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Household Costs of Mental Health Care in Ghana

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Abstract

Background: In Ghana, the prevalence of mental illness is about 13% and most patients are seen on out-patient basis. The economic burden of mental health care to patients and their families is, largely, unknown.
Aims: The aim of this study was to estimate the direct and indirect costs of mental illness to patients and their families and also to describe the intangible costs associated with mental illness.
Methods: Cross-sectional study design was used. Data were collected at the Psychiatric Unit of Ho Municipal Hospital, in the city of Ho, Ghana, from patients with mental illnesses and their households. Direct costs were estimated as medical cost and non-medical cost. Indirect costs were estimated for reported lost time/ days by patients and their families. Sensitivity analysis was performed by varying uncertain parameters. Intangible costs was described using the Likert scale to measure the effect of mental illness on patients and their households in the areas of functional limitation, fear, emotional suffering, social relationship, stigmatisation/discrimination and leisure time.
Results: The total household cost of mental healthcare for the three month period was estimated as US$34,518.27 (average of US$180.72 per household), with direct and indirect cost making up 26% and 74% respectively. The average monthly household cost was estimated as US$60.24 as compared to the average reported household monthly income of US$184.48. Indirect cost was sensitive to the choice of wage rate used (i.e. local versus national rate). About 64% and 72% of patients and their households respectively were affected emotionally as a result of mental illness.
Discussion: Productivity losses due to caregiving and lost employment were the major contributors to the cost of mental illness to patients and households, constituting more than two-thirds of total costs. Cost of drugs was the highest contributor to the direct cost of mental illness. There is the possibility of over (or under) estimation of the cost due to recall challenges of patients and household. It is important to note that this study presents costs to households whose mentally ill member sought care from the facility – some patients seek care from outside health facilities.
Implications for Health Care Provisions and Use: Expanding financial access to mental health care for households – through improved coverage under the National Health Insurance Scheme - and improving delivery of mental health care services in Ghana through close-to-client strategies could ease the economic burden of mental health to many households.

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Introduction

Mental disorders are an important cause of long-term disability and dependency. They make up three of the 10 leading causes of disease burden in low- and middle-income countries.[1] At a particular point in time, 10% of adult population suffer from mental and behavioural disorders.[1] In Ghana, the prevalence of mental disorders is about 13%; some of whom seek treatment through the orthodox, traditional and spiritual means, and others do not.[2]

In spite of the increasing global awareness of the burden of mental disorders and the need to curb it, there is a dearth of knowledge on mental disorders and mental healthcare in Ghana. Studies have estimated the economic burden of mental illness to the individual, family, community and the nation.[3-7] Cost estimation of the burden of mental disorders informs policy makers about the allocation of resources and choice of cost-effective preventive and treatment programs for mental healthcare.[8]

In the United States, serious mental illness was estimated to be associated with a loss of US$193.2 billion in personal earnings.[5] The national aggregate impact of depression and other mental health conditions through the loss of labor force participation amongst 45-64 year olds in Australia was estimated as AUS$278 million in lost income tax revenue, AUS$407 million in additional transfer payments and around AUS$1.7 billion in Gross Domestic Product (GDP) in 2009.[7]

There are also economic costs of mental disorders in sub-Saharan Africa. For example, the total economic cost of mental and behavioural disorders in Kenya in the financial year 1998/99 was about US$13.3 million which constituted approximately 10% of the Ministry of Health's total recurrent expenditure in that same year.[6] Further, Appiah-Kubi *et al.*[9] established a relationship between mental illness and poverty in Ghana. They attributed this relationship to the

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direct cost of treatment and indirect economic cost such as lost earnings and productivity loss to mentally ill patients as well as their carers or family members.

Evidence shows that mental illness poses an enormous economic burden on individuals and the nation as whole.[5-7] Household members are usually the primary caregivers of people with mental illness. It is estimated that one out of four families has at least one member currently suffering from a mental or behavioural disorder.[10] Household members are exposed to various forms of stigma, isolation and economic burden. Patients are also subject to various forms of stigma and discrimination which is mainly due to widespread misconceptions about their causes and nature of mental illness.[11-13]

Indirect and direct non-medical costs of mental health care which are borne by the patient and the family – accounts for a larger proportion of the total cost of mental illness.[4,8,14,15] Munoz *et al.*[16] described the social cost of mental disorders by assessing the disability and work days lost as a result of mental disorders. They assessed disability using the Sheehan's scale to assess four areas of functioning; work, social life, home responsibilities and close relationships, of which the close relationship and social life areas were the most affected. Most of the studies on the cost of mental health care were conducted in high income countries, and were focused on the effect of illness on personal earnings, national income and cost to the society, often ignoring the cost to the household. There is a dearth of such studies in Africa.

In Ghana, where prevalence of mental illness is 13%[2] and mental health care has received limited attention, about 92% of mentally ill patients who seek care from healthcare facilities are seen on Out-Patient Department (OPD) basis.[9] The National Health Insurance Scheme (NHIS) does not fully cover all the commonly prescribed psychotic drugs.[17] Besides, only acute mental illness is exempted from payment of insurance premium.[18] Policies intended to ensure effective provision of mental health services have not been fully implemented. It is believed that the passing of the Mental Health Act in March 2012 will improve the provision and delivery of mental health services in the country.[19] This notwithstanding, there is little evidence on the economic cost of mental disorders in Ghana, although some studies have described the stigmatisation and discrimination associated with it.[20] There is the need to highlight the economic burden of mental health care to households in Ghana to provide useful information regarding financial access to mental health care and service delivery in the country.

This paper estimates the household costs of mental healthcare in Ghana, specifically the direct costs and the indirect costs, and describes the intangible costs of mental healthcare.

Methods

Study Design

Cross-sectional cost of illness approach was employed.

Study Area

The Ho Municipal hospital was established in 1927. It renders health services to the people of Ho Municipality and its catchment area including Adaklu-Anyigbe district. The Municipality has an estimated population of 225,026 with an annual growth rate of 1.9%. The Municipality is made up of 474 communities, 99% of which is rural. The main economic activity in the Municipality is farming, which employs about 64% of the total labour force in the municipality. Others are engaged as traders and constructional workers, with few in the formal sector.[21,22] The Municipality depicts a rural Ghanaian district where most of the inhabitants work in the informal sector, and the health care system is representative of a typical Ghana health care system. The hospital's Community Psychiatric Unit provides mental health services to clients in the hospital and their individual homes. Other services rendered are outreach services in the communities, healing centres and camp; and also health talks to institutions like schools, churches and the out-patient department of the hospital.[23]

Study Population, Sample Size and Sampling

The study population included households with mentally ill patients diagnosed with mental illness for the past 12 months or more who visited the Community Psychiatric Unit of Ho Municipal Hospital between May 2012 and June 2012. A total of 191study participants were randomly selected from the OPD attendance list. The inclusion criteria for the study were all patients who had been diagnosed with mental illness for a duration of 12 months or more. Of these patients, those who were accompanied by their relatives and relatives who came for drugs for patients (who were severely ill and could not talk for themselves) were interviewed using a semi-structured questionnaire after consenting to it. Patients were not followed to their homes because of the incompleteness of some addresses and the unwillingness to be followed to their homes. The exclusion criterion was patients who were diagnosed with mental illness for a duration less than 12 months (because cost of mental illness during the acute stages is more costly as compared to when patient has been stabilised) and patients who came alone unaccompanied by any relatives/caregivers and had no knowledge on the household information to be answered.

Data Collection Technique

A semi-structured cost questionnaire was used for data collection. Data collected included sociodemographic variables, type (International Classification of Mental and Behavioural Disorders-Tenth edition (ICD-10) is used in the diagnosis of mental illness in Ghana) and duration of mental illness, direct, indirect and intangible costs and household assets and possessions.

Direct costs comprised of medical and non-medical costs. Medical cost included cost of drugs and consultation (at hospital, faith/spiritual healing centres and traditional healing

Table 1. Estimation of Household Mental Healthcare Costs.

Cost Component
Direct Costs
Medical Costs
Costs of drugs: This was calculated by summing the cost incurred by households on drugs.
Faith/ Spiritual healers' treatment costs: This was calculated by summing the cost incurred by households as treatment cost for consulting faith/spiritual healers.
Traditional healers' treatment costs: This was calculated by summing the cost incurred by households as treatment cost for consulting traditional healers.
Total direct medical costs: This was obtained by summing the total cost of drugs, total treatment cost incurred from consulting faith/spiritual healers and traditional healers.
Non-medical Costs
Travel costs: This was calculated by summing the travel cost incurred by households in seeking mental healthcare.
Patients and caregivers food costs during treatment: This was calculated by summing the cost incurred by households on food for caregiver and patient during treatment.
Caregivers accommodation costs: This was calculated by summing the cost incurred by households on accommodation during admission.
Hiring caregivers costs: This was calculated by summing the cost incurred by households on hiring a caregiver to care for the mentally ill patient.
Other miscellaneous costs: Other miscellaneous costs (such as cost of phone calls made during treatment) were calculated by summing the miscellaneous costs incurred by households in seeking mental healthcare.
Total direct non-medical costs: This was calculated by summing the total travel cost, total cost of food for patient and caregivers during treatment, total cost of accommodation during admission, total cost of hiring caregivers and total miscellaneous costs.
Total Direct Costs: This was derived by summing the total direct medical cost and the total direct non-medical cost.
Indirect Costs
Productivity Losses
Days lost to seeking care by patient: This is the summation of days lost to patients who are employed and students/apprentices as a result of mental illness for the three month period.
Days lost to seeking care by household members: This is the summation of days lost to household members as a result of their mentally ill patient for the three month period.
Days lost due to lost employment: This is the summation of the number of days lost to patients who have lost employment as a result of mental illness.
Productivity loss due to Caregiving by household members: This is the summation of the total number of hours spent by household members in caring for their mentally ill patients. These were converted to days. The days were further multiplied by the total number of days in the period of studies to get the total number of days spent in caregiving by household members.
Productivity loss due to Travelling time: This is the summation of the total number of hours spent by households as travelling time in seeking mental healthcare for the three month period.
Productivity loss due to Waiting time: This is the summation of the total number of hours spent by households as waiting time in seeking mental healthcare over the three month period.
The total productivity days lost by patients and their household members were estimated by summing days lost to seeking care by patient, seeking care by household members, lost employment, caregiving by household members, travelling time and waiting time.
The evaluation of productivity losses was done by multiplying the total days lost by each patient and household members by the national minimum wage of the country (i.e. US$ 2.50 per day).
Total Indirect Costs: This was estimated by summing the valued productivity losses for all patients and their household.
Intangible Costs
Likert's scale was used to analyse the responses of patients and their households under their individual dimensions by ratings. The means and percentages of the responses for each dimension and individual items under them were calculated for patients and household members; and were used in the description of the effect of mental illness on the above mentioned dimensions.

centres). Non-medical cost comprised of travel cost, cost of food and accommodation during treatment, cost of hiring caregivers (for those who used the services of a paid caregiver) and miscellaneous costs such as phone calls.

Indirect cost constituted productivity losses to patients and to other household members due to mental illness. These included productivity loss due to lost employment, days lost by employed patients, days lost by household members in seeking care and in care giving, travelling and waiting time lost by patient and household members in seeking mental healthcare.

Intangible costs are psychic, psychological pain borne by patients and their family. For patients, these were described under the dimensions: functional limitations such as ability to perform usual functions – self care and house chores, fear, social relationship such as marriage, emotional suffering, stigmatisation/discrimination and loss of leisure time. Intangible costs for household members were also described under the dimensions: fear, social relationship such as marriage, emotional suffering, stigmatisation/discrimination and loss of leisure time.

Measures taken to ensure reliability of data were training of research assistants, pre-testing of questionnaire, continuous monitoring of research assistants during data collection stage, and editing of completed questionnaires.

Data Analysis

Cost analysis was undertaken from the perspective of the household. All costs estimated were costs incurred by households from February 2012 to April 2012 (i.e. recall period of three months). Indirect cost was estimated using the human capital approach which measures output losses by lost earnings.[24] **Table 1** shows how the direct costs, indirect and intangible costs were analyzed.

Estimation of Monthly Household Income and Catastrophic Health Care Expenditure

This was estimated by summing income earned through monthly salaries, gifts, remittances and monthly earnings of all household members. Catastrophic health care was estimated as out-of-pocket health care expenditure (direct cost) exceeding 10% of total income.

Sensitivity Analysis

Sensitivity analysis was undertaken to ascertain the robustness of the cost estimates. This was conducted by varying some uncertain cost data such as wage rate used in the valuation of time/days lost and the cost of drugs for the treatment of schizophrenia, the most expensive mental disorder.

Ethical Consideration

Ethical approval was sought from the Ghana Health Services Ethical Review Committee before commencement of the research. Permission was also sought from the hospital administration of the Ho Municipal Hospital, where the research was conducted. The consent of study participants was also sought. Study participants were assured of the confidentiality and data safety and appropriate usage.

Table 2. Background Characteristics of Patients.

Variables	Number	(%)
Total	191	
Sex		
Male	77	(40.3)
Female	114	(59.7)
Age (years)		
< 20	27	(14.1)
20-39	89	(46.6)
40-59	51	(26.7)
≥ 60	24	(12.6)
Marital Status		
Married	60	(31.4)
Not married	131	(68.6)
Employment Status		
Employed	134	(70.1)
Unemployed	41	(21.5)
Student/Apprentice	16	(8.4)
Household Size		
< 5	108	(56.5)
≥ 5	83	(43.5)
Reported Household Monthly Income (US$)		
0-111	79	(41.4)
112-223	56	(29.3)
224-334	19	(9.9)
335-446	22	(11.5)
447-1340	15	(7.9)

Results

More than half of respondents had a household size of less than five as shown in **Table 2**. The mean household size was 1.9. The median and mean reported monthly household income were US$113.63 and US$184.48 respectively, with majority of respondents (59%) reporting a monthly household income less than the mean reported monthly household income.

Direct and Indirect Cost

Table 3 shows the total estimated cost of mental healthcare as US$34,518.27 for the three-month period during which data were collected (an average of US$180.72 per household). Thus the average household cost of mental healthcare per patient per month was estimated at US$60.24. Direct cost made up 26% of the total cost, of which cost of

Table 3. Cost of Mental Health Care.

Cost component	Cost (USD*)	n	Average cost (USD*)	Cost profile (%)
Direct Costs				
Medical costs				
Drugs	5,601.14	171	32.76	16.2
Consultation with traditional healer	965.91	6	160.99	2.8
Consultation with faith/spiritual healer	649.43	11	59.04	1.9
Sub-total	7,216.48	173	41.71	20.9
Non-medical costs				
Travel	1,201.25	186	6.46	3.5
Food	288.41	58	4.97	0.8
Hiring caregiver	170.45	1	170.45	0.5
Accommodation during admission	22.73	2	11.37	0.1
Miscellaneous	157.39	24	6.56	0.5
Sub-total	1,840.23	187	9.84	5.3
Total direct cost	9,056.70	189	47.92	26.2
Indirect Costs**				
Seeking care cost by patients employed	758.55	134	5.66	2.2
Lost employment cost	8,766.55	41	213.82	25.4
Care giving cost	14,183.27	83	170.88	41.1
Seeking care cost by household members	794.18	191	4.16	2.3
Travel time cost	441.41	191	2.31	1.3
Waiting time cost	517.62	191	2.71	1.5
Sub-total	25,461.56	191	133.31	73.8
Total Costs	34,518.27	191	180.72	100.0

* USD ($) exchange rate used was Ghanaian Cedi (GHS) 1.79.
** National minimum wage per day for the year 2012 was used to value productivity days lost by households.

Table 4. Household Productive Days Lost.

Category	n	Days lost
Caregiving:		
Caregiving by household members	83	5,572
Sub-total		5,572
Due to Symptoms of illness:		
Days lost by patient (employed)	134	298
School/Apprentice days lost	16	166
Sub-total		464
Treatment:		
Days lost by household members	191	312
Travel time*	191	173.4
Waiting time*	191	203.3
Sub-total	191	688.7
Total	191	6,724.7

* Travel and waiting time were collected in minutes and was converted to hours and subsequently days using 24 hours = 1 day.

drugs was the biggest proportion (62%). Travel cost was the second highest of the direct cost. Indirect cost constituted approximately 74% of the total cost of mental healthcare. Caregiving cost represented the highest cost profile for both indirect and total cost of mental healthcare. **Table 4** shows the productivity days lost to patients and their household members as a result of mental healthcare. The average days spent in care giving was estimated at 67 days. Students/apprentices also lost 10 days on the average as a result of their illness.

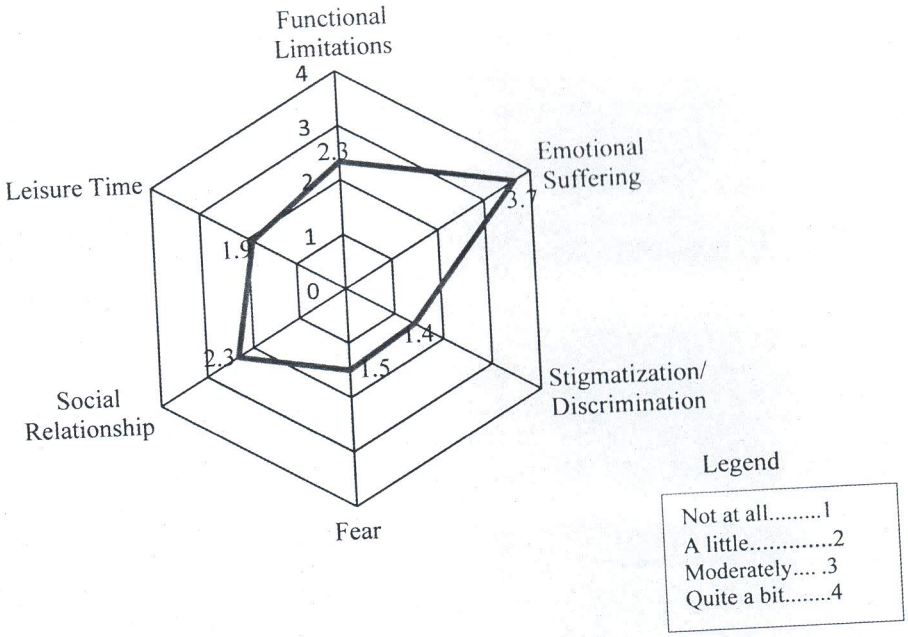

Figure 1. Mean Dimensional Values for Patients.

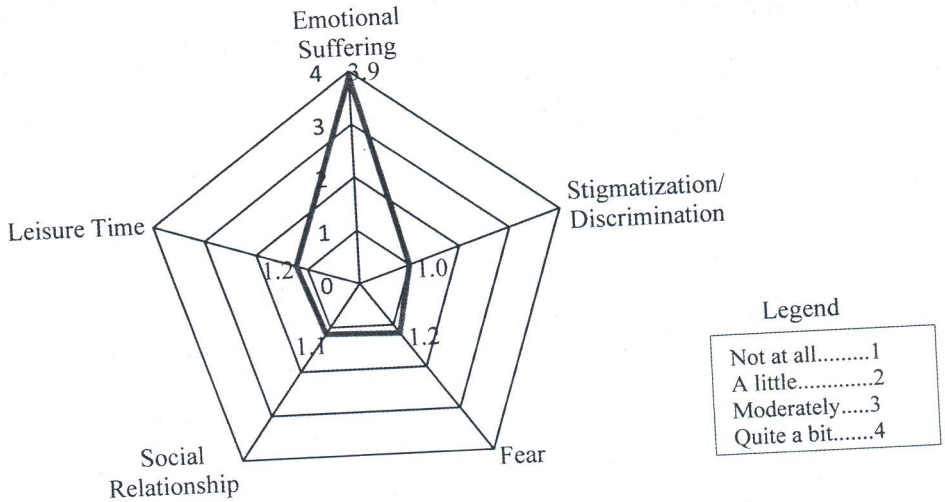

Figure 2. Mean Dimensional Values for Household Members.

Sensitivity analysis showed a change of +14% in the indirect costs, when the use of the national minimum wage per day in the valuation of indirect cost was varied using the average casual labour wage per day in the Ho Municipality. A change of +4 was also seen when cost of drugs for treating schizophrenia was increased by 10%.

Intangible Cost

The mean values of the studied dimensions for the patients and household members are presented in **Figure 1** and **Figure 2** respectively.

The dimension with the highest mean was Emotional Suffering for both patients (3.8) and their household members (3.9), whereas the one with the least mean was Stigmatisation/discrimination also for both. Items such as; 'I think others think less of me' and 'I feel ashamed of myself', under emotional suffering had the highest mean scores (4.1 for both). Functional limitations which included ability to do usual functions such as house chores, and form and maintain close relationships were the second dimension that was affected more as a result of mental illness. Households were not affected as a result of their mentally ill patients in the dimensions of stigmatisation/discrimination, fear, social relationships and loss of leisure time. There was no difference seen in the means of responses for both patients and household members when stratified by sex. This was confirmed by Mann-Whitney test which showed no significant difference between responses of male and female for all items under the dimensions for both patients and household members with the exception of fear on the part of patients where there was a significant difference between responses of males and females for the item: ''Fear of not getting a life partner'' (p-value = 0.04).

Discussion

The total household cost of mental healthcare was estimated to be US$34,518.27 for the three month period (an average of US$180.72 per household), with indirect cost constituting 74%. About 80% of the direct cost constituted medical expenses and 20% as a result of non-medical expenses. The means of intangible cost estimated for patients and households were both highest for emotional suffering and lowest for stigmatisation/discrimination.

The study has demonstrated that cost of mental healthcare is high and thus cannot be underestimated. The proportions of direct and indirect costs estimated are comparable to costs estimated in other studies in other countries. This finding is similar to studies done in the UK on the societal cost of mental illness.[4,13] However, in contrast to this, the direct cost of mental and behavioural disorders estimated in Kenya by Kirigia and Sambo constituted the highest proportion (81%). This difference could be attributed to the perspective in which cost was estimated. Whilst this study estimated cost from the household perspective, the cost of mental and behavioural disorders in Kenya was estimated from the societal perspective which looks at cost to both the patient and provider.[6] Furthermore, the direct medical cost estimated for bipolar disorders in the UK was 74.5% of the total direct cost, which is also similar to results of this study.[4]

The indirect cost estimated in the UK is also comparable to that of this study in terms of their proportions to the total cost. Output losses as estimated by the Centre for Mental Health[14] was 71% of the total cost whereas indirect cost of bipolar disorders as estimated by Gupta and Guest[4] made up 76.9% of the total cost. However, in contrast to this study, the estimated indirect cost of mental and behavioural disorder in Kenya constituted 19% of the total indirect cost, though cost due to premature deaths which constituted the highest percentage (92%) of the indirect cost was not estimated in this study.[6] This presupposes that the indirect cost estimated in this study could have been more than what was found if cost due to premature deaths were estimated. However, of the total cost borne by patients and relatives in Kenya, indirect cost constituted 90%.

The estimated indirect cost of this study may have been overestimated or underestimated because some employees may in actual sense earn more or less than the national minimum wage in the country that was used to value the productivity days lost. An option would have been to use the local agricultural wage rate since the municipality has a significant proportion of inhabitants being farmers.[25] That approach would have led to higher indirect costs since local wage rates are usually higher than national minimum wage. This limitation could be overcome in future studies when patients and household members give the right estimate of income earned in a month. Furthermore, productivity losses could have been over or underestimated because of recall and respondents not knowing the exact hours lost due to mental illness. This is a limitation of this study that can also be addressed if a prospective study is done rather than a retrospective study like this one.

The monthly cost of mental healthcare per patient was estimated to be US$60.24. This finding is smaller compared to the Kenyan study where cost of mental and behavioural disorders was that estimated to be $195.9 per month per patient in the financial year 1998/99.[6] The difference between these costs could be attributed to the components of costs that were estimated and also the perspective of the cost of illness study. Whereas the Kenya study estimated the cost of running mental health services which was to the provider together with costs incurred by patients, this study dwelt on only the cost to the patient which did not include cost of running mental health services. It is, therefore, evident that the cost of mental illness estimated is dependent on the cost of illness perspective used and the components of cost estimated.

Furthermore, 20% of respondents spent more than 10% of their total monthly income as out of pocket expenditure (direct cost) in seeking mental healthcare rendering it catastrophic[26-28]. It is also worth noting that on average, households spent US$60.24 per month on mental healthcare as compared to the average reported household monthly income of US$184.48. This amount also compared to the average monthly income of households in Ghana which is US$57 [29] is huge. Meanwhile, under the revised NHIS ACT (2011), persons with acute mental disorder are to be exempt from paying premiums.[18] However, majority of mental disorders are chronic and present with long term disabilities. Furthermore, not all psychotic drugs are on the NHIS medicine list and out of the psychotic drugs on the list, not all are prescribed at all levels of healthcare in the Ghana.[17]

This presupposes that in spite of the cost incurred by patients and households, and the burden of mental illness documented worldwide,[11] thorough provisions have still not been made in the NHIS for the inclusion of the commonly prescribed mental health drugs on the NHIS Medicine List. The direct medical cost - including cost of drugs - which constituted 80% of the total direct cost estimated can further be reduced if most of the psychotic drugs, if not all are included in the NHIS medicine list and those that are not included are made readily available and at affordable prices in health facilities. This move will improve financial access to mental healthcare. More so, improving geographical access to mental healthcare through close-to-client approaches such as community mental health centres and home visits by adequate mental health staff to reach out to the mentally ill can help reduce household costs.

This study revealed that, 64.2% of patients were affected emotionally by their illness; confirming the work of Barke *et al.*[20] where they found 79.1% of the mentally ill patients agreed that most people think less of a person who had been to a mental hospital. However, in this study, patients' functional abilities were limited a little as a result of mental illness, so were their close relationships. These are in contrast to the findings of Munoz *et al.*[16] where close relationships were affected more in comparison to effect on home responsibilities. About 31% of patients were affected in the area of social relationships (mean score of 2.3). This is also in contrast with findings of Munoz *et al.*[16] where social life was affected most. This can be attributed to the fact that 68.6% of the respondents were not married and the fact that

only12.1% of respondents had mental illness (anxiety disorders, dementias and mood disorders including depression) that were incapacitating enough to affect their social relationships such ability to attend social functions such as funerals, weddings and naming ceremonies. Furthermore, 14.1% of respondents were below 20 years and these age groups are not active participants of social functions mentioned. The results of this study may have been different if all questionnaires had been answered by the patients themselves. The responses given by caregivers of those who are incapacitated may have been different. This limitation can be minimized as much as possible if prospective study is done in a period of one year within which most of the patients will have days that they are stable enough to answer questionnaires for themselves.

This study further revealed that, 71.5% of households were affected emotionally by the illness of their relatives. This result may have been different if each member of the household had expressed how he/she was affected by the mentally ill patient. A household head/representative's feeling may be different from that of the other household members. This limitation can be addressed in a consensus view of the household members were taken.

Some studies have shown that intangible cost forms the highest proportion of cost of illness.[8,14] Therefore, the total cost of mental healthcare estimated is likely not a true reflection of the actual household cost of mental illness. This limitation can be addressed in further studies by valuing the intangible cost in monetary terms. Furthermore, another limitation to this study is that, it looked at only the cost to those who sought healthcare. Cost of mental illness to those who do not seek care may be higher or lower than those who seek care, thus what has been estimated may not be a true reflection of the cost of mental illness. However, methodological challenges to this will have to be addressed.

Conclusion

The economic burden of mental illnesses on households in Ghana is vast and cannot be ignored. Indirect costs are usually high as compared to direct cost. Households also suffer emotionally as a result of mental illness. Inclusion of most of the psychotic drugs, if not all in the NHIS medicine list and making of those that are not included readily available and at affordable prices in health facilities, can help reduce the cost incurred by households in seeking mental healthcare.

Lastly, further study is needed to estimate the total cost of mental healthcare from the societal perspective at the different levels of health care in the country.

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References

1. World Health Organisation. *The global burden of disease 2004 update 2008.* http://www.who.int/healthinfo/global_burden_disease/GBD_report_2004update_full.pdf [2008] [cited 2012 Jan. 8].
2. World Health Organisation. *Mental health Situation Analysis: Ghana.* http://www.who.int/mental_health/policy/country/ghana/en/ [2012] [cited 2012 Jan. 5].
3. Knapp M. Hidden costs of mental illness. *Br J Psychiatry* 2003; **183**: 477-478.
4. Gupta RD & Guest FJ. Annual cost of bipolar disorders to UK society. *Br J Psychiatry* 2002; **180**: 227-233.
5. Kessler CR, Heeringa S, Lakoma DM, Petukhova M, Rupp EA, Schoenbaum M, Wang SP, Zaslavsky MA. Individual and societal effects of mental disorders on earnings in the United States: Results from the national comorbidity survey replication. *Am J Psychiatry* 2008; **165**: 703-711.
6. Kirigia JM. & Sambo LG. Cost of mental and behavioral disorders in Kenya. *Ann Gen Hosp Psychiatry* 2003; **2**: 7.
7. Schofield JD, Shrestha NR, Percival R, Passey EM, Callander JE, Kelly JS. The personal and national costs of mental health conditions: Impacts on income, taxes, government support payments due to lost labour force participation. *BM C Psychiatry* 2011; **11**: 72.
8. Sainsbury Centre for Mental Health. *The economic and social cost of mental health problems in 2002/03.* http://www.centreformentalhealth.org.uk/pdfs/costs_of_mental_illness_policy_paper_3.pdf [2003] [cited 2011 Dec, 9].
9. Appiah-Kubi K, Raja S, Boyce W. *Mental Health: Access to treatment and macroeconomics in Ghana.* http://www.basicneeds.org/html/Publications_BasicNeeds_Research.htm [2007] [cited 2012 Jan, 7].
10. World Health Organisation. *Investing in Mental Health.* www.who.int/mental-health/en/investing-in-mnh-final.pdf [2003] [cited 2012 Jan, 1].
11. World Health Organisation. *Mental health and development: Targeting people with mental health conditions as a vulnerable group.* http://whqlibdoc.who.int/publications/2010/9789241563949_eng.pdf [2010] [cited Jan, 23].
12. Connecticut Clearing House. (1996). *Stigma and mental illness* www.samhsa.gov [cited [2012 Feb, 9];
13. Byrne P. Stigma of mental illness and ways of diminishing it. *Advances in Psychiatric Treatment* 2000; **6**: 65-72.
14. Centre for Mental Health. *The economic and social cost of mental health problems in 2009/10. http://www.centreformentalhealth.org.uk/pdfs/Economic_and_social_costs_2010.pdf [2010] [cited 2011 Dec, 20].*
15. Sharma P, Das SK, Deshpande. An estimate of the monthly cost of two major mental disorders in an Indian metropolis. *Indian J Psychiatry* 2006; **48**(3): 143-148.
16. Munoz MDCL, Mora MEM, Borges G, Zambrano J. Social cost of mental disorders: Disability and work days lost. Results from the Mexican survey psychiatric epidemiology. *Salud Mental* 2007; **30**(005): 4-11.
17. National Health Insurance Scheme. *Medicine List.* www.nhis.gov.gh/Uploads/dbsAttachedFiles/1(3).pdf [2011[cited 2012 Jul, 19].
18. National Health Insurance Scheme. *National Health Insurance Scheme (NHIS) Bill* www.nhis.gov.gh/-Uploads/dbsAttachedFiles/9(1).pdf [2011[cited 2012 Jul, 15].
19. Awenva AD, Read UM, Ofori-Atta AL, Doku VCK, Akpalu B, Osei AO, Fisher AJ. From Mental Health Policy Development in Ghana to Implementation: What are the Barriers. *Afr J Psychiatry* 2010; **13**: 184-191.

20. Barke A, Nyarko S, Klecha D. The stigma of mental illness in southern Ghana: Attitudes of the urban population and patient views. *Soc Psychiatry Psychiatr Epidemiol* 2011; **46**: 1191-1202.
21. Ho Municipal Hospital. *5-year Strategic Plan*: *2008-2013*: 2008.
22. Ho Municipal Health Directorate. *Annual Performance Report*: 2011.
23. Ho Municipal Hospital. *Annual Report*: 2010.
24. Hodgson TA, Meiners MR . Cost of illness Methodology: A guide to current practices and procedures. *Milbank Mem Fund Q Health Soc* 1982; **60**(3):429-62.
25. Nonvignon J, Chinbuah MA, Gyapong M, Abbey M, Awini E, Gyapong JO, Aikins M. Is home management of fevers a cost-effective way of reducing under-five mortality in Africa? The case of a rural Ghanaian District. *Trop Med Int Health* 2012; **17**(8): 951-957.
26. Russell S. The economic burden of illness for households in developing countries: A review of studies focusing on malaria, tuberculosis, and human immunodeficiency virus/acquired immunodeficiency syndrome. *American J Trop Med Hyg* 2004; **71**(2 Suppl): 147-155.
27. Chuma J, Maina, T. Catastrophic healthcare spending and impoverishment in Kenya. *BMC Health Services Research* 2012; **12**: 413.
28. Wyszewianski L. Families with catastrophic health care expenditure. *Health Serv Res* 1986; **21**(5): 617-634.
29. Ghana Statistical service. *Ghana living standards survey report of the fifth round (GLSS)*: 2008.