A Case Study on Mental Health, Mental Disorder and Epidemiology

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ABSTRACT

A recent systemic review and meta-analysis of the prevalence of common mental disorders around the world by Steel et al. revealed that approximately 1 in 5 respondents met the common criteria for a mental disorder and that 29.2% of respondents had experienced a common mental disorder at least once in their lifetimes.

There was a continuous gender difference in the incidence of common mental diseases, with women having higher rates of mood and anxiety disorders and males having higher rates of drug use. The frequency of common mental diseases may also be impacted by geographical variety, according to studies.

Keywords: Mental health; Mental disorder; Epidemiology; Schizophrenia; Antipsychotics.

1. Introduction

1.1. Mental Health and Mental Disorder

A vital component of total well health, mental health is intimately related to the physiological and physical functioning of the body. The capacity of an individual to establish harmonious relationships with others and to take part in or positively contribute to changes in the social environment is defined by the WHO expert committee as mental health.

While, mental disorders encompass a wide-ranging problem, with diverse symptoms. Yet, they are usually categorized by abnormal thoughts, behavior and emotions.

1.2. Prevalence of Mental Disorders

Neuropsychiatric ailments are projected to contribute 13% of the worldwide burden of disease [WHO, 2011]. The main cause of impairment in the US and Canada is mental illness.

The incidence of lifestyle illnesses has been rising as a result of sociodemographic changes, the media revolution, and epidemiological change. A consumer-driven lifestyle is gradually taking the place of previous generations' social, biological, and psychological advantages, making individuals of all ages increasingly susceptible to social, mental, and psychological issues.

Particularly compared to other nations in the area, countries in prevalence estimates for North and South East Asia were consistently lower. Similar low one-year prevalence rates of common mental illnesses were found in Sub-Saharan African nations, but the highest estimates of lifetime prevalence of common mental disorders were found in English-speaking nations [Steel Z. et al., 2014]. Approximately 26.2 percent of USA population suffers from mental disorder in a present year. Even if, mental disorders which are prevalent in the population, nevertheless the core burden of disease is intense in a much minor quantity [Kessler R. C. et al., 2005].

Median Expenditure (USD) on medicines for mental and behavioral disorders per 100,000 populations by World Bank income group.

According to studies on mental illness conducted across India, the prevalence rate is 18–20 per 1000 people [Reddy M. V. et al., 1998]. According to Reddy's meta-analysis [Reddy M. V. et al., 1998], there is a high prevalence of mental problems in urban areas (80.60%), compared to roughly 48.90% in rural areas.

One of the major contributing factors to mental illness is said to be the cultural revolution from rural to contemporary civilization.

In addition, among the two sexes, a sizable proportion of Indian women have Common Mental Disorders (CMD). According to research, women are often 2-3 times more likely than males to be impacted by CMD [Patel V. et al., 1999]. Mental ailments are assumed to be mainly triggered by psychosocial factors. Biochemical and genetic influences, while recognized as underlying factor, it is not considered as significant as psychosocial ones.

1.3. Epidemiology and Pharmaco-economics of Schizophrenia

According to the World Health Organisation (WHO), schizophrenia mostly affects people between the ages of 15 and 35 and affects roughly 7 per 1,000 adults worldwide [WHO, 2010]. Furthermore, the WHO asserts that globally schizophrenia affects approximately 24 million people [WHO, 2010].
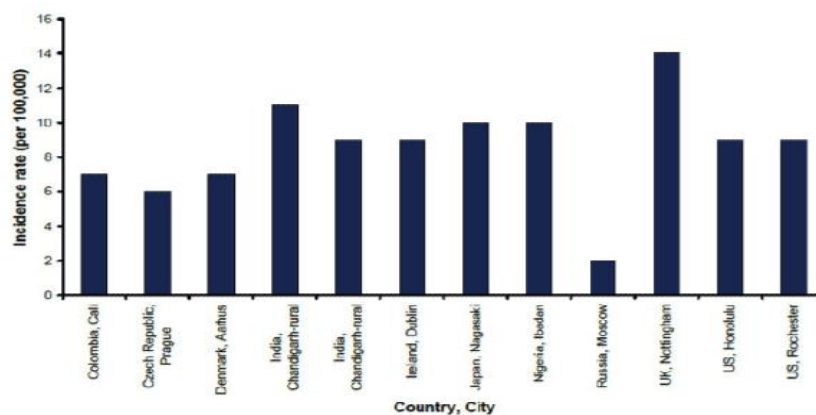

Figure 1.1. Schizophrenic Incidence Rates from Selected World Countries
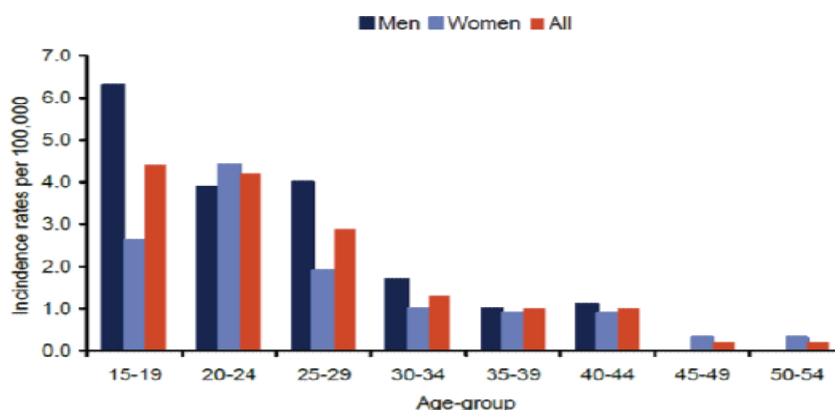
Figure 1.2. Age-and Sex Specific Incidence Rates in Japan Per 100,000 Populations

The majorities of untreated schizophrenia cases are found in developing countries, although prevalence and incidence rates are fairly similar and do not vary with a country's economic status [Alyssia Klein, 2011].

Current Trends: According to the World Health Organisation, 20 million of the world's 29 million schizophrenia sufferers reside in underdeveloped nations [Alyssia Klein, 2011].
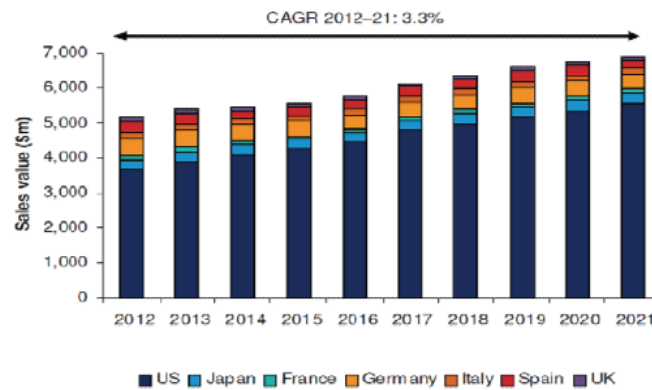
Figure 1.3. Sales Forecast of Antipsychotic Drugs Across Seven Major Countries

Incidence Rates: Incidence surveys, such as the WHO Ten Country Study, have been conducted in a number of nations, and practically all of these investigations reveal comparable yearly incidence rates in adults within a constrained range of 0.1 and 0.4 per 1000 [Alyssia Klein, 2011].

Schizophrenia Forecast: Consistent growth is expected for the schizophrenia drug market through to 2021.

1.4. Market Size of Antipsychotics

Collectively, the antipsychotic and antimanic drug markets signify about 5 M population and produced income of $17.4 B in 2008. The foremost company in the markets of antipsychotics includes AstraZeneca, BMS, Eli Lilly, OMJ, Pfizer, and GSK. Zyprexa has the major market share of about 26% ($4.70 B), which is marketed by Eli Lilly, while followed by AstraZeneca's Seroquel ($4.45 B), remains the most extensively prescribed antipsychotic.

Otsuka's Abilify, approved in 2007, saw about 30% growths in sales from 2007-2008 to about $2.15 B, making it the fastest growing drugs in the antipsychotics market. Furthermore, facts that Abilify may carry less risk for diabetes and weight gain, is driving its push for significantly increased in market share of antipsychotic therapy.

The antipsychotic therapeutic market is threatened by exclusivity loss due to patent expirations. In year 2012, four out of the six largest selling antipsychotic drugs lost their patents. Thus, due to lesser side effects associated with Abilify, there is a need to develop a generic formulation for the same so as to provide the drug at a reasonable cost to the public.

1.5. MDD, or major depressive disorder

WHO describes depression as a mental illness marked by sorrow, guilt or low self-worth sentiments, lack of interest or pleasure, fatigue, interrupted sleep or food, and difficulty concentrating. Worldwide around 350M people affected by depression. Unlike from usual mood fluctuations, depression lasts for longer period of time [WHO-Media center].

1.6. Prevention and Treatment of Mental Disorder

Three of the top 10 major causes of disability in the US are MDD, bipolar mood disorder, and schizophrenia. To treat a range of mental diseases, the following therapy categories can be applied separately or in combination.

➢ Medication

➢ Psychoanalysis

➢ Group therapy

➢ Day treatment or partial hospital treatment

➢ Specific therapies

1.7. Antidepressants Treatment

There are several medication classes available to treat MDD. The initial line of therapy is frequently a newer class of drugs. The majority of antidepressants differ in terms of side-effect profiles, but they all have comparable overall rates of efficacy and times for start of effectiveness (e.g., it takes 4-6 weeks for them to reach their full therapeutic value). TCAs, or tricyclic antidepressants: Hundreds of carefully planned randomised controlled clinical studies have demonstrated the therapeutic efficacy of this older, first generation of antidepressants [AHCPR-Evidence].

According to reviews, 50% to 75% of patients receiving this type of therapy respond favourably [Potter W. Z. et al., 1998].TCAs may be the preferred class of medication for those with severe MDD [Stewart J. W. et al., 1998] and MDD with melancholy characteristics [Perry P. J., 1996] according to study.

Amitriptyline, clomipramine, doxepin, nortriptyline, and desipramine are some examples of this class of drugs.

Monoamine oxidase inhibitors (MAOIs): MAOIs have been demonstrated to be as successful as TCAs [Thase M. E. et al., 1997], demonstrating efficacy for individuals with atypical MDD [Zisook S., 1985] as well as for some who do not react to other classes of therapy. [M.E.Thase et al., 1992] Tranylcypromine and phenelzine are two examples of MAOIs.

Selective serotonin reuptake inhibitors (SSRIs): These days, SSRIs are typically used as the first line of treatment since research has shown that they are just as effective as other kinds of antidepressants [Anderson I. M. et al., 1995]. When compared to TCAs, the main advantage is that the side-effect profile is typically milder.

Unexpectedly, a recent meta-analysis demonstrated that compliance rates with different pharmacological options appear to be similar despite these reduced side effects [Trindade E. et al., 1998]. According to certain studies, SSRIs are more effective than TCAs at treating atypical MDD and individuals who have not responded to TCA treatment [Pande A.C. et al.., 1996; Delgado et al., 1988]. Fluvoxamine, citalopram, fluvoxamine hydrochloride, paroxetine, and sertraline are a few examples of this pharmacological class.

Alternative antidepressants the research is less definitive since they have only recently been made available. For instance, data show that trazodone does not have the efficacy of other antidepressants [Cunningham L. A. et al., 1994; Weisler R. H. et al., 1996], despite the fact that reboxetine has been shown to be potentially as effective as both TCAs and SSRIs [Perry P. J., 1996].

Bupropion, nefazodone, and venlafaxine are more examples from this class of antidepressants. Furthermore, it was shown that patients on venlafaxine saw a 10% larger reduction in their depressive symptoms than those taking the SSRIs fluoxetine, paroxetine, or fluvoxamine [Thase M. E. et al., 2001].

1.8. Major depressive disorder (MDD) forecast

The estimated number of one year prevalent cases of MDD in the world's seven major markets (the Japan, US, Germany, France, Spain, Italy, and the UK).

Seven major markets – As estimated by Datamonitor, in 2011 there were 32,240,000 cases of MDD in grownups aged 18 and over in the worlds 7 major markets, and this number is expected to increase to 33,379,000 by 2020, at an 0.4% of average annual growth rate (AAGR).

With the risk factors – and thus the age- and gender-specific MDD prevalence rates – remaining mostly stable, the change in the number of prevalent MDD cases in the world's seven major markets between 2011 and 2021 is due to the overall increase in the number of people throughout this time period, especially the rise in the Figure of those at the greatest risk of MDD.

Despite the fact that there will be a decreasing population in some of the seven major markets during this time period, the countries with increasing populations outweigh those with decreasing populations, overall, owing to the rise in Fig. of individuals in the age groups at risk for MDD in these countries.

The US will see the most significant growth in the number of women aged 18–50, and because the US has a much larger population than all of the other six major market countries, it will drive the surge in the Fig. of prevalent cases of MDD between 2011 and 2021.

There will be small increases in the number of 12-month prevalent cases of MDD between 2011 and 2021 in the US, Italy, Spain, and the UK. There will be small decreases in Japan and Germany. The Fig. of 12-month prevailing cases of MDD in France will remain stable between 2011 and 2021.

Five major EU markets – The AAGR of 12-month prevalent MDD cases in adults aged 18 and over between 2011 and 2021 in the five major European Union markets (France, Germany, Italy, Spain, and the UK) is expected to be very small, at 0.1%.

Datamonitor epidemiologists estimate that the number of cases in the five major EU markets will grow from 10,638,000 in 2011 to 10,737,000 in 2021. There will be increases in the number of cases of MDD in UK, Spain, and the Italy, with the largest number of cases in the UK and the greatest AAGR in Spain.

There will be a small decrease in the number of cases of MDD in Germany and a stable number of cases of MDD in France during this time period. The differences in percentage increase in cases in the five major EU markets are due to different population structures of each of these countries, with some countries generally aging, like Germany, and some countries having younger overall populations, like Spain and the UK. Spain and the UK will also experience significant growth in the female population aged between 18 and 50, leading to the greatest increases in the number of cases.

1.9. Age-standardized prevalence rates

Datamonitor used age-and sex- specific prevalence rates forecasted from the analysis to calculate age-standardized prevalence rates.
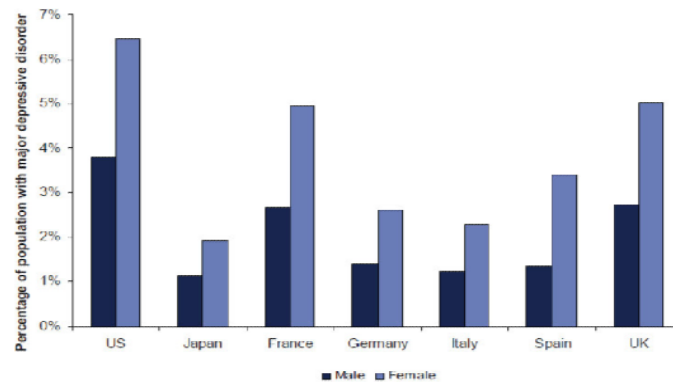
Figure 1.4. Age-Standardized Prevalence Rates of MDD in Seven Major Markets, By Gender, 2011

An age-standardized rate (ASR) is an instant portion; and defined as the rate that a people would have if it had a standard age group structure.

In this analysis, calibration is essential when relating several inhabitants that vary with respect to age structure, as age has a dominant impact on the risk of MDD. The most commonly used standard population and the one used in this analysis is the World Standard Population. The planned prevalence rate is then called the World Standardized Prevalence Rate.

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