SOCIOECONOMIC COSTS OF MENTAL ILLNESS: A SYSTEMATIC REVIEW

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Abstract:

Mental illness is a psychological health problem that causes disability and impairment. A population suffering from mental illnesses experience a wide range of social and work-related problems that have economic impacts. Keeping in view the seriousness of this issue a systematic review of existing literature was done for identifying facts and figures on the socioeconomic costs of mental illness among general populations. A Systematic Narrative Review was done by searching studies in electronic databases like Google Scholar, Wiley Online, Oxford Journals, Science Direct and Taylor & Francis. The results showed that mental illness causes social problems like, e.g., stigma, low self-esteem, poor quality of life, clinical problems. Moreover, its economic impacts include cost associated with treatment, absenteeism, accidents, and turnover intentions. Findings of the current study revealed that mental illness has both social and economic impacts, therefore, proactive steps need to be taken together at individual and institutional levels for overcoming costs associated with mental health illnesses.

Keywords: Mental Illness, Socioeconomic Costs, Systematic Review

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**Introduction**

Mental illnesses a state characterized by disability to function properly (Stein, 2013). Mental illness is a leading cause of morbidity around the world that imposes significant socioeconomic costs on the affected population (Oliva-Moreno et al., 2009). The social costs are in shape of stigma& lower self-esteem (Link, Struening, Neese-Todd, Asmussen, & Phelan, 2014), poor quality of life (Simon et al., 2014), poor family relationship (Walton-Moss, Gerson, & Rose, 2005), clinical problems like substance abuse (Knauert, Naik, Gillespie, & Kryger, 2015) and problems at workplace (Cheryl Haslam, Sue Browna, Sarah Atkinsona, & Haslama, 2004). On the other side the economic costs are the direct expenses on medical treatment of mental illness and indirect costs due to productivity loss (Oliva-Moreno, et al., 2009).

The World Health Organization reported that mental illness affects the patients, his/her family member, employers and the society. It results in treatment costs, productivity costs and other related costs. The detail these costs as shown in Table 01.

<table>
<thead>
<tr>
<th>Table 01 The cost of mental illness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Care Costs</strong></td>
</tr>
<tr>
<td><strong>Sufferers</strong></td>
</tr>
<tr>
<td><strong>Family and Friends</strong></td>
</tr>
<tr>
<td><strong>Employers</strong></td>
</tr>
<tr>
<td><strong>Society</strong></td>
</tr>
</tbody>
</table>

Source: (WHO, 2003)

Moreover, Murray et al(2013) reported that total 7.4% of Global Burden Of Disability Associated With Disease (DALYs) was caused by mental illnesses from the year 1990 to 2010, as clear from Figure 01. (Note: DALYs is measured in the total number of years lost in disability). Such facts and figures provides sufficient evidence that mental illnesses are becoming a recognized threat. The mental, emotional and behavioral disorders are serious hazards to a country's economy because it affects the healthier working environment and safe living conditions within modern organizations (WHO, 2003).
Figure 01: Global Burden Of Disability Associated With Disease from year 1990 to 2010

![Bar chart showing the global burden of disability associated with disease from 1990 to 2010. The chart lists the following conditions in descending order of their impact in DALYs: Major Depressive Disorder, Anxiety Disorders, Drug Use Disorders, Alcohol Use Disorders, Schizophrenia, Bipolar Disorder, Dysthymia, Autism and Asperger's Syndrome, ADHD and Conduct Disorder, Eating Disorders, Other Mental and Behavioral Disorders, and Idiopathic Intellectual Disability.]

Source: (Murray, et al., 2013)

It is furthermore clear that the mental functioning is fundamentally interlinked with the physical and social functioning. But unfortunately, there is a lack of awareness among the general public on the nature, causes and consequences of mental illness, resultantly society continues on bearing the burden of mental illness and the negative impact of such illnesses on world's economy is also increasing. Therefore, it becomes the responsibility of all concerned personnel, either public health professional, practitioners, economists or policy makers to start working for managing the issue of mental health illness. In this regard proper and well-planned investments should be done to ensure cost effective interventions that are within access of common people. This review aims at systematically collect and synthesize the available published literature on the socioeconomic costs of mental illness among the general population. The findings of current study revealed that mental illness has both social and economic impacts, therefore, proactive steps need to be taken together at individual and institutional levels for overcoming the costs associated with mental illness.

Methodology:

Study Design: A systematic narrative review design was adopted to locate, assess and summarize information
regarding socioeconomic costs of mental illness. Narrative review design was selected because it helps in identification of broader review questions and the heterogenous but relevant studies. It also appraises the type and number of studies and finally it helps in synthesizing and summarizing all findings into meaningful shape (Mulrow & Cook, 1998).

**Data Sources:** A broad range of electronic databases like, e.g. Google Scholar, Oxford Journals, Wiley Online, Science Direct and Taylor & Francis were used to search different kind of scholarly material on the selected topic. This search process was completed within one month from November 2015 to December, 2015.

**Search Strategy and Inclusion Criteria**
Specific key words phrases were used to locate studies in the selected databases. Words like "Mental Illness" and sentences like "Cost of Mental Illness", "Socioeconomic Costs of Mental Illness " and "Effects of Mental Illness" were used. Furthermore, Inclusion Criteria was also devised to ensure the searching of specific and relevant materials, as clear from Table 01.

**Table 01: Inclusion Criterion**

<table>
<thead>
<tr>
<th>Criteria</th>
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<tbody>
<tr>
<td>• Both quantitative and qualitative studies were included</td>
</tr>
<tr>
<td>• Social cost include effects of mental illness on family life, working life, quality of life, stigma and clinical problems, whereas economic costs include costs in American Dollars, British Pounds and European Euro.</td>
</tr>
<tr>
<td>• Materials published in English were searched</td>
</tr>
<tr>
<td>• Materials published from the year 2000 till 2014 were searched</td>
</tr>
<tr>
<td>• Journal &amp; Conference Articles, Technical Reports were searched</td>
</tr>
</tbody>
</table>

**Screening and selection of studies**
A process of screening and selection of studies was devised because there were a lot of published material on the socioeconomic effects of Mental Illness. The Figure 01 shows that in the first step, the key words and sentences were entered into the online databases. At this stage total 146 relevant studies were identified. In the second step, the titles and abstracts of 146 studies were reviewed and checked for relevancy. During this stage 80 study were rejected based on Inclusion Criterion. In the third step, the full text review of remaining 66 studies was done for the search of relevant facts and figures. Details of the review showed that 36 studies were still irrelevant, therefore rejected. In the fifth step, an in depth review of the remaining 30 studies was done. At this stage all relevant facts and figures were recorded in tables and figures.
Figure 01: Flow diagram for screening and selection of studies

**Step 01**
Total 146 relevant studies were identified

**Step 02**
Titles and abstracts of 146 studies were reviewed

**Step 03**
Full text review of 66 remaining studies was done

**Rejection Step 01**
80 studies out of 146 studies were rejected on the basis of Inclusion Criterion

**Rejection Step 02**
36 studies were still found irrelevant, thus rejected

**Step 04**
In depth review of the remaining 30 studies

**Results**

**Characteristics of the selected studies**

The geographical locations show that most studies (60%) were from the United States of America and United Kingdom. Remaining studies were from countries like France, Spain, Russia, Germany, Denmark, China, India, Iran and Afghanistan. The sample size ranged from lowest 12 to highest 29131 respondents.

Most research designs were Descriptive Longitudinal & Cross Section (37%) and Experimental (20%), while rest of the designs included review (including systematic review), pure Quantitative & Qualitative and Focus Group. Finally, the mental health illnesses included Depression, Anxiety, Schizophrenia, Post Traumatic Stress Disorder, Sleep Disorder and Epilepsy. As clear from Table 01.
Table 01  Summary of studies incorporated in Systematic Review

<table>
<thead>
<tr>
<th>Author(s) and Year of Publication</th>
<th>Setting and location of study</th>
<th>Design of study</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Prins et al., 2011)</td>
<td>Netherlands Study of Depression and Anxiety/ Netherlands</td>
<td>Prospective Longitudinal</td>
<td>10706</td>
</tr>
<tr>
<td>(Chollet, Saragoussi, Clay, &amp; François, 2013)</td>
<td>General Practice Research Database/ United Kingdom</td>
<td>Retrospective Longitudinal Cohort</td>
<td>29,131</td>
</tr>
<tr>
<td>(Chollet, et al., 2013)</td>
<td>Northern Ireland Study of Health and Stress/Ireland</td>
<td>Cross Sectional</td>
<td>1,986</td>
</tr>
<tr>
<td>(Robinson et al., 2015)</td>
<td>Health Core Integrated Research Database/ United States of America</td>
<td>Prospective fixed cohort</td>
<td>3000</td>
</tr>
<tr>
<td>(Cardozo, Vergara, Agani, &amp; Gotway, 2000)</td>
<td>Randomly Selected Household/ Kosovo</td>
<td>Cross Sectional</td>
<td>1358</td>
</tr>
<tr>
<td>(Simon, et al., 2014)</td>
<td>Massachusetts General Hospital/ United States of America</td>
<td>Clinical Trial</td>
<td>66</td>
</tr>
<tr>
<td>(Simon, 2003)</td>
<td>Medline Search/ United States of America</td>
<td>Review</td>
<td>N/A</td>
</tr>
<tr>
<td>(Hu, He, Zhang, &amp; Chen, 2007)</td>
<td>Hospital setting/China</td>
<td>Quantitative Descriptive</td>
<td>505</td>
</tr>
<tr>
<td>(Oliva-Moreno, et al., 2009)</td>
<td>Hospital data/Spain</td>
<td>Cross Sectional</td>
<td>18 hospitals</td>
</tr>
<tr>
<td>(Cheryl Haslam, et al., 2004)</td>
<td>Working People/United Kingdom</td>
<td>Focus Group Approach</td>
<td>12</td>
</tr>
<tr>
<td>(Kes, 2012)</td>
<td>Epidemiological surveys/multiple locations</td>
<td>Review</td>
<td>N/A</td>
</tr>
<tr>
<td>(Karsten Thielen &amp; Nygaard, 2013)</td>
<td>Working People/Denmark</td>
<td>Longitudinal Follow up</td>
<td>5785</td>
</tr>
</tbody>
</table>
Table 01 Continued

<table>
<thead>
<tr>
<th>Author(s) and Year of Publication</th>
<th>Setting and location of study</th>
<th>Design of study</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Gupta &amp; Guest, 2002)</td>
<td>National Health Service/United Kingdom</td>
<td>Quantitative Descriptive</td>
<td>660</td>
</tr>
<tr>
<td>(Knapp, Mangalore, &amp; Simon, 2004)</td>
<td>Online databases/United Kingdom</td>
<td>Systematic review</td>
<td>62</td>
</tr>
<tr>
<td>(Foster &amp; Jones, 2005)</td>
<td>Fast Track project/ United States of America</td>
<td>Multi-cohort Longitudinal</td>
<td>1191</td>
</tr>
<tr>
<td>(Yerramilli &amp; Bipeta, 2012)</td>
<td>Online databases/India</td>
<td>Review</td>
<td>N/A</td>
</tr>
<tr>
<td>(Mark, Woody, Juday, &amp; Kleber, 2001)</td>
<td>Online databases/ United States of America</td>
<td>Review</td>
<td>N/A</td>
</tr>
<tr>
<td>(Sibener et al., 2014)</td>
<td>Online databases/ United States of America</td>
<td>Review</td>
<td>N/A</td>
</tr>
<tr>
<td>(Kessler, Walters, &amp; Forthofer, 2014)</td>
<td>National Comorbidity Survey/ United States of America</td>
<td>Cross Sectional</td>
<td>5877</td>
</tr>
<tr>
<td>(Link, et al., 2014)</td>
<td>Clubhouse Program/ United States of America</td>
<td>Experimental</td>
<td>70</td>
</tr>
<tr>
<td>(Cardozo et al., 2004)</td>
<td>National Estimates/Afghanistan</td>
<td>Survey (Cross Sectional)</td>
<td>799</td>
</tr>
<tr>
<td>(Phillips, Pearson, Li, Xu, &amp; Yang, 2002)</td>
<td>Hospital setting/China</td>
<td>Qualitative Exploratory</td>
<td>1491</td>
</tr>
<tr>
<td>(Knauert, et al., 2015)</td>
<td>Online databases/ United States of America</td>
<td>Review</td>
<td>N/A</td>
</tr>
<tr>
<td>(Angermeyer &amp; Matschinger, 2003)</td>
<td>National Survey/Germany</td>
<td>Survey (Cross Sectional)</td>
<td>5025</td>
</tr>
<tr>
<td>(Reine, Lancon, Di Tucci, Sapin, &amp; Auquier, 2003)</td>
<td>Residential Rehabilitation Unit/France</td>
<td>Quantitative Descriptive</td>
<td>67</td>
</tr>
<tr>
<td>(Reupert &amp; Maybery, 2015)</td>
<td>Online databases/United Kingdom</td>
<td>Systematic review</td>
<td>297</td>
</tr>
<tr>
<td>(Lerner et al., 2004)</td>
<td>Data from Employees/ United States of America</td>
<td>Experimental</td>
<td>144</td>
</tr>
<tr>
<td>(Ghanean, Jacobsson, &amp; Nojomy, 2013)</td>
<td>Hospital setting/Iran</td>
<td>Cross Sectional</td>
<td>130</td>
</tr>
<tr>
<td>(Koschorke et al., 2014)</td>
<td>Community Care Center/India</td>
<td>Random Control Trial</td>
<td>282</td>
</tr>
</tbody>
</table>
Social Costs of Mental Illness

The results showed that common social impacts of Mental illness include stigma, fear, social dysfunction, low self-esteem and isolation, etc... Work related effects include loss of productivity, poor performance and loss of job, etc. The detail of findings is as under:

**Quality of Life**

Three studies identified poor quality of life as societal cost of Mental illness (Reine, et al., 2003; Simon, 2003; Simon, et al., 2014). The Mental illness can cause lack of satisfaction with life, ultimately leading to poor family relations, unhealthy life style, and legal & safety issues (Reine, et al., 2003). Mental illness is also related with impaired physical and emotional functioning (Simon, et al., 2014).

**Family Costs**


Stigma and Discrimination

Six studies examined the association between stigma and Mental illness (Angermeyer & Matschinger, 2003; Ghanean, et al., 2013; Koschorke, et al., 2014; Link, et al., 2014; Phillips, et al., 2002; Yerramilli & Bipeta, 2012). The stigma was in shape of social alienation, stereotype endorsement, social withdrawal and discrimination experiences (Ghanean, et al., 2013). The reaction to stigma was expressed in terms of self-pity, low self-esteem, fear and aggression (Angermeyer & Matschinger, 2003; Link, et al., 2014).

**Clinical Problems**

Two studies identified certain clinical problems associated with Mental Illness. These include unresolved fatigue, insomnia, drug abuse, Coronary Heart diseases, diabetes and Stroke (Knauert, et al., 2015; Robinson, et al., 2015).

**Effects on Workplace**

Six studies explained the effects of Mental illness on working lives of affected. These effects include absenteeism, accidents, poor performance, low productivity and turnover intentions (Cheryl Haslam, et al., 2004; Karsten Thielen & Nygaard, 2013; Lerner, et al., 2004; Marciniak, et al., 2004; Oliva-Moreno, et al., 2009; Simon, 2003).
**Economic Costs of Mental Illness**

The economic costs of Mental illnesses in terms of expenses incurred for medical treatment or loss occurred due to low productivity or absenteeism. The detail of each costs has been discussed separately in following section:

**Direct costs of medical treatment**

Each year around the globe millions of patients receive medical treatments for different psychiatric illnesses. Different types of financial costs are associated with such treatments including primary care costs, secondary care costs and supportive care costs. According to Prins, et al., (2011) in Netherlands during year 2006 total 209.76 million Euros cost were incurred on primary care of Depression and Anxiety. Similarly, Ferry et al.,(2015) found that for the treatment of Post-Traumatic Stress Disorder in Northern...
Ireland, an estimated costs of 8,203,409 Euros was incurred during total 37,458 hospital visits by patients. In another study Oliva-Moreno, et al., (2009) found that during the year 2002 in Spain total 67,169 patients were admitted into different hospitals, with 11.2 days mean hospital stay and 470.5 million Euros costs. A comprehensive study conducted by Knapp, et al.(2004) on global costs of Schizophrenia revealed alarming figures. According to their findings Schizophrenia has been responsible for 2.1 billion pounds treatment costs in United Kingdom in years 1990 and 1991. Whereas it resulted estimated costs of 70.85 billion dollars costs in United States of America from years 1975 to 1990.

**Indirect Costs**

Apart from direct medical treatment costs, the Mental Illnesses can cause indirect costs due to low productivity or absenteeism, etc. According to Oliva-Moreno, et al., (2009) different types of Mental Illnesses have resulted productivity costs of 29.97 million Euros in Spain during the year 2002. Similarly in China during year 2002, Mental Illnesses resulted 7.8 million RMB transportation costs and 14.09 million RMB accidental costs (1 US dollar= 8.20 RMB) (Hu, et al., 2007). Finally in the six major companies of America, the Anxiety Disorder has resulted a productivity costs of13.66 million dollars in the year 2000(Marciniak, et al., 2004). Such figures show that mental health problems can cause a huge amount of financial loss to the companies around the world.

**Discussion**

The current review aimed at examining the socioeconomic costs of mental illness among the general population. The results of review showed that mental illness has a wide variety of social and economic costs. It can affect the family and working lives, moreover, it can cause clinical problems, poor quality of life and stigma. The financial expenses include direct medical treatment costs and indirect costs due to working days lost. The results of current review are consistent with findings of previous studies on socioeconomic costs of mental illness. For e.g. Fadden, Bebbington, & Kuipers (1987) in a review on effect of mental illness on patient's family members found that the social and leisure activities of family members are affected by mental illness of the patient. Similarly, Idstad, Ask, & Tambs (2010) found that mental illness of one partner has significant effect on the spouse, where it was found that partner's mental illness can cause distress, anxiety, depression and overall poor relationship.

Any kind of mental illnesses potential source stigma for patients. Livingston & Boyd(2010) found in their review of 127 studies that 83.3%of studies pointed out a strong relationship between psychiatric symptoms and resultant stigma experienced by patients. The mental illness can also cause different kind of clinical complications. King et al., (2003) conducted a systematic review of 25
studies on relationship between mental illness and resultant clinical complications. They found that persons with mental illness have suicidal tendencies, substance misuse habits, and they try to deliberately harm themselves. The working life of persons with mental illnesses not that much better. Initially such people are unable to find jobs because either they are unable to work, or the employers are reluctant to hire a mentally ill person. Once in a job the mental illness can impair the normal functioning and performance of persons and can lead to poor performance and low productivity (Cheryl Haslam, et al., 2004; Karsten Thielen & Nygaard, 2013; Lerner, et al., 2004).

The findings regarding financial losses due to mental illness are also quite alarming. The results of current and previous studies show that mental illnesses responsible for direct medical costs and indirect costs due to inability to work, whereas such costs can reach up to a million and billion (Knapp, et al., 2004). Now the researchers are trying to find different ways to reduce the economic burden of mental illness. These techniques include evidence-based cost effective interventions, which can be formulated and implemented at schools, workplaces, in homes according to the needs of situation. It will help in promoting mental health, reduction in mental health problems and development of resilience to many of stressors, which the world is facing now a days (Anderson, Jané-llopis, & Hosman, 2011).

Limitations

The current review has also certain limitations. Diversity in the nature of methods applied, and results obtained through the selected studies has limited the generalizability of current study. There are chances of missing some of important studies on costs of mental illness published in languages other than English. Only those studies were selected that were online accessible in the researcher’s country of residence. The unpublished and studies not available online were also not included. There are also chances of missing studies that have estimated costs in currencies other than US dollars, European Euros or British Pounds.

Conclusion

The findings of current review have provided an insight to understand linkages between mental illness and resultant social or economic losses. Throughout the history human beings have suffered from different types of mental illness, which have hampered their routine lives. However, after the advent of modern technologies, the lives of human beings have become complex, resultantly the nature of mental illness has also changed. Now people are suffering from a wide variety of mental illnesses that vary according to the person and situation The mental illnesses are presently associated with social and economic problems ranging from damages to familial & working lives, stigma, co-morbid clinical
issues to the huge financial losses that are incurred on the direct medical treatment or indirect losses due to low productivity in the workplace. At the societal level, there is a need to create awareness about the nature, causes and consequences of mental illnesses so that proactive steps could be taken by public to save themselves from mental illness and resultant loss. The scientists and practitioners should study the mental illnesses in a more holistic manner through using the modern technology available, so that the ultimate cure of can be found. The economists, policy makers and public health professionals need to take action for designing effective policies and programs at different levels to address the problems related to mental health before it shed it's overwhelming effects on the socioeconomic lives of the affected people.

References


