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DEPRESSION AND DISABILITY: COMPARISONS WITH COMMON PHYSICAL CONDITIONS IN THE IBADAN STUDY OF AGEING

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Abstract

Objective: Even though depression and chronic physical conditions are common causes of disability in the elderly, their relative impact is unknown among elderly Africans.

Method: Face-to-face interviews were conducted with a representative sample of community-dwelling persons aged 65 years and over ($n = 2152$) in the Yoruba-speaking areas of Nigeria (representing about 22% of the national population). Major depressive disorder (MDD) was assessed using the World Health Organization's Composite International Diagnostic Interview. Chronic pain and medical disorders were assessed by self-report. Disorder-specific disability was evaluated using the Sheehan Disability Scale (SDS).

Results: MDD was highly comorbid with each of the medical conditions (Odds ratios range: 1.3 – 2.0). A higher proportion of persons with MDD (47.2%) were rated severely disabled globally than those with arthritis (20.6%), chronic spinal pain (24.2%) or with high blood pressure (25.0%). Subjects with MDD were also more likely to be severely disabled in three of the four domains of the SDS. In pair-wise comparisons, persons with MDD had significantly higher levels of disability than those with any of the disorders with the difference in the mean scores ranging between -3.74 and -27.50 .

Conclusion: In order to reduce the public health burden of depression, its prevention and treatment require more clinical and research attention than currently given by developing countries.

Keywords

Depression; physical disorders; disability; elderly; Nigerians

INTRODUCTION

Depression is a common and debilitating illness globally(1, 2). Accounting for 4.4% of the total disability adjusted life years (DALYs) in 2000, it is projected to become the second most burdensome disorder by the year 2020(3). Several studies have shown that depression

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is often comorbid with chronic physical conditions. Persons with diabetes, asthma, and chronic pain conditions, for example, have elevated risks for comorbid depression(4, 5). These studies, mainly conducted in developed countries of Western Europe and North America, have also shown that the presence of depression in persons with chronic physical conditions is associated with higher disability and greater impairment in quality of life(6). A recent survey of the general population in several countries, developed and developing, found that chronic physical conditions is highly comorbid with depression(7). The study also showed that, when conditions were considered in their pure non-comorbid state, depression was associated with a higher level of disability than chronic physical conditions such as diabetes, arthritis, asthma, and angina. Conducted among general adult populations(7) the study thus highlights the disabling nature of depression relative to common chronic conditions in the community.

Depression is also common among the elderly(8, 9). In a previous study, we showed that elderly Nigerians had a rate of major depressive disorder that was much higher than that in the general adult population(10). Among the elderly, depression was associated with impaired quality of life and elevated risks of disability in diverse areas of functioning(10, 11). However, since ageing is also associated with an increase in the prevalence of chronic physical conditions and with an increase in the risk of functional disability(12), it was unclear whether the level of disability we reported in that report was substantially or even predominantly accounted for by comorbid chronic physical condition. Contextual factors play an important role in determining the level of disability associated with a health condition(13). Other than access to treatment, patient and carers attitude may affect the relative level of disability associated with different health conditions in the elderly. Consequently, even though previous studies, largely conducted in developed countries of North America and Western Europe have shown that depression may carry a higher risk of disability than many chronic physical conditions in the general population(14), the same pattern may not apply to elderly persons living in a sub-Saharan African setting where the pattern of access to care, both formal and informal, to different health conditions may be different.

With a growing proportion of elderly persons in their populations, developing countries will face increasing dilemma about allocation of resources for health service to the elderly. Given the traditional neglect of mental health issues in these countries(15, 16), it is likely that the focus for the alleviation of functional disability in the elderly will be on chronic physical conditions except compelling evidence is available to suggest a different approach. In this report, using data from a community-based study of elderly persons, we present results of an evaluation of the disability associated with major depressive disorder (MDD) and a number of chronic medical conditions in elderly Nigerians.

METHOD

The method of the Ibadan Study of Aging (ISA) has been described in full elsewhere(10, 12) and only a brief summary is provided here. The ISA is a community survey of the mental and physical health status as well as the functioning and disability of elderly persons (aged 65 years and over) residing in the Yoruba-speaking areas of Nigeria, consisting of eight contiguous states in the south-western and north-central regions (Lagos, Ogun, Osun, Oyo, Ondo, Ekiti, Kogi and Kwara). These states account for about 22% of the Nigerian population (approximately, 25 million people). The survey was conducted between November 2003 and August 2004. Respondents were selected using a multi-stage stratified area probability sampling of households. In households with more than one eligible person (aged 65 years and fluent in the language of the study, Yoruba), the Kish table selection

method was used to select one respondent. Face-to face interviews were carried out on 2152 respondents who provided consent to participate, representing a response rate of 74.2%.

The survey was approved by the University of Ibadan/University College Hospital, Ibadan Joint Ethical Review Board.

Measures

Diagnostic Assessment—Depression was assessed using the World Health Organization Composite International Diagnostic Interview (CIDI) version three, a fully structured diagnostic interview(17). Diagnosis of major depressive disorder (MDD) was based on the criteria of the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)*(18). *DSM-IV* organic exclusion rules were imposed in making the diagnosis of depression. Judgments about which organic conditions could explain a co-occurring MDD was made during clinical reviews (by a psychiatrist) of all questionnaires in which endorsements of depression features were made.

A checklist of chronic physical and pain conditions was included in the ISA(19). Respondents were asked if they had any chronic respiratory conditions (asthma, tuberculosis, other lung disease), digestive conditions (irritable bowel syndrome, ulcer), cardiovascular conditions (high blood pressure, heart disease, heart attack, stroke), cancer, diabetes, or epilepsy Respondents were asked whether they had experienced each of the symptom-based conditions in the previous 12 months. The checklist also ascertained the presence of any chronic pain. These included back or neck pain, arthritis, frequent headaches, and a general category of chronic pain in any other body parts.

Role impairment was assessed using the Sheehan Disability Scale (SDS)(20). For persons with 12-month MDD, this was done after the assessment for depression. For persons with a chronic physical condition, this was done after the assessment for the condition. Persons with multiple chronic physical conditions were asked to identify the most disabling of the conditions in the prior 12 months. The SDS rating was made for the condition so chosen by the respondent. The SDS was used to assess the extent to which work, household activities, relationships, and social roles were affected by the health condition in the worst month in the past year. A visual analogue scale was used to score responses: none (0), mild (1-3), moderate (4-6), severe (7-9) and very severe (10).

Data analysis

In order to take account of the stratified multistage sampling procedure and the associated clustering, weights have been derived and applied to the rates presented in this report. Also, post-stratification to the target sex and age range were made to adjust for differences between the sample and the total Nigerian population (according to 2000 United Nations projections(21)).

Two sets of analysis of the SDS were made. Domain-specific and global means were calculated for each condition. Also, the proportions of respondents rated severe or very severe in each domain and globally were calculated for each condition. Pairwise comparisons were made between these values for depression and the chronic physical conditions. In order to take account of the sample design, we used the jackknife replication method implemented with the STATA statistical package to estimate standard errors for the means and proportions(22). Statistical significance was set at 0.05 in two-sided tests.

RESULTS

12-month prevalence

Arthritis was the most common disorder, reported by almost 70% of the sample. This was followed by another pain condition: chronic back or neck pain. Major depressive disorder was present in 7% of the sample. Females were significantly more likely to report arthritis while males had significantly higher prevalence of diabetes.

Depression was highly comorbid with each of the medical conditions (Table 2). Other than diabetes in which the risk of comorbid MDD was no greater than chance, the odds of having MDD ranged between 1.6 and 2.0 for persons with the other chronic conditions.

Table 3 shows the proportions of subjects in each disorder group with a rating of severe or very severe (at least 7) on any of the four domains of the Sheehan Disability Scale. Subjects with MDD were more likely than those with any of the other disorders to rate themselves as severely disabled in at least one domain. While 47.2% of subject with MDD were so rated, the proportions for arthritis, spinal pain and high blood pressure were 20.6%, 24.2%, and 25.0%, respectively (chi square 4.21; df 3; $p < 0.05$). Significantly more males than females had severe disability rating in at least one domain compared to males (58.0% vs. 39.7%). There were no gender differences in the other disorder groups.

Table 4 compares proportions of subjects with MDD who rated themselves severely disabled (a rating of at least 7) in each of the specific domains of the SDS with those with pain or medical conditions. For this analysis, arthritis and chronic spinal pain were combined to form a pain group while high blood pressure, asthma and diabetes were combined to form a chronic medical conditions group. The results show that in each of the SDS domains, other than relation, more depressed subjects were likely to rate themselves as severely disabled than either those with chronic pain or chronic medical conditions. The differences were particularly more pronounced in the domains of home activities and work.

Table 5 presents the means of the sum of the SDS ratings in the four domains for each of the disorders. Comparisons are made between males and females and between MDD and each of the other disorders. The mean rating for depression (13.3) was the highest among the disorders. Males and females had similar scores for each of the disorders except for arthritis where females scored significantly higher than males (11.9 vs. 9.9). Subjects with MDD had significantly higher levels of disability than those with any of the disorders. The mean score of subjects with MDD on SDS was significantly higher than the score for each of the disorders. The difference was highest between depression and arthritis (−27.50) and least between depression and diabetes (−3.74).

DISCUSSION

In this paper, we have shown that, among elderly Nigerians, the disability associated with MDD is far in excess of that associated with some common chronic and medical conditions. Compared to elderly persons with arthritis, chronic spinal pain, high blood pressure, asthma or diabetes, those with MDD had worse disability ratings on the SDS and were more likely to be severely disabled both globally and in regard to work, home and social roles.

Our study has limitations. One, diagnosis of pain and medical conditions were based on self-report. Even though conditions such as arthritis and spinal pain were unlikely to be significantly affected by underreporting, those of high blood pressure and diabetes could have been affected by underreporting since, for these conditions, only those who reported having been informed of such diagnosis from their physicians were regarded as cases.

Second, the comparisons were based on small numbers in some of the categories. By focussing our analysis only on those with pure disorders and excluding comorbid (depression and physical conditions) cases in our analysis, the numbers were considerably reduced. However, both underreporting and comparing only pure cases would have resulted in conservative estimates of the extent of differences between the disorders and would thus have served to strengthen rather than weaken our findings. Another limitation is that disability was assessed with a self-report scale rather than by an interviewer using a clinical tool. It could be argued that elderly persons with depression might have rated their functioning much less than it was as a result of their mental condition. As to physical disorders, for example, people with depression might have given overly pessimistic appraisals of their functioning. However, in this sample, as shown in our previous report, there was congruence between self-rated SDS ratings of disability and interviewer assessment of functional limitations, suggesting that the subjective evaluations of disability conducted by the respondents was likely to be valid. The SDS is designed for the rating of condition-specific disability and has been used for both mental and physical disorders in several surveys across the world (23).

Several studies have shown that depression is a highly disabling disorder in the elderly (10, 11, 24). A few studies, conducted in general adult populations, have also shown that depression is commonly associated with greater disability than chronic medical conditions such as arthritis, asthma, diabetes, and angina (7, 25). However, the high prevalence of chronic pain and medical conditions in the elderly could lead to these conditions being presumed to be a more likely cause of disability among them than depression might be. Indeed, in this study, we showed that, compared to depression, arthritis and spinal pain were much more prevalent conditions in the elderly. However, our findings show that depression is a greater cause of disability than any of these conditions. It is instructive that the greater disability associated with depression was not observed only in regard to social roles. Depression was also more impairing than the chronic physical conditions in regard to work and home roles as well.

Several studies have documented the considerable burden associated with depression. Using measures such as absence and disability losses, quality of life, as well as overall health scores, previous reports have shown that depression carries comparable, and sometimes worse, consequence than several common physical conditions (7, 25-28). Two recent reports of large population-based surveys of general adult populations in the US and several other countries around the world provide particularly compelling evidence for the comparatively higher burden of disability associated with depression (6, 25). The ISA has extended the results of such studies by showing that among this largely understudied population of elderly persons in a developing country, for whom the profile of both mental and physical disorders can be expected to be substantially different, depression is associated with considerably higher disability burden than arthritis, spinal pain, high blood pressure, asthma and diabetes. In this regard, our findings complement those of Ormel and colleagues (29). These workers, studying a sample of middle-aged and older Dutch respondents, reported that, even though depression and common medical conditions such as arthritis and back pain affect subjectively rated wellbeing and objective evaluations of disability differently, depression nevertheless makes a unique contribution in dysfunction, poor health perception, and wellbeing that exceeds that of medical conditions (29). It is worthy of note that, as for some reports (6, 25), when comparisons have been made between depression and chronic physical conditions, disability has not been assessed in a specific manner relative to the disorders. In this study, we have asked respondents to rate the disability associated with each of the conditions. The disability assessments are therefore specific for the conditions reported. It must also be noted that, for the physical conditions, respondents with multiple conditions were asked to identify the most disabling and focus on this for the rating of the SDS. On the

other hand, every subject with depression completed the SDS. In essence, the ratings for the physical conditions represented assessment of the more serious cases whereas the ratings of MDD spanned the entire spectrum of severity of that condition. The differences we report between depression and the chronic physical conditions are therefore conservative.

At its current rate of growth, the elderly population in the developing countries will soon represent more than three-quarters of the world's elderly population(21). The common focus on the physical health of the elderly, to the neglect of their mental health, may become even more so as they make increasing demand on the health systems of low and middle-income countries where limited resources are bound to lead to hard choices in the provision of care. Our results should inform a broader approach to health care service for the elderly in these countries. We have shown that the presence of chronic pain and physical conditions is associated with an elevated risk for comorbid MDD. Therefore, elderly persons with any of these conditions should be seen as having an increased likelihood of also being depressed. On top of that, we have shown that, even when chronic pain and physical conditions are not present, elderly persons with MDD are considerably more disabled than those with chronic pain or physical conditions. Thus, any health care policy for the elderly must have the treatment of depression as a priority.

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12-month prevalence of major depressive disorder and chronic physical conditions

Table 1

Condition	Male			Female			Total			p-value
	n	%	s.e	n	%	s.e	n	%	s.e	
Depression	66	6.6	0.8	85	7.4	0.8	151	7.0	0.6	0.5184
Arthritis	646	64.9	1.5	842	72.8	1.3	1488	69.1	1.0	0.0001
Back/Neck Pain	492	49.5	1.6	596	51.5	1.5	1088	50.6	1.1	0.3396
HBP	97	10.0	1.0	119	10.5	0.9	216	10.3	0.7	0.7185
Asthma	63	6.3	0.8	96	8.3	0.8	159	7.4	0.6	0.0824
Diabetes	29	3.0	0.6	18	1.6	0.4	47	2.2	0.3	0.0298

Comorbidity of depression and chronic physical conditions

Condition	N	Prevalence of Depression		Odds of having depression	
		n	%	C.I.	OR
Arthritis +	1488	117	7.9	6.6-9.4	1.9
Arthritis –	664	34	5.1	3.7-7.1	1
Back/Neck pain +	1088	92	8.5	6.9-10.3	1.6
Back/Neck pain –	1064	59	5.6	4.3-7.1	1
HBP +	216	26	12.0	8.3-17.1	2.0
HBP –	1881	119	6.3	5.3-7.5	1
Asthma +	159	18	11.3	7.3-17.3	1.8
Asthma –	1993	133	6.7	5.7-7.9	1
Diabetes +	47	4	8.5	3.2-20.6	1.3
Diabetes –	2050	141	6.9	5.9-8.1	1

Table 2

Table 3

Proportions of subjects in each disorder group with a global rating of severe disability

Condition	Male			Female			Total			p-value
	n	%	s.e	N	%	s.e	n	%	s.e	
Depression	29	58.0	7.0	29	39.7	5.8	58	47.2	4.5	0.05
Arthritis	42	18.5	2.6	54	22.6	2.7	96	20.6	1.9	0.78
Back/Neck Pain	15	23.1	5.2	22	25.0	4.6	37	24.2	3.5	0.39
HBP	5	31.2	11.8	2	16.7	11.0	7	25.0	8.3	0.39
Asthma	0	0.00	0.0	3	17.6	9.5	3	13.6	7.5	0.32
Diabetics	0	0.00	0.0	1	14.3	13.9	1	10.0	10.0	0.52

Table 4

Proportions of subjects in each disorder group with domain-specific rating of severe disability

Condition	Pain			Physical			Depression			Pain/Depression		Physical Condition/Depression	
	n	%	s.e	n	%	s.e	n	%	s.e	x ²	p-value	x ²	p-value
Work	51	7.3	1.0	1	1.4	1.4	11	15.94	4.4	6.397	0.01	9.28	0.003
Home	119	16.0	1.4	10	13.2	3.9	25	35.21	5.7	16.40	0.001	9.84	0.002
Social	56	8.9	1.1	3	4.8	2.8	11	16.42	4.5	4.013	0.045	4.46	0.04
Relation	60	9.5	1.2	4	6.4	3.1	11	16.18	4.5	2.99	0.08	3.11	0.081

Sex and disorder comparisons of global Sheehan Disability Scale rating

Table 5

Condition	Male			Female			Total			Male vs Female		Depression vs. physical * condition	
	n	x	s.e	n	x	s.e	n	X	s.e	Z	p-value	Z	p
Depression	5	14.5	2.5	40	12.5	1.7	65	13.3	1.4	-0.56	0.58		
Arthritis	221	9.9	0.6	233	11.9	0.7	454	10.9	0.5	-2.21	0.03	-27.495	0.001
Back/Neck Pain	64	11.8	1.2	81	9.8	0.9	145	10.7	0.7	-1.16	0.25	-14.799	0.001
HBP	16	11.5	2.5	12	6.9	2.4	28	9.5	1.8	-0.95	0.34	-7.141	0.01
Asthma	5	9.6	2.6	16	8.6	2.1	21	8.9	1.7	-0.53	0.55	-6.000	0.01
Diabetes	3	2.7	2.7	6	6.0	4.1	9	4.9	2.8	-0.31	0.76	-3.7423	0.01

* Analysis controlled for age and sex