

Psychiatric disorders among the elderly on non-psychiatric wards in an African setting

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ABSTRACT

Background: The elderly are vulnerable to illness and particularly to psychiatric illness. Many mentally ill elderly patients end up on non-psychiatric wards owing to somatization of their illnesses. Even for these patients, a psychiatric diagnosis may not be made. The literature on the elderly in Uganda is very scanty. This study aims to establish the prevalence and factors associated with psychiatric disorders among elderly patients admitted to non-psychiatric wards.

Methods: We carried out a descriptive cross-sectional study of 127 consenting elderly patients. They were administered a standardized questionnaire comprising the Self Reporting Questionnaire 25, the Mini-mental State Examination and the Structured Clinical Interview for the Diagnostic and Statistical Manual IV. Study variables included socio-demographic characteristics, physical illnesses, psychiatric disorders and the treatment being given.

Results: The rate of psychiatric morbidity was 48%. The sex ratio was 1:1; however, women had a higher rate of psychiatric illness than men, 54.6% and 41.3% respectively. Being widowed or separated and having cancer were associated with SRQ > 5, $p = 0.02$ and $p = 0.04$ respectively. Depressive disorders were the most common at 25.2% and were more common in women. Increasing age was associated with dementia ($p < 0.00$).

Conclusion: There is a high rate of psychiatric morbidity among the elderly in Uganda. Particular attention should be given to the psychological health of elderly people admitted to general hospitals.

Key words: mentally ill, general hospital wards, physical illness, prevalence

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Introduction

The World Health Organization (WHO, 1996) classifies individuals who are 65 years and above as elderly, but some countries and local practices tend to use different age definitions (Turkson and Asamoah, 1997; Uwakwe, 2000). Demographic trends reveal that the fastest growing section of the world's rising population is the elderly (Fink *et al.*, 1996; World Health Organization, 2001: chapter 2). This poses a special challenge to society – and to the medical community in particular – in terms of caring for the elderly (Uwakwe, 2000).

Multiple pathology, both physical and mental, appears to be a common pattern of presentation in old age (Uwakwe, 2000), with the elderly being more susceptible to mental illness (Wasylenki *et al.*, 1984). The prevalence of mental illness in the elderly in general hospitals in the developed world is two to three times that of the community-dwelling elderly and is estimated at 40–50% (Lipowski, 1983; Burn *et al.*, 1993).

The present trend toward urbanization and the formation of nuclear families has changed the traditional African family system. Grandparents, children, uncles and other relatives used to live together, sometimes under the same roof. However, this is no longer the case in Uganda as elsewhere (Ugandan Ministry of Finance and Planning, 1995a). A multiplicity of social and medical conditions compounds the isolation and neglect suffered by elderly people (Mugisha, 1985). Poverty, inadequate retirement benefits, and increased responsibilities for grandchildren and orphans as a result of AIDS all serve to worsen their welfare and predispose them to psychiatric illness (Ntozi and Nakayima, 1999).

The special medical problems of the elderly are not specifically addressed by Uganda's health care system. The few humanitarian services available to the elderly are delivered by religious organizations and other non-governmental groups (Ntozi and Nakayima, 1999).

The majority of health workers who do not routinely work with psychiatric patients are unlikely to recognize psychiatric conditions, such as depression and anxiety. It is therefore possible that many people presenting at hospital with psychiatric problems find that their symptoms are missed or misdiagnosed (Ruegg *et al.*, 1988).

We designed this study to determine the prevalence and the factors associated with psychiatric illness among elderly patients admitted to a general national referral hospital in Uganda.

Methods

Study site

A descriptive cross-sectional study was carried out over a three-month period (September 2001 to November 2001) in Mulago Hospital, which is the national

referral hospital for Uganda. It also serves as the teaching hospital for Makerere University.

The hospital offers services in many different specialties. It has inpatient, outpatient, investigative and research facilities. Elderly patients can be admitted to medical wards which include general medical wards (6 wards), cancer (2), tuberculosis (1), psychiatry (1), or to surgical wards, which include general surgical wards (3), obstetrics/gynaecology (3), orthopaedic (2), ophthalmology (1), ear, nose and throat (ENT) (1), and the private floor (3 wards, 2 for medical and 1 for surgical patients). Patients on the psychiatric wards were excluded from this study as the aim is to investigate psychiatric problems among the elderly patients on non-psychiatric wards.

Study subjects

We consecutively enrolled all eligible patients found on the above-described admission wards during the study period. Patients were included in the study if they: (a) were aged 60 years and above, and (b) gave informed consent or their next of kin consented for them to participate in the study. Patients were excluded if they were of unknown or unascertainable age.

Sample size calculation

Sample size was calculated using the EPI-INFO statistical program version 6.02 based on Kish's (1965) formula. With an expected proportion of 45% of the elderly patients having psychiatric disorders (Uwakwe 2000) and a standard error of $\pm 5\%$, the sample size was estimated at 115. This was then corrected to 127 to allow for a possible 10% loss of subjects.

Data collection

All assessments and collection of data were performed by one of the authors (NN). Informed written consent was sought from the participants. A standardized questionnaire for obtaining sociodemographic characteristics including name, age, sex, marital status, educational level, occupational status, family role, number of children and dependants and care givers both at home and hospital, as well as the study instruments described below, were administered to the participants.

The majority of the interviews were conducted in Luganda, a Bantu dialect commonly spoken in the central part of the country. None of the study tools was translated from English. The investigator was fluent with the language spoken by the majority of the study participants. An interpreter was used where possible if the patient spoke any other language with which the investigator was not familiar. Two of the interviews were conducted in English.

Study instruments used

MINI-MENTAL STATE EXAMINATIONS (MMSE)

This is a standardized scored form of the cognitive mental state examination which measures cognitive functioning and can be used to screen for organic brain impairment (Folstein *et al.*, 1975). It takes about 5–10 minutes to administer. The maximum total score is 30. For the purpose of this study, we used the adjusted form that caters for the level of education and age as suggested by Crum *et al.* (1993). Therefore scoring was as follows: 0–19 = severe impairment; 20–23 = mild to moderate impairment; and 24–30 = normal.

SELF-REPORTING QUESTIONNAIRE (SRQ 25)

This is a screening tool for psychiatric illness (Harding *et al.*, 1980). It consists of 25 questions and scoring is done by responding affirmatively or negatively to questions asked. The cut-off score for mental illness was established at 5, following a validation study in Nigeria done by Abiodun (1989).

STRUCTURED CLINICAL INTERVIEW FOR THE DIAGNOSTIC AND STATISTICAL MANUAL IV (SCID)

The SCID is a broad-spectrum instrument which adheres closely to DSM-IV decision trees for psychiatric diagnosis. It also allows addition of relevant data that can increase diagnostic validity and specificity. Open-ended questions can also be used by the interviewer to probe for more responses (First *et al.*, 1990). The SCID was used as the gold standard for making psychiatric diagnoses.

PATIENTS' MEDICAL RECORDS

The patients' clinical records were checked for the following: (a) the medical/surgical diagnosis for which they were being managed, (b) whether any psychiatric diagnosis had been made, and (c) the treatments the patient were receiving for their current condition. Patients were also asked if they had any other medication for any chronic illness and these were noted. This interview lasted 30–45 minutes.

Data management

Data were recorded on questionnaires, which were checked for completeness by the investigator at the end of the day and corrections made. The data were entered and analyzed using EPI-INFO 6.02 and the Statistical Package for Sciences Version 11.5 (SPSS, Chicago IL, USA) computer programs.

Statistical analysis

Descriptive statistics, which include means, medians and frequencies, were calculated for all variables. Continuous variables were analyzed using the independent t- test. Selected key comparisons were made and cross tabulations generated. Statistical levels of significance were calculated using χ^2 and Fisher's exact test. A p value of ≤ 0.05 was considered statistically significant.

Ethical issues

Permission was given by the Faculty of Medicine Research and Ethics Committee as well as the National Council for Science and Technology. Written informed consent was obtained from each participant or their next of kin for those not competent to give consent. Psychiatric findings made by NN were discussed with the attending doctors and suggestions about better patient management given immediately after interview, if a psychiatric illness was found in a patient. Patient confidentiality was protected by use of study identification numbers.

Results

A total of 127 elderly patients were recruited to the study. Table 1 summarizes the characteristics of the patients studied. The sex ratio was 1:1. There were twice as many women than men in the mode age group of 70–74 with percentages of 24% and 12% respectively. The elderly were unequally distributed on the medical and surgical wards (42.5% and 57.5% respectively). There were significantly more women who were widows or separated/divorced ($p < 0.01$ and $p = 0.01$) respectively.

The majority of the participants had low levels of education. However, more women (33; 52%) had never had any formal education ($p < 0.01$). The men had higher numbers of children compared to women ($p < 0.01$). Most of the participants (60; 47%) did not receive social support from anyone while at home, but while in hospital, 71 (56%) were receiving support from their children. We found an association between the group of elderly patients who received support from their children while in hospital and the presence of psychiatric disorder ($p = 0.02$). The women (20; 33%) were more often receiving support from relatives compared to their counterparts (7; 11%) while in hospital ($p < 0.01$).

Physical illness

Cancer was the most prevalent physical illness among the respondents (35; 25.2%) and was associated with psychological distress ($SRQ > 5$), $p = 0.04$. Cardio/cerebro vascular disorders were the next most frequent at 20 (15.7%). Thirty-nine (30.7%) of the participants had a chronic illness and were mainly

Table 1. Characteristics of the participants

CHARACTERISTIC	N = 127
Sex (female)	50.4%
Age (mean (SD, median))	70.8 (8.7, 70.0)
Married/union	47.2%
Primary education	52%
Employed	62.2%
Head of household	78.7%
Self support at home	47.2%
Children's support in hospital	55.9%
Living children (mean (SD, median))	6.8 (6.2, 6)
Dead children (mean (SD, median))	3 (3.4, 2)
Grandchildren (mean (SD, median))	2.3 (3.4, 1)
Dependants (mean (SD, median))	1 (4.8, 0)
Chronic medical illness	30.7%
<i>Physical illness</i>	
Cancer	25.2%
Cerebrovascular	18.9%
Infectious	9.4%
Metabolic	6.3%
Genitourinary	16.5
Orthopedic	11.0%
Ophthalmology	6.3%
Other	6.3%
MMSE score (mean (SD, median))	23.25 (7.25, 26.0)
SRQ score (mean (SD, median))	3.83 (2.8, 3.0)
<i>Psychiatric disorder</i>	
Depression	18.1%
Adjustment disorder	7.1%
Dementia	6.3%
Sleep disorder	4.7%
Delirium	4.7%
Anxiety	2.4%
Paranoid delusional disorder	0.8%
PTSD	0.8%
Alcohol use disorder	0.8%
Brief psychotic episode	0.8%
Amnesic disorder due to GMC	0.8%
Nicotine use disorder	0.8%
Alcohol persisting amnesic disorder	0.8%
None	52%

MMSE = Mini-mental State Examination, SRQ = Self Reporting Questionnaire 25, PTSD = post traumatic stress disorder, GMC = general medical condition.

taking analgesics. Most respondents were receiving antibiotics 33 (26.0%) and analgesics 26 (20.5%) for treatment of different ailments. Among other medications that were being taken by the participants were anti-diabetic,

Table 2. Comparison of mental disorder diagnoses made by non-psychiatrists and psychiatrists

MENTAL DISORDER	NON PSYCHIATRIST	PSYCHIATRIST	IDENTIFICATION INDEX (SENSITIVITY)
Depression	1	23	4.34%
Adjustment disorder		8	–
Dementia	5	7	71.4%
Sleep disorder		7	–
Delirium	1	6	16.6%
Anxiety		3	–
Paranoid delusional disorder		1	–
PTSD		1	–
Alcohol use disorder		1	–
Brief psychotic episode		1	–
Amnestic disorder due to GMC		1	–
Nicotine use disorder		1	–
Alcohol persisting amnestic disorder		1	–
Psychosis*	1	–	–

*Psychosis is a broad term and is not a specific psychiatric disorder hence not diagnosed by the psychiatrist.
 PTSD = post traumatic stress disorder, GMC = general medical condition.

anti-hypertensive and anti-ulcer drugs. Many of the participants were on more than one kind of medication. Having a surgical condition was significantly associated with having a psychiatric disorder ($p < 0.03$)

Psychiatric illness

Only eight (6%) patients were diagnosed with a psychiatric disorder by attending physicians. Seven of them were on the medical ward and one was on a surgical ward. Table 2 provides a comparison of the psychiatric diagnoses made by physicians and the final psychiatric diagnosis as concluded by study findings. The mean screening SRQ score was 3.8 (SD = 2.8). Based on SRQ scores, 31% of the participants had a psychiatric problem; however, on further evaluation using the SCID, 61 (48%) of the respondents were found to have a psychiatric disorder. There was no specific age range statistically associated with psychiatric illness but in the modal age group of 70–74 almost half of the elderly (13; 32.5%) had an abnormal SRQ score above 5 though this was not statistically significant.

Severe cognitive impairment (MMSE score < 19) was observed in 18 (14%) and of these 10 (55%) were over the age of 80 ($p < 0.01$). There was a tendency

to increased cognitive impairment with increasing age, confirmed by the general χ^2 , $p < 0.01$. However, the χ^2 for linear trend was not significant ($p = 0.08$).

Depressive disorders were the commonest at 31 (25.2%) with major depression contributing to 23 (18.1%) and adjustment disorder with adjustment disorder with depressed mood contributing to 8 (7.1%). These disorders occurred more frequently in women (19; 63.3%).

The distribution of the psychiatric disorders was almost equal across the medical and surgical wards, 50.8% and 49.2% respectively. All but one individual with a diagnosis of dementia (7 cases; 5.5%) and all cases of delirium (6; 10%) were found on the medical ward. Table 3 shows the association of study variables with the final psychiatric disorder category as well as the SRQ score category. The presence of a psychiatric diagnosis was associated with an SRQ score > 5 ($p = 0.00$).

Discussion

This was a hospital-based cross-sectional study aimed at determining the prevalence of psychiatric disorders and the factors associated with the disorders among elderly inpatients on non-psychiatric wards. The prevalence of psychiatric illness among the elderly inpatients was found to be 48%.

The patients were equally distributed with a male: female ratio of 1:1 compared with the national ratio of 1:1.3 (Ugandan Ministry of Finance and Economic Planning, 1995a; 19945b). In a study of elderly people in a hospital in Nigeria, Uwakwe (2000) established that the ratio was 1.5:1. This is explained by the nature of the patrilineal society – when females fall ill they will usually be looked after in the home unlike males who are more quickly taken to hospital.

The mean age for men and women was very similar at 70.6 (SD = 8.5) and 71.1 (SD = 9.0) respectively. This mean age was also similar to that found among elderly Nigerians where it was 69.9 (SD = 8.4) (Uwakwe, 2000). However, in this study, in the 70–74 age group, there were twice as many women as men. This could be a result of the higher death rate among men during the wars, rebel fighting and insurgencies suffered for many years in the country.

Women were more likely to be separated/divorced, small farmers with low education, dependants within a household and with no live children to offer support ($p < 0.01$). Other studies undertaken in Uganda reflect a similar profile of the elderly (Mugisha, 1985; Ugandan Ministry of Finance and Planning, 1995a; 1995b). All these factors increase the risk of developing a psychiatric illness.

In many African cultural settings, the family, especially the children, play a critical role in caring for the elderly. However, the presence of children may not prevent the development of psychiatric illness since the development of such

Table 3. The association of study variables with the final psychiatric disorder category as well as the SRQ score category

CHARACTERISTIC	NO PSYCHIATRIC DIAGNOSIS		PSYCHIATRIC DIAGNOSIS	
	(N = 66)	(N = 61)	SRQ ≤ 5 (N = 87)	SRQ > 5 (N = 40)
Age – mean (SD)	70.11 (7.77)	71.72 (.73)	71.52 (9.01)	69.5 (8.15)
Female%	43.9	57.4	44.8	62.5
Married/union%*	50.0	44.3	54.0	32.5
Employed	66.7	57.4	58.6	70.0
Family head	83.3	73.8	80.5	75.0
Children’s support in hospital**	45.5	67.2	52.8	62.5
Chronic condition	28.8	32.8	32.2	27.5
Cancer*	22.7	27.9	19.5	37.5
Medical condition	31.8	40.9	37.9	32.5
Surgical condition**	46.9	27.8	41.4	30.0
SRQ score – M (SD)	2.7 (1.98)	2.0	5.1 (3.18)	6.0
median			2.21 (1.53)	7.4 (1.69)
MMSE – M (SD)	25.4 (3.40), 26.0	20.9 (9.12), 25.0	22.5 (8.19), 25.0	24.9 (4.18), 26.0
median				
Live children – M (SD)	7 (6.74)	6 (5.74)	8 (6.96)	5 (3.94)
Dead children – M (SD)	3 (4.09)	2 (2.63)	3 (3.54)	3 (3.40)
Grandchildren – M (SD)	2 (2.59)	2 (4.28)	3 (3.96)	2 (2.06)
Dependants – M (SD)	2 (6.57)	0 (1.31)	1 (5.60)	0 (2.57)
Psychiatric disorder***				
Depression*			2.3	52.5
Delirium			5.7	2.5
Dementia			6.9	2.5
Paraphrenia			0	2.5
Sleep disorder			5.7	5
PTSD			0	2.5
Adjustment disorder**			2.3	15
Alcohol use disorder			1.2	0
Anxiety			2.3	2.5
Brief psychotic episode			1.2	
Amnestic disorder due to GMC			1.2	0
Nicotine use disorder			0	2.5
Alcohol persisting amnestic disorder			1.2	0

*Significant difference for SRQ score.

**Significant difference for psychiatric diagnosis.

***Psychiatric diagnosis according to the Structured Clinical Interview for the Diagnostic and Statistical Manual IV (SCID).

MMSE = Mini-mental State Examination; SRQ = Self Reporting Questionnaire 25; PTSD = Post Traumatic Stress Disorder; GMC = General Medical Condition; SD = standard deviation.

illness has a biological input. Nonetheless, children actively supported their parents while they were sick, which is what normally happens in African society. (Odetola and Ademola, 1994; Ugandan Ministry of Finance and Planning, 1995a).

The most common physical illness associated with psychological distress was cancer ($p = 0.04$) followed by cerebro/cardiovascular disorders. These findings are similar to those of previous studies that reveal the above disorders to be the commonest in the elderly (Uwakwe, 2000). Earlier studies (Roth, 1966; Eastwood, 1969; Treveleyan, 1972) have all noted that physical and mental illness are closely correlated in the elderly, as cited by Uwakwe (2000). None of the other physical diagnoses was statistically associated with psychological distress. This could possibly be due to the small sample of patients in the study with different physical diagnoses. Q1

The exact nature of the relationship between physical illness and psychiatric disorder has not been clearly delineated. General susceptibility to physical illness and mental disorders (Wasylenki *et al.*, 1984) and altered cerebral metabolism occurring during physical illness may predispose to mental disorder. Moreover, drugs used in the treatment of physical disorders may cause mental disorders; and psychological reactions to physical illness have also been discussed as possible causes of mental disorders among the elderly (Uwakwe, 2000). The existence of physical and mental disorders in the elderly could also be coincidental.

Although no attempt was made in this study to investigate possible causes of psychiatric illness in the elderly, it remains important that mental disorders should be carefully looked for in physically ill elderly people. Similarly, the possible effect of medications in causing mental illness must be monitored. Many elderly patients (26; 20.4%) were also being treated with analgesics to deal with the pains of their illnesses. But it could be that these were somatized pains since this group of individuals usually masks depression with physical complaints, though this is not done deliberately (Ruegg *et al.*, 1988).

This study has revealed a high rate (48%) of mental morbidity in the physically ill elderly patients. This is similar to studies in Nigeria and the U.S.A. which used the same standard diagnostic criteria or structured interview schedules as used in this study. The prevalence in these studies among medical or mixed populations of elderly patients was 40–50% (Lipowski, 1983; Uwakwe, 2000).

Mental morbidity rates reported in physically ill elderly patients are much higher than in the non-patient elderly population, as has been revealed in other studies (Burn *et al.*, 1993; Uwakwe, 2000). Physical and mental disorders frequently coexist and are likely to be complicated by social problems (WHO, 1996). In this study the attending physicians identified only eight (6.3%) cases

of psychiatric illness. Patients with dementia were easily identified as this group of patients usually has obvious signs of cognitive impairment (Uwakwe, 2000).

Lack of recognition of mental illness is usually a result of the masking of the disorders (e.g. depression with somatic symptoms) or a knowledge failure on the part of the attending physicians. (Ruegg *et al.*, 1988). Recognition of mental disorders in the elderly is important because physical/surgical conditions may complicate an undetected mental disorder, which would otherwise have been treated to ensure a better quality of life for the patient (Uwakwe, 2000). Secondly, unrecognized mental illness in the physically ill often delays recovery, increases morbidity and lengthens hospital stays (Ruegg *et al.*, 1988).

Only 40 elderly patients (31.5%) scored an abnormal SRQ of > 5. On the other hand, 61 (48.1%) were diagnosed as having a psychiatric illness using the SCID. The details of this finding are elaborated elsewhere (manuscript in press). Q2

Age and education affect the MMSE score. In addition, general life stress is a crucial predictor and links other environmental and sociodemographic variables with the test performance (Friedl *et al.*, 1996). When a person is physically ill the score worsens. In this study 44 patients (34.6%) had an abnormal MMSE score yet this did not mean that all were suffering from a primary cognitive disorder such as dementia.

Depressive disorders were commonest with a rate of 25.2%. This prevalence is consistent with other findings where depression has been found to be the commonest disorder in the elderly (Turkson and Asamoah, 1997; Uwakwe, 2000). Specifically, the prevalence of major depression was 18.1% and adjustment disorder with depressed mood was 7.1%. Other studies report an average prevalence of depressive illness at about 25% (Uwakwe, 2000; Anderson 2001). But, as has been noted by Mendels (1993) and Ruegg *et al.* (1988), this disorder is often unrecognized and is usually left untreated, which may lead to considerable morbidity and mortality. In this study, only one case of depression was diagnosed (a patient with severe depression).

The prevalence of dementia (5.5%) found in this study is slightly higher than that of the Nigerian study (2.8%: Uwakwe, 2000) though lower than that found in a community study by Prencipe *et al.* (1996) where it was 8%. In this study, delirium was found in six patients (5%). None of the patients with this disorder was on a surgical ward probably because the collection of data was by one individual and, being an illness that can quickly resolve if managed properly, the delirium could have been missed.

Sleep problems (7; 6%) were common among the study group. There were only two cases of anxiety disorders (2%); indeed such disorders are less frequent in the elderly. Paranoid delusional disorder (paraphrenia) was found in only one female and, as has been found elsewhere, this disorder commonly occurs in elderly women (Uwakwe, 2000).

Although only one case of alcohol abuse was noted, two of the cases of delirium were alcohol abusers and actually presented with withdrawal delirium. Some of the cases of dementia were probably a complication of alcohol abuse since the individuals had used alcohol heavily for a long time.

Recommendations

Particular attention should be given to the elderly admitted to hospital in regard to their psychological health. There is a need to sensitize medical practitioners about the mental problems of the elderly. Further studies are needed to clarify the nature, outcome and inter-relation between medical and mental disorders in old age.

Limitations of the study

Problems with medical record-keeping (i.e. inaccurately completed and lost clinical notes and treatment sheets) may have led to the loss of valuable information relevant to the study. In addition, the recruitment of study subjects was possible only when the routine ward schedule allowed it, and so some patients who spent a short time in hospital (e.g. one day or less) could easily have been missed by the investigator.

Finally, the questionnaire used was not translated into the local language, which may have resulted in information bias. However, the instrument was administered by only one investigator who tried as far as possible to phrase the questions similarly to all study participants in order to achieve some degree of consistency.

Conclusion

This study has shown a high rate of mental morbidity in physically ill elderly individuals, with a prevalence of 48% for psychiatric disorders. Marital status is significantly associated with psychiatric illness; those who are widowed or separated/divorced are more likely to be ill. Psychiatric disorders were unequally prevalent in men and women. The attending doctors failed to diagnose most of these disorders and thus no treatments were being given.

Conflict of interest

None.

Description of authors' roles

N. Nakasujja conceptualized and designed the study, collected data and wrote the paper. S. Musisi conceptualized and supervised the study, and wrote the paper. E. Walugembe supervised the study. D. Wallace helped to conceptualize the study and acquire important literature cited in the paper.

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