Epidemiology and Prevalence of Mental Disorders
Block 2

EPIDEMIOLOGY

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We hope that you have gone through Block 1 (Classification of Mental Disorders) of this course. In Block 2, an attempt has been made to introduce you to the various facets of epidemiology and prevalence of mental disorders. It has 4 units.

**Unit 1** deals with the general concepts of epidemiology, epidemiological methods, and also presents an international perspective of epidemiology of mental disorders.

**Unit 2** is related to epidemiology of mental disorders in India.

**Unit 3** discusses the issue of mental illness being a global burden.

The last unit, **Unit 4** is an important unit that deals with the impact of mental disorders on society.

We hope that you will find the topics of this Block relevant and useful with regard to mental disorders.
UNIT 1  EPIDEMIOLOGY : GENERAL CONCEPTS, METHODS AND MAJOR STUDIES

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1.4 Epidemiological Methods
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   1.4.2 Sampling
   1.4.3 Types of Epidemiological Studies
   1.4.4 Bias in Epidemiological Studies
   1.4.5 Assessment Instruments Used in Epidemiological Studies of Mental Disorders
1.5 Major epidemiological Studies – International
   1.5.1 Epidemiological Catchment Area Study
   1.5.2 The National Comorbidity Survey
   1.5.3 World Mental Health Survey
   1.5.4 National Epidemiologic Survey on Alcohol and Related Conditions
   1.5.5 WHO Global Burden of Disease Study
1.6 Conclusion
1.7 Unit End Questions
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1.9 Suggested Readings and References

1.1 INTRODUCTION
In the previous Block, you have learned about the classification of mental disorders. In this Unit, you will be learning about the epidemiology of mental disorders. When we talk about mental disorders, it is very important to know the incidence and prevalence of the disorders in the population. This will help us in gaining a better understanding of the mental disorder in terms of its risk factor, onset and progression, morbidity and mortality rate. Accordingly, treatment and preventive measures can be taken.

1.2 OBJECTIVES
After studying this Unit, you will be able to:

- Define epidemiology;
- Describe the epidemiological methods; and
- Understand the epidemiological studies conducted.
1.3 CONCEPT OF EPIDEMIOLOGY

“Epidemiology” is derived from the Greek word epidemos, meaning “among the people”, and is defined as the study of “the patterns of disease occurrence in human populations and of the factors that influence these patterns”. Epidemiology is the backbone of public health because the ultimate goal of epidemiological research is to understand the cause of disease and prevent its occurrence.

The discipline of psychiatric epidemiology studies the patterns of mental disorders, including how frequently disorders occurs, how they are distributed in population, and what are associated risk factors. Psychiatric epidemiology also defines the time course of mental disorders including their onset, duration and recurrence. Recently, the field has greatly expanded and now includes detailed examinations of the natural history of psychiatric disorders, genetic epidemiology, the relationships between physical and mental disorders, and studies the use and outcomes of mental health treatments. This expansion has acquired significant advances and developments in psychiatric epidemiologic methods.

Why do we need to study epidemiology? Let us see the uses of studying epidemiology.

1) One of the major advantages is the comparison of illness through time. It helps in assessing increase or decrease in rates of the illness over different time periods and also variations in burden, mortality etc.

2) It helps in understanding the morbidity and mortality of the illness in a particular population and its subgroups.

3) Assessment of burden due to an illness helps in planning the services required and approaches needed.

4) Epidemiological studies of individual disorders help in identifying risk factors, protective factors, onset; course and progression of illness states.

5) They also inform about the validity of individual disorders as syndromes in psychiatry rely on categorizing symptom clusters into different syndromes.

6) Epidemiological studies also throw light on the etiology of any disorder. This helps in developing treatments and preventive interventions targeted at particular disorders.

Check Your Progress 1

Note:  a) Read the following questions carefully and answer in the space provided below.

b) Check your answers provided at the end of this unit.

1) Define epidemiology.

....................................................................................................................................................
....................................................................................................................................................
....................................................................................................................................................
....................................................................................................................................................

2) Give any three uses of studying epidemiology.

....................................................................................................................................................
1.4 EPIDEMIOLOGICAL METHODS

1.4.1 Measures of Disease Frequency

Epidemiological studies examine the incidence and prevalence rates of disorders in populations at risk and the factors associated with onset and recurrence. A rate is determined by the number of cases (the numerator) divided by the population at risk (the denominator).

**Incidence**

Incidence rates refer to number of new cases that arise in a healthy population during a fixed time. Thus, it refers to number of new cases per unit of time.

**Incidence proportion**

The proportion of a population at risk that has a disease during a specified time. The range is from 0 to 1. The numerator includes new cases of the illness, and the denominator is composed of individuals at risk of becoming diseased for the first time.

**Cumulative incidence**

In cumulative incidence, the duration of the observation needs to be defined (e.g., new cases in 1 month, 1 year, or 5 years).

Cumulative incidence = Number of new cases/Total population at risk

**Incidence rate**

Incidence rate refers to the number of new cases occurring in a specified time period divided by the sum of time periods of the observation for all individuals in the population at risk, or person-time.

Incidence rate = Number of new cases/Person-years

**Prevalence rate**

Prevalence rate measures the proportion of individuals who have the disease at a specified point or period in time. Incidence refers only to new-onset cases, whereas prevalence includes all new, recurrent, or chronic cases in the numerator and the entire population, including those with a history of the disorder, in the denominator.

Prevalence rates are influenced by the duration of a disease. For nonchronic disorders, such as major depression, the point prevalence is usually lower than the period prevalence. For chronic conditions, such as schizophrenia, the point prevalence and period prevalence are expected to be similar.

The point prevalence rate is the proportion of a population affected by a disease at a given point in time. Period prevalence refers to the proportion of a population affected by a disease during a specified time period, such as 6 months, 1 year, or lifetime.

Prevalence rate = Number of cases/Total population at risk

Prevalence is determined not just by factors that cause a disease but also by factors
secondary to the disease itself. On the other hand, prevalence measures are useful in public health or service utilization situations. For instance, the geographical location and planning of specific services of a community mental health centre are usually based on findings from prevalence studies.

Commonly used prevalence rates include the following:

**Current (Point and 1-Month) Prevalence**

This rate describes people with a disorder at a specified point in time and is referred to as the point prevalence. Although the point prevalence is the best estimate of the “current” prevalence of a disorder, it is difficult to estimate for mental disorders in the general population since mental disorder diagnosis requires multiple symptoms to cluster together for specific time periods, and these symptoms may wax and wane on a daily basis. Therefore, the 1-month prevalence rate has been more frequently used to describe the percentage of people who currently have a mental disorder. This time period describes people in a specified population who have met criteria for a disorder at any point in the past month.

**One-year Prevalence**

This rate describes people who have had a disorder at any time in the past year. Because service planning is done on an annual basis, service planners are most interested in how many people can be expected to have a disorder in a given year. If an assumption is made that mental disorder prevalence rates do not change greatly from year to year, and there have been no significant demographic changes in the population of interest, a 1-year prevalence rate from a recent time can be multiplied by an estimate of the total population for a given year to determine how many people in the population can be expected to have the disorder in that year.

**Lifetime Prevalence**

Lifetime prevalence describes the number of people who have had the disorder at any point of their lives. It is helpful especially in psychiatric disorders where many illnesses have a relapsing remitting nature and 1 month or 1 year prevalence rates may lead to underestimation of the true prevalence and hence affect service planning in the community.

**Life Time Risk**

It refers to the risk of developing a disease during one’s life time.

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**Check Your Progress 2**

**Note:**

a) Read the following questions carefully and answer in the space provided below.

b) Check your answers provided at the end of this unit.

1) The following formula helps in arriving at which epidemiological measure?

   Number of new cases in a specified period of time/people at risk for the disorder in the same period of time(person-time):

   ....................................................................................................................
   ....................................................................................................................
   ....................................................................................................................
   ....................................................................................................................

2) What is the difference between point prevalence and period prevalence?

1.4.2 Sampling

Sampling is the process which involves selection of a subset of individuals from within a population to estimate characteristics of the whole population. It is difficult to study the entire population many times. Sampling helps in faster data collection and since, the data set is smaller, it is possible to ensure homogeneity and to improve the accuracy and quality of the data.

Some terms are important to understand the concept of sampling. ‘Sampling frame’ refers to the list or procedure from which the actual sample will be drawn. The ‘sample’ means the actual subjects who are going to be studied. ‘Study population’ refers to population who can be accessed to get the sample and ‘theoretical population’ is the group to whom the results can be generalized.

The following table gives the types of sampling commonly used in research:

<table>
<thead>
<tr>
<th>Types of Sampling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Probability sample</td>
</tr>
<tr>
<td>● Simple random</td>
</tr>
<tr>
<td>● Systematic random</td>
</tr>
<tr>
<td>● Stratified random</td>
</tr>
<tr>
<td>● Random cluster</td>
</tr>
<tr>
<td>● Stratified cluster</td>
</tr>
<tr>
<td>● Complex multi-stage random</td>
</tr>
<tr>
<td>Non-probability sample</td>
</tr>
<tr>
<td>● Convenience</td>
</tr>
<tr>
<td>● Purposive</td>
</tr>
<tr>
<td>● Quota</td>
</tr>
</tbody>
</table>

Simple Random Sampling

Each element in the population has an equal probability of selection and each combination of elements has an equal probability of selection e.g., numbers drawn out of a lot.

Systematic Random Sampling

In this method the target population is ordered according to some arrangement and then sample is chosen at regular intervals from this list. e.g., taking every 10th student from a roll of 1000 students arranged class-wise.
Stratified Random Sampling

In this, the population is divided into groups that differ in important areas which are known and then random selection is done from each group.

Random Cluster Sampling

It is type of random sampling where the population is divided into groups (e.g., geographical) and some of the groups are randomly chosen from which samples are again chosen randomly.

Stratified Cluster Sampling

In this method, the clusters are further stratified according to some specified criteria.

Convenience Sample

In this type of sampling, participants are chosen because it is easy to access them. There is usually no reason specifically associated with purpose of research and population selected.

Purposive Sample

Participants are selected from a defined group with a good reason tied to the purpose of the study.

Quota Sample

A non-random convenience sample is chosen from a population segmented into mutually exclusive sub-groups, e.g., 100 men and 100 women in the age group of 18-25.

1.4.3 Types of Epidemiological Studies

Epidemiological studies can be classified as: 1) Experimental, 2) Quasi-experimental, and 3) Non-experimental or Observational. These are given in Table 2 below.

<table>
<thead>
<tr>
<th>Table 2: Types of Epidemiological Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Experimental</td>
</tr>
<tr>
<td>2) Quasi-experimental</td>
</tr>
<tr>
<td>3) Non-experimental (Observational)</td>
</tr>
<tr>
<td>i) Longitudinal</td>
</tr>
<tr>
<td>a) Case–control studies</td>
</tr>
<tr>
<td>b) Cohort studies</td>
</tr>
<tr>
<td>Prospective</td>
</tr>
<tr>
<td>Retrospective</td>
</tr>
<tr>
<td>ii) Cross-sectional</td>
</tr>
</tbody>
</table>

Experimental Studies

The most common experimental design is the clinical trial, in which clinical populations are exposed to a specific treatment protocol to measure an outcome, usually resolution of symptoms.
To ensure the integrity of a clinical trial, three main elements are necessary.

1) “randomization”, to ensure comparability of the populations
2) “placebo”, to ensure comparability of the effects
3) “blinding”, to ensure comparability of information

In randomization, participants are randomly assigned to different exposure groups to attempt to ensure that participants in each group have similar clinical and demographic characteristics. Randomization is done to ensure a balance of unknown variables in both groups.

A placebo controls for factors that may affect the outcome of the study independently of the exposure status. For example, if participants in an open trial are aware of what medication they receive, this knowledge could bias their response to the treatment. Similarly, participants who are aware of being in an untreated control group could respond over time in a biased fashion. Thus, one goal in assigning patients at random to treatment or placebo-control groups is to minimize observation bias. In a single-blind study, only the patient is unaware of the actual treatment. In a double-blind study, the investigator and the participant of investigation are unaware of treatment assignment. In a triple-blind study, all parties viz. participant, investigator and analyst are unaware of the actual treatment.

**Quasi-experimental Studies**

Natural experiments that permit comparisons of two populations, one that receives an exposure and the other that does not, are referred to as quasi-experimental studies. To be considered quasi-experimental, baseline data must have been collected before the exposure event. Without that requirement, the study is simply a retrospective observational study.

**Nonexperimental Studies**

Nonexperimental studies are divided into cross-sectional and longitudinal designs.

**Cross-sectional Designs**

Cross-sectional designs are typically employed in surveys aimed at providing data on the distribution of disorders in the population. Differences in rates by basic demographic data are also usually derived. In epidemiology, cross-sectional designs are usually best employed when causal hypotheses are not being tested. For example, when a community wants to investigate the distribution of an illness to decide on the need for psychiatric services, a cross-sectional survey is highly appropriate.

**Longitudinal Designs**

Longitudinal designs are divided into case-control and cohort studies and are characterized by a time interval between cause and effect. In cross-sectional studies, there is no interval between exposure and illness, which are measured at the same point in time.

**Case-Control Studies**

In case-control studies, participants are defined in terms of having (the case patients) or not having (the control patients) the disease of interest. The groups are compared in terms of history of exposure. In general, two types of control groups are used: hospital control groups and population control groups. The selection of the control group is a key point in terms of validity. Control participants should be selected independently of
exposure status. Case and control patients may be matched on different characteristics, the key issue being that control patients should represent those individuals who, if they had the disease, would be selected as case patients.

Case–control studies can assess whether a risk factor is more prevalent in case than in control patients but may not be able to establish the rate of disease after exposure to that risk factor. For the purpose of estimating the true rate of disease associated with an exposure, the prospective cohort study design is the preferable methodology.

**Cohort Studies**

In cohort studies, participants are identified in terms of exposure or nonexposure status and are observed for a specified time to determine the presence or absence of a health outcome. Cohort studies are divided into prospective and retrospective.

In prospective cohort studies, the exposure or nonexposure status is defined when the study is initiated. The participants of investigation are followed up into the future to determine disease or nondisease status. In retrospective studies, the status of exposed or nonexposed is defined in the present. In prospective cohort studies, exposures of the present are evaluated; in retrospective cohort studies, exposures of the past are being evaluated. Cohort groups share the common exposure status and are observed to ascertain the presence or absence of a disease or outcome. For comparison groups, a cohort study can use an internal subset of the population under study, by comparing exposed with unexposed members of the cohort, or an external comparison. A comparison cohort can be selected from a similarly defined population. The major strength of the cohort design is the possibility of estimating a temporal relationship between exposure and disease. With a cohort study, it is possible to study rare exposures and to evaluate multiple outcomes from a single exposure. The limitation of cohort studies is primarily one of feasibility because most such studies are expensive and involve study populations who are difficult to recruit and maintain for follow-up.

**Check Your Progress 3**

| Note: a) Read the following questions carefully and answer in the space provided below.  
  b) Check your answers provided at the end of this unit. |
|----------------------------------------------------------|
| 1) A group of 1000 people in a coastal settlement affected by a tsunami are followed up regularly through monthly community visits to each family and followed up to see the development of psychiatric disorders. Routine assessment at each visit using CIDI is carried out for 12 months. Which is the type of study design used here?  
  .....................................................................................................................................................
  .....................................................................................................................................................
  .....................................................................................................................................................
  .....................................................................................................................................................  
  2) What is the purpose of blinding in clinical trials?  
  .....................................................................................................................................................
  .....................................................................................................................................................
  .....................................................................................................................................................
  ..................................................................................................................................................... |
1.4.4 Bias in Epidemiological Studies

Biases can be divided into three general types: 1) selection bias; 2) information or observation bias; and 3) confounding bias.

Selection Bias

Selection bias can arise when the sampling procedure is influenced a priori by the disease or the exposure.

Self-selection bias occurs when participants who have been exposed to an event are more likely to participate in a study if they have the disease or prodromal stages of the disease under study. A similar type of selection bias can occur when participants are solicited from newspaper or other similar advertisements.

Information (Observation) Bias

In case-control studies, information bias occurs when the details about prior exposure are obtained in a noncomparable manner or are subject to poor recall. To minimize such bias, exposure data should be collected without knowledge of disease status. This procedure is known as blindness. However, because of selective recall, when the sole source of information is the affected individual, this type of bias sometimes presents insurmountable problems.

Confounding Bias

Confounding bias results when a third factor that is a cause of the disease under study is also associated with the exposure. A confounding factor is a cause of the disease under study independent of its association with the exposure.

Check Your Progress 4

Note: a) Read the following questions carefully and answer in the space provided below.

b) Check your answers provided at the end of this unit.

1) A study with an aim of estimating the prevalence of depression in an urban settlement used a methodology wherein all consecutive patients attending the three tertiary care psychiatric hospitals in that community were assessed using a structured questionnaire. What type of bias would be expected in this study and why?

2) A study attempting to find the efficacy of an antidepressant medication for depression used a open label non randomized design without blinding. What possible bias is likely to be met with, in the study?
1.4.5 Assessment Instruments Used in Epidemiological Studies of Mental Disorders

The Diagnostic Interview Schedule (DIS)

The DIS was developed in 1978 with the advent of DSM-III and used in the Epidemiologic Catchment Area (ECA) study which will be discussed below. The DIS can be administered by trained individuals and can be used to diagnose a range of DSM-III disorders. It can be used to assess DSM-III affective, anxiety, and substance use disorders, schizophrenia and schizophreniform disorders, anorexia nervosa, somatization disorder, and antisocial personality disorder. The DIS has also been updated with the advent of DSM-IV and has been validated extensively.

The Composite International Diagnostic Interview (CIDI)

The CIDI is a comprehensive, fully-structured interview designed to be used by trained lay interviewers for the assessment of mental disorders according to the definitions and criteria of ICD-10 and DSM-IV. It is intended for use in epidemiological and cross-cultural studies as well as for clinical and research purposes.

The CIDI allows the investigator to:

- Measure the prevalence of mental disorders
- Measure the severity of these disorders
- Determine the burden of these disorders
- Assess service use
- Assess the use of medications in treating these disorders
- Assess who is treated, who remains untreated, and what are the barriers to treatment.

WHO Disability Assessment Schedule (WHODAS)

There are currently very few instruments that have been developed to assess disability in community-based epidemiologic surveys. Most instruments require clinical training to administer and have been developed for patient populations.

WHODAS II is an instrument designed to assess patient disability in various domains, including understanding and communication, getting around, self-care, getting along with people, life activities, and participation in society. It is available in various formats, including interviewer-rated, patient-rated, and proxy-rated.

1.5 MAJOR EPIDEMIOLOGICAL STUDIES – INTERNATIONAL

1.5.1 The Epidemiological Catchment Area Study

The National Institute of Mental Health, USA, sponsored the Epidemiological Catchment Area (ECA) project to determine the prevalence of mental disorders in specific sites and the proportion receiving mental health services.

The basic design involved face-to-face baseline interviews with random samples of adults selected from the catchment areas, 6-month telephone follow-up interviews to obtain interim information on medical and psychiatric service use, and 1-year face-to-face interviews with the original sample. The ECA was carried out in five catchment areas in five states: Chicago, Baltimore, Los Angeles, Seattle, and Newark.
areas across the United States: New Haven, Connecticut; Baltimore, Maryland; Durham, North Carolina; St. Louis, Missouri; and Los Angeles, California. In order to analyze specific subgroups of interest, oversampling of the elderly was done in the New Haven, Baltimore, and Durham sites, oversampling of African Americans was done in St. Louis, and oversampling of Hispanics was done in Los Angeles. There were two samples in each site, a household sample and an institutional sample, which included jails and nursing homes; respondents were all age 18 or older. The final sample size was 18,571 household respondents, and 2,290 institutional respondents. Overall, 12% of the original respondents were lost to or refused to participate in the follow-up interview (Regier et al., 1984; Regier et al., 1988). Table 3 below shows the prevalence rates of different disorders in the population as obtained from the ECA study.

**Table 3: Estimated Prevalence Rates from the ECA Study**

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Estimated Prevalence Rate (% Population)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any DIS disorder covered</td>
<td>32.2</td>
</tr>
<tr>
<td>Substance use disorders</td>
<td>16.4</td>
</tr>
<tr>
<td>Alcohol abuse and dependence</td>
<td>13.3</td>
</tr>
<tr>
<td>Drug abuse and dependence</td>
<td>5.9</td>
</tr>
<tr>
<td>Schizophrenia and schizophreniform disorders</td>
<td>1.5</td>
</tr>
<tr>
<td>Affective disorders</td>
<td>8.3</td>
</tr>
<tr>
<td>Manic episode</td>
<td>0.8</td>
</tr>
<tr>
<td>Major depressive episode</td>
<td>5.8</td>
</tr>
<tr>
<td>Dysthymia</td>
<td>3.3</td>
</tr>
<tr>
<td>Anxiety disorders</td>
<td>14.6</td>
</tr>
<tr>
<td>Generalized anxiety disorder</td>
<td>8.5</td>
</tr>
<tr>
<td>Phobia</td>
<td>12.5</td>
</tr>
<tr>
<td>Panic</td>
<td>1.6</td>
</tr>
<tr>
<td>Obsessive–compulsive disorder</td>
<td>2.5</td>
</tr>
<tr>
<td>Somatization disorder</td>
<td>0.1</td>
</tr>
</tbody>
</table>

**Check Your Progress 5**

**Note:**

a) Read the following questions carefully and answer in the space provided below.

b) Check your answers provided at the end of this unit.

1) The ECA study had __________ design.
   a) cross-sectional design
   b) longitudinal design
   c) randomized control trial
   d) naturalistic follow up design

2) What assessment instrument and diagnostic criteria were used in the ECA study?
   ........................................................................................................................................................................
   ........................................................................................................................................................................
   ........................................................................................................................................................................
   ........................................................................................................................................................................
   ........................................................................................................................................................................

Epidemiology : General Concepts, Methods, and Major Studies
1.5.2 The National Comorbidity Survey (NCS)

Because the ECA study was conducted in five specific sites, each selected because it contained unique population characteristics, the findings could not be readily extrapolated to the USA as a whole. The NCS was designed to estimate the prevalence and comorbidity of psychiatric and substance use disorders in the mainland USA. The NCS was designed by Kessler and colleagues (1994) as the first population-based study administered to a nationally representative sample in the USA using a structured diagnostic interview.

The NCS was carried out from 1990 to 1992 and had a total of 8098 respondents with age range of 15-54 years. It measured a wide range of psychiatric disorders, treatment use, HIV risk behaviours, etc.

There was a much higher prevalence of mental disorders in the NCS compared to the ECA study. There were some methodological differences and diagnostic differences as the NCS used DSM-III-R criteria whereas the ECA study used DSM-III criteria. There was also difference in the age range of patients in both the studies (Kessler et al., 1994).

The national comorbidity survey-replication (NCS-R) repeated the prevalence estimates again later and the NCS-2 reinterviewed all the respondents of the original study.

**Table 4: Prevalence Rates in the NCS**

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Lifetime rate (%)</th>
<th>12 month rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non affective psychosis</td>
<td>0.7</td>
<td>0.5</td>
</tr>
<tr>
<td>Manic episode</td>
<td>1.6</td>
<td>1.3</td>
</tr>
<tr>
<td>Major depressive episode</td>
<td>17.1</td>
<td>10.3</td>
</tr>
<tr>
<td>Dysthymia</td>
<td>6.4</td>
<td>2.5</td>
</tr>
<tr>
<td>Panic disorder</td>
<td>3.5</td>
<td>2.3</td>
</tr>
<tr>
<td>Agoraphobia without panic disorder</td>
<td>5.3</td>
<td>2.8</td>
</tr>
<tr>
<td>Social phobia</td>
<td>13.3</td>
<td>7.9</td>
</tr>
<tr>
<td>Simple phobia</td>
<td>11.3</td>
<td>8.8</td>
</tr>
<tr>
<td>Generalized anxiety disorder</td>
<td>5.1</td>
<td>3.1</td>
</tr>
<tr>
<td>Alcohol dependence</td>
<td>14.1</td>
<td>7.2</td>
</tr>
<tr>
<td>Any NCS disorder</td>
<td>48</td>
<td>29.5</td>
</tr>
</tbody>
</table>

**Check Your Progress 6**

**Note:**

a) Read the following questions carefully and answer in the space provided below.

b) Check your answers provided at the end of this unit.

1) What was the prevalence rate of any mental disorder in the ECA study and the NCS study?
2) List some methodological differences between the ECA and NCS studies.

1.5.3 World Mental Health Survey

The paucity and noncomparability of epidemiologic data on mental disorders and their consequences in many countries, particularly, but not only, in developing nations was a hindrance to the WHO's Global Burden of Disease study (described below). For this reason the WMH initiative was conceived by the WHO to increase precision in future estimates of the societal burden of mental disorders and in turn provide a more solid basis for mental health service planning and delivery of effective interventions.

The WMH aimed to study the prevalence of mental disorders, their consequences in terms of functional disabilities and social disadvantages, and patterns of service use for mental disorders. Twenty-six countries participated in the WMH, representing all WHO regions (six countries in the Pan American region including the NCS-R in the United States, two in Africa, two in the Eastern Mediterranean, 12 in Europe including Israel, one in Southeast Asia, and three in the Western Pacific). Some countries chose to perform national surveys, others chose to sample from smaller geographical units in their countries. All surveys did, however, use multistage household probability sampling to ensure that their results could be generalized to their target populations. In all, over 130,000 respondents were sampled worldwide. The WMH-CIDI was the diagnostic instrument, and both DSM-IV and ICD-10 diagnoses were assessed. To increase comparability in implementation, instrument translations were done according to standard WHO protocols. Interviewer for each country was trained centrally with the same documents and protocols. Informed consent and institutional review board approvals were required (Demyttenaere et al., 2004).

Table 5: Prevalence rates in the World Mental Health Survey

<table>
<thead>
<tr>
<th>Country</th>
<th>Anxiety disorder</th>
<th>Mood disorder</th>
<th>Substance use disorder</th>
<th>Any</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>18.2</td>
<td>9.6</td>
<td>3.8</td>
<td>26.4</td>
</tr>
<tr>
<td>France</td>
<td>12.0</td>
<td>8.5</td>
<td>0.7</td>
<td>18.4</td>
</tr>
<tr>
<td>Germany</td>
<td>6.2</td>
<td>3.6</td>
<td>1.1</td>
<td>9.1</td>
</tr>
<tr>
<td>Nigeria</td>
<td>3.3</td>
<td>0.8</td>
<td>0.8</td>
<td>4.7</td>
</tr>
<tr>
<td>Japan</td>
<td>5.3</td>
<td>3.1</td>
<td>1.7</td>
<td>8.8</td>
</tr>
<tr>
<td>China</td>
<td>3.2</td>
<td>2.5</td>
<td>2.6</td>
<td>9.1</td>
</tr>
</tbody>
</table>
1.5.4 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC)

The National Institute of Alcohol Abuse and Alcoholism’s NESARC is a population-based survey of DSM-IV alcohol use disorders in the United States. The NESARC sample is nationally representative of the adult household population of the United States, also including noninstitutional group quarters such as boarding houses, rooming houses, nontransient hotels and motels, shelters, facilities for housing workers, college quarters, and group homes. Among its goals were to provide prevalence and incidence rates of alcohol-related disorders and associated disabilities; examine comorbidity patterns with other mental disorders, including other substance use disorders; document the natural history of alcohol-related disorders and disabilities; examine service use rates and patterns and barriers to care; and attempt to elucidate and differentiate “alcohol-induced” physical and mental disorders from “independent” disorders. In order to accomplish these and related goals, NESARC was a longitudinal survey with an unprecedented sample size of 43,093. Its first wave was fielded in 2001 to 2002 and the second wave, in which attempts were made to reinterview all first wave respondents, was fielded in 2004 to 2005 (Grant et al., 2005).

<table>
<thead>
<tr>
<th>Disorder</th>
<th>Prevalence %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific phobia</td>
<td>7.1</td>
</tr>
<tr>
<td>Social phobia</td>
<td>2.8</td>
</tr>
<tr>
<td>Generalized anxiety disorder</td>
<td>2.1</td>
</tr>
<tr>
<td>Major depressive disorder</td>
<td>7.1</td>
</tr>
<tr>
<td>Any mood disorder</td>
<td>9.2</td>
</tr>
<tr>
<td>Any alcohol disorder</td>
<td>8.5</td>
</tr>
</tbody>
</table>

1.5.5 WHO Global Burden of Disease Study

The innovative Global Burden of Disease study, sponsored by the WHO and the World Bank, was published in 1996. This study recognized that the consequences of disease include not only death but also disability, and the impact of disability should be quantified and factored into any estimates of disease burden. By taking disability into account, this study served to draw attention to chronic diseases, including psychiatric disorders, which may ultimately be the cause of premature death but may also cause significant societal burden through reduced role functioning. Disability adjusted life years (DALYs) were used to estimate the burden of disease. DALYs represent the sum of years of life lost to premature death and years lived with a disability of a specified severity and duration due to the condition. One DALY represents 1 year of healthy life lost. This study showed that unipolar major depression ranks fourth among disorders leading to increased DALY and projected to be second leading contributor of disability in 2020 (Murray & Lopez, 1996).

1.6 CONCLUSION

There has been a vast amount of research on psychiatric epidemiology over the last three to four decades. Prevalence of major psychiatric illness has been studied using valid diagnostic criteria like DSM-IV or ICD-10 and worldwide surveys have been carried out.
Studies have also tried to find out demographic, clinical course characteristics of various mental disorders. The GBD study has also sensitized the medical community to the large magnitude of burden posed by mental disorders to the community and the need to provide adequate service facilities in the community.

We still require a large amount of research in psychiatric epidemiology to improve our understanding of mental disorders to facilitate better allocation of resources, improve the effectiveness of treatments and try to reduce the burden of mental disorders in the community.

1.7 UNIT END QUESTIONS

1) Define epidemiology and describe the use of epidemiological studies.

2) Define prevalence and describe some types of prevalence rates.

3) What are the common types of bias encountered in epidemiological studies?

4) Write in brief about two major epidemiological studies assessing mental disorders.

5) What is DALY? Write a brief note on the Global Burden of Disease study.

1.8 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress Exercise 1

1) Epidemiology is defined as the study of the patterns of disease occurrence in human populations and of the factors that influence these patterns.

2) a) One of the major advantages is the comparison of illness through time. It helps in assessing increase or decrease in rates of the illness over different time periods and also variations in burden, mortality, etc.

   b) It helps in understanding the disease morbidity and mortality in a particular population and its subgroups.

   c) Assessment of burden due to an illness helps in planning the services required and approaches needed.

Check Your Progress Exercise 2

1) Incidence Rate

2) The point prevalence rate is the proportion of a population affected by a disease at a given point in time. Period prevalence refers to the proportion of a population affected by a disease during a specified time period, such as 6 months, 1 year, or lifetime.

Check Your Progress Exercise 3

1) Prospective follow-up study

2) To avoid bias when either the person who is aware of what treatment he is on or to reduce bias of the assessor who knows what treatment the patient is receiving.

Check Your Progress Exercise 4

1) Selection bias – All patients of depression who are seeking treatment from other
centres and all patients who are not seeking treatment will not be assessed and hence leading to possible underestimation of prevalence.

2) Observer bias.

**Check Your Progress Exercise 5**

1) b) longitudinal design

2) Diagnostic interview schedule and DSM-III

**Check Your Progress Exercise 6**

1) 32.2% and 29.5%

2) The NCS was done in a nationally representative sample and had a lower age range compared to ECA study. It used a different diagnostic instrument (CIDI) and diagnostic criteria (DSM-III-R).

### 1.9 SUGGESTED READING AND REFERENCES


UNIT 2  EPIDEMIOLOGY OF MENTAL DISORDERS IN INDIA

Structure

2.0  Introduction
2.1  Objectives
2.2  Epidemiology of Psychiatric Disorders – Some Basic Principles
2.3  Psychiatric Epidemiology in India Over the Years
2.4  Rates of Mental Disorders in India – Descriptive Epidemiological Studies
2.5  Epidemiology of Individual Psychiatric Disorders in India
2.6  Trans-cultural and Clinical Epidemiological Studies in India
2.7  The Study of Risk Factors – Analytical Epidemiology
2.8  Effect of Interventions – Experimental Epidemiological Studies in India
2.9  Let Us Sum Up
2.10  Unit End Questions
2.11  Answers to Check Your Progress Exercises
2.12  Glossary
2.13  Suggested Readings and References

2.0  INTRODUCTION

Over the years it has become apparent that mental health disorders constitute a significant public health problem. The World Health Organisation (WHO) in its World Health Report of 2001 drew attention to the fact that all over the world nearly 10% of total adult population, that is more than 450 million people worldwide, suffer from a mental or a behavioural disorder. Not only are mental health disorders very common, they are also associated with a variety of functional impairments, emotional distress, social disruptions and physical health problems. The same WHO report found that four mental disorders were among the ten leading causes of disability among people all over the world, and that one in four families suffered from the burden of caring for a mentally ill member. Despite the immense size of the problem, resources allocated for treatment and prevention of these disorders are usually inadequate, particularly in low-income countries such as India. With a population of over one billion people, India is confronted with a huge mental health burden. The relative success in the prevention and control of infectious or communicable diseases is slowly changing the nature of health problems of our country. Non-communicable diseases (including mental disorders) are beginning to emerge as the major problems. However, poverty, illiteracy, and the lack of skilled manpower and resources ensure that organising services for the mentally ill remains a daunting task.

Mental or psychiatric disorders constitute a wide spectrum of problems ranging from mild subclinical states to very severe abnormalities of thought, behaviour and emotion. The causes of such disorders are often varied and result from a complex interaction of biological, psychological and social factors. The study of epidemiology of psychiatric disorders provides us many of the answers about the nature and causes of psychiatric
disorders. In this Unit, we will be discussing the epidemiology of mental disorders in India. The basic principles of epidemiology have already been covered in Unit 1, and will only be mentioned in passing in this unit.

2.1 OBJECTIVES

After studying this Unit, you will be able to:

- Know the basic principles governing psychiatric epidemiology;
- Gain an understanding about the epidemiology of psychiatric disorders in India;
- Explain the prevalence and causes of the common psychiatric disorders in India; and
- Describe the advantages, disadvantages and challenges facing the study of the epidemiology of mental disorders in India.

2.2 EPIDEMIOLOGY OF PSYCHIATRIC DISORDERS – SOME BASIC PRINCIPLES

Epidemiology, derived from two Greek words, *epi* - among and *demos* – people, started out as a medical branch dealing with epidemics or mass phenomenon of any disease among the people. Accordingly, an early definition of the term considered epidemiology to be the study of the patterns of occurrence of disease in human populations and of the factors that influence these patterns. However, the ultimate goal of epidemiological research is not only to understand the distribution and determinants of disease, but also to prevent its occurrence. Epidemiological research focuses on population rather than individual. Indeed, epidemiology is thought to be the backbone of public health. It yields important information required for public health decisions about prevention, treatment and social costs of illness. Moreover, epidemiology relies on statistical methods to estimate the differences between different groups of populations in their risk for developing different disorders. Therefore, a more appropriate definition of epidemiology is that it is the quantitative study of the distribution and determinants of health-related states or events in specified populations, and the application of this study to the prevention and control of health problems. Epidemiology provides a description of how often the disease occurs in the population, of how the rates change over time, and of the factors that explain its occurrence. It provides a picture of the illness in terms of its defining features, associated morbidity and mortality, and the natural history of the disorder. It can, thus, help in identifying many new disorders and complete the clinical picture of some of the existing disorders. One of the major goals of epidemiological research is to elucidate the causes of disorders by assessing the risks or likelihood of developing the disorder. Once the causes of disorders can be determined, targeted treatment and preventive measures can help reduce the burden of disorder in the community. Epidemiological studies aid this process by providing valuable information on the treatment-needs of populations, and whether the health services are able to meet these needs. These different uses of epidemiology are traditionally grouped under three different types of epidemiological research:

- **Descriptive epidemiology** – studies that estimate the rates of a disorder in a population, or its subgroups.

- **Analytical epidemiology** – studies that explore variations in rates of disorders in different populations in order to identify the risk factors that contribute to the development of the disorder.
- **Experimental epidemiology** – studies that aim to reduce the occurrence of disorders by prevention or treatment.

To achieve these aims, epidemiological research employs several different types of study designs broadly grouped as experimental, quasi-experimental, and non-experimental, or observational studies.

Psychiatric epidemiology is the application of the principles of epidemiological research to the study of psychiatric disorders. Since mental disorders usually follow a chronic course, the techniques used in psychiatric epidemiology resemble those used in other, chronic and non-communicable illnesses. Psychiatric epidemiology has been a bit of a new kid in the block and has lagged behind other branches of epidemiology, because of several difficulties involved in conceptualising and measuring mental disorders. Nevertheless, psychiatric epidemiology is a rapidly expanding field with a long tradition of research, which has evolved over several phases, extending as far back as the nineteenth century. The first-generation studies took place for the most part before World War II. These studies were characterised by their reliance on known instances of people with mental disorders, usually those residing in mental hospitals. Compared with findings from later studies, the first-generation studies underestimated the true prevalence of mental disorders. Following World War II, several landmark studies of epidemiology of psychiatric disorders were conducted, particularly in North America. The common denominator of these second-generation studies was the direct interview of all participants with supplementation of data from other sources, such as medical or community records. These studies highlighted the fact that mental illness was a significant public health problem and that most people with psychiatric problems never received treatment. The third-generation studies, which began in the 1970s, represented a significant improvement, because of their use of structured methods of diagnosis and their focus on people residing in the community. Some authors consider the current studies of clinical epidemiology and genetic epidemiology as representing the fourth generation of psychiatric epidemiological studies. Whereas traditional epidemiology has a population focus, and is largely been concerned with the occurrence and causes of disease, clinical epidemiology has emerged as a closely related discipline which seeks to identify the occurrence and determinants of clinical outcomes from illnesses. Clinical epidemiologic studies employ the same principles and methods of population-based epidemiology, but are usually conducted among clinical samples.

<table>
<thead>
<tr>
<th>Check Your Progress 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Note:</strong> a) Read the following questions carefully and answer in the space provided below. b) Check your answers provided at the end of this unit.</td>
</tr>
<tr>
<td>1) What is the best way to define epidemiology?</td>
</tr>
<tr>
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<td>....................................................................................................................................................</td>
</tr>
<tr>
<td>....................................................................................................................................................</td>
</tr>
<tr>
<td>....................................................................................................................................................</td>
</tr>
<tr>
<td>2) What are the different uses of epidemiological research?</td>
</tr>
<tr>
<td>....................................................................................................................................................</td>
</tr>
</tbody>
</table>
3) What are the different types of epidemiological studies?

4) What were the characteristics of first, second and third-generation studies of psychiatric epidemiology?

5) What is clinical epidemiology?

2.3 PSYCHIATRIC EPIDEMIOLOGY IN INDIA OVER THE YEARS

In a seminal article in the Indian Journal of Psychiatry in 1974, Professors Wig and Akthar pointed out two distinct phases of psychiatric research in India. Psychiatric research during the first phase, from 1947 to 1960, was mostly focused on psychological interpretations of individual dysfunction. Research on epidemiology of mental disorders was conspicuous by its absence during this phase, and this was a major handicap in planning of mental health services. However, even at this stage the enormous burden of psychiatric disorders and the lack of mental health resources were noted by some committees set up by the government, which also suggested measures to remedy the situation. The second phase of psychiatric research in India from 1960 to 1972 was characterised by a broader public health perspective. Some of the major epidemiological studies were conducted during this period, beginning with the first such study in 1961 from Agra by Professor Dube. The period between 1960 and 1980 was marked by a series of descriptive population-based studies of psychiatric disorders in several parts of India. The late 1980s witnessed further proliferation of psychiatric epidemiological studies, which focused on specific disorders in specific populations, and in specific settings. Several large-scale epidemiological studies were carried out during this period. Techniques were refined and evaluation of interventions in mental health care began to attract research attention. Since the 1990s epidemiological studies...
have further improved their methodologies, and have begun to focus both on new and emerging problems, as well as the organisation of mental health services. Thus, from the 1960s onwards there has been a tremendous growth of psychiatric epidemiological studies in India. The methodology of such studies has also improved and new areas have been explored. These efforts have yielded a clearer picture of the burden of mental disorders in India. However, the majority of studies are still descriptive in nature and there are very few properly designed analytical or experimental studies.

### 2.4 Rates of Mental Disorders in India – Descriptive Epidemiological Studies

At this juncture, we will find it useful to learn about two indices commonly employed in epidemiological studies to describe rates of different disorders. The first is prevalence (or prevalence rate), which can be simply defined as the proportion of individuals in the total population who have a psychiatric disorder at a specified point of time, or over a specific period of time. Prevalence rates include all new, recurrent, or chronic patients with mental disorder. The point prevalence rate is the proportion of a population affected by a disease at a given point in time. Period prevalence refers to the proportion of a population affected by a disease during a specified time period, such as 6 months, a year, or a lifetime. The other term is incidence, or the incidence rate. This refers to new cases that arise in a healthy population during a specified period of time. The most common such period is one year; thus, annual incidence rates are usually reported.

There are several reviews of psychiatric epidemiological studies in India, which give us a fairly accurate picture of the overall rates of mental disorders. Some of these have been carried out in a systematic fashion, and one is a meta-analytic review, which is a sophisticated statistical method of aggregating research-data from several different studies. The results of these reviews are summarised in Table-1

<table>
<thead>
<tr>
<th>Authors</th>
<th>Type of review</th>
<th>Number of studies included</th>
<th>Overall prevalence rates of mental disorders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reddy &amp; Chandrasekhar, 1998</td>
<td>Meta-analytic</td>
<td>13</td>
<td>58.2 per 1000 population</td>
</tr>
<tr>
<td>Ganguli, 2000</td>
<td>Open, non-systematic</td>
<td>15</td>
<td>73 per 1000 population</td>
</tr>
<tr>
<td>Madhav, 2001</td>
<td>Open, non-systematic</td>
<td>10</td>
<td>65.4 per 1000 population</td>
</tr>
<tr>
<td>Gururaj &amp; Isaac, 2004</td>
<td>Open, non-systematic</td>
<td>20</td>
<td>9.5-370 per 1000 population</td>
</tr>
<tr>
<td>Gururaj et al., 2005</td>
<td>Based on studies &amp; reviews</td>
<td>21</td>
<td>65 per 1000 population</td>
</tr>
<tr>
<td>Math et al, 2007; Math &amp; Srinivasraju, 2010</td>
<td>Systematic review</td>
<td>16</td>
<td>9.5-102.8 per 1000 population</td>
</tr>
</tbody>
</table>

A glance at Table 1 will tell you that out of every thousand people staying in any part of India, about 65 to 100 are suffering from a mental illness at any point of time. This roughly works out to about 10% of the total population of our country. Of these about
1 to 2% suffers from very serious illnesses, while the rest have less severe disorders, which still require psychiatric treatment.

Rates are generally higher among women, though certain disorders such as drug and alcohol are clearly more common among men. Whether rates of psychiatric disorders are more among urban populations is not very clear. Some of the reviews listed above have noted an excess of psychiatric disorders in urban populations; others believe that the differences are marginal. The bulk of our people reside in rural areas and access to psychiatric treatment is relatively limited for them. This makes the problem of psychiatric disorders in rural India a major area of concern, though the psychiatric problems of the urban poor cannot be ignored. One longitudinal study, which followed up people in two villages in West Bengal for a period of 20 years, found that though some disorders had become more common and others had become less so; however, overall rates of mental disorders had not changed much even over this long period. Rates obtained by Indian studies are much lower than those found in Western countries. This is usually ascribed to under estimation due to methodological reasons, though the possibility of rates being genuinely lower in India cannot be ruled out.

Despite numerous psychiatric epidemiological studies in India and several comprehensive reviews of the subject, these estimates of mental disorder are to be treated with some caution. Firstly, they are mostly based on point-prevalence studies. There are very few studies of incidence rates, probably because incidence studies are much more difficult to conduct. Most of studies have relatively small samples and are from different parts of India. Unlike the West, there has been no single, large, multicentre, national epidemiological study in India. There are also wide variations in the rates obtained by individual studies. However, these discrepancies are more likely to be due to methodological differences between studies, rather than an actual difference in rates. Factors such as the choice of the population studied and the methods used are thought to contribute to the variation in rates. Finally, many believe (with good reasons, too) that these studies may have underestimated the burden of mental disorders in India.

<table>
<thead>
<tr>
<th>Check Your Progress 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Note:</strong> a) Read the following questions carefully and answer in the space provided below.</td>
</tr>
<tr>
<td>b) Check your answers provided at the end of this unit.</td>
</tr>
</tbody>
</table>

1) When did psychiatric epidemiological research begin in India?

2) How are incidence and prevalence of a disorder estimated?
3) What is the approximate prevalence rate of all psychiatric disorders in India?

.......................................................................................................................
.......................................................................................................................
.......................................................................................................................
.......................................................................................................................

4) Why do rates of psychiatric disorders vary between different Indian studies?

.......................................................................................................................
.......................................................................................................................
.......................................................................................................................
.......................................................................................................................

5) What are the differences in rates of psychiatric disorders according to rural-urban residence and gender?

.......................................................................................................................
.......................................................................................................................
.......................................................................................................................
.......................................................................................................................

2.5 EPIDEMIOLOGY OF INDIVIDUAL PSYCHIATRIC DISORDERS IN INDIA

Rates of schizophrenia in India range from 2 to 3 per thousand population. Two large-scale studies by the WHO, the International Pilot Study of Schizophrenia (IPSS) and the Study of Determinants of Outcome of Severe Mental Disorders (DOSMED) examined rates of schizophrenia in many different developing and developed countries. They showed that schizophrenic illness, at least in its more ‘pure’ form, occurred with comparable frequency in all countries and cultures. Differences arose when the condition was broadly defined and included patients with other psychotic disorders. These studies also demonstrated that patients with schizophrenia from developing countries like India had a much better outcome than those from the more developed nations. Several studies of schizophrenia from different parts of India provided further support for these differences in outcome between developed and developing countries. However, recent reinterpretation of the results of these studies has indicated that the differences in outcome were less obvious than previously believed. Despite the supposedly better outcome of schizophrenia in India, a study from Chennai found that nearly a-third of patients with this disorder had never received any psychiatric treatment. This ‘treatment-gap’ is a matter of huge concern.

Mood disorders include major depressive disorder and bipolar disorder. The rates of these disorders vary a great deal from study to study, from as low as 0.5 per thousand population, to as high as 78 per thousand population, in different studies. They also vary from and from region to region, with the highest rates being obtained in studies from eastern parts of India. According to some authors, the best estimate for the prevalence of mood disorders would be about 16 per thousand population. The rates of mood disorders are usually higher in urban areas compared to rural areas. All over
the world depression is about twice as common in women than in men, and this appears to be true even for India. For women, depression following childbirth is very common; a study from Goa found that about a-fifth of the women developed depression in the postpartum period.

Common mental disorders (also referred to as neurotic, or minor psychiatric disorders) include depression, anxiety, somatoform and dissociative disorders. As the name implies they are highly prevalent, particularly in primary-care settings. Some studies have reported that up to 50% of the patients attending primary health centres or seeking treatment from a general practitioner have a common mental disorder. These patients report physical symptoms like pains and aches, or fatigue, more often than sad mood or anxiety. Consequently, doctors fail to detect the presence of psychiatric problems in a large proportion of such patients and do not treat them appropriately. The problem is further compounded the fact that these disorders occur more frequently among women, the poor, unemployed and the illiterate. The illnesses in turn cause significant disability, hamper the ability of the sufferers to work and cause further financial losses.

Drug and alcohol use are increasing all over the world. India’s geographical location has made it a part of the international trade in illicit drugs and contributed further to the problem. A joint report of the United Nations and the Government of India estimated that among every thousand persons, 60 abuse alcohol, eight are cannabis users, while two per thousand persons use hard drugs such as opium, heroin and other opiates. Though drug and alcohol abuse is predominantly a problem of men, the consequences of such abuse are often borne by the families of the afflicted and the society as a whole.

There was a time when psychiatrists in India used to believe that suicide was uncommon in India. This was based on government statistics, which yielded low rates. However, carefully conducted studies from various parts of the country have shown that these official figures had grossly underestimated the rates of suicide. Official rates of suicide are about 10.5 per lakh population, while studies from the south have indicated that actual rates could be as high as 95 per lakh population, or even higher. Indeed, the suicide rates in certain parts of south India are among the highest in the world. The rates of suicide have risen by 43% in the last three decades. Compared to Western countries, suicide is relatively more common among women and young adults, and is usually a result of family conflicts, domestic violence and financial difficulties. Suicide among adolescents and debt-ridden farmers appear to be on the rise and have attracted considerable media attention.

Mental retardation is defined as the sub-average general intellectual functioning, which originates during the developmental period, and is associated with impairment in adaptive behaviour. It is a common problem in all ages and genders. About 5 to 7 per thousand population in India suffer from mental retardation. Many of the causes of mental retardation such as iodine deficiency are readily preventable.

Children constitute nearly 40% of our country’s population. Although health-care for children is improving, many problems such as malnutrition, illiteracy, poverty, child labour and discrimination against female children are, unfortunately, far too common. However, in terms of prevalence rates of psychiatric disorders and their clinical presentation, Indian children seem to be no different from children in the rest of the world. The prevalence of psychiatric disorders among Indian children also appears to be equally high, if not higher, than adults.

The United Nations defines a country as having an ‘ageing’ population when the proportion of people over 60 years is 7% or more of the total population. India had crossed this
threshold by 2001. The problems of the elderly are manifold, the commonest being mood disorders such as depression and “organic disorders” such as dementia. However, the elderly in India (like their counterparts elsewhere) appear to have a somewhat lower prevalence of psychiatric disorders than younger adults, with estimates ranging from 22 to 33 per thousand population. Depression appears to be the commonest disorder, though the actual prevalence varies widely across different studies. The prevalence of dementia is about 2-3% in those over 65 years of age, which is quite similar to the rates obtained elsewhere in the world.

Table 2 summarises what is known about the rates of the individual psychiatric disorders in India.

Table 2: Approximate rates of individual psychiatric disorders in India

<table>
<thead>
<tr>
<th>Disorders</th>
<th>Prevalence rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schizophrenia</td>
<td>2-3 per 1000 population</td>
</tr>
<tr>
<td>Mood disorders</td>
<td>12 – 34 per 1000 population</td>
</tr>
<tr>
<td>Common mental disorders</td>
<td>13%-50% of patients attending primary health centres, or being treated by general practitioners</td>
</tr>
<tr>
<td>Drug &amp; Alcohol abuse</td>
<td></td>
</tr>
<tr>
<td>Alcohol abuse</td>
<td>60 per 1000 population</td>
</tr>
<tr>
<td>Cannabis abuse</td>
<td>8 per 1000 population</td>
</tr>
<tr>
<td>Opiate abusers</td>
<td>2 per 1000 population</td>
</tr>
<tr>
<td>Suicide</td>
<td>Official suicide rate is about 10.5 per lakh population; actual rates could be 95 per lakh, or even higher</td>
</tr>
<tr>
<td>Mental retardation</td>
<td>5-7 per 1000 population</td>
</tr>
<tr>
<td>Childhood psychiatric disorders</td>
<td>128 per 1000 population for children aged 1-6 years; 43 per 1000 population for children of all ages</td>
</tr>
<tr>
<td>Psychiatric disorders in the elderly</td>
<td>22-31 per 1000 population</td>
</tr>
</tbody>
</table>

Apart from the children and the elderly, researchers in India have also studied other population groups thought to be at especially high risk for developing psychiatric disorders. These have included deprived and marginalised communities such as urban slum dwellers, uprooted communities, industrial workers, urbanised tribal communities and migrants. Expectedly, a higher prevalence of psychiatric disorders has been found among these people as well. Table 3 gives you a better idea about the groups of people who are thought to be at higher risk for developing psychiatric disorders.
Table 3: Population groups at higher risk for developing psychiatric disorders

<table>
<thead>
<tr>
<th>Group</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Women</strong></td>
<td>Especially in the childbearing age (about 30-45 years), more during the postpartum period, but also elderly women and women belonging to the lower socioeconomic strata.</td>
</tr>
<tr>
<td><strong>Children and adolescents</strong></td>
<td>Especially younger children and adolescent students.</td>
</tr>
<tr>
<td><strong>Elderly people</strong></td>
<td>Especially those living alone, or those with physically illnesses.</td>
</tr>
<tr>
<td><strong>People with chronic physical illnesses or disabilities</strong></td>
<td>Such as heart conditions, diabetes, arthritis and those with AIDS; also physically challenged people.</td>
</tr>
<tr>
<td><strong>Marginalised and deprived populations</strong></td>
<td>Such as tribal communities, urban slum dwellers and factory workers; in general the poor, the illiterate, the unemployed and the socially disadvantaged.</td>
</tr>
<tr>
<td><strong>Refugees and migrants</strong></td>
<td>Migrants to cities from villages, or migrants from neighbouring countries.</td>
</tr>
<tr>
<td><strong>People in custodial care</strong></td>
<td>Such as prisons, orphanages, old age homes and shelters for women.</td>
</tr>
<tr>
<td><strong>People afflicted by natural disasters</strong></td>
<td>Such as tsunamis, earthquakes and floods.</td>
</tr>
</tbody>
</table>

2.6 TRANS-CULTURAL AND CLINICAL EPIDEMIOLOGICAL STUDIES IN INDIA

India has been very fortunate to be a part of several large-scale studies, which have compared the prevalence, presentation, natural course and treatment of major psychiatric disorders across many countries in the developing and developed world. Two of the studies on schizophrenia, the IPSS and the DOSMED have already been mentioned above. In addition, a third international study has followed up subjects who were part of the IPSS and DOSMED studies. There have other such studies on acute psychosis, on psychiatric disorders in primary-care settings, on suicide and other psychiatric problems. The latest in this series are the “World Mental Health Surveys,” also conducted by the WHO. These studies have shown that the prevalence of very severe disorders such as typical schizophrenia are equally common in India, while the rates of depression and other minor psychiatric disorders are widely variable, and generally lower in India and other developing countries. Trans-cultural research (or research across different countries with their different cultures) has, thus, highlighted the significant impact of cultural factors on psychiatric epidemiology.

The studies conducted in primary-care settings are good examples of clinical epidemiological research. The Indian Council of Medical Research (ICMR) has taken the lead in organising many such studies on different psychiatric disorders.

Check Your Progress 3

Note:  

a) Read the following questions carefully and answer in the space provided below.

b) Check your answers provided at the end of this unit.
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Which are the psychiatric disorders that have been commonly studied in India?</td>
<td></td>
</tr>
<tr>
<td>2) Are common mental disorders indeed very common?</td>
<td></td>
</tr>
<tr>
<td>3) Are problems such as drug and alcohol abuse and suicide on the rise in India?</td>
<td></td>
</tr>
<tr>
<td>4) Which population groups are thought to be at high risk for developing psychiatric disorder?</td>
<td></td>
</tr>
<tr>
<td>5) What has trans-cultural research taught us about the epidemiology of psychiatric disorders in India?</td>
<td></td>
</tr>
</tbody>
</table>

2.7 THE STUDY OF RISK FACTORS – ANA lytical Epidemiology

The causes of mental illness are complex. Etiological factors could be biological (e.g. genetic predisposition or brain changes), psychological (e.g. early childhood experiences or personality traits), or social (e.g. age, gender, social class related factors). Well-designed, population-based analytical studies on the causation of mental disorders are lacking in India. However, the results of descriptive studies can provide an idea of (primarily social) risk factors associated with mental disorders. Psychiatric disorders are more common in the age group of 30 to 45 years, than most other ages. A female preponderance has been noted for most disorders, though certain problems such as drug and alcohol abuse are clearly more common in men, and other disorders such as schizophrenia may be equally prevalent among both males and females. Gender-specific risk factors such as poverty, poor physical health and domestic violence
have a major role in determining the greater vulnerability of women to anxiety and depression in developing countries like India. Unlike Western populations where psychiatric disorders are more common among single people, mental morbidity is higher among married persons, especially married women who do not work outside the home. Marriages in India, for the most part, still follow the traditional pattern of arranged matches and the emphasis on survival despite problems or differences. This probably creates additional stress, particularly for the women. Poverty and illiteracy have been clearly linked to the onset of common mental disorders, though the association with more severe mental disorders is less consistent. People from lower socioeconomic strata and lower castes appear to be at higher risk of developing psychiatric disorders, but certain studies have found a higher prevalence of these disorders among the middle class or higher castes. For centuries, life in India had revolved around the joint family. The pattern has changed a great deal now and nuclear families have become the norm. Although it was believed that the break-up of the joint family would lead to increased rates of psychiatric disorders, the available evidence does not clearly support this notion. The association of mental disorders with other risk factors such as urban or rural residence, type of occupation, or social adversities is far less clear.

**Table 4** sums up what is known about the different risk factors associated with psychiatric disorders among studies from India.

**Table 4: Risk factors for psychiatric disorders identified by Indian studies**

<table>
<thead>
<tr>
<th>Risk factor</th>
<th>Association with psychiatric disorders</th>
<th>Likely explanations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Highest prevalence in those aged 30-45 years</td>
<td>Most productive age group; hence likely to seek treatment more often, though rising rates among the children and elderly should be noted</td>
</tr>
<tr>
<td>Gender</td>
<td>Higher prevalence in adult females, especially for common mental disorders</td>
<td>Gender-specific risk factors such as poverty, poor physical health, domestic violence, illiteracy, lack of work outside home</td>
</tr>
<tr>
<td>Marital status</td>
<td>Increased prevalence in the married, particularly housewives</td>
<td>Marriages can become sources of stress, and of additional responsibilities, especially for women</td>
</tr>
<tr>
<td>Urban-rural residence</td>
<td>Unclear; urban prevalence probably higher</td>
<td>Stress of urban living, particularly for the socially deprived</td>
</tr>
<tr>
<td>Family</td>
<td>Not clearly increased in nuclear families</td>
<td>Joint families were felt to be buffers against stress; the association is probably a complex one</td>
</tr>
<tr>
<td>Poverty</td>
<td>Stronger association with increased rates of common mental disorders</td>
<td>Stress, poor living conditions, lack of access to medical care, social deprivation</td>
</tr>
<tr>
<td>Migration</td>
<td>Increased prevalence in migrants</td>
<td>Possibly due to stress of migration</td>
</tr>
<tr>
<td>Social class, caste, occupation</td>
<td>No consistent trends</td>
<td>Other risk factors are probably more important</td>
</tr>
</tbody>
</table>
2.8  EFFECT OF INTERVENTIONS – EXPERIMENTAL EPIDEMIOLOGICAL STUDIES IN INDIA

India is among the few developing countries to recognise the need to integrate mental health services with general health services at the primary care level. The National Mental Health Programme (NMHP), launched in 1982, aimed at the treatment of mental disorders within the community, using the existing staff at primary health centres and other levels. The success of this approach in detecting and treating certain mental disorders was demonstrated in two innovative research projects in Chandigarh and Bangalore. An elaborate system of referral, from the primary health centres to district hospitals and tertiary care hospitals, was set up under the NMHP. Though the NMHP could not be implemented properly in its initial years because of various problems, the district mental health programmes and a re-strategised version of the NMHP has been successfully put into action in large parts of the country over the last few years. The integrated model of the community care has been tested in several studies by the original research teams, the ICMR and the WHO. These investigations are good examples of experimental epidemiology in India. They have been supplemented by other evaluations of community-based treatments for schizophrenia and common mental disorders. However, this important area of epidemiological research needs to be developed further.

<table>
<thead>
<tr>
<th>Check Your Progress 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Note:</strong> a) Read the following questions carefully and answer in the space provided below. b) Check your answers provided at the end of this unit.</td>
</tr>
</tbody>
</table>

1) **What could be the biological, psychological and social causes of psychiatric disorders?**
..........................................................................................................................................................
..........................................................................................................................................................
..........................................................................................................................................................
..........................................................................................................................................................

2) **Why are the likely reasons for the higher prevalence of psychiatric disorders among Indian women?**
..........................................................................................................................................................
..........................................................................................................................................................
..........................................................................................................................................................
..........................................................................................................................................................

3) **Which kind of mental disorders are strongly associated with female gender and poverty?**
..........................................................................................................................................................
..........................................................................................................................................................
..........................................................................................................................................................
..........................................................................................................................................................

4) **What is the National Mental Health Programme?**
..........................................................................................................................................................
5) What kind of model appears to be the most appropriate and efficient way of organising mental health services in India?

2.9 LET US SUM UP

This brief account of psychiatric epidemiology in India clearly shows that this is a rapidly expanding field of research. We have a much better idea of the extent of psychiatric disorders in India, though many more methodologically sound studies will be needed to arrive at precise estimates of the problem. Certain risk factors and populations at risk for developing psychiatric disorders appear to have been identified, but studies that test the association of various likely risk factors with different mental illnesses using proper analytical methods are also required. The few experimental epidemiological studies have indicated that an integrated, community-based system of mental health-care is the best way to organise mental health services. Nevertheless, several issues, such as deploying manpower and resources in the most appropriate and efficient manner, need to be worked out. Psychiatric epidemiology in India is at an exciting phase of growth and development. If the progress continues it will not only improve our understanding of mental disorders in India, but will also create opportunities for improving the quality of life of those with mental illnesses and their families. Only then, by helping those unfortunate enough to be afflicted by mental disorders, will psychiatric epidemiological research in India have fulfilled its true purpose.

2.10 UNIT END QUESTIONS

1) How common are mental disorders all over the world? Why are they considered a serious public health problem?

2) Define epidemiology. What are its purposes?

3) What are the different types of epidemiological studies? Is psychiatric epidemiology any different from the other branches of epidemiology?

4) What is the approximate prevalence of psychiatric disorders in India? How does it compare with the prevalence of psychiatric disorders in other countries?

5) Who are at higher risk of developing psychiatric disorders in India?

6) What are the factors associated with an increased prevalence of mental disorders in India?

7) How can psychiatric epidemiological research in India improve the plight of the mentally ill and their families?

2.11 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress Exercise 1

1) The best way to define epidemiology is that it is a quantitative study of the distribution
and determinants of health related states or events in specified populations and it is applied for prevention and control of health problems.

2) The different uses of epidemiological research are as follows:
   i) It provides a detailed description of disease occurrence in a population, any changes occurring thereby, and explains the factors of occurrence.
   ii) It provides the defining features, associated morbidity and mortality, as well as the natural history of the disorder.
   iii) It also helps in identifying new disorders and gives a clinical picture of the existing disorders.
   iv) It assesses the risks and likelihood of developing a disorder.
   v) It sets a path for treatment and preventive measures that help in reducing the burden of disorder in a community.

3) The different types of epidemiological studies are:
   i) Descriptive epidemiology: It estimates the rate of disorder in a population
   ii) Analytical epidemiology: It explores the variation in rates of disorder in different population in order to identify the risk factors that contribute to the development of the disorder.
   iii) Experimental epidemiology: It aims to reduce the occurrence of disorders by prevention or treatment.
   iv) The first-generation psychiatric epidemiological studies were mostly conducted before World War II and were concentrated on known instances of people with mental disorders. The second-generation psychiatric studies focused on direct interview of all participants with supplementation of other sources, like medical or community records. The third-generation studies were conducted in 1970s. These studies used more structured methods of diagnosis and their focus was on people residing in the community.
   v) Clinical epidemiology tries to identify the occurrence and determinants of clinical outcomes from illnesses and is usually conducted on clinical samples.

Check Your Progress Exercise 2

1) Psychiatric epidemiological research in India started in 1960s with the first study in 1961 in Agra by Professor Dube.

2) Prevalence rate is estimated as the proportion of individuals in the total population who have a psychiatric disorder at a specified point of time, or over a specific period of time. The incidence rate refers to new cases that arise in a healthy population during a specified period of time. Incidence rate is calculated for a one-year period.

3) The approximate prevalence of psychiatric illness in India is 10% of the total population at any point of time. And of this, about 1-2% suffers from very serious illnesses while the rest have less severe disorder but may still require treatment.

4) The rates of psychiatric disorders vary between different Indian States because of methodological differences between studies. The differences may also stem because of relatively small sample of the studies and they are being conducted in different parts of India.

5) There are mixed-reviews of psychiatric illness when location is taken into account. There are studies that have shown high rates of psychiatric illness in urban population.
vis-à-vis rural population. Others believe that the differences are marginal. Since majority of people reside in rural areas and access to mental health services is negligible, the problem may be under reported as well. As far as gender is concerned, rates are generally higher among women, though certain disorders, such as drug and alcohol abuse is more common among men.

**Check Your Progress Exercise 3**

1) The psychiatric disorders have been commonly studied in India are schizophrenia, mood disorders, common mental disorders, drug and alcohol abuse, suicide, mental retardation childhood psychiatric disorders, and psychiatric disorders in the elderly.

2) Yes, the ‘common mental disorders’ are indeed common and prevalent in primary care-settings. Some studies have reported that upto 50% of the patients attending primary health centres or who are taking treatment from a general practitioner have a common mental disorder.

3) The problem of drug and alcohol use is increasing in India. Suicide rate has also increased in India. It has risen by 43% in the last three decades. As a matter of fact, the suicide rates in certain parts of South India are among the highest in the world.

4) The population groups that are at a higher risk for developing psychiatric illnesses are women, children and adolescents, elderly, people with disabilities, marginalized and deprived population refugees and migrants, people in custodial care, and people afflicted by natural disasters.

5) Trans-cultural research has highlighted the impact of cultural factors on psychiatric epidemiology in India.

**Check Your Progress Exercise 4**

1) The biological causes could be genetic predisposition or brain damages. Psychological causes may include early childhood experiences or personality traits and social causes maybe related to gender, social class and related factors.

2) The likely reasons for higher prevalence of psychiatric disorders in women are poverty, poor physical health and domestic violence.

3) Common mental disorders, anxiety and depression are strongly associated with female gender and poverty.

4) The National Mental Health Programme was launched in 1982 with the purpose to treat mental disorders within the community using the existing staff at primary health centres and other levels.

5) The integrated model of community care has been found to be efficient for organizing mental health services in India.

### 2.12 GLOSSARY

**Epidemiology** – the quantitative study of the distribution and determinants of health-related states or events in specified populations, and the application of this study to the prevention and control of health problems

**Clinical epidemiology** – studies, which employ the same principles and methods of population-based epidemiology, but are usually conducted among clinical samples

**Trans-cultural epidemiology** – epidemiological studies carried out simultaneously in several countries (with different cultures) using identical methodology.
Prevalence – the proportion of individuals in the total population who have a psychiatric disorder at a specified point of time, or over a specific period of time.

Incidence – refers to new cases that arise in a healthy population during a specified period of time.

Common mental disorders – a group of disorders with less severe manifestations; includes depression, anxiety, somatoform and dissociative disorders; also referred to as neurotic, or minor psychiatric disorders.

Major depressive disorder – a more severe and often recurrent form of depression.

Bipolar disorder – a mood disorder characterised by episodes of mania and depression.

Dementia – a disorder characterised by gradual loss of memory and other intellectual faculties; common in the elderly.

Postpartum – the period after childbirth.

2.13 SUGGESTED READINGS AND REFERENCES


Articles in journals


UNIT 3  GLOBAL BURDEN OF MENTAL ILLNESS

Structure
3.0 Introduction
3.1 Objectives
3.2 Need to Measure the Burden of Illness
3.3 Measuring the Burden of Illness
3.4 The Global Burden of Disease Approach to measure Health Status
3.5 The Global Burden of Disease due to Mental Illness
3.6 Implication for Disability Studies on Mental Illness
3.7 Let Us Sum Up
3.8 Unit End Questions
3.9 Answers to Check Your Progress Exercises
3.10 Glossary
3.11 References and Suggested Readings

3.0 INTRODUCTION

In the last two units we have read about the magnitude of the mental illness in India and
the world. Mental illnesses have a large impact on individuals, families and communities.
The individual suffers the distressing symptoms of illness, is unable to participate in
domestic, professional and leisure activities and faces discrimination due to the stigma
associated with these illnesses. The families are required to provide physical and
emotional support and at the same time bear the stress of coping with disturbed behaviour
of the mentally ill person. They also face economic constraints, disruption of routine
household activities, stigma and discrimination, restriction of social activities. The
community is burdened with provision of care, loss of productivity and legal issues.

This Unit aims to deal with the concept of burden, its measurement and briefly provide
the statistics of burden due to the psychiatric disorders and its implications.

3.1 OBJECTIVES

After studying this Unit, you will be able to understand:

- Need to measure burden of illness;
- Measuring the burden of disease;
- The Global Burden of Disease (GBD) approach to measure health status;
- The global burden due to the mental illnesses; and
- Implication for disability studies on mental illness.
3.2 NEED TO MEASURE THE BURDEN OF ILLNESS

Traditionally the prevalence, incidence and mortality have been used to measure the impact of disease in population with high prevalence and high mortality. This has resulted in more focus on the high mortality illnesses especially the infectious diseases and malnutrition with resource allocation and policy framework directed at them. However, in order to understand the burden due to illness one must first understand the sequence of event leading to disease and the consequence of the disease. This is broadly referred to as the “Burden of Disease Framework”.

As suggested in Figure 1, most diseases and injuries including mental illnesses result in functional impairment. The sequence of event leading to disease and its consequence can occur even without the preceding step or the duration may vary from one disorder to another. For example, environmental factor like an earthquake can directly lead to injury and that in turn, can cause death or may immediately result in handicap limiting most of the activity of the person. Also, not all diseases should necessarily lead to death as last step. Thus, barring a few highly fatal illnesses, most of the diseases cause both fatal (death) and non-fatal (handicap) outcome, and so any measure of burden of disease should include both. Thus, in order to capture the impact of both premature death and disability in a single measure, a common currency is required.

3.3 MEASURING THE BURDEN OF ILLNESS

The two common currency used to measure burden are “economic loss due to illness” and “time loss due to illness”. The use of “economic loss” as a measurement of the burden is problematic because it measures only the economic burden due to the illness, and ignores other types of burden (e.g. stigma). The use of “time loss” as a currency has been used widely. The loss of time could be due to premature death or due to poor quality of life (disability).

3.4 THE GLOBAL BURDEN OF DISEASE (GBD) APPROACH TO MEASURE HEALTH STATUS

Till the year 1990, the focus of the health organisations and the various governments was on illnesses with high mortality – namely the communicable diseases and malnutrition. However, in most parts of the world including the developing countries like India and China, the non-communicable chronic illnesses like unipolar depression and heart diseases were becoming leading cause of premature death and disability. Further, because of the interventions on the fatal illnesses most of the countries of Asia and Latin America started witnessing the so-called “epidemiological transition” resulting in the inversion of
the population pyramid. There was a steady increase in the adult and geriatric population and steady decline in the young population due to decline in birth rate. Strategic health planning for the emerging scenario required basic data on comparative burden due to the various illnesses, risk factors for such illnesses, intervention required to tackle such illnesses and the impact the interventions on the burden of those illnesses.

In order to systematically collect and analyse the required data, the World Bank in 1992, commissioned the initial Global Burden of Disease (GBD) study to provide a comprehensive assessment of the disease burden as in 1990. It provided the framework for integrating available information on a population’s health. It also provided some understanding of how that population’s health was changing at that point of time. The first study was done by World Health Organisation (WHO) in collaboration with Harvard Institute of Public Health and 100 other collaborators around the world. The study was done at both global and regional level. It used disease categories codified in the International Classification of Diseases (ICD) and introduced a new metric – disability-adjusted life year (DALY) – to quantify the burden of disease. The overall outcome of the study revealed information which contradicted rather than confirmed the prevailing perception about the public health at that point of time. Like the heavy burden due to the mental illnesses such as depression, alcohol dependence and schizophrenia which had been underestimated by previous assessments. While the death due to the mental illnesses was estimated at 1 percent, the study revealed that they were responsible for about 11 per cent of the disease burden worldwide (the details of the burden of mental illnesses will be discussed in subsequent section).

Since 2000, the World Health Organization began publishing regular GBD updates for the world and its regions. GBD results for the year 2001 provided a framework for cost-effectiveness and priority setting analyses. Since 2002, country-specific estimates were also published by WHO after a country consultation process. The 2004 update was published in 2008 and the results of the same will be discussed in the rest of the chapter. In 2007, Global Burden of Diseases, Injuries, and Risk Factors Study (the GBD 2010 Study) was launched with the aim of comprehensive and systematic revision of the current levels and trends in all major diseases, injuries, and risk factors.

**Disability-Adjusted Life Year (DALY)**

As already discussed, in order to understand the impact of various illnesses, especially chronic illnesses there is a need to measure both disability and premature mortality with a single measure. The DALY is a health gap measure, which combines information on the impact of premature death, disability and other nonfatal health outcomes. One DALY can be thought of as one lost year of “healthy” life.

![Fig. 2: Concept of Disability-Adjusted Life Year (DALY)](image_url)

**DALYs for a disease are the sum of the years of life lost due to premature mortality (YLL) in the population and the years lost due to disability (YLD).**

Besides the global estimation of the burden of disease, regional estimation of data for disease prevalence and their burden for various regions is also done. The various ways in which the data has been categorised are:
1) Based on gender, age.

2) Based on GNP (Gross National Product) – high, middle and low income countries. For most part of the report the low and middle income countries (LMIC) are grouped together.

3) Based on 6 WHO regions.

India has been categorised as LIMIC in South-East Asia Region (SEARO).

Check Your Progress

Note: a) Read the following questions carefully and answer in the space provided below.

b) Check your answers provided at the end of this unit.

1) What do you understand by Global Burden of Disease?

2) Define Disability-Adjusted Life Year (DALY).

3) Differentiate between Years of life lost due to premature mortality (YLL) and Years Lost to Disability (YLD).

3.5 THE GLOBAL BURDEN OF DISEASE DUE TO THE MENTAL ILLNESSES

In the following sections, the current burden of mental illness and its projection to future (2030) both at global and regional level (India and SEAR) will be discussed.

The tables on the next pages list the top 10 causes of death and DALY. The figure clearly demonstrates that the leading causes of death are non-psychiatric illnesses. However, when we consider the total disability (DALY), depression ranks as the third most important cause. Depression and alcohol use disorders rank within the top 20 causes of DALY, constituting about 6% of total DALY worldwide. Also many of the other top causes like ischemic heart disease, premature birth, road traffic accidents which rank among the top 10 causes have psychiatric causes as a risk factor, which is not reflected in the estimation of disease burden. Thus, it is clearly evident that psychiatric illnesses and the consequences thereof are responsible for huge disease burden globally.
Table 1: Leading cause of YLD and DALY globally

<table>
<thead>
<tr>
<th>Mortality</th>
<th>DALYs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Ischeamic heart disease</td>
<td>12.2% Lower respiratory infections</td>
</tr>
<tr>
<td>2 Cerebrovascular disease</td>
<td>9.7% Diarroheal diseases</td>
</tr>
<tr>
<td>3 Lower respiratory infections</td>
<td>7.1% Depression</td>
</tr>
<tr>
<td>4 Chronic obstructive pulmonary disease</td>
<td>5.1% Ischeamic heart disease</td>
</tr>
<tr>
<td>5 Diarroheal diseases</td>
<td>3.7% HIV/AIDS</td>
</tr>
<tr>
<td>6 HIV/AIDS</td>
<td>3.5% Cerebrovascular disease</td>
</tr>
<tr>
<td>7 Tuberculosis</td>
<td>2.5% Prematurity, low birth weight</td>
</tr>
<tr>
<td>8 Trachea, bronchus, lung cancers</td>
<td>2.3% Birth asphyxia, birth trauma</td>
</tr>
<tr>
<td>9 Road traffic accidents</td>
<td>2.2% Road traffic accidents</td>
</tr>
<tr>
<td>10 Prematurity, low birth weight</td>
<td>2.0% Neonatal infections and other</td>
</tr>
</tbody>
</table>

There are also some specific issues related to mental disorders which may lead to under-reporting and underestimation of burden due to mental illnesses. Stigma associated with mental disorders is likely to lead to considerable under-reporting, particularly of events such as suicide. For example, accurate counting of suicides in India has shown that rates are much higher than those reported in routine statistics and that self-inflicted injuries account for a quarter to half of all deaths in young women. Mental disorders are also risk factors for and consequence of other health problems. For example through the contribution of alcohol use to road traffic accidents or liver disease — alcohol use accounts for nearly 4% of the attributable disease burden in LMIC. Another example is the relationship between the mental health of mothers, and birth-weight and child nutrition and health. Studies from South-East Asia Region have demonstrated that maternal depression after childbirth is common, and that it is a strong, independent, risk factor for child growth failure in the first year of life; maternal depression is also associated with an increased risk of child physical health problems and incomplete immunization. Another example is the association of mental disorder and substance use to HIV/AIDS. Mental disorders and substance abuse are risk factors for HIV/AIDS, and mental disorders such as dementias and depression are consequences of HIV/AIDS. Mental illness may also be a major impediment to adherence with anti-retroviral drugs, a key requirement for successful management of HIV/AIDS. In most of the above conditions, the burden is attributed to the physical illness rather than the mental illness which are either risk factors or consequence of the physical illness. Thus, the actual burden and projection of burden due to the mental illness could be much higher than currently estimated.

**High relative burden of psychiatric illnesses in high income countries**

When the top causes of years lost due to disability (YLD) are compared based on income (GNP) of countries, a clear distinction between the LMIC and HIC is evident. In both economic regions, unipolar depressive disorders is the leading cause of disability but the share percentage in HIC is much higher at 14.6% as compared to LMIC (10.4%). This is also true for alcohol use disorders, dementias and drug use disorders. Severe
mental illnesses like schizophrenia and bipolar disorders rank among the top 10 causes in LMIC, though prevalence studies suggest no significant difference in their prevalence worldwide. This increased relative burden of severe mental disorders in the LMIC in spite of their same prevalence in both HIC and LMIC suggest that there is greater representation of these severe mental illnesses and underreporting of less severe mental conditions like depression and anxiety disorders in the sources from which data is collected in LMIC as compared to HIC.

### Table 2: Leading causes of YLD in HIC and LMIC

<table>
<thead>
<tr>
<th>Low- and middle-income countries</th>
<th>High-income countries</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cause</strong></td>
<td><strong>% of total YLD</strong></td>
</tr>
<tr>
<td>1 Unipolar depressive disorder</td>
<td>10.4</td>
</tr>
<tr>
<td>2 Refractive errors</td>
<td>4.7</td>
</tr>
<tr>
<td>3 Hearing loss, adult onset</td>
<td>4.4</td>
</tr>
<tr>
<td>4 Alcohol use disorders</td>
<td>3.5</td>
</tr>
<tr>
<td>5 Cataracts</td>
<td>3.3</td>
</tr>
<tr>
<td>6 Schizophrenia</td>
<td>2.8</td>
</tr>
<tr>
<td>7 Birth asphyxia and birth trauma</td>
<td>2.4</td>
</tr>
<tr>
<td>8 Bipolar disorder</td>
<td>2.4</td>
</tr>
<tr>
<td>9 Osteoarthritis</td>
<td>2.4</td>
</tr>
<tr>
<td>10 Iron-deficiency anaemia</td>
<td>2.4</td>
</tr>
</tbody>
</table>

In spite of these differences, four mental disorders are among the top 10 causes of disability in both these income group countries. Together they constitute about 19% of total YLD in LMIC and 28% in HIC. This wide gap in the percentage share of mental disorders between HIC and LMIC is due to the higher prevalence of non-psychiatric illnesses in LMIC (especially communicable diseases and perinatal and paediatric causes) and the associated burden due to them. This gap is further widened due to the underreporting of mental illnesses in LMIC.

### Progressive increase in share of mental disorder in burden of disease over time

Comparison of YLD data in the 2004 revision and the 2001 estimates show that the number of mental disorders among the top 10 causes of disability (YLD) has increased from 3 to 4 in both LMIC and HIC. Further the percentage share of YLD has also increased – from 13.3% to 19% among LMIC and 26% to 28% among HIC. This clearly demonstrates the rapid progression of burden due to mental disorders in the share of disability and the need to tackle them as seriously as high-mortality illnesses.

The regional variation in the share of neuropsychiatric disorders in disease burden

Figure 3 depicts the percentage share of neuropsychiatric disorders among all causes of YLD and DALY. The graph suggests that the WHO regions of the world can be clearly divided into 3 categories. The first one consists of Americas, West Pacific region and Europe, where psychiatric disorders are one of the leading causes of burden and disability. Besides psychiatric disorders, other non-communicable disorders and injuries
(both accidental and intentional) are the other major cause of disability. The second category of WHO regions consist of Africa and East Mediterranean region where the communicable diseases and perinatal illnesses are still the prominent causes of death and disability. The third category consists of South East Asia Region and to an extent the East Mediterranean region which suffers a ‘dual burden’ of both communicable and perinatal illnesses as well as increasing burden of non-communicable diseases, especially neuropsychiatric illnesses. This clearly indicates the need for more focus on psychiatric illnesses among the countries belonging to South East Asia Region, which includes India.

![Graph showing percentage share of neuropsychiatric illnesses in YLD and DALY for all WHO regions]

**Fig. 3: Percentage share of neuropsychiatric illnesses in YLD and DALY for all WHO regions**

**Increased burden of psychiatric disorders on women**

Globally, unipolar depressive disorders remain the leading cause of disability for both the genders. However, the percentage share of the disorder among women is much higher than men (e.g. depression: 8.3% among men vs. 13.4% among women).
Table 3: Leading causes of YLD in men and women

<table>
<thead>
<tr>
<th></th>
<th>Males</th>
<th></th>
<th></th>
<th>Females</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cause</td>
<td>% of</td>
<td>Cause</td>
<td>% of</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>total YLD</td>
<td></td>
<td>total YLD</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Unipolar depressive disorder</td>
<td>8.3</td>
<td>Unipolar depressive disorder</td>
<td>13.4</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Alcohol use disorders</td>
<td>6.8</td>
<td>Refractive errors</td>
<td>4.6</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Hearing loss, adult onset</td>
<td>4.8</td>
<td>Hearing loss, adult onset</td>
<td>4.3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Refractive errors</td>
<td>4.7</td>
<td>Cataracts</td>
<td>3.2</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Schizophrenia</td>
<td>2.8</td>
<td>Osteoarthritis</td>
<td>3.1</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Cataracts</td>
<td>2.7</td>
<td>Schizophrenia</td>
<td>2.6</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Bipolar disorder</td>
<td>2.5</td>
<td>Anaemia</td>
<td>2.4</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Chronic obstructive pulmonary disease</td>
<td>2.4</td>
<td>Bipolar disorder</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Asthma</td>
<td>2.2</td>
<td>Birth asphyxia and birth trauma</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Falls</td>
<td>2.2</td>
<td>Alzheimer and other dementias</td>
<td>1.9</td>
<td></td>
</tr>
</tbody>
</table>

Depression is the leading cause of disease burden for women in both high-income and low- and middle-income countries. Besides, psychiatric disorders make up 4 of the 10 leading causes of disease burden in low- and middle-income countries, and 5 of the leading 10 in high-income countries in the age group of 15-44 years. Injuries are also important for women aged 15–44 years – road traffic accidents are the eighth leading cause globally, followed by self-inflicted injuries in ninth place. Together all neuropsychiatric conditions are responsible for 22% of global DALYs for women aged 15–59 years.

The high burden of depressive and anxiety disorders among women is due to their higher prevalence among women, the usual ratio being between 1.5:1 and 2:1. These findings have been seen not only in developed but also in a number of developing countries. Many reasons for the higher prevalence of depressive and anxiety disorders among women have been proposed. Genetic and biological factors certainly play some role, as indicated by the close temporal relationship between higher prevalence in reproductive age range which is associated with hormonal changes. Mood swings are related to hormonal changes as part of the menstrual cycle and following childbirth. In fact, depression within a few months of childbirth can be the beginning of a recurrent depressive disorder. Besides, psychological and social factors also play a significant role for the higher prevalence of these disorders among females. There may be more actual as well as perceived stressors among women. The traditional role of women in society exposes them to greater stress as well as makes them less able to change their stressful environment. Another reason for the gender differences in common mental disorders is the high rate of domestic and sexual violence to which women are exposed. Women also bear the brunt of care for the mentally ill within the family. This is becoming increasingly crucial of late, as more and more individuals with chronic mental disorders are being looked after in the community.
In contrast to depressive and anxiety disorders, severe mental disorders such as schizophrenia and bipolar affective disorder do not show any clear differences of prevalence or burden. Substance use disorders and antisocial personality disorders are much more common among men than among women. This is a consistent finding across all the regions of the world. Alcohol use disorder is the second most important cause of DALY among men worldwide.

Disability according to age groups

Table 4 shows the age-wise breakup of the percentage share of DALY due to neuropsychiatric disorders to the total DALY (due to all disorders) for various age and gender groups. As stated in the previous section, the share of DALY among females is more across all the income levels when compared to males. However, it is worth noting that if the various age-groups of both genders are compared the significant difference is found in the age group of 16 years and above. There is no significant difference in the age group below 15 years. Further, the percentage shares of DALY due to neuropsychiatric illnesses in the paediatric and geriatric age groups are significantly less than the corresponding figures for the age group 16-59 years. There are various explanations for this gap in the percentage share. One of the reasons could be relative lack of studies on prevalence and disability due to mental disorders in these age groups. Also, communicable and perinatal illnesses could be predominant cause of death and disability in the childhood and other non-communicable diseases more prominent cause of disability in the geriatric population.
Table 4: Percentage share of DALY due to neuropsychiatric disorders in each age group and gender

<table>
<thead>
<tr>
<th>Age Group</th>
<th>TOTAL (BOTH GENDER)</th>
<th>0-15 YEARS</th>
<th>16-59 YEARS</th>
<th>60+ YEARS</th>
<th>TOTAL (BOTH GENDER)</th>
<th>0-15 YEARS</th>
<th>16-59 YEARS</th>
<th>60+ YEARS</th>
<th>TOTAL (BOTH GENDER)</th>
<th>0-15 YEARS</th>
<th>16-59 YEARS</th>
<th>60+ YEARS</th>
</tr>
</thead>
<tbody>
<tr>
<td>WORLD</td>
<td>13.8</td>
<td>12.4</td>
<td>5.4</td>
<td>19</td>
<td>6</td>
<td>14</td>
<td>5.7</td>
<td>21.7</td>
<td>9</td>
<td>14</td>
<td>5.7</td>
<td>21.7</td>
</tr>
<tr>
<td>HIC</td>
<td>26</td>
<td>23</td>
<td>21.5</td>
<td>30</td>
<td>11</td>
<td>29</td>
<td>22.3</td>
<td>37.7</td>
<td>17.7</td>
<td>29</td>
<td>22.3</td>
<td>37.7</td>
</tr>
<tr>
<td>MIC</td>
<td>16.6</td>
<td>15.5</td>
<td>10.6</td>
<td>20</td>
<td>5</td>
<td>17.8</td>
<td>10.3</td>
<td>25</td>
<td>7.7</td>
<td>17.8</td>
<td>10.3</td>
<td>25</td>
</tr>
<tr>
<td>LIC</td>
<td>8.8</td>
<td>8.3</td>
<td>3.5</td>
<td>15</td>
<td>4</td>
<td>9.3</td>
<td>4</td>
<td>16</td>
<td>5.8</td>
<td>9.3</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>SEAR</td>
<td>11.8</td>
<td>11</td>
<td>5</td>
<td>17</td>
<td>4.6</td>
<td>12.6</td>
<td>6</td>
<td>20</td>
<td>6.3</td>
<td>12.6</td>
<td>6</td>
<td>20</td>
</tr>
</tbody>
</table>

Intentional injuries

In the GBD study, intentional injuries consist of self-inflicted, violent, crimes and war and conflict related injuries. Globally intentional injuries constitute about 3% share of total DALY. The DALY due to intentional injuries is worth considering because of two reasons – one, most of these intentional injuries and some violent injuries and death is preceded by psychiatric disorder which is often missed while calculating DALY for that particular condition. Secondly, this kind of burden can be only (and easily) be prevented by the early detection and management of the psychiatric illness causing it. Self-inflicted injuries and violence constitute 1.3% each and war contributes to 0.5% of total DALY. In males the DALY due intentional injuries and all its sub-categories is much more than females (4.6% in males vs. 1.8% in females). This significant difference is due to the higher rate of completed suicides among males, higher prevalence of substance use disorder, antisocial personality disorder and higher involvement in war and crimes.

Projected burden of disease in 2030

Global DALY’s are projected to decrease from 1.53 billion in 2004 to 1.36 billion in 2030, an overall decline of about 10%. Since the population increase is projected to be 25% over the same period, this represents a significant reduction in the global per capita burden. Inspite of the decrease in the absolute total DALY, the percentage share of all the psychiatric disorders is projected to increase, with the total share of neuropsychiatric disorders is projected to increase from 13% currently to about 17% by 2030. Unipolar depression which is currently the third most important cause of DALY worldwide is projected to become the leading cause of disability by 2030. Non-communicable diseases are likely to account for about 66% of the DALY in 2030, while the share of communicable and perinatal causes will halve from 40% currently to 20% by 2030. Since, psychiatric disorders are often the risk factors and also frequently comorbid with other non-communicable diseases; the overall projected increase in share of psychiatric disorder will be highly significantly. The implication of this is discussed in the subsequent section.
Table 5: Percentage share of DALY due to neuropsychiatric disorders in 2004 and projected to 2030

<table>
<thead>
<tr>
<th>Disorder</th>
<th>World (2004) (%)</th>
<th>World (2030 projection) (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neuropsychiatric disorders</td>
<td>13</td>
<td>17</td>
</tr>
<tr>
<td>Unipolar depression</td>
<td>4.3</td>
<td>6.2</td>
</tr>
<tr>
<td>Bipolar disorder</td>
<td>0.9</td>
<td>1.1</td>
</tr>
<tr>
<td>Schizophrenia</td>
<td>1.1</td>
<td>1.3</td>
</tr>
<tr>
<td>Alcohol use disorder</td>
<td>1.6</td>
<td>1.9</td>
</tr>
<tr>
<td>Dementias</td>
<td>0.7</td>
<td>1.4</td>
</tr>
<tr>
<td>Drug use disorder</td>
<td>0.5</td>
<td>0.7</td>
</tr>
<tr>
<td>Post-traumatic stress disorder</td>
<td>0.2</td>
<td>0.3</td>
</tr>
<tr>
<td>Obsessive-compulsive disorder</td>
<td>0.3</td>
<td>0.5</td>
</tr>
<tr>
<td>Panic disorder</td>
<td>0.5</td>
<td>0.6</td>
</tr>
<tr>
<td>Insomnia (primary)</td>
<td>0.2</td>
<td>0.4</td>
</tr>
<tr>
<td>Migraine</td>
<td>0.5</td>
<td>0.6</td>
</tr>
</tbody>
</table>

Check Your Progress 2

Note: a) Read the following questions carefully and answer in the space provided below.
   b) Check your answers provided at the end of this unit.

1) Differentiate between the leading causes of YLD in men and women.
2) Discuss the projected burden of psychiatric disorders by 2030.

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3.6 IMPLICATION FOR DISABILITY STUDIES ON MENTAL ILLNESS

Research and policy-making

The global burden of mental disorders clearly highlights the magnitude of the problem in terms of human productivity as well as social functioning. This huge burden has put mental illnesses in the focus of researchers, clinicians and policy-makers. There has been a surge in the research on the biological basis of the mental illness. This includes genetic and linkage studies, neuroimaging studies, etc. There has also been a surge in the research for pharmacological agents and development of better treatment protocols. The study has also put mental illness in every country’s policy-making agenda at all levels. One of the key accomplishments is that mental illnesses are conceptualized as long-term and often recurrent conditions and the disease management strategies and policies are developed accordingly.

Development of effective intervention

Another impact of the development of disease burden measures on the mental illness is the development of efficacy-effectiveness chain, as these measures provide a way of measuring the effectiveness (impact of treatment in the real world) of the otherwise efficacious (impact of treatment in clinical trials) interventions. An important aspect of this chain is to look at cost-effectiveness of interventions. DALY’s provide a common framework for analyzing the cost-effectiveness of various interventions: how much does it cost to avert one DALY for a given condition? Studies have been mounted to gather more evidence on the effectiveness, especially cost-effectiveness of mental health interventions compared with other health interventions.

Generalizability and sustainability of interventions

One of the important revelations from the GBS studies is the universal presence of the mental illness. In every region of the world, the burden due to the mental illnesses was found to be high including the developing regions where till now more significance was put at research and policy-making level on the acute illnesses with high mortality. The implication of this revelation is that health interventions and policy-making need to be tailored to fit the needs of different populations and available health systems resources. Hence, factors influencing the needs and resources need to be studied.

Mainstreaming mental health with public health

Considering the prevalence and burden due to the mental illnesses, there is a need to mainstream mental health into public health. This will help in mental health getting adequate recognition, establishing the priorities and the needs of the society and the health system as a whole.
3.7 LET US SUM UP

Most mental illnesses are chronic and relapsing in nature with very high morbidity but not so high mortality. Epidemiological studies measuring prevalence, incidence and mortality present fairly accurate picture of the condition for acute illnesses, but fail to do so for chronic illnesses. Mental illnesses are burdensome in many ways – suffering, economic, social, and familial.

In order to measure the burden due to various conditions, WHO started the Global Burden of Diseases Study in 1990 in collaboration with World Bank and Harvard Public Health School. The aim was to measure disability of chronic conditions besides the acute illnesses in an Egalitarian way and to create a framework in order to monitor the burden due to diseases. The metric being used is DALY. It measures the year of life spent with disability and lost to death. The results revealed that mental illnesses poses far greater burden than was previously thought. Also, there is progressive increase in their share in all regions of the world and the share is projected to increase in future. Unipolar depression which is currently the 3rd leading cause of DALY globally is projected to become the single most important cause by 2030.

Currently there is a wide gender wise and age wise difference in the share of psychiatric illnesses in DALY. Psychiatric illnesses like unipolar depression and anxiety disorders are the top causes of DALY among women whereas alcohol use disorder and severe mental illnesses along with intentional injuries are the among the most important causes in men.

The overall challenge for public health and medicine is to allocate available resources effectively to reduce major causes of disease burden worldwide and to decrease health disparities between poor and affluent populations. The information regarding the burden of diseases clearly highlights the huge burden due to the psychiatric disorders and calls for steps to control them.

3.8 UNIT END QUESTIONS

1) What is the difference between acute and chronic illness?
2) Why should disability be measured besides measuring death rates?
3) Why is it essential to measure disability rates for mental illnesses?
4) What was the purpose behind starting GBD study?
5) How many and what are the mental illnesses among the top 10 causes of DALY? What is the projected Rank for them by 2030?

3.9 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress Exercise 1

1) Global Burden of Disease (GBD) refers to the burden of premature mortality and disability for major diseases. The national studies are based on GBD.

2) Disability-Adjusted Life Year (Daly) is a health gap measure which combines information on the impact of premature death, disability and other nonfatal health outcomes. One DALY is almost one lost year of ‘healthy’ life.
3) YLL refers to the years of life lost due to premature mortality in the population and YLD refers to the years lost due to disability.

**Check Your Progress Exercise 2**

1) Unipolar depressive disorders are the leading cause of disability in both genders but the percentage share is much higher for women. Injuries, including road traffic accidents and self-inflicted injuries are common in women. Anxiety and mood disorders have a higher prevalence rate in women vis-à-vis men.

2) The global DALYs are projected to decrease by 10%. The population increase is projected to be 25% over the same period; this represents a marked decrease in the global per capita burden. But the percentage share of all psychiatric disorders is projected to increase from 13% currently, to about 17% by 2030.

### 3.10 GLOSSARY

**Health (WHO)** – it is a state of complete physical, mental and social well-being and not merely an absence of disease or infirmity.

**Disease** – it is a state of psychological/physiological dysfunction

**Illness** – it is the subjective state of the person who feels aware of not being well.

**Risk factor** – is an attribute or exposure that is significantly associated with the development of a disease and that can be modified by intervention, thereby reducing the possibility of occurrence of the disease or other specified outcomes. Risk factor may be truly causative, predictive or merely contributory.

**Impairment** – any loss or abnormality of psychological, physiological or anatomical structure or function

**Disability** – any loss or lack of ability to perform an activity in the manner or range considered normal for a human being

**DALY (Disability- adjusted life year)** – years of life lost to premature death and years lived with disability adjusted to the severity of the disability.

### 3.11 SUGGESTED READINGS AND REFERENCES


Mathers CD, Robine JM. How good is Sullivan’s method for monitoring changes in population health expectancies. Journal of Epidemiology and Community Health 1997;51:80-86


UNIT 4 IMPACT OF MENTAL DISORDERS ON SOCIETY

Structure
4.1 Introduction
4.2 Objectives
4.3 Magnitude and Burden of Mental Illness
4.4 Individual Burden
   4.4.1 Assessment of Disability and Burden
   4.4.2 Impact on Productivity
   4.4.3 Disability and Health Burden
   4.4.4 Stigma and Discrimination
4.5 Impact on the Family
4.6 Economic Cost of Mental Illness
4.7 Media and Mental Illness
4.8 Let Us Sum Up
4.9 Unit End Questions
4.10 Answers to Check Your Progress Exercises
4.11 References and Suggested Reading

4.1 INTRODUCTION
Mental and behavioural disorders are understood as clinically significant conditions characterized by alterations in thinking, mood (emotions) or behaviour associated with personal distress and/or impaired functioning. Mental and behavioural disorders are not just variations within the range of “normal”, but are clearly abnormal or pathological phenomena. The dimensions of mental health, physical health and social health are intricately linked and are vital for the well-being of individual, family and society.

Mental health problems are very common and affect all sections of the society. No group is immune to mental disorders, but the risk is higher among the poor, homeless, the unemployed, persons with low education, victims of violence, migrants and refugees, indigenous populations, children and adolescents, abused women and the neglected elderly. While, currently most people consider mental disorders to be a concern only for the sufferers and their caregivers, one must realize that mental disorders affect society as a whole, and they are a major challenge to global development. In this chapter you will become aware of the huge toll the mental disorders take on the society.

4.2 OBJECTIVES
After studying this Unit, you will be able to:

- Know the extent, prevalence and magnitude of mental and behavioural disorders in the community;
- Explain the impact of mental and behavioural disorders on the sufferer in terms of impaired functioning, disability and socio-economic disadvantages;
• Understand the problems faced by the family and caregivers of persons affected with mental illness;

• Discuss the economic consequences of mental disorders for the individual, family and the community as a whole;

• Describe the stigma, discrimination and human rights violations threats faced by people with mental illness; and

• Discuss the role of media in spreading awareness about common mental health problems.

4.3 MAGNITUDE AND BURDENS OF MENTAL ILLNESS

Mental and behavioural disorders are very common. About 450 million people around the world suffer from these conditions at any given point of time. Mental disorders are universal and affect all groups and societies, people of all ages, both genders and from all socio-economic strata. They have an impact on the quality of life of individuals and their affected families and society as a whole.

The World Mental Health (WMH) survey conducted under the leadership of WHO reveal that the lifetime prevalence estimates of mental disorder across countries are in the range of 18.1–36.1%. Anxiety disorders are consistently found to be the most prevalent class of mental disorders in the general population, with estimated lifetime prevalence of any anxiety disorder averaging approximately 16% and 12-month prevalence averaging approximately 11% across surveys. Mood disorders are generally found to be the next most prevalent class of mental disorders in community epidemiological surveys, with lifetime prevalence estimates of any mood disorder averaging approximately 12% and 12-month prevalence estimates averaging approximately 6%. The severe mental disorders are about equally common, with the exception of depression, which is more common among women, and substance use disorders, which are more common among men.

Epidemiological studies done in primary health care settings also show a high prevalence of mental and behavioural disorders. A survey conducted by the WHO in 1995 showed that about 24% of patients in primary healthcare setting had mental disorders. The most common diagnoses in primary care settings are depression, anxiety and substance abuse disorders. These disorders are present either alone or in addition to physical disorder(s). There are no consistent differences in prevalence between developed and developing countries.

Check Your Progress 1

Note: a) Read the following questions carefully and answer in the space provided below.

b) Check your answers provided at the end of this unit.

1) How common (lifetime prevalence estimates) are mental disorders in the community (general population) setting?

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............................................................................................................................................................
What are the commonly encountered mental disorders in primary healthcare settings?

Mental disorders have an impact on the individual, their family and on the community. The person suffering from the illness experiences not only the symptoms but also the consequences, viz. inability to participate in work and leisure activity, discrimination and stigma due to the illness.

4.4 INDIVIDUAL BURDEN

Mental disorders lead to a significant disruption in the lives of the affected and their care-givers. It is important to assess the functioning of affected persons in various domains like carrying out the routine activities necessary to fulfill their roles at home, work/school or in other social areas. Disability is a commonly used measure to study the burden of illness as mental disorders are commonly chronic and lead to substantial impairment in various domains of life.

Importance of assessing disability

Diagnosis and assessment of disability is valuable because it can predict various factors like:

- Service needs – What are the patient’s needs?
- Level of care – Should the patient be in primary care, specialty care, rehabilitation or another setting?
- Outcome of the condition – What will the prognosis be?
- Work performance – Will the patient return to work and perform as before?
- Social integration – Will the patient return to the community and perform as before?

Disability assessment is thus, useful for health care and policy decisions, in terms of:

- identifying needs
- providing necessary treatments and interventions
- measuring outcomes and effectiveness
- setting priorities
- allocation of resources.
There are many standardized instruments to assess disability. One of the most commonly used instruments is the WHO Disability Assessment Schedule (WHODAS 2.0). It assesses level of functioning in six domains of life.

- Domain 1: Cognition – understanding and communicating
- Domain 2: Mobility – moving and getting around
- Domain 3: Self-care – attending to one’s hygiene, dressing, eating and staying alone
- Domain 4: Getting along – interacting with other people
- Domain 5: Life activities – domestic responsibilities, leisure, work and school
- Domain 6: Participation – joining in community activities, participating in society.

In India, another instrument called Indian Disability Evaluation and Assessment Scale (IDEAS) has been constructed to evaluate the level of disability for four types of mental disorders (schizophrenia, bipolar disorder, dementia, and obsessive compulsive disorder). The domains assessed are self care, interpersonal activities (social relationships) communication and understanding; work (performance in work, house or school). The duration of mental illness is also taken into account to generate a total disability score.

Quality of life (QOL) measures also give us an idea regarding the impact of mental disorders on a person’s life. Quality of life is defined as an individuals’ perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns. It is a broad ranging concept, incorporating the individuals’ physical health, psychological state, level of independence, social relationships, personal beliefs, and their relationships to salient features of the environment.

The WHO developed the WHO Quality of Life (WHOQOL) instrument for use across different cultures. Its brief version (WHOQOL-BREF) consists of 26 questions assessing quality of life in four domains: Physical health, Psychological, Social relationships, and Environment; and the global quality of life.

Different mental illnesses lead to different levels and patterns of disability and quality of life impairment and this must be kept in mind while assessing a patient. Also the duration of psychiatric illness may vary from acute and transient disorders to chronic disorders and hence disability and quality of life measurements can fluctuate during different stages of the illness.

**Check Your Progress 2**

**Note:**

a) Read the following questions carefully and answer in the space provided below.

b) Check your answers provided at the end of this unit.

1) Discuss the importance of assessing disability caused by mental disorders.

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2) What are the various domains of disability assessed by the WHODAS 2.0?

Some of the major domains in which people with mental disorders experience disability are discussed in the forthcoming sections.

4.4.2 Impact on Productivity

All mental disorders ranging from common to severe mental disorders can lead to impaired productivity. This could be due to health related absenteeism from work or due to decreased efficiency due to psychological (depression, stress, burnout) or physical symptoms (e.g. high blood pressure, heart disease, ulcers, sleeping disorders, etc.). Mental disorders unlike general medical conditions often affect higher-order social and cognitive skills. These functions are particularly important for successful functioning in the workplace. Deficits in these domains may be subtle and thereby more difficult to identify and overcome than the more concrete (physical impairment) barriers raised by general medical conditions.

Studies have shown that people with mental illness report substantial social, economic, and discriminatory barriers to work over and above the symptoms of their illnesses. Some major barriers to the employment of individuals with severe mental illness include lack of choice in employment services and providers, inadequate work opportunities and difficulty advancing in work, and stigma and discrimination (being fired or laid off, or being refused employment on the basis of disability). For an individual with clinical symptoms, perception of such barriers appears to play an important role in mediating ultimate work status. Individuals with mental disorders and their caregivers commonly report the following needs: assistance with family responsibilities, transportation to work, job training, job information etc.

Despite increasing knowledge of mental health issues over the past few decades, employers and enterprises have lagged behind in their understanding and acceptance of the pervasiveness, treatment and impact of mental health problems in the workplace. Most human resource management programmes do not cover adequately the area of mental health and employment. Some of the measures to promote the welfare of people affected with mental disorders would be:

- Psychosocial rehabilitation programmes and skill development programmes for the recovering mentally ill.
- Effective implementation of anti-discrimination provisions.
- Preventive, treatment, and rehabilitation programmes that address employees mental health needs.
- Targeted intervention to facilitate return to work – for example, informing the attending physician or appropriate mental health professional of the exact duties of the job before the physician makes a final decision on return to work, gradual return to work, flexible time, temporarily changed duties that involve less job-related stress or other flexible arrangements etc, with a clear understanding of duration of rehabilitation process.
- Employee assistance programmes.
Check Your Progress 3

**Note:**

a) Read the following questions carefully and answer in the space provided below.

b) Check your answers provided at the end of this unit.

1) Give 3 examples of discrimination commonly faced by affected individuals in the workplace:

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2) Enumerate some welfare measures targeted at improving work productivity in disabled people with mental illness:

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4.4.3 Disability and Health Burden

Health burden associated with diseases are traditionally measured by indices like incidence, prevalence and mortality. These are well suited for the study of acute illnesses which tend to result in recovery or death. Mental disorders are more often chronic in nature and cause more disability than death. The Global Burden of Disease study showed that mental disorders ranked almost as high as cardiovascular diseases and respiratory diseases and surpassed all different types of cancer and HIV, when disability was taken into the equation to measure burden caused by illnesses. The study used the disability adjusted life year (DALY) as the health gap measure, which combines information on the impact of premature death and of disability and other nonfatal health outcomes. One DALY can be thought of as one lost year of ‘healthy’ life.

Disability caused by major depression was found to be equivalent to that caused by blindness or paraplegia, whereas disability caused by active psychosis as seen in schizophrenia was estimated as somewhere between paraplegia and quadriplegia. With regard to years lived with disability, depressive disorders as a single diagnostic category were the leading cause of disability worldwide. Mental disorders are projected to increase to 15% of the global disease burden, and unipolar major depression could become the second leading factor in the disease burden by the year 2020.

Mental disorders also contribute to mortality. Neuropsychiatric disorders account for 1.2 million deaths every year and 1.4% of all years-of-life lost; most of these are caused by dementia, Parkinson’s disease, and epilepsy; however, studies have also shown an increase in all-cause mortality for disorders like schizophrenia, depression and substance use disorders.
Check Your Progress 4

Note:  

a) Read the following questions carefully and answer in the space provided below.

b) Check your answers provided at the end of this unit.

1) What does DALY mean?
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2) Name the illness that is projected to be second leading contributor to disease burden by 2020 according to global burden of disease study.
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4.4.4 Stigma and Discrimination

Stigma is a negative differentiation attached to some members of society who are affected by some particular condition or state. This negative attitude that dictates that those members be maintained at a distance is related to negative stereotyping and prejudicial attitudes that, in turn, lead to discriminatory practices. Thus, whereas stigma is an attitude, discrimination is behaviour aimed at depriving the stigmatized person of legal rights and legally recognized entitlements. Stigma, prejudice and discrimination are, therefore, inextricably related.

- General attitudes towards people with mental illness

Studies have tried to assess the common perception about mental illness among unaffected people in the community and the results have consistently shown that persons affected with mental illness are generally regarded as dangerous, who should be kept out of the community.

Even in developed countries only about 40-50% of people consider psychological symptoms to be the result of mental illness. Society commonly sees mental illness as a “reaction to stress” and recommends non-medical treatments and is hesitant to suggest hospitalization and drug treatment. The awareness of a need for intervention is ‘disappointingly low’ even in the patients and relatives’ groups despite prior contact with mental health services.

Public attitudes towards schizophrenia are generally negative. People affected with schizophrenia are usually perceived to be dangerous and aggressive, who should not be free in the community. Many people in the community state that they would be irritated about having a neighbour with schizophrenia; that they would not rent their home to a person with schizophrenia, that they do not want to work with a person with schizophrenia and that they would not get married to a person with schizophrenia.
Public attitudes about even common mental disorders like depression are not quite different. They are also perceived to be a threat and people hesitate to interact with such patients. They are hesitant to have them as neighbours, colleagues or life partners and even feel that treatment of such persons should be located away from general hospitals.

- **Perceptions about mental illness and help-seeking**

The perception of mental illness considerably varies across and within cultural or ethnic groups. The coexistence of apparently conflicting medical beliefs and behaviours has been found throughout the world and these differences influence the help seeking process.

Surveys indicate that family members would be reluctant to utilize mental health services in the event of mental disorder arising in the family. Some of the main reasons given for non-consultation are reluctance to acknowledge that a family member has a mental illness, stigma attached to attending mental health services and the skepticism about the usefulness of mental health services. Willingness to utilize psychiatric services is associated with better parental education, occupation and socio-economic status.

In developing countries like India, a wide variety of services are used by patients before seeking treatment from psychiatric facilities. Faith healers, traditional and alternative systems of medicine are commonly used by patients before seeking care from psychiatrists. Trust, easy availability and accessibility, recommendations by significant others and belief in supernatural causation of illness are the important reasons for choosing a particular facility and show that socio-cultural factors influence treatment seeking behaviour. It is also of importance that in India and other Asian cultures religious beliefs, the lack of mind-body distinction, the tendency for somatization and the shame shared by the patient and their families also influence the help-seeking behaviour and frequently lead to a combination of traditional and modern treatments.

- **Stigma among patients and their family members**

Patients suffering from mental illness experience considerable stigma from friends, family members and various quarters of the society. Patients feel that family members consider them to be violent and aggressive and they also experience dislike and rejection from family members. It is common for friends and family members of mentally ill persons to conceal their illness which is source of stigma. In the treatment setting, medication induced side effects, adverse experience like negative staff attitudes, excessive physical/chemical restraints, inadequate information/complaint systems and limited rights lead to considerable stigma among patients. Programmes that build the family as a rehabilitative resource should start early to reduce the development and adverse impacts of stigma.

Families of individuals with mental illness face a range of practical and emotional stresses. Social disapproval or devaluation, e.g., problems for the affected person to marry, is the most important concern in an analysis from India that studied factors influencing stigma among family members of people with mental illness. Other stigma related consequences include social isolation of the families, difficulties experienced by the mentally ill patients when trying to obtain competitive employment and financial difficulties.

### Check Your Progress 5

**Note:**

a) Read the following questions carefully and answer in the space provided below.

b) Check your answers provided at the end of this unit.
1) Define stigma.

2) What are the common perceptions about treatment seeking in a developing country like India?

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### 4.5 IMPACT ON THE FAMILY

Family members are often the primary caregivers of people with mental disorders. Current figures suggest that one in every four families is supporting a person with mental illness. These families bear the direct and indirect costs associated with the illness, responsibility of providing emotional and physical support to the person and the negative impact of stigma and discrimination. Rejection by friends, relatives, neighbours and the community as a whole can increase the family’s sense of isolation, resulting in restricted social activities, and the denial of equal participation in normal social networks.

Expenses for the treatment of mental illness are often borne by the family because they are generally not covered by the State or by insurance. Family members may need to set aside a significant amount of their time to care for a person with a mental disorder. Unfortunately, the lack of understanding on the part of most employers, and the lack of special employment schemes to address this issue, sometimes render it difficult for family members to gain employment or to hold on to an existing job, or they may suffer a loss of earnings due to days taken off from work. This compounds the financial costs associated with treating and caring for someone with a mental disorder.

### 4.6 ECONOMIC COST OF MENTAL ILLNESS

A commonly overlooked problem arising secondary to mental illness is the economic impact on both the individual and the society. The economic impacts of mental illness include its effects on personal income, the ability of the persons with mental disorders or their caregivers to work and make productive contributions to the national economy, as well as the utilization of treatment and support services.

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**Case vignettes**

- Sanjay is a 52-year-old man with a 27-year history of schizophrenia. He experienced his first episode of illness at the age of 25 after one year of marriage. He heard several threatening voices that spoke about him constantly, saying such things as “Look at him, he is good for nothing, let’s kill him”. Sanjay had a number of inpatient hospitalizations, and no medication completely returned him to his pre-illness state. He had been working as a painter before his illness. He never returned to a paid job. His
mother and wife cared for him until the mother died. He now lives with his wife and 2 daughters who are working to support the family. On average he is hospitalized at least twice per year.

- Rashmi is a 36-year-old woman, who had been working as an accountant in private firm following completion of a University Degree. She has had 5 episodes of severe depression over 7 years, which include constant low mood, tearfulness, low energy, difficulty concentrating, loss of appetite, poor sleep and thinking about suicide. She has attempted suicide on two occasions by taking overdoses of medication. She feels very guilty as part of her depressive illness but also about her suicide attempts. She has been hospitalized once, in a private hospital. Her husband left her because he could not cope with her depression. Rashmi has recently lost her job because of poor work performance and absenteeism. She is currently unemployed and staying with her parents at present. She has a 7-year-old son, and struggles to care for him. Her son has been noticed to have learning difficulties at school.

The economic cost arising out of any illness can be classified as direct and indirect costs. Direct costs usually result from the treatment processes like consultation, transport and medications. Indirect costs result from work place absence, loss of productivity, income lost by caregivers, etc.

Let us see the different types of costs related to the occurrence of mental disorders. As you can see in the box below, mental disorder has cost implications to the patient, his/her family and relatives, as well as the employer and the society.

<table>
<thead>
<tr>
<th>Core costs</th>
<th>Other non-health costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct costs (payments made)</td>
<td>Indirect costs (resources lost)</td>
</tr>
<tr>
<td>Treatment and service fees/payments</td>
<td>Morbidity costs (lost productivity)</td>
</tr>
<tr>
<td>Social welfare administration</td>
<td>Value of family caregivers’ time</td>
</tr>
<tr>
<td>Criminal justice system</td>
<td>Mortality costs</td>
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<tr>
<td>Transportation</td>
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<thead>
<tr>
<th>Care costs</th>
<th>Productivity costs</th>
<th>Other costs</th>
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<tbody>
<tr>
<td>Patient</td>
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<td>Family and friends</td>
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<td>Family and friends</td>
<td>Time off work</td>
<td>Anguish, stigma &amp; isolation</td>
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<tr>
<td>Employers</td>
<td>Provision of mental health care and general medical care</td>
<td>Reduced productivity</td>
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<tr>
<td>Employers</td>
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<td>Anguish, stigma &amp; isolation</td>
</tr>
<tr>
<td>Society</td>
<td>Provision of mental health care and general medical care</td>
<td>Reduced productivity</td>
</tr>
<tr>
<td>Society</td>
<td></td>
<td>Loss of lives, untreated illnesses, social exclusion</td>
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</tbody>
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Check Your Progress 6

Note: a) Read the following questions carefully and answer in the space provided below.

b) Check your answers provided at the end of this unit.

1) Define direct and indirect costs in relation to mental disorders.

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4.7 MEDIA AND MENTAL ILLNESS

Media plays an important role in forming attitude, both positive and negative, towards mental illness. Media is frequently involved in covering various social issues related to mental health. Mental health professionals rely on the various forms of media to create awareness regarding mental disorders and promote mental health literacy.

Media depictions sometimes reinforces and perpetuates negative public attitude and this can have damaging consequences. Stigmatization of people with mental disorders and their doctors can lead to stereotyping, labeling, bias, distrust, fear, embarrassment, anger and avoidance. It results in discrimination and abuse of affected persons leading to deprived opportunities and exclusion from the mainstream of the society. Some common misconceptions and stereotypes of people with mental disorders portrayed in the media are:

- People with mental disorders as unlikely to recover
- Ridicule and trivialize mental disorders
- People with mental disorders as violent and dangerous
- People with mental disorders as strange and unpredictable

On the other hand, the media could similarly play a vital role in informing and educating the public about mental disorders and promotion of positive mental health. People can be informed and educated through the mass media thereby counteracting stigma and discrimination. The society has to be made aware that

- People with mental disorders do recover and make valuable contributions to our communities.
- Various studies show that optimism about outcome from severe mental disorders like schizophrenia is justified.
- Mental disorders are serious and painful illnesses, so use of appropriate and respectful language is of great importance from the perspective of human rights and dignity.
- Most people with mental disorders are our relatives and neighbours, friends and co-workers who are caring and law-abiding citizens.

Check Your Progress 7

Note: a) Read the following questions carefully and answer in the space provided below.

b) Check your answers provided at the end of this unit.

1) List some of the common stereotyped portrayals of mental illness in the media.

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2) What messages can be communicated by the media to spread awareness about mental disorders?

Let us Sum Up

Over the course of this Unit, we have seen the real burden of mental disorders and their costs in human, social, and economic terms.

The magnitude of burden is quite high as evidenced by many epidemiological studies. It is a well-known fact that mental illness is prevalent in both developed and developing nations, all ethnicities, and cultures, and it places a substantial burden upon the health care sector. It is also increasingly clear that mental health is intricately linked to societal growth and development.

Mental disorders place a severe burden on the affected individuals in terms of suffering, work difficulty, and productivity, costs, stigma, and discrimination, and impaired quality of life. We have also seen that one in four families supports a person with mental disorder and they are also stigmatized and discriminated against in ways that are similar to the patients themselves. They also take up the cost of care, and emotional and social support, which has an impact on their quality of life and productivity as well.

Considering these factors, treatment and rehabilitation of people suffering from mental disorders should be a top priority in health planning. Some of the major steps in this direction are:

- Provision of treatment in primary care is a fundamental step which enables the largest number of people to get easier and faster access to services.
- Essential psychotropic drugs should be provided and made constantly available at all levels of health care.
- Provision of community-based services as they can lead to early intervention and limit the stigma of taking treatment. Large custodial mental hospitals should be replaced by community care facilities, back by general hospital psychiatric beds and home care support, which meet all the needs of the ill that were the responsibility of mental hospitals.
- Public education and awareness campaigns on mental health should be launched. The main goal is to reduce barriers to treatment and care by increasing awareness of the frequency of mental disorders, their treatability, the recovery process and the human rights of people with mental disorders.
- Communities, families, and consumers should be included in the development and decision-making of policies, programmes, and services.
- Linking with other sectors such as education, labour, welfare, and law, and involving nongovernmental organizations in improving the mental health of communities.
4.9 UNIT END QUESTIONS

1) Name some commonly used measures of disability and list the domains of the WHOQOL-BREF instrument.

2) Define stigma and discrimination and discuss briefly about the various types of stigma faced by mentally ill persons.

3) Define indirect cost and write in brief about some contributors of indirect cost arising out of mental illness.

4.10 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress Exercise 1

1) According to the World Mental Health (WMH) surveys conducted under the leadership of WHO the lifetime prevalence estimates of mental disorder are in the range of 18.1–36.1%.

2) The commonly encountered mental disorders in primary health care settings are depression, anxiety and substance use disorders.

Check Your Progress Exercise 2

1) Assessment of disability is important as it provides information on various parameters important for planning and providing care. These are: service needs, level of care needed, prognosis, level of expected recovery and social integration.

2) The six domains assessed by the WHODAS 2.0 are
   ● Domain 1: Cognition—understanding and communicating
   ● Domain 2: Mobility—moving and getting around
   ● Domain 3: Self-care—attending to one’s hygiene, dressing, eating and staying alone
   ● Domain 4: Getting along—interacting with other people
   ● Domain 5: Life activities—domestic responsibilities, leisure, work and school
   ● Domain 6: Participation—joining in community activities, participating in society.

Check Your Progress Exercise 3

1) (i) difficulty advancing in work
   (ii) being fired or laid off
   (iii) being refused employment on the basis of disability

2) Following are the welfare measures targeted at improving work productivity in disabled people with mental illness:
   ● Psychosocial rehabilitation programmes
   ● skill development programmes for the recovering mentally ill
● effective implementation of anti-discrimination provisions
● preventive, treatment, and rehabilitation programmes that address employees' mental health needs
● targeted intervention to facilitate return to work
● employee assistance programmes.

Check Your Progress Exercise 4
1) Disability adjusted life year (DALY) is a health gap measure, which combines information on the impact of premature death and of disability and other nonfatal health outcomes. One DALY can be thought of as one lost year of ‘healthy’ life.

2) Unipolar major depression

Check Your Progress Exercise 5
1) Stigma is a negative differentiation attached to some members of society who are affected by some particular condition or state.

2) The perception about mental illness and treatment seeking varies with different cultures and in India faith healers and alternative systems of medicine are common prior to seeking medical treatment.

Check Your Progress Exercise 6
1) Direct cost: direct costs are those that usually result from the treatment process like consultation, transport and medications.

Indirect cost: Indirect costs are those that result from work place absence, loss of productivity, income lost by caregivers arising out of treatment process etc.

Check Your Progress Exercise 7
1) The stereotyped portrayal of mental illness by the media includes:
   ● Showing people with mental disorders as unlikely to recover
   ● ridiculing and trivializing mental disorders
   ● inaccurately showing people with mental disorders as violent and dangerous
   ● portraying people with mental disorders as strange, unpredictable, dangerous, are very harmful.

2) Media can communicate the following messages to spread awareness about mental disorders:
   ● people with mental disorders do recover and make valuable contributions to our communities
   ● optimism about outcome from severe mental disorders like schizophrenia, mental disorders are serious and painful illnesses,
   ● use of appropriate and respectful language, with regard to the mental illness, is of great importance from the perspective of human rights and dignity
   ● most people with mental disorders are our relatives and neighbours, friends and co-workers who are caring and law-abiding citizens.
4.11 REFERENCES AND SUGGESTED READING


Warner R. Does the scientific evidence support the recoverymodel? The Psychiatrist 2010; 34:3-5.
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## MENTAL DISORDERS

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