7% of the low education cognitively normal scored above the GDS cut score for depression. The 10/66 paper suggested that the depression rate in the non-depressed subjects may indeed be real since they were not initially screened for depression[5]. If this rate is related to level of education or actual depression, we cannot say. There is need for further study of the psychometric properties of the 15-item GDS in our elderly subjects. It may be possible to develop an instrument from the FQ, FAQ and GDS that could be used as indirect screening instruments (informant screening) for both depression and dementia in the elderly. Either way, family members will lead the way.

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