

Costs of major mental illnesses and determinants of cost to the public health service provider in Ethiopia

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Abstract

Introduction: Enhancing the well-being of individuals and communities besides enabling them to achieve their self-determined goals is the main purpose of mental health service.

Objectives: To estimate the economic cost of major mental illnesses and cost determinants to the public health service provider.

Methods: Hospital-based cross-sectional study was conducted to estimate cost of major mental illnesses using prevalence-based, bottom-up costing approach. Average cost was calculated by identifying and adding various components of treatment costs from service provision units.

Results: Unit cost of 1,204 ETB was incurred to the public health service provider to give mental health services at Amanuel Hospital. Additionally, the hospital incurred a unit cost of 225 ETB to provide emergency services while the unit costs to inpatient and outpatient health services were 23,016 and 618 ETB respectively. Distribution of the hospital outpatient cost significantly differs for the residence area of patients ($\chi^2=20.5$, $P < 0.001$) and total hospital outpatient cost ($\chi^2=113.2$, $p<0.001$) significantly differs for the number of visits made to the outpatient department of the hospital.

Conclusion: Providing inpatient mental health service is more costly than outpatient and emergency mental health services for the hospital.

Introduction

Enhancing the well-being of individuals and communities and enabling them to achieve their self-determined goals is the main purpose of mental health service. Mental health is an essential component of economic productivity and well-being. Altered mental health or mental illness is a problem for societies, it is a major challenge to global development (WHO 2003). The burden of mental illness is huge and the costs to society as well as to the service provider are enormous (The World Federation for Mental Health 2011; Chisholm 2007; Chisholm et al. 2016; Chisholm 2016; Patel 2015). The burden of mental illness is measured using cost of illness study and an economic evaluation methods which uses to improve management functions and service delivery (Millan 2006). Analyzing cost of illness presents useful opportunities for communicating with the public and policy makers (Clabaugh 2008; Patel 2015). Even though this is the case, less attention is paid to measure cost of major mental illnesses to the public health service provider. Therefore, to complement the information gap on the cost of major mental illnesses to the public health service provider, the study was conducted at Amanuel Hospital which is the largest government mental health specialized hospital in Ethiopia.

Materials and Methods

The design of the research was hospital based cross-sectional study conducted at Amanuel Hospital

between the months of November 2011 to December 2012. Prevalence based bottom-up costing approach was employed to estimate cost from medical records of patients diagnosed to have schizophrenia and bipolar disorders during the visit to the hospital. Records were selected by systematic random sampling method using an interval calculated as a ratio between source patient medical records and actual sample size. Checklist developed by the principal investigator used to collect data. Using the checklist cost information was extracted on prescribed and used drugs, laboratory investigation and diagnosis, and recurrent cost incurred for service provision. Two Health Officers who had work experience in mental health extracted the data from the records. Collected data were entered and cleaned using EPI info and analysis was done using statistical package for social sciences (SPSS) version 16 and Microsoft Excel. Data analysis was performed by descriptive statistics using scores, frequency, percentage, average, standard deviation, minimum and maximum to describe the results. A non-parametric test was used to compare the distribution of the hospital cost on different groups of the independent variables and regression analysis was used to identify determinant of the hospital cost.

The study protocol was approved by the ethical committee of the Addis Ababa University, School of Public Health. An official letter was written by the School to Amanuel Hospital. The Ethical clearance committee of the Amanuel hospital also reviewed the study protocol and approved it.

Results

Socio-demographic Characteristics: A total of 408 patient charts were reviewed from those who had visited outpatient, emergency and inpatient departments of Amanuel Hospital. From outpatient department, 262 schizophrenia and 123 bipolar patient charts; from emergency department 8 schizophrenia and 4 bipolar patient charts, and from inpatient department 7 schizophrenia and 4 bipolar patient charts were reviewed. The mean age of the patients was 33 years. Marital status show that more than half of the patients, 277 (56.2%) was single, which was followed by married 130 (32.2%) and divorced 38 (9.4%). The rest of the patients whose card reviewed were widowed 9 (2.2%). In terms of educational status, most of the patients, 126 (35.3%), were having high school and preparatory level education. Occupational status of the patients indicates that half of them were jobless. Others are farmers 44(12.3%), students 43(12%), merchants 31(8.6), civil Servants 29(8.1%), employed in private organizations 24(6.7%), and work in their own business 9(2.5%). The patients who had visited the hospital come from different parts of the country; out of which 226 (55.4%) were dwellers of Addis Ababa, 89(21.8%) living in Oromiya region, 58(14.2%) from Southern Nations and Nationalities regional state, 31(7.6%) from Amhara region and the rest 4(1%) were living in other regions.

Total cost of the Hospital: The hospital incurred cost with mean 1,204 Ethiopian Birr (ETB) for providing health care and related services for the Schizophrenia and Bi-polar patients. Out of the total budget allocated to the hospital during the aforementioned time, the mean cost incurred to provide health care for schizophrenia patients was 1,103 ETB and 1,419 ETB for the bi-polar patients.

Distribution of the hospital cost: The result of regression analysis indicates that 78% of the variation in the hospital cost is determined by the type of the mental health service provided for the patients.

Emergency department costs at Amanuel Hospital: The average drugs cost per patient for providing emergency health services for major mental illnesses at Amanuel hospital were 31.5 ETB. Amanuel hospital incurred average cost of 225 ETB to provide emergency health service.

Inpatient department costs at Amanuel Hospital: The average drugs cost per patient for providing inpatient health services at Amanuel hospital were 220.4 ETB where as it was 3.13 ETB per patient per day. The hospital incurred a unit cost of 23,016 ETB to provide inpatient health service for major mental illnesses.

Outpatient Department Costs: The average drugs cost per patient for providing outpatient health services in the hospital were 500 ETB (89 ETB per visit). The hospital incurred a unit cost of 618 ETB to provide outpatient health service for major mental illnesses.

Distribution of the hospital outpatient cost: Kruskal Wallis test was done for comparison of groups based on number of visits made to the outpatient department and it has indicated that there was statistically significant difference found among the groups of visits with $\chi^2=113.2$, $p<0.001$. There was also statistically significant difference of the mean of outpatient cost among residence area of the patients with $\chi^2=20.5$, $P < 0.001$.

Discussion

Mean age of the patients for major mental illnesses indicates that this age group were from the most economically active and productive part of the society which result in loss of productivity for the economy. This is almost similar with the study conducted in Spain on Schizophrenia patients (Haro et al. 1998) and study conducted on the Bi-polar patients under clinical follow up in Butajira Area, Ethiopia (Giref et al. 2008). Patients came for seeking mental health services to Amanuel hospital from different parts of the country. The hospital outpatient cost distribution for the patients who are dwellers of Addis Ababa is greater of other regions. This is due to unavailability of the health facility that provides mental health care in different parts of the country. So patients who are dwellers of Addis Ababa utilize the health service frequently than others which is the same with study conducted on analysis of admissions to this hospital (Fekadu et al. 2007).

The type of the health service that the hospital is providing is the main cost driver of variation in cost per patients. For patients who visited the hospital for outpatient mental health service, the cost variation is determined by frequency of visits made to the hospital. The hospital incurred a unit cost of 1,204 ETB to provide health service for major mental illnesses per individual patient, among which the mean drug cost was 475ETB which is very high (drug cost exceeds by 35% of the total direct hospital cost) as

compared to a study done in Sweden (Hjortsberg et al. 2010). When this is disaggregated to the service provision units, the hospital incurred a unit cost of 225 ETB to provide emergency health service, 23,016 ETB to provide inpatient health service and 618 ETB to provide outpatient health service for major mental illnesses. Among total cost of the hospital inpatient days (23,016 ETB) drugs cost accounts about 2,424 ETB per patient. This indicates that admission of patients incur more other costs (accommodation costs) than medication costs as also identified by the study conducted on the predictors of the costs for individuals with severe mental illnesses in south London (McCrone et al. 2001). Those who admitted to the inpatient department stay in the hospital for the average of 25 days. The inpatient stay is about half of the Nigerian mental health service status report of 2006 (Nigeria and WHO 2006). Among the unit cost of the outpatient health service cost, drugs cost accounts about 82%, which is 500 ETB. The hospital incurs 110 ETB per patient per visit for the outpatient mental health service of which 89 ETB is drugs cost. On average, patients have visited the hospital six times for outpatient mental health services.

Conclusion and Recommendations

Hospital outpatient cost significantly differs for the residence area of the patients since the distance from the hospital determines utilization of the mental health service. Type of the health service is also the main determinant of the hospital cost. Inpatient mental health service is more costly than outpatient and emergency mental health services. Therefore health facility based treatment provided for the mental illnesses should be expanded to other parts of the country and integrated to the primary health care level. The budget allocation should take into consideration not only the number of beds available in the health facility but also patient flows to the outpatient and emergency department.

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