

Method

Systematic review

Systematic searches were conducted in structured stages to identify incidence, prevalence, remission and mortality estimates for:

- **Anxiety disorders**
 - Obsessive Compulsive Disorders
 - Post Traumatic Stress Disorder
 - Panic Disorder
 - Generalized Anxiety Disorder
- **Bipolar disorder**
 - Bipolar I and Bipolar II
 - Cyclothymia
- **Childhood behavioural disorders**
 - Conduct Disorder
 - Attention Deficit Hyperactivity Disorder
- **Eating disorders**
 - Anorexia Nervosa
 - Bulimia Nervosa
- **Major depressive disorder**
 - Major Depressive Episode
 - Dysthymia
- ***Pervasive Developmental Disorders***
 - *Autism*
 - *Aspergers*

As a large body of literature exists for mental disorders, the decision was taken to search the peer-reviewed literature as the first phase of the review. The search strategy was consistent with the methodology recommended by the Meta-analysis of Observational Studies in Epidemiology (MOOSE) group

[1]. The search protocol for identifying incidence and prevalence estimates involved use of a tailored search string to interrogate Medline, EMBASE and PsycINFO electronic databases (See Appendix A for database descriptions).

After consultation with a qualified archivist, search strings were developed, with searches limited to human subjects and publication dates from 1980 to 2008. No limitations were set on language of publication. Search strings, specific to each database (including keywords, MeSH terms, Emtree terms and explode terms) were devised for different subject areas (see <http://www.gbd.unsw.edu.au/gbdweb.nsf/page/Methodology> for search strings). Combinations of the search strings for disorders with a large number of articles (i.e. Depression) were linked with country specific searches to identify best coverage of the literature. This strategy was developed as the most efficient method of identifying useful data sources within the limited time frame available. The extensive list of identified articles was imported into separate Endnote X[®] databases for each disorder and duplicates were deleted.

Article titles were scanned for relevance and abstracts of relevant articles were read in full to further cull the list according to predetermined criteria (see Appendix B). Studies were excluded if they were not focused on prevalence, incidence, remission or mortality, did not contain raw data (e.g. review articles), not general population samples, data pre-1980 and multiple articles reporting from the same cohort (in this case the most recent or relevant article was included with duplicate articles excluded). Furthermore, if a nationally representative general population study was available for a given country then sub-national studies were excluded on the basis that they were less informative than a nationally representative general population study.

Data from smaller less representative samples have been accepted on the basis that such data may be the only available sources of estimates for many countries. If a disorder is known to commonly occur in childhood and adolescence, school samples were included. Additional sub-national studies were accepted if they covered an age range which supplemented data provided in the national population based studies (i.e. if the age range of the nationally representative study was 18-65years, sub-national studies examining prevalence of the disorder in children or older adults were included).

Additional data was identified through reference lists of review articles and recommended articles from experts. These articles were hand searched to supplement any studies that may not have been identified by the electronic database search. Additional articles were also added to the Endnote X[®] library. PDFs of the relevant articles were sourced from the University of Queensland library, and The Park Centre for Mental Health Library and attached to the references in the Endnote X[®] library.

The final stage of the systematic review focuses on filling in the gaps identified through the literature review. Experts were contacted for further data sources and the grey literature was searched for reports and papers which are not yet published. Scholarly databases and websites of government agencies and non-government organizations were searched to identify national reports and statistics that had been collected. The World Mental Atlas, 2005 (http://www.who.int/mental_health/evidence/atlas/) was reviewed for any further sources of data.

Permission was sought from the World Mental Health Survey consortium (<http://www.hcp.med.harvard.edu/wmh/>) to obtain prevalence data collected

through the national studies. The World Mental Health Survey Initiative includes nationally or regionally representative surveys in 26 countries comprising Brazil, Colombia, Costa Rica, Mexico, Peru, United States, Nigeria, South Africa, Lebanon, Iraq, Belgium, Bulgaria, France, Germany, Israel, Italy, Netherlands, Northern Ireland, Romania, Ukraine, Turkey, China, Spain, India, Japan, New Zealand (WHO, 2005). All surveys used the World Mental Health Composite International Diagnostic Interview (WMH-CIDI) to assess presence of disorders by DSM-IV and ICD-10 diagnostic criteria. The disorders captured included: anxiety disorders, mood disorders, childhood behavioural disorders and eating disorders. Researchers in each country were able to decide which disorders were of the greater priority for that country and exclude the sections not required. Hence disorder-specific data differs by country (e.g. depression data is available for 23 countries while data for eating disorders was collected only for 12 countries).

Data Extraction

The data extraction phase aimed to obtain information about study design and participants as recommend by the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines [2], which are parallel to the CONSORT guidelines for reporting of randomized trials [3]. Data extracted from papers included study descriptors (e.g. design, sample ascertainment, location, representativeness), sample descriptors (e.g. age, gender, characteristics), parameters (e.g. type of estimate, period of followup, error) and reporting quality.

A Quality Index Score was developed, modeled on an earlier version by McGrath and Saha [4, 5]. The variables were derived via the 'Delphi method' by consultation with the Expert Group and the GBD Core Team ([http://www.gbd.unsw.edu.au/gbdweb.nsf/resources/MD_Pt2_Appendicies/\\$file/GBD20](http://www.gbd.unsw.edu.au/gbdweb.nsf/resources/MD_Pt2_Appendicies/$file/GBD20)

[05+Mental+Disorders+Quality+Index.pdf](#)) for details. The convention includes a range of epidemiological indicators to ensure transparency, data representativeness and data quality.

Quality variable responses were assigned scores that were summed to create a Quality Index score for each included study which rated the methodological quality. Highest scores are achieved by general population cohort studies with age and sex disaggregated estimates, which have the most relevant information for the GBD study. Included studies mostly achieved a high score due to meeting the inclusion criteria. Additional text was also included due to the diversity of reported methodology and would be used to determine if studies with a low numeric quality index score should be included based on additional methodological information.

Data from relevant articles was extracted onto summary sheets which recorded epidemiological parameters and quality variables as well as reported findings. These findings were later transferred into a Microsoft Access® database with the quality information. Quality assurance procedures were in place to ensure the accuracy of data extraction and database entry. A random sample of articles was reviewed for consistency by two researchers checking for data extraction and data entry errors at regular intervals.

The tri-level Microsoft Access® database designed to accommodate the mental disorders data allowed multiple parameters to be entered for a single data source. Quality assurance is also built into the database through drop down boxes and forced entry of characters when relevant. Data entry was standardised by use of a manual, containing data entry rules.

GBD2005

Mental Disorders and Illicit Drug Use Expert Group

Queries were written to export complete datasets. Data from relevant articles entered into Access® databases for mental disorders were later extracted into Microsoft Excel® worksheets with prevalence breakdowns for each GBD region and country by sex and age where data was available.

References

1. Meta-analysis of Observational Studies in Epidemiology: A Proposal for Reporting. JAMA. 2007; 283(15): 2008-2012.
2. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) Statement: Guidelines for Reporting Observational Studies. PLOS Medicine. 2007; 4(10): 296-301.
3. Plint AC, Moher D, Morrison A, Schulz K, Altman DG, Hill C and Gaboury I. Does the CONSORT checklist improve the quality of reports of randomised controlled trials? A systematic review. MJA 2006; 185 (5): 263-267
4. McGrath J, Saha S, Welham J, El Saadi O, MacCauley C and Chant D. A systematic review of the incidence of schizophrenia: the distribution of rates and the influence of sex, urbanicity, migrant status and methodology. BMC Medicine. 2004; 2-13.
5. Saha S, Chant D, McGrath J. A Systematic Review of Mortality in schizophrenia: Is the Differential Mortality Gap Worsening Over Time? Arch Gen Psychiatry. 2007;64(10):1123-1131

• **APPENDIX A**

Database information

Database	Information
Medline	Compiled by the U.S. National Library of Medicine (NLM) and published on the Web by Community of Science, MEDLINE® is the world's most comprehensive source of life sciences and biomedical bibliographic information. It contains nearly eleven million records from over 7,300 different publications from 1965 to November 16, 2005. (Source: http://medline.cos.com/docs/abmedl.shtml)
EMBASE	EMBASE is a biomedical and pharmacological database. The EMBASE journal collection is international with over 5,000 biomedical journals from 70 countries. EMBASE contains over 11 million records from 1974 to present. EMBASE features comprehensive coverage of: • Drug Research, Pharmacology, Pharmacy, Pharmacoeconomics, Pharmaceuticals and Toxicology • Human Medicine (Clinical and Experimental) • Basic Biological Research • Health Policy and Management • Public, Occupational and Environmental Health • Substance Dependence and Abuse • Psychiatry • Forensic Science • Biomedical Engineering and Instrumentation (Source: http://www.elsevier.com/wps/find/bibliographicdatabasesdescription.cws_home/523328/description_n#description)
PsychINFO	PsycINFO is an abstract database of psychological literature from the 1800s to the present. More than 2.4 million records as of January 2008, including journals, books and dissertations. Over 2150 journal titles covered, 98% peer-reviewed; also books and dissertations. (Source: http://www.apa.org/psycinfo/)

GBD 2005 Mental Disorders Group

Flowchart of systematic search protocol



