

Global Mental Health 3



Treatment and prevention of mental disorders in low-income and middle-income countries

Vikram Patel, Ricardo Araya, Sudipto Chatterjee, Dan Chisholm, Alex Cohen, Mary De Silva, Clemens Hosman, Hugh McGuire, Graciela Rojas, Mark van Ommeren

We review the evidence on effectiveness of interventions for the treatment and prevention of selected mental disorders in low-income and middle-income countries. Depression can be treated effectively in such countries with low-cost antidepressants or with psychological interventions (such as cognitive-behaviour therapy and interpersonal therapies). Stepped-care and collaborative models provide a framework for integration of drug and psychological treatments and help to improve rates of adherence to treatment. First-generation antipsychotic drugs are effective and cost effective for the treatment of schizophrenia; their benefits can be enhanced by psychosocial treatments, such as community-based models of care. Brief interventions delivered by primary-care professionals are effective for management of hazardous alcohol use, and pharmacological and psychosocial interventions have some benefits for people with alcohol dependence. Policies designed to reduce consumption, such as increased taxes and other control strategies, can reduce the population burden of alcohol abuse. Evidence about the efficacy of interventions for developmental disabilities is inadequate, but community-based rehabilitation models provide a low-cost, integrative framework for care of children and adults with chronic mental disabilities. Evidence for mental health interventions for people who are exposed to conflict and other disasters is still weak—especially for interventions in the midst of emergencies. Some trials of interventions for prevention of depression and developmental delays in low-income and middle-income countries show beneficial effects. Interventions for depression, delivered in primary care, are as cost effective as antiretroviral drugs for HIV/AIDS. The process and effectiveness of scaling up mental health interventions has not been adequately assessed. Such research is needed to inform the continuing process of service reform and innovation. However, we recommend that policymakers should act on the available evidence to scale up effective and cost-effective treatments and preventive interventions for mental disorders.

Introduction

The previous two reviews in this Series on global mental health^{5,6} have summarised how mental disorders are related to other health conditions, and described the gap between needs and services for mental health, especially in low-income and middle-income countries. We investigated whether interventions to treat and prevent mental disorders are sufficiently effective and affordable to support a substantial scaling-up of such services in low-income and middle-income countries.

Although evidence for the effectiveness of such interventions is robust, most of it has been derived from high-income countries.^{7,8} Because differences in sociocultural factors and health systems probably limit the generalisability of evidence to low-income and middle-income countries,⁹ we restricted our review to evidence gathered in these countries. We focused on four mental disorders that pose the greatest burden in adults and children: depression, schizophrenia, alcohol-use disorders, and developmental disabilities

Search strategy

We searched the PsiTri database (EU Mental Health library) and the separate registers of trials held by Cochrane groups (Depression, Anxiety and Neurosis Group; Drugs and Alcohol Group; Schizophrenia Group, and Developmental, Psychosocial and Learning Problems Group) for studies of the treatment of mental disorders. We also did a manual search of the online databases PubMed and Medline. We searched for “depression”, “schizophrenia”, “developmental disabilities”, “mental retardation”, and “alcohol-use disorders”. We selected all randomised controlled trials generated in low-income and middle-income countries, about any treatments for these four key disorders.

Limitations of our review include time delays between identification of a reference in the PsiTri database, obtaining a hard-copy publication, and coding into PsiTri. Second, because the participating countries in multicentre trials are not always listed in Psi Tri, we excluded multicentre trials since we could not select multicentre trials that were conducted solely in low-income and middle income countries. We were also unable to ensure that the large number of Chinese schizophrenia studies excluded duplicates.

(Continues on next page)

Lancet 2007; 370: 991–1005

Published Online
September 4, 2007
DOI:10.1016/S0140-6736(07)61240-9

This is the third in a Series of six papers on mental health

See [Comment](#) pages 918 and 919

See [Articles](#) page 957

Department of Epidemiology and Population Health, London School of Hygiene and Tropical Medicine, London, UK (Prof V Patel MRCPsych, S Chatterjee MD, M De Silva PhD); Academic Unit of Psychiatry, University of Bristol, Bristol, UK (Prof R Araya MRCPsych); Department of Health System Financing, World Health Organization, Geneva, Switzerland (D Chisholm PhD); Department of Social Medicine, Harvard Medical School, Boston, USA (A Cohen PhD); Department of Health Education and Promotion, Maastricht University, Maastricht, Netherlands (Prof C Hosman PhD); Depression, Anxiety and Neurosis Group, Health Services and Population Research, King's College Institute of Psychiatry, London, UK (H McGuire MSc); Clinical Hospital, University of Chile, Santiago, Chile (G Rojas MD); and Department of Mental Health and Substance Abuse, World Health Organization, Geneva, Switzerland (M van Ommeren PhD)

Correspondence to: Vikram Patel, Sangath Centre, Alto-Porvovim, Goa 403521, India
Vikram.patel@lshtm.ac.uk

(Continued from previous page)

To assess the evidence for cost-effectiveness of interventions for the four disorders, we applied more stringent inclusion criteria to the results of our search. For depression and schizophrenia, we focused on trials that assessed interventions identified by the Disease Control Priorities Project (DCP2)¹ as cost-effective for low-income and middle-income countries. Because the DCP2 project did not include alcohol-use disorders and developmental disabilities, we reviewed all intervention types for these disorders. We only included controlled trials (placebo or usual care) published since the World Health Report in 2001.²

To find studies about the prevention of mental disorders, we used the WHO Report on Prevention of Mental Disorders^{3,4} and a systematic search of PsycInfo, Medline, Pubmed, and Cochrane databases, with the following keywords: "prevention"; "mental disorders"; specific mental disorders ("depression", "schizophrenia", "developmental disabilities", and "alcohol-use disorders"); and major risk factors ("child abuse and neglect", "violence", "family disruption", "mentally-ill parents", "poverty", and "refugee status").

We used an unpublished systematic search for studies of interventions during and after conflict or disaster situations in low-income and middle-income countries that include quantitative preintervention and postintervention measures. We searched for descriptions of "conflict" ("war", "violence", "refugees", and "torture") and "disaster" ("earthquake", "hurricane", "tsunami", and "volcano") combined with "treatment outcome" and "mental health services".

(cognitive disabilities or mental retardation, attention deficit hyperactivity disorder, and autism). Interventions in conflict or emergency-affected contexts are a special case, but must be considered since they continue to affect vast numbers of people in low-income and middle-income countries. Finally, we consider the implications of evidence for such interventions on policy and practice.

Global evidence for clinical treatments

We identified 11501 trials worldwide that assessed interventions for the treatment or prevention of schizophrenia, depression, developmental disabilities, or alcohol-use disorder. Table 1 shows that most of this evidence is derived from high-income countries.^{7,8} Fewer than 1% of identified trials were from low-income countries and only about a tenth of identified trials were from low-income and middle-income countries. Of these trials, about two-thirds (958/1521) were from China, and more than half (834/1521) assessed interventions to treat schizophrenia in China.

Table 2 shows that about three-quarters of all trials in low-income and middle-income countries investigated treatments for schizophrenia, and one-quarter investigated depression. We identified only 11 trials dealing with alcohol dependence or harmful use of alcohol, and 12 trials dealing with developmental disabilities. The most recent trial for mental retardation was in 1994. Over half of all trials in low-income and middle-income countries (838/1521) were published after the World Health Report on Mental Health in 2001.

	Trials (n=11 501)
Low-income country	104 (0.9%)
Lower middle-income country	1104 (9.6%)
Upper middle-income country	311 (2.7%)
High income country or multicentre trial	9982 (86.8%)

Table 1: Trials of mental-health interventions by income level of country

	Trials (n=1521)
Region	
East Asia and Pacific	977 (64.2%)
Eastern Europe and central Asia	242 (15.9%)
Latin America and Caribbean	135 (8.9%)
South Asia	88 (5.8%)
Sub-Saharan Africa	51 (3.4%)
North Africa and middle east	28 (1.8%)
Type of disorder	
Schizophrenia	1137 (74.8%)
Depression	361 (23.7%)
Developmental disabilities	12 (0.8%)
Alcohol dependency or harmful use	11 (0.7%)
Number of trial participants	
<100	1079 (71.3%)
100–499	316 (20.9%)
>500	8 (0.5%)
Not stated	111 (7.3%)

Table 2: Trials of mental-health interventions in low-income and middle-income countries by region, type of disorder, and number of participants

	Number of trials
Depression	
Psychosocial treatment	37 (10.2%)
Antidepressant drugs	228 (63.2%)
Mood stabilising drugs	64 (17.7%)
Other intervention	32 (8.9%)
Schizophrenia	
First generation antipsychotic	451 (39.7%)
Family or community intervention	97 (8.5%)
Second generation antipsychotic	318 (28.0%)
Psychological therapy	93 (8.2%)
Other intervention	178 (15.7%)

Table 3: Trials of treatments identified as cost effective by the Disease Control Priorities Project 2

High-income countries		Low-income and middle-income countries		
Evidence	Level of evidence*	Evidence	Level of evidence*	
Depression				
Antidepressants	Antidepressants are more effective than placebo ¹⁰⁻¹² but similar to psychotherapeutic interventions; ¹³ a combination of antidepressants and psychotherapy is the most effective treatment ¹⁴	1	Antidepressants, alone or in combination with other treatments, are efficacious. ¹⁵⁻¹⁷	2
Psychological interventions	Brief psychotherapeutic approaches (cognitive behaviour therapy or interpersonal therapy or problem solving) are more effective than placebo for treatment of moderate or more severe depression ¹⁸	1	Individual psychoeducation is more effective than usual care ¹⁹ Group interpersonal therapy is more effective than usual care ^{20,21} and psychoeducational groups, as part of a stepped-care treatment programme, are more effective than usual care ¹⁵	2
Schizophrenia				
First generation antipsychotics	First generation antipsychotics are more effective than placebo ^{22,23} and as effective as second generation antipsychotics ²⁴⁻²⁹	1	First generation antipsychotics are as effective as second generation antipsychotics for treatment of first-episode psychosis ²⁷	3
Family therapy and community-based interventions	Programmes such as assertive community treatment, ³⁰ supported housing, ³¹ and vocational rehabilitation ³² are effective for integration of people with schizophrenia within the community	1	Family interventions are effective for reduction of relapse rates and improvement to the lives of people with schizophrenia ³³⁻³⁵	2
Alcohol misuse and alcohol dependence				
Pharmacological interventions	Naltrexone is effective for reduction of relapse rates and lowered risk of treatment withdrawal. ^{36,37} Acamprosate reduces drinking frequency ^{37,38}	1	Acamprosate is associated with significantly higher continuous abstinence time; ³⁹ naltrexone is associated with improved completion rates in outpatient treatment programmes for people with alcohol dependence ⁴⁰	2
Psychological interventions	Brief physician-delivered interventions are effective, especially for patients with less severe drinking problems. ⁴¹ Brief screening tools are an effective method for detection of drinking problems in primary care ⁴²	1	Brief physician-delivered intervention is associated with reduced intensity and amount of alcohol consumption, especially in men ⁴³	2
Developmental disabilities				
Pharmacological interventions	Antipsychotic medication reduces the severity of problem behaviours associated with mental retardation ^{44,45} and autism. ⁴⁶ Methylphenidate improves behaviour in children with ADHD ⁴⁷ and is cost-effective ⁴⁸	1,2	A herbal preparation reduces the severity of problem behaviours associated with mental retardation. ⁴⁹ Methylphenidate improves behaviour in children with ADHD ⁵⁰	3
Psychosocial interventions	Functional analysis helps reduce problem behaviours associated with mental retardation. ⁵¹ Cognitive-behaviour methods have a modest impact on reduction of aggressive behaviour in the short-term; ⁵² individual psychological treatments have a modest benefit ⁵³	1	Interactive group psychoeducation improves parental orientation towards child-rearing, knowledge towards intellectual disability, and attitude towards management of mental retardation ⁵⁴	3
Community interventions	Community living offers lifestyle and skill-development advantages associated with improved life quality compared with living in large residential institutions. ⁵⁵	4	Community-based rehabilitation improves activities of daily living in adults with mental retardation, and school participation in children with mental retardation ⁵⁶⁻⁵⁸	4
*Levels of evidence: 1=systematic review; 2=two or more randomised controlled trials (RCTs); 3=one RCT; 4=observational evidence. ADHD=attention deficit hyperactivity disorder.				
Table 4: Evidence for effectiveness of interventions for selected mental disorders by income level of country				

Fewer than 1% of these trials had more than 500 participants; nearly three-quarters had fewer than 100 participants.

Three-quarters (265/361) of all depression trials and half the schizophrenia trials (548/1137) included at least one intervention identified by the DCP2 as a priority intervention for low-income and middle-income countries (table 3).¹ These interventions were psychosocial treatment and antidepressant drugs for depression, and antipsychotic drugs and family or community intervention for

schizophrenia. Nine of the 11 trials of treatments for alcohol dependence or harmful use and five of the 13 developmental disability trials assessed pharmacological interventions. Table 3 shows that more than two-thirds (769/1137) of schizophrenia trials that assessed DCP2 interventions were on antipsychotic drugs. Similarly, about four-fifths (292/361) of all depression trials that assessed DCP2 interventions were about either antidepressants or mood-stabilising drugs. A fifth (67/361) of all depression trials compared first and second

generation antidepressants. Table 4 summarises evidence for treatments for these disorders in countries with various income levels.^{10–58}

Cost-effectiveness of clinical treatments

We reviewed all controlled trials (placebo or usual care), published since 2001, that assessed cost-effective clinical interventions for treatment of depression and schizophrenia, as described in DCP2.¹ 13 of the 361 depression trials and four of the 1137 schizophrenia trials were included. We included all identified trials of interventions for alcohol misuse and developmental disability in low-income and middle-income countries, since so few of these studies were available and since DCP2 did not assess the cost-effectiveness of treatments for these disorders.

Depression is ranked as the seventh most important cause of disease burden in low-income and middle-income countries.⁵⁹ It tends to be disabling, recurring or chronic, and untreated; for example, depression is the leading cause of disease burden in Brazil,⁶⁰ and the second leading cause in women in Chile.⁶¹ Because depression typically occurs with anxiety in community and primary-care settings, these are often described as common mental disorders.⁶² Table 5 summarises five randomised controlled trials that assessed the efficacy of simple, efficient, and feasible treatments for depression in predominantly poor communities in Uganda,^{20,21} Chile,¹⁵ India,¹⁶ Pakistan,¹⁹ and Mexico.^{63,64} Most of these trials tested psychological interventions. Two of three trials that assessed group

psychological interventions showed efficacy, as did one of the two that assessed individual psychological interventions. Group psychological interventions in low-income and middle-income countries, for example in Latin America⁶⁵ and Asia,⁶⁶ might be experienced as an extension of traditional social mechanisms, such as support through social networks and collective action.

Antidepressants were tested in two trials: as a discrete treatment in India¹⁶ and as part of a multimodal intervention in Chile.¹⁵ The Indian trial showed that antidepressants were more effective than placebo or usual care, but only in the short term; however, low adherence could have contributed to reduced efficacy in the long-term. In the Chilean study, patients in the intervention group had a higher recovery rate than controls; however, they were also more likely to receive medication, in more appropriate doses, and for longer periods of time than controls. The structured monitoring and support associated with the intervention probably also helped to ensure better compliance with medication.

Eight other trials of a range of psychosocial and pharmacological interventions in low-income and middle-income countries were not included in table 5, either because we could not assess their methodological quality or because sample sizes were small. Some of these trials showed that antidepressants were more effective in combination with psychotherapy than alone.^{67–70} Informational support for postnatal depression was effective in the short term,⁷¹ as was sports training with cognitive behavioural therapy for mild depression.⁷²

	Setting	Study design	Sample	Intervention	Comparison group	Main results
Uganda ^{20,21}	Villages	Cluster RCT	248 villagers of both sexes with depression	Group interpersonal psychotherapy	Villages without intervention groups	93.5% recovered with intervention vs 45.3% in comparison group at the end of treatment, and 88.3% vs 45.1% at 6 months (p<0.001)
India ¹⁶	General medical outpatients at a district hospital	RCT	450 adults with common mental disorders	Fluoxetine or individual problem-solving treatment	Placebo	70% of antidepressant group recovered at 2 months compared to 54% of placebo group (p=0.01); no difference between psychotherapy and placebo
Chile ¹⁵	Primary care	RCT	240 depressed women living in deprived urban areas	Multi-component stepped-care programme including psychoeducational groups for all and antidepressants for more severe only	Usual care	70% recovered with intervention vs 30% in usual care at 6 months (p<0.001)
Pakistan Karachi ¹⁹	Urban Community	RCT	366 lower middle class women with depression or anxiety	8 individual counselling sessions at home by minimally trained counsellors	No intervention	Reduction in mean symptom scores (p<0.001) at the end of intervention (8 weeks)
Mexico ^{63,64}	Community mental-health centres in Mexico City	RCT	135 female patients with depressive symptoms	6 psycho-educational group sessions	One session of information	Both groups improved but no differences between groups at 4 months and deterioration at 2 years (only 39 women included in final analysis)

RCT=randomised controlled trial.

Table 5: Randomised controlled trials for treatment of depression in low-income and middle-income countries since 2001

Setting	Study design	Sample	Intervention	Comparison group	Main results	
China ³⁴	Rural county in China	Cluster randomised trial, 9-month follow-up	326 patients with schizophrenia	Medication and psychoeducation group and group receiving medication alone.	Not offered active treatment	Psychoeducation enhanced relatives' knowledge, caring attitudes, medication compliance (p<0.05) and reduced relapse (p<0.05)
China ²⁷	Psychiatric hospital in Beijing, China	Randomised controlled trial, 52-week follow-up	160 inpatients with first-episode schizophrenia or schizophreniform disorder	Chlorpromazine (FGA)	Clozapine (SGA)	80% of both groups achieved remission in 1 year, although median time to remission was shorter in those receiving clozapine (p=0.02); by 52 weeks differences were not significant.
China ³³	Psychiatric hospital in Beijing, China	Randomised controlled trial, follow-up 9 months after discharge	101 patients with schizophrenia and their families	Patient and family education (in hospital: 8 and 36 h with patients and families, respectively; in community: 2 h per month for 3 months after discharge)	Usual care	9 months after discharge, patients in the intervention group displayed better overall functioning (p=0.024) and lower clinical severity scores (p=0.008). Rates of relapse in the two groups did not differ.
China ⁹⁰	Outpatients, psychiatric hospital, Beijing	Randomised controlled trial, 2 year follow-up	103 patients with schizophrenia	Community re-entry programme	Group psychoeducation	CRP group improved in terms of social functioning (p<0.001) and psychiatric symptoms (p=0.001) compared with the psychoeducation group; re-employment rate was higher and relapse and rates of readmission to hospital were lower in the CRP group

FGA=first-generation antipsychotic. SGA= Second-generation antipsychotic. CRP=community re-entry programme.

Table 6: Intervention studies for the treatment of psychotic disorders in low-income and middle-income countries since 2001

One trial, from Mexico, reported that the effects of psychotherapeutic, pharmacological, and placebo treatments for mild to moderate depression were similar at 33 weeks.⁷³ A Sri Lankan pilot trial⁷⁴ assessed the effectiveness of cognitive behaviour therapy for reduction of medically unexplained symptoms, which are a frequent presentation of depression and anxiety. The intervention, consisting of six sessions of cognitive behaviour therapy over three months, reduced symptoms, visits, and distress, and increased patient satisfaction in the short term.⁷⁴

Schizophrenia is a psychotic disorder of low prevalence, which is often chronic and very disabling. Although effective treatments for schizophrenia are available, the accessibility, equity, and acceptability of services that deliver such interventions are inadequate in countries of all income levels. Rates of dropout from treatment programmes are high,⁷⁵ and people with schizophrenia have increased rates of death,⁷⁶ comorbid substance abuse,⁷⁷ and social dislocation, all of which contribute to poor outcomes. Thus, services for people with schizophrenia are most effective when they are organised to ensure early recognition, adequate outreach and engagement, promotion of human rights, and provision of individualised care through a range of flexible health-care and social interventions.⁷⁸ Increasingly, psychosocial interventions have been adopted and consumers and carers have helped to improve the acceptability of services.^{79,80}

Antipsychotic medications are the mainstay of treatment for schizophrenia. Many practitioners prescribe second generation antipsychotics, even though they are far more expensive than older antipsychotics, and do not ensure better outcomes for people with schizophrenia.^{75,81} Results from research in China accord with these results.²⁷ In low-income and middle-income countries,

where resources for interventions in mental health are scarce, the treatment gap for schizophrenia is already large⁸² because mental health systems are absent or poorly developed, and mental health is prioritised below competing health needs.⁸³ Absence of mental health services delays treatment for schizophrenia, which in turn worsens long-term outcomes.⁸⁴ The direct and indirect costs of treatment with antipsychotic drugs are high,⁸⁵ and long-term outcomes for those in low-income and middle-income countries with chronic psychotic disorders can be poor.^{86–88} Work begun in the 1990s⁸⁹ suggested that clinical and social outcomes for people with schizophrenia can be improved by involvement of families and communities in interventions aimed at reduction of discrimination, improved adherence to medication, and strengthening of social integration (table 6).^{33,34,90}

Alcohol abuse is growing rapidly in low-income and middle-income countries, especially in men, and contributes to the burden of disease both as a disorder and as a risk factor for more than 60 other health problems, especially injuries.⁹¹ Many people with alcohol-use disorders might not seek health care for their alcohol problem, because of shame, low awareness, or scarcity of established services.⁹² Recognition of alcohol-use disorders tends to be poor in primary-care settings despite the availability of screening instruments that have been validated for use in low-income and middle-income countries.⁹³ Advice and brief counselling delivered by physicians and primary health workers has been shown to reduce consumption and intensity of drinking in men with alcohol-use disorders, especially those who are hazardous drinkers, although its effectiveness for treatment of alcohol dependence, the most severe form of alcohol-abuse disorder, is less certain.^{40,42,91,94} People with alcohol dependence who seek

timely help from specialised treatment programmes, such as inpatient management of withdrawal from alcohol, rehabilitation treatment, and mutual help organisations (eg, Alcoholics Anonymous), have been shown to have better outcomes than those who do not seek help.⁹¹ This evidence, which is almost entirely from high-income countries, does not show that any one intervention approach (for example, pharmacotherapy compared with psychotherapy) is more effective than others.⁹⁴ Opioid antagonists (such as naltrexone) and acamprosate produce a moderate reduction in the rate of relapse to heavy drinking.⁹⁴ A meta-analysis showed that acamprosate produced an overall 13% improvement in 12-month continuous abstinence rates in alcohol-dependent patients.³⁷ Two small randomised controlled trials in low-income and middle-income countries have shown the efficacy of these drugs for the management of alcohol dependence.^{38,39}

Although children comprise between a third and a half of the population in low-income and middle-income countries, little research has focused on interventions for developmental disabilities in childhood, such as mental retardation, autism, and attention deficit hyperactivity disorder.⁹⁵ However, in high-income countries, pharmacological and psychosocial treatments for developmental disabilities including attention deficit hyperactivity disorder,^{46,47,96} mental retardation,^{43,44,51} and autism⁴⁵ have been shown to be effective. A clinical trial from India showed the efficacy of a herbal preparation for management of behavioural and cognitive deficits in children with mental retardation,⁴⁸ and a trial from Brazil showed that methylphenidate was effective for attention deficit hyperactivity disorder.⁴⁹ Although community-based rehabilitation programmes have been actively promoted as feasible and affordable models for treatment of developmental disabilities in low-income and middle-income countries,⁹⁷ trial evidence is scarce

and such programmes can only be accessed by 2% of people in these countries.⁹⁸ Uncontrolled trials of community-based rehabilitation in low-income and middle-income countries show that participants have improved levels of independence (eg, as measured by school attendance).⁵⁵

Prevention

Preventive strategies aim to reduce: the incidence, prevalence, and recurrence of mental disorders; the time spent with symptoms; the risks for such mental illnesses; and the effects of illness on affected people, their families, and society.³ Meta-analytic reviews of controlled trials, almost exclusively from high-income countries, have showed substantial mean effect sizes for preventive trials targeted at depressive symptoms.⁹⁹⁻¹⁰¹ In school-aged children and adolescents, preventive interventions targeted at use of alcohol and drugs are effective.¹⁰² Small to moderate effect sizes have been reported for stress management,¹⁰³ child abuse prevention programmes,¹⁰⁴ and interventions to reduce aggressive behaviour¹⁰⁵ and eating pathology.¹⁰⁶ Group-based parenting interventions are effective for improvement of emotional and behavioural adjustment in children aged under 3 years.¹⁰⁷ Outcome indicators for these studies are mostly observational evidence-based risk factors, psychiatric symptoms, and pathological behaviour.

We excluded six of the 26 primary prevention trials identified in low-income and middle-income countries because information about their outcomes was inadequate. Table 7 shows four randomised controlled trials for prevention of anxiety and depression.¹⁰⁸⁻¹¹¹ In China, a depression prevention programme that educated schoolchildren in positive thinking, conflict management, and decisionmaking skills was effective for reduction of depressive symptoms.¹⁰⁹ A school-based physical exercise programme in Chile reduced anxiety

Design	Sample	Intervention	Comparison group	Results	
Chile ¹⁰⁸	Controlled trial with classes randomly assigned to conditions	198 adolescents from a low socioeconomic status area	Structured school-based physical activity programme, over 1 year, three sessions a week, designed jointly by students and teachers (adult learning approach)	Adolescents of same age, following standard exercise class once a week	Anxiety decreased more in intervention group than controls (13.7% vs 2.8%, $p < 0.01$) and self-esteem increased 2.3% vs -0.1% ($p < 0.0001$). No change in depression score
China ¹⁰⁹	Randomised controlled trial	220 school children at risk for depression, mean age 11.8 (SD 1.69) with subclinical depression	Penn Optimism Programme, 10 weeks of 2 h sessions	No intervention	Children with intervention showed fewer depressive symptoms at post-test ($p < 0.001$) at 3 months ($p < 0.001$), and at 6-months ($p < 0.001$) of follow-up.
Iran ¹¹⁰	Randomised controlled trial	100 nursing students	Educational counselling sessions every week for 12 weeks to reduce anxiety	No intervention	At follow-up intervention nurses showed lower anxiety than controls ($p = 0.003$). Self esteem decreased in control nurses and increased in intervention nurses ($p < 0.001$)
Nigeria ¹¹¹	Randomised controlled trial	33 surgical patients	Self-instructional training (SIT), or rational emotive therapy (RET)	No intervention	SIT reduced anxiety ($p < 0.05$) and RET reduced depression ($p < 0.05$) in comparison to no intervention

Table 7: Trials of interventions for prevention of depressive and anxiety disorders and symptoms in low-income and middle-income countries since 2001

levels, but not depression.¹⁰⁸ One trial, targeted at Iranian nursing students, reported that a one-semester programme of educational counselling every week reduced anxiety in the long term.¹¹⁰ The implications of prevention of work stress and related depression and anxiety problems in nurses in low-income and middle-income countries could be important for health systems in these countries. Another randomised controlled study, of prevention methods in adults at risk for depression and anxiety such as surgical patients,¹¹¹ also reported beneficial effects.

Suicide is a leading cause of death in low-income and middle-income countries, especially in young people.⁵ Controlled studies of suicide prevention in low-income and middle-income countries are scarce.¹¹² In Sri Lanka, a country with very high suicide rates,¹¹³ a community-befriending programme in a rural village¹¹⁴ decreased suicidal behaviour in the intervention village from 13 suicides during the 6-year preimplementation period to no suicides at the end of the time-series trial;¹¹⁴ however, suicides also decreased in the comparison village. Self-poisoning with pesticides is common in low-income and middle-income countries, with estimates of 300 000 deaths a year in the Asia-Pacific region alone.¹¹⁵ However, so far the feasibility or effectiveness of reduction of access to pesticides, or improvement of medical care for pesticide poisoning in low-income or middle-income countries have not been assessed in controlled studies.¹¹⁶ Figures from Argentina, Philippines, and Sri Lanka showed that the number of suicides fell after pesticides were banned or imports were reduced.¹¹⁷ We have reported on the results of a modelling exercise that estimated the number of deaths that could be averted by improvement of depression treatment in China.⁵

We did not identify any trials for the prevention of schizophrenia or other psychotic disorders in low-income or middle-income countries. Although alcohol and drug-misuse are rapidly growing health problems, we identified only one controlled prevention study.¹¹⁸ In China, an unblinded matched community-based trial showed that a programme of participation and action by various community sectors and leaders, which included education in schools, literacy improvement, and employment opportunities, reduced the incidence of drug abuse.¹¹⁸ Control strategies, such as a programme in South Africa consisting of random breath testing and higher taxation, have been shown to be cost-effective for prevention of alcohol abuse.⁹¹ In high-income countries a 10% increase in price can reduce the long-term consumption of alcohol by about 7%, and some data suggest that in low-income countries it could be reduced by about 10%.¹¹⁹ An uncontrolled trial of a community-based programme in rural India that emphasised education and awareness building, action against drunken men, advocacy to politicians to limit the sale and distribution of alcohol in bars and shops, and mass oaths for abstinence reported a 60% reduction in alcohol consumption.¹²⁰

DCP2² summarised evidence for the effectiveness of a range of interventions for primary prevention of childhood developmental disabilities, such as rubella vaccination; fortification of food with iodine and folic acid; prenatal screening for Down's syndrome; prevention of maternal alcohol abuse; and interventions to reduce child abuse.⁹⁸ A meta-analysis showed that iodine supplementation increased IQ level by an average of 12.2 points.¹²¹ An uncontrolled Turkish observational study reported that a short-term mass-media education programme encouraged consumption of iodised salt in regions with high rates of iodine deficiency.¹²² Most prevention studies from low-income and middle-income countries focused on early psychosocial stimulation.¹²³ Five randomised controlled trials in Bangladesh,¹²⁴ Bosnia and Herzegovina,¹²⁵ Jamaica,^{126–128} and Turkey¹²⁹ and two non-randomised controlled trials in Cyprus and Serbia¹³⁰ and Mauritius¹³¹ reported positive outcomes from interventions that aim to enhance early mother-child interaction, parenting, and child mental development through group sessions or home visits. Outcomes with relevance to mental health included improvements in maternal responsiveness, child psychophysiological functioning, cognitive development, problem solving, and self esteem, and reductions in parental distress and maternal depression. Studies in Jamaica showed that addition of psychosocial stimulation to a nutritional intervention not only reduced the development of long-term disabilities in undernourished infants and young children but also prevented the development of depressive and anxiety symptoms in adolescence.^{126,127,128} Nutritional and psychosocial interventions targeted to populations that are vulnerable to developmental disorders, such as undernourished children living in poverty, can help to prevent developmental delays and behavioural disorders in childhood and adolescence.

Mental health interventions during and after emergencies

Although mental disorders are commonly encountered in emergency situations associated with conflict or natural disaster, research about the outcome of interventions done in the midst of such emergencies is rare. Humanitarian agencies now recommend implementation of mental health interventions and psychological support during and after emergencies.¹³² Most research on mental health interventions during acute emergencies has focused on post-traumatic stress disorder. However, there has been much debate about whether it is appropriate to focus on this disorder ahead of other social and mental health problems,^{133,134} such as the problems of people with severe pre-existing mental disorders.^{135,136}

Small-scale studies of discrete traumatic stressors in high-income countries indicate that cognitive behaviour interventions can prevent at least post-traumatic stress disorder.¹³⁷ Similarly, a small study from the midst of a large emergency in Northern Uganda suggested that

	Treatment setting	Treatment coverage (target)	Intervention	Cost-effectiveness range (US\$ per DALY averted)*
Schizophrenia	Hospital outpatient	80%	Older (neuroleptic) antipsychotic drug	\$US 2499–7230
			Newer (atypical) antipsychotic drug	\$US 16 174–20 583
			Older antipsychotic drug+psychosocial treatment	\$US 1743–4847
			Newer antipsychotic drug+psychosocial treatment	\$US 10 232–14 481
Bipolar affective disorder	Hospital outpatient	50%	Older mood stabiliser drug	\$US 1587–5295
			Newer mood stabiliser drug	\$US 2943–6386
			Older mood stabiliser drug and psychosocial treatment	\$US 1545–4928
			Newer mood stabiliser drug and psychosocial treatment	\$US 2765–5908
Depression	Primary health care	50%	Episodic treatment with older (tricyclic) antidepressant drug (TCA)	\$US 478–1288
			Episodic treatment with newer antidepressant drug (SSRI; generic)	\$US 1003–1771
			Episodic psychosocial treatment	\$US 537–1611
			Episodic treatment with older antidepressant drug+psychosocial treatment	\$US 627–1586
			Episodic treatment with newer antidepressant drug+psychosocial treatment	\$US 1140–2101
			Maintenance treatment with older antidepressant drug+psychosocial treatment	\$US 749–1760
			Maintenance treatment with newer antidepressant drug+psychosocial treatment	\$US 1449–2459
Panic disorder	Primary health care	50%	Benzodiazepines	\$US 572–1075
			Older (tricyclic) antidepressant drug (TCA)	\$US 305–619
			Newer antidepressant drug (SSRI; generic)	\$US 567–865
			Psychosocial treatment	\$US 338–927
			Older antidepressant drug and psychosocial treatment	\$US 443–977
			Newer antidepressant drug and psychosocial treatment	\$US 671–1188

DALY=Disability-adjusted life-year. *Range reported for six low-income and middle-income regions.¹⁵⁶

Table 8: Interventions for reduction of mental disorders in low-income countries

behavioural therapy could be effective to treat post-traumatic stress disorder.¹³⁸ Moreover, a programme of early childhood care and education for 5 and 6 year old Bosnian children and their mothers was shown to have many positive effects, including weight gain and improvements in psychosocial functioning in the children.¹²⁵ We need to investigate whether these findings can be extrapolated and used effectively in large-scale emergencies, and especially in low-income settings with few mental health professionals.¹³⁹ A review of qualitative social-science research¹⁴⁰ suggested that various emergency social interventions, which are more easily made available to large numbers of people than are psychological interventions, can be effective. We expect that emergency interventions such as organisation of family reunification, and facilitation of engagement in cultural mourning ceremonies could protect mental health; we need to know whether they could prevent diagnosable mental disorders. Studies in high-income countries suggest that single-session psychological debriefing for post-traumatic stress disorder immediately after trauma is ineffective,¹⁴¹ and a non-randomised controlled study of 69 teenage refugees in Gaza showed that post-traumatic and depressive symptoms did not improve with seven sessions of clinician-facilitated group crisis intervention based on a psychological debriefing protocol.¹⁴² For people in severe acute distress, so-called psychological first aid (consisting of protection from harm, solutions for basic needs and concerns, and provision and raising of social support) has been recommended immediately after trauma.^{143,144} However, research into the outcomes of such interventions is scarce.

Interventions implemented months or years after acute emergencies have been better studied, although not all have been shown to be effective.^{145,146} Studies more than a year after a large earthquake, in Turkey, showed that brief behaviour therapy reduced post-traumatic stress disorder and depression.^{147,148} Moreover, symptoms of post-traumatic stress disorder were reduced in adolescents after an earthquake in Armenia, and in those in post-conflict Bosnia who received school-based psychotherapy for trauma and grief.^{149,150} Importantly, most studies during and after emergencies tend not to assess the effect of the interventions on daily functioning, an outcome variable of key interest to rural communities, in which members typically need to contribute to the community.¹⁵¹ Despite increasing international consensus on good practices,^{132,134} evidence for mental health interventions during and after emergencies needs to be strengthened.

Investment in mental health interventions

Decisions about investment in mental health systems can be based on at least three economic criteria: the economic consequences of no investment; the amount of investment needed to address identified needs; and the cost-effectiveness of investment in relation to competing public-health needs. Moreover, non-economic criteria, such as equitable access to health care, human rights protection, and poverty reduction, might be at least as important within the broader process of setting priorities in mental health.¹⁵² The economic consequences of mental disorders include lost production, premature mortality, and expenditures on ineffective or inappropriate

care outside the formal health-care system. Low levels of health-care coverage and insurance in low-income and middle-income settings mean that these costs fall largely on households. For example, a substantial proportion of the direct and indirect costs of schizophrenia, including treatment with antipsychotic drugs,⁸⁴ are borne out of pocket by families in low-income and middle-income countries.¹⁵³ Excessive health expenditure is strongly associated with depression in women.¹⁵⁴ The economic consequences of not treating mental disorders have only rarely been analysed in low-income and middle-income countries, but a useful indication can be gleaned from baseline assessments carried out as part of a prospective study. For example, three separate mental health economic studies in India showed that most out-of-pocket medical expenses were for informal care sector visits, informal caregiving by household members, and other time and travel costs, and that these costs exceeded the subsequent costs of targeted clinical interventions by public health-care providers.^{16,155,156}

Because mental health expenditure in most low-income and middle-income countries is very low, the cost of dramatic increases to provide appropriate care or prevention to populations in need will be large, and a process of gradual, stepwise increase is likely to be economically more feasible. We have estimated the financial costs of scaling-up effective interventions for mental health care in low-income and middle-income countries in another article in this Series.¹⁵⁷ The DCP2 report¹ identified a basic mental health care package, which consisted of outpatient-based treatment of schizophrenia and bipolar disorder with first generation antipsychotic or mood stabilising drugs and adjuvant psychosocial treatment; proactive care of depression in primary care with generic selective serotonin reuptake inhibitors (SSRIs) and maintenance treatment of recurrent episodes; and treatment of panic disorder in primary care with generic SSRIs (table 8).¹⁵⁸ The report estimated the cost of such a package per head of population per year as US\$3–4 in sub-Saharan Africa and south Asia, and \$7–9 in Latin America and the Caribbean. The addition of brief interventions by primary care physicians for high-risk alcohol users was estimated to cost an additional 0·04\$ per head in south Asia and sub-Saharan Africa and 0·36\$ per head in central Asia and Latin America.⁹¹ Available data are not sufficient to allow estimation of the costs of treatment for child mental disorders in low-income and middle-income countries.⁹⁸

In India, two separate studies estimated the cost of episodic treatment of depression with antidepressants in primary care to be equivalent to about US\$20–40 for a 6-month treatment episode.^{16,155} An analysis for the southeast Asian region put the 6-month cost of treatment at \$30–60 for tricyclic antidepressants and \$60–80 for SSRIs,¹⁵⁹ although the price of generic SSRIs has fallen since then. Investment for treatment and care of severe mental disorders is expected to be greater (at least \$25 per

person per month, even with low-cost treatment strategies¹⁵⁸).

Returns on actual or potential investment are usually expressed in terms of improvements in health (with occasional references to non-health benefits such as increased rates of employment or productivity) and cost

Panel 1: A model of community-based rehabilitation for chronic schizophrenia in rural India¹⁶⁸

Community-based rehabilitation addresses the needs of people with disabilities as an integral part of overall community development efforts. Its goal is the rehabilitation, social inclusion, and equalisation of opportunities for people with disabilities, and it is implemented through the combined efforts of disabled people; their families and communities; and the appropriate health, vocational, and social services. The principles of community-based rehabilitation, specifically the use of local human resources and involvement of patients, families, and local communities, were adapted to complement the specialist services for psychotic disorders to improve access, equity, and acceptability of the interventions in a very disadvantaged part of rural India.¹⁶⁸ Local members of the community were trained as community-based rehabilitation workers to deliver comprehensive, home-based services, such as identification of people with chronic schizophrenia; access to the clinical team in outreach clinics (figure 1); regular follow-up; monitoring compliance; education for disabled people and their families (figure 2); and planning of rehabilitation interventions. In addition, concerted efforts were made to promote awareness, address stigma, and facilitate economic and social rehabilitation. In most villages, families of mentally ill people and other concerned members also formed self-help groups to promote the social and economic reintegration of local members with severe mental disorders. The clinical and disability outcomes for clients within the community-based rehabilitation programme were better compared to clients who received outpatient care alone; superior medication compliance played an important role in mediation of these effects. This approach to service delivery had a focus on empowerment of clients, mobilisation of existing community resources, intersectoral linkages (welfare, local government, and health sectors), and a human rights perspective. The success of community-based rehabilitation has prompted the district-health committee of the district government, in partnership with a non-governmental organisation, to include mental-health services in their planning and budgeting exercise with a view to scaling up the programme to the entire district.



Figure 1: An outreach camp at a local primary health subcentre



Figure 2: Mental health workers meet with patients and their families

effectiveness (such as the cost per day or year of healthy life gained by implementation). For example, a Chilean trial¹⁵ calculated with 90% probability that the incremental cost of an extra depression-free day with an intervention to treat depression would not exceed the equivalent of US\$1.04.¹⁶⁰ Economic analysis can provide decisionmakers with information to support prudent investment choices, whether for the mental health system or for the health sector in general. For example, the higher cost of new antipsychotic drugs means they are less cost effective than the equally effective older drugs in low-income and middle-income countries. Pharmacological treatment for depression is estimated to yield 20–22 disability-free days or 0.06 disability-adjusted life-years for each treated

Panel 2: Scaling-up a primary care depression programme in Chile

Depression is common in Chile, especially in women and the poor.^{170–172} A treatment programme for depressed women in primary care¹⁵ was shown to be efficacious and cost effective, and has been adopted for Chile's national primary care programme. The number of patients treated in this programme has increased exponentially, and reached 141 000 in 2005.¹⁷³ The programme has a low rate of referrals to secondary mental-health care, even though about 80% of cases of depression treated in primary care present with moderate or severe depression. The number of psychologists working in primary care has increased almost four-fold, which has begun to redress socioeconomic inequalities in the provision of mental-health services.¹⁷⁴ In 2005, the Chilean government introduced a new initiative—the Universal Access and Explicit Guarantees—to ensure that all people with depression, irrespective of their health insurance, would be entitled to a basic treatment package.

6-month episode.¹⁵⁹ Based on treatment costs of \$30–60, the cost-effectiveness ratios for low-income settings are about US\$500–1000 per averted disability-adjusted life-year. This amount of investment for a healthy year of life seems unfavourable relative to, for example, vaccination programmes or tuberculosis control, but when compared with interventions for other chronic disorders, treatments for common mental disorders are about as cost-effective as antiretroviral treatments for HIV/AIDS, secondary prevention of hypertension, or glycaemic control for diabetes. These findings do not incorporate other economic benefits of mental health care such as reductions in inappropriate use of health care, absence from work due to sickness, and premature mortality, which could even outweigh the investment costs.¹⁶¹

Implications for policy and practice

We conclude that effective, locally feasible, and affordable treatments for depression and schizophrenia in low-income and middle-income countries do exist; however, less evidence exists for the effectiveness of interventions to treat developmental disabilities in childhood or alcohol-use disorders. Evidence suggests that social interventions to support mental health in the midst of emergencies might be effective, as might social interventions for the prevention of depression, substance abuse, and delays in child development. However, most of the evidence for the prevention of mental disorders in adults is from high-income countries.

Although many mental health programmes have incorporated such evidence and achieved local success, few have been systematically scaled up to serve the needs of regional or national populations and even fewer have undergone systematic assessments of their effectiveness in the real world. Thus, despite the increasing array of treatments for mental health, evidence for their feasibility and effectiveness when integrated into routine care settings in low-income and middle-income countries is lacking.¹⁶² Furthermore, most available evidence does not reflect the burden of disease or cost-effectiveness: tables 1, 2, and 3 show that the smallest evidence base comes from the poorest countries, most trials focus on a narrow range of mental disorders, and most assess only pharmacological interventions. Thus, most of the evidence is of limited relevance for mental health care in low-income and middle-income countries. A small, but important and growing, evidence base supports the effectiveness of integration of mental health care into routine health-care programmes, such as primary care^{163–167} and extension of community care^{156,168} (see panel 1), though more evidence is needed. Most mental health systems in the world are dominated by large custodial psychiatric hospitals that squander resources on ineffective and inappropriate interventions. Furthermore, attempts to create national integrated primary care or community-care programmes have often not lived up to initial expectations.^{82,167}

We recommend that, at the very least, governments should consider scaling up the coverage of mental health interventions for which there is credible evidence of effectiveness.¹⁵⁷ The process of scaling up such interventions in poorly resourced settings will be hindered by barriers such as scarce financial, human, and technical resources and other health needs (eg, HIV/AIDS, tuberculosis, and malaria) that compete for priority.¹⁶⁹

Optimism arises from examples such as the intervention used in the treatment of depression in primary health care in Chile,¹⁵ which has become the model for a national depression treatment programme (panel 2).¹⁷³ The programmes of non-governmental organisations (NGOs), such as the Schizophrenia Research Foundation and Basic Needs, provide integrated models for care of people with schizophrenia.¹⁷⁵ WHO projects in a number of countries are developing accessible mental health services as a vehicle to deliver effective interventions.^{176,177}

One of the three strategies we call for is research to inform the scaling-up of interventions for mental disorders in low-income and middle-income countries.¹⁵⁷ Such research needs to be retargeted to the needs of low-income and middle-income countries, not only to inform health policy in these countries, but also to demonstrate to high-income countries that interventions that rely on non-specialist health workers and low-cost technologies and strategies can deliver equally effective mental health interventions.¹⁷⁸ Future research should examine not only the clinical benefits of such interventions for individuals and families, but also operational factors that affect their delivery and their effects on the wellbeing of entire communities; for example, by improvements to performance of schoolchildren, reduction of suicide rates, or reduction of inappropriate use of health services.¹⁷⁹ We must take seriously the need for evidence that mental health services represent a social investment and not simply another expense item on a health budget.

The need for more research must not be used as an excuse to delay scaling-up of mental health systems. We believe that the old pretence that overstretched and inefficiently used resources can take on a greater burden of care by integration of mental health into primary care must be abandoned. We must explore radical options such as the recruitment of a new group of health workers whose role is to facilitate the detection of chronic diseases, including mental disorders, and the delivery of psychosocial interventions. In addition, we need arguments for the moral or ethical imperative to extend mental health care services, based on human rights and social responsibility.¹⁸⁰ Put simply, people are entitled to receive help when ill. We have identified good evidence for what that help might comprise for people with poor mental health.

Contributors

All authors have participated in the data analysis and reporting stage of this manuscript, and seen and approved the final version.

Conflict of interest statement

We declare that we have no conflict of interest.

Acknowledgments

VP is supported by a Wellcome Trust Senior Clinical Research Fellowship in Tropical Medicine. MDS is supported by an ESRC/MRC Interdisciplinary Fellowship. *The Lancet* global mental health Series is supported by a grant from the John T & Catherine D MacArthur Foundation. We thank Marko Ekqvist, from the STAKES National Research & Development Centre of Welfare & Health, Finland; Michaela Rohr and Dr Jodi Morris for their help and advice with systematic searches; and the members of the *Lancet* Global Mental Health Group for comments on earlier versions of this review. The views expressed in this review are those of the authors and not necessarily those of the institutions which they serve. MvO and DC are employees of WHO; the views expressed in this article do not necessarily represent the decisions, policy, or views of WHO.

References

- 1 Jamison D, Breman J, Measham A, et al. eds. Disease control priorities in developing countries (2nd edition). Washington, USA: Oxford University Press & The World Bank, 2006.
- 2 WHO. The World Health Report 2001: Mental health: new understanding, new hope. Geneva, Switzerland: World Health Organization, 2001.
- 3 World Health Organization. Prevention of mental disorders: effective interventions and policy implications. Geneva: WHO, 2004.
- 4 Saxena S, Jane-Llopis E, Hosman C. Prevention of mental and behavioral disorders: implications for policy and practice. *World Psychiatry* 2006; 5 (1): 5–14.
- 5 Prince M, Patel V, Saxena S, et al. No health without mental health. *Lancet* 2007; published online Sept 4. DOI:10.1016/S0140-6736(07)61238-0.
- 6 Saxena S, Thornicroft G, Knapp M, Whiteford H. Resources for mental health: scarcity, inequity and inefficiency. *Lancet* 2007; published online Sept 4. DOI:10.1016/S0140-6736(07)61239-2.
- 7 Saxena S, Paraje G, Sharan P, Karam G, Sadana R. The 10/90 divide in mental health research: trends over a 10-year period. *Br J Psychiatry* 2006; 188: 81–82.
- 8 Patel V, Kim YR. Contribution of low- and middle-income countries to research published in leading general psychiatry journals, 2002–2004. *Br J Psychiatry* 2007; 190: 77–78.
- 9 Patel V. The need for treatment evidence for common mental disorders in developing countries. *Psychol Med* 2000; 30: 743–746.
- 10 MacGillivray S, Arroll B, Hatcher S, et al. Efficacy and tolerability of selective serotonin reuptake inhibitors compared with tricyclic antidepressants in depression treated in primary care: Systematic review and meta-analysis. *BMJ* 2003; 326: 1014–17.
- 11 Mottram P, Wilson K, Strobl J. Antidepressants for depressed elderly. Chichester, UK: John Wiley & Sons Ltd, 2006.
- 12 National Institute of Clinical Excellence. Depression: management of depression in primary and secondary care. London: NICE, 2004.
- 13 Casacalenda N, Perry CJ, Looper K. Remission in major depressive disorder: a comparison of pharmacotherapy, psychotherapy, and control conditions. *Am J Psychiatry* 2002; 159: 1354–60.
- 14 Pampallona S, Bollini P, Tibaldi G, Kupelnick B, Munizza C. Combined pharmacotherapy and psychological treatment for depression: a systematic review. *Arch Gen Psych* 2004; 61: 714–19.
- 15 Araya R, Rojas G, Fritsch R, et al. Treating depression in primary care in low-income women in Santiago, Chile: a randomised controlled trial. *Lancet* 2003; 361: 995–1000.
- 16 Patel V, Chisholm D, Rabe-Hesketh S, Dias-Saxena F, Andrew G, Mann A. The efficacy and cost-effectiveness of a drug and psychological treatment for common mental disorders in general health care in Goa, India: a randomised controlled trial. *Lancet* 2003; 361: 33–39.
- 17 Liu P, He FF, Bai WP, et al. Menopausal depression: comparison of hormone replacement therapy and hormone replacement therapy plus fluoxetine. *Chin Med J* 2004; 117: 189–94.

For more on these NGOs see
www.scarfindia.org and
www.basicneeds.org

- 18 Churchill R, Hunot V, Corney R, et al. A systematic review of controlled trials of the effectiveness and cost-effectiveness of brief psychological treatments for depression. *Health Technol Assess* 2001; **5**: 1–173.
- 19 Ali BS, Rahbar M, Naeem S, Gul A, Mubeen S, Iqbal A. The effectiveness of counseling on anxiety and depression by minimally trained counselors. *Am J Psychotherapy* 2003; **57**: 324–36.
- 20 Bass J, Neugebauer R, Clougherty KF, et al. Group interpersonal psychotherapy for depression in rural Uganda: 6-month outcomes: randomised controlled trial. *Br J Psychiatry* 2006; **188**: 567–73.
- 21 Bolton P, Bass J, Neugebauer R, et al. Group interpersonal psychotherapy for depression in rural Uganda. *JAMA* 2003; **289**: 3117–24.
- 22 Joy CB, Adams CE, Lawrie SM. Haloperidol versus placebo for schizophrenia. *Cochrane Database Syst Rev* 2006; **4**: CD003082.
- 23 Thornley B, Rathbone J, Adams CE, Awad G. Chlorpromazine versus placebo for schizophrenia. *Cochrane Database Syst Rev* 2003; **2**: CD000284.
- 24 Hunter RH, Joy CB, Kennedy E, Gilbody SM, Song F. Risperidone versus typical antipsychotic medication for schizophrenia. *Cochrane Database Syst Rev* 2003; **2**: CD000440.
- 25 Rummel C, Hamann J, Kissling W, Leucht. New generation antipsychotics for first episode schizophrenia. *Cochrane Database Syst Rev* 2003; **4**: CD004410.
- 26 Moncrieff J. Clozapine v. conventional antipsychotic drugs for treatment-resistant schizophrenia: a re-examination. *Br J Psychiatry* 2003; **183**: 161–6.
- 27 Lieberman JA, Phillips M, Gu H, et al. Atypical and conventional antipsychotic drugs in treatment-naive first-episode schizophrenia: a 52-week randomized trial of clozapine vs chlorpromazine. *Neuropsychopharmacology* 2003; **28**: 995–1003.
- 28 El-Sayeh HG, Morgani C. Aripiprazole for schizophrenia. *Cochrane Database Syst Rev* 2006; **2**: CD004578.
- 29 Lieberman J, Tollefson G, Tohen M, et al. Comparative efficacy and safety of atypical and conventional antipsychotic drugs in first-episode psychosis: a randomized, double-blind trial of olanzapine versus haloperidol. *Am J Psychiatry* 2003; **160**: 1396–404.
- 30 Marshall M, Lockwood A. Assertive community treatment for people with severe mental disorders. *Cochrane Database Syst Rev* 1998; **2**: CD001089.
- 31 Chilvers R, Macdonald GM, Hayes AA. Supported housing for people with severe mental disorders. *Cochrane Database Syst Rev* 2006; **4**: CD000453.
- 32 Crowther R, Marshall M, Bond G, Huxley P. Vocational rehabilitation for people with severe mental illness. *Cochrane Database of Systematic Reviews* 2001; **2**: CD003080.
- 33 Li Z, Arthur D. Family education for people with schizophrenia in Beijing, China: randomised controlled trial. *Br J Psychiatry* 2005; **187**: 339–45.
- 34 Ran MS, Xiang MZ, Chan CL, et al. Effectiveness of psychoeducational intervention for rural Chinese families experiencing schizophrenia—a randomised controlled trial. *Soc Psychiatry Psychiatr Epidemiol* 2003; **38** (2): 69–75.
- 35 Chien WT, Chan SW, Thompson DR. Effects of a mutual support group for families of Chinese people with schizophrenia: 18-month follow-up. *Br J Psychiatry* 2006; **189**: 41–9.
- 36 Srisurapanont M, Jarusuraisin N. Opioid antagonists for alcohol dependence. *Cochrane Database Syst Rev* 2005; **1**: CD001867.
- 37 Garbutt JC, West SL, Carey TS, Lohr KN, Crews FT. Pharmacological treatment of alcohol dependence: a review of the evidence. *JAMA* 1999; **281**: 1318–25.
- 38 Mann K, Leher P, Morgan MY. The efficacy of acamprosate in the maintenance of abstinence in alcohol-dependent individuals: results of a meta-analysis. *Alcohol Clin Exp Res* 2004; **28**: 51–63.
- 39 Baltieri DA, de Andrade AG. Efficacy of acamprosate in the treatment of alcohol-dependent outpatients. *Rev Bras Psiquiatr* 2003; **25**: 156–9.
- 40 Ahmadi J, Ahmadi N. A double-blind controlled study of naltrexone in the treatment of alcohol dependence. *German J Psychiatry* 2002; **5**: 85–9.
- 41 Moyer A, Finney JW, Swearingen CE, Vergun P. Brief interventions for alcohol problems: a meta-analytic review of controlled investigations in treatment-seeking and non-treatment-seeking populations. *Addiction* 2002; **97**: 279–92.
- 42 Fiellin DA, Reid MC, O'Connor PG. Screening for alcohol problems in primary care: a systematic review. *Arch Intern Med* 2000; **160**: 1977–89.
- 43 Babor TF, Grant M, Acuda W, et al. A randomized clinical trial of brief interventions in primary care: summary of a WHO project. *Addiction* 1994; **89**: 657–60; discussion 660–78.
- 44 Aman MG, De Smedt G, Derivan A, Lyons B, Findling RL. Double-blind, placebo-controlled study of risperidone for the treatment of disruptive behaviors in children with subaverage intelligence. *Am J Psychiatry* 2002; **159**: 1337–46.
- 45 Buitelaar JK, van der Gaag RJ, Cohen-Kettenis P, Melman CT. A randomized controlled trial of risperidone in the treatment of aggression in hospitalized adolescents with subaverage cognitive abilities. *J Clin Psychiatry* 2001; **62**: 239–48.
- 46 Jesner O, Aref-Adib M, Coren E. Risperidone for autism spectrum disorder. *Cochrane Database Syst Rev* 2007; **1**: CD005040.
- 47 Klassen A, Miller A, Raina P, Lee SK, Olsen L. Attention-deficit hyperactivity disorder in children and youth: a quantitative systematic review of the efficacy of different management strategies. *Can J Psychiatry* 1999; **44**: 1007–16.
- 48 Gilmore A, Milne R. Methylphenidate in children with hyperactivity: review and cost-utility analysis. *Pharmacoeconom Drug Saf* 2001; **10**: 85–94.
- 49 Dave UP, Chauhan V, Dalvi J. Evaluation of BR-16 A (Mentat) in cognitive and behavioural dysfunction of mentally retarded children—a placebo-controlled study. *Indian J Pediatr* 1993; **60**: 423–28.
- 50 Szobot CM, Ketzner C, Parente MA, Biederman J, Rohde LA. The acute effect of methylphenidate in Brazilian male children and adolescents with ADHD: a randomized clinical trial. *J Atten Disord* 2004; **8**: 37–43.
- 51 Didden R, Duker PC, Korzilius H. Meta-analytic study on treatment effectiveness for problem behaviors with individuals who have mental retardation. *Am J Ment Retard* 1997; **101**: 387–99.
- 52 Hassiotis A, Hall I. Behavioural and cognitive-behavioural interventions for outwardly-directed aggressive behaviour in people with learning disabilities. *Cochrane Database Syst Rev* 2004; **4**: CD003406.
- 53 Prout HT, Nowak-Drabik KM. Psychotherapy with persons who have mental retardation: an evaluation of effectiveness. *Am J Ment Retard* 2003; **108**: 82–93.
- 54 Russell PS, al John JK, Lakshmanan JL. Family intervention for intellectually disabled children. Randomised controlled trial. *Br J Psychiatry* 1999; **174**: 254–58.
- 55 Young L. Community and cluster centre residential services for adults with intellectual disability: long-term results from an Australian-matched sample. *J Intellect Disabil Res* 2006; **50** (Pt 6): 419–31.
- 56 Lundgren-Lindquist B, Nordholm LA. The impact of community-based rehabilitation as perceived by disabled people in a village in Botswana. *Disabil Rehabil* 1996; **18**: 329–34.
- 57 O'Toole B. A community-based rehabilitation programme for pre-school disabled children in Guyana. *Int J Rehabil Res* 1988; **11**: 323–34.
- 58 Lagerkvist B. Community-based rehabilitation—outcome for the disabled in the Philippines and Zimbabwe. *Disabil Rehabil* 1992; **14**: 44–50.
- 59 Lopez A, Mathers C, Ezzati M, Jamison D, Murray C. Global burden of disease and risk factors. Washington, USA: Oxford University Press and the World Bank, 2006.
- 60 Brazil Country Management Unit. Addressing the challenge of non-communicable diseases in Brazil. Washington, DC, USA: World Bank, 2005.
- 61 Ministerio de Salud. Health situation in Chile 1996. Santiago: Ministerio de Salud, 1996.
- 62 Goldberg D, Huxley P. Common mental disorders: a biosocial model. London: Tavistock/Routledge, 1992.
- 63 Lara MA, Navarro C, Navarette L, Mondragon L, Rubi NA. Two-year follow-up of a psycho-educational intervention for women with depressive symptoms in health services for open population. *Salud Mental* 2003; **26**: 27–36.
- 64 Lara MA, Navarro C, Rubi NA, Mondragon L. Outcome results of two levels of intervention in low-income women with depressive symptoms. *Am J Orthopsychiatry* 2003; **73**: 35–43.

- 65 Waitzkin H, Iriart C, Estrada A, Lamadrid S. Social medicine in Latin America: productivity and dangers facing the major national groups. *Lancet* 2001; **358**: 315–23.
- 66 Manandhar DS, Osrin D, Shrestha BP, et al. Effect of a participatory intervention with women's groups on birth outcomes in Nepal: a cluster-randomised controlled trial. *Lancet* 2004; **364**: 970–79.
- 67 Hou YM, Kang B, Lin JD, Zou XB. Combined cognitive therapy with fluoxetine hydrochloride on patients with senile depressive neurosis in open wards: A randomized controlled study. *Chinese Journal of Clinical Rehabilitation* 2003; **7**: 4105–07.
- 68 Qiu CL, Xiao B, and Xie WJ. A controlled clinical trial of citalopram and citalopram combined with psychotherapy in the treatment of postpartum depression. *Chinese Mental Health Journal* 2005; **19**: 847–48.
- 69 Jin Z, Chang Y, Sun B, Liu Y. A comparative study of drug and psychotherapy in the treatment of depressive disorder. *Chin J Clin Psychol* 2001; **9**: 56–57.
- 70 Kaz'mina O, Oleichik IV, Zeziulia TN, Krylova ES. Cognitive behavioural therapy of residual symptoms in patients with juvenile depression. *Zh Nevrol Psikhiatr Im S S Korsakova* 2002; **102**: 22–25.
- 71 Heh SS, Fu Y. Effectiveness of informational support in reducing the severity of postnatal depression in Taiwan. *J Adv Nurs* 2003; **42**: 30–36.
- 72 Ouyang W. The effects of sports training with cognitive therapy about mild depression in university students. *Chin J Clin Psychol* 2001; **9**: 113–14.
- 73 Lopez Rodriguez J, Lopez Butron MA, Vargas Terrez BE, Villamil Salcedo V. Double blind study with antidepressant, brief psychotherapy and placebo in patients with mild to moderate depression. *Salud Mental* 2004; **27**: 53–61.
- 74 Sumathipala A, Hewege S, Hanwella R, Mann H. Randomized controlled trial of cognitive behaviour therapy for repeated consultations for medically unexplained complaints: a feasibility study in Sri Lanka. *Psychol Med* 2000; **30**: 747–57.
- 75 Meyer JM, Nasrallah HA, McEvoy JP, et al. The Clinical Antipsychotic Trials Of Intervention Effectiveness (CATIE) Schizophrenia Trial: clinical comparison of subgroups with and without the metabolic syndrome. *Schizophr Res* 2005; **80**: 9–18.
- 76 Mitchell AJ, Malone D. Physical health and schizophrenia. *Curr Opin Psychiatry* 2006; **19**: 432–37.
- 77 Weaver T, Madden P, Charles V, et al. Comorbidity of substance misuse and mental illness in community mental health and substance misuse services. *Br J Psychiatry* 2003; **183**: 304–13.
- 78 Thornicroft G, Tansella M. Components of a modern mental health service: a pragmatic balance of community and hospital care: overview of systematic evidence. *Br J Psychiatry* 2004; **185**: 283–90.
- 79 Lester H, Tait L, England E, Tritter J. Patient involvement in primary care mental health: a focus group study. *Br J Gen Pract* 2006; **56**: 415–22.
- 80 Tait I, Lester H. Encouraging user involvement in mental health services. *Advances in Psychiatric Treatment* 2005; **11**: 168–75.
- 81 Jones PB, Barnes TR, Davies L, et al. Randomized controlled trial of the effect on Quality of Life of second- vs first-generation antipsychotic drugs in schizophrenia: Cost Utility of the Latest Antipsychotic Drugs in Schizophrenia Study (CULASS 1). *Arch Gen Psychiatry* 2006; **63**: 1079–87.
- 82 Kohn R, Saxena S, Levav I, Saraceno B. The treatment gap in mental health care. *Bull World Health Organ* 2004; **82**: 858–66.
- 83 Jacob KS. Community Care For People With Mental Disorders in Developing Countries. Problems and Possible Solutions. *Br J Psychiatry* 2001; **178**: 296–98.
- 84 Oosthuizen P, Emsley RA, Keyter N, Niehaus DJ, Koen L. Duration of untreated psychosis and outcome in first-episode psychosis. Perspective from a developing country. *Acta Psychiatr Scand* 2005; **111**: 214–19.
- 85 Grover S, Avasthi A, Chakrabarti S, Bhansali A, Kulhara P. Cost of care of schizophrenia: a study of Indian out-patient attenders. *Acta Psychiatr Scand* 2005; **112**: 54–63.
- 86 Kebede D, Alem A, Shibire T, et al. Short-term symptomatic and functional outcomes of schizophrenia in Butajira, Ethiopia. *Schizophr Res* 2005; **78**: 171–85.
- 87 Kurihara T, Kato M, Reverger R, Tirta IG. Eleven-year clinical outcome of schizophrenia in Bali. *Acta Psychiatr Scand* 2005; **112**: 456–62.
- 88 Patel V, Cohen A, Thara R, Gureje O. Is the outcome of schizophrenia really better in developing countries? *Revista Brasileira de Psiquiatria* 2006; **28**: 149–52.
- 89 Xiang M, Ran M, Li S. A controlled evaluation of psychoeducational family intervention in a rural Chinese community. *Br J Psychiatry* 1994; **165**: 544–48.
- 90 Xiang YT, Weng YZ, Li WY, et al. Efficacy of the community re-entry module for patients with schizophrenia in Beijing, China: outcome at 2-year follow-up. *Br J Psychiatry* 2007; **190**: 49–56.
- 91 Rehm J, Chisholm D, Room R, Lopez A. Alcohol. In: Jamison D, Breman J, Measham A, et al., eds. Disease control priorities in developing countries (2nd edn). New York: Oxford University Press, 2006: 887–906.
- 92 Pal HR, Yadav S, Joy PS, Mehta S, Ray R. Treatment nonseeking in alcohol users: a community-based study from North India. *J Stud Alcohol* 2003; **64**: 631–33.
- 93 Babor TF, Grant M. Programme on Substance Abuse. Project on identification and management of alcohol-related problems. Geneva, Switzerland: World Health Organization, 1992.
- 94 Room R, Babor T, Rehm J. Alcohol and public health. *Lancet* 2005; **365**: 519–30.
- 95 Remschmidt H, Belfer M. Mental health care for children and adolescents worldwide: a review. *World Psychiatry* 2005; **4**: 147–53.
- 96 Remschmidt H. Global consensus on ADHD/HKD. *Eur Child Adolesc Psychiatry* 2005; **14**: 127–37.
- 97 Institute of Medicine. Neurological, Psychiatric and Developmental Disorders: meeting the challenge in the developing world. Washington: National Academy Press, 2001.
- 98 Durkin M, Schneider H, Pathania V, et al. Learning and developmental disabilities. In: Jamison D, Breman J, Measham A, et al., eds. Disease Control Priorities in Developing Countries (2nd edn). New York: Oxford University Press, 2006: 933–952.
- 99 Horowitz JL, Garber J. The prevention of depressive symptoms in children and adolescents: a meta-analytic review. *J Consult Clin Psychol* 2006; **74**: 401–15.
- 100 Jane-Llopis E, Hosman C, Jenkins R, Anderson P. Predictors of efficacy in depression prevention programmes. Meta-analysis. *Br J Psychiatry* 2003; **183**: 384–97.
- 101 Merry S, McDowell H, Hetrick S, Bir J, Muller N. Psychological and/or educational interventions for the prevention of depression in children and adolescents. *Cochrane Database Syst Rev* 2004; **2**: CD003380.
- 102 Tobler NS, Stratton HH. Effectiveness of school-based drug prevention programs: A meta-analysis of the research. *J Prim Prev* 1997; **18**: 71–128.
- 103 Kraag G, Zeegers MP, Kok, G, Hosman C, Abu-Saad HH. School programs targeting stress management in children and adolescents: A meta-analysis. *J Sch Psychol* 2006; **44**: 449–72.
- 104 Davis M K, Gidycz C. Child sexual abuse prevention programs: a meta-analysis. *J Clin Child Psychol* 2000; **29**: 257–65.
- 105 Mytton J, DiGiuseppe C, Gough D, Taylor R, Logan S. School-based secondary prevention programmes for preventing violence. *Cochrane Database Syst Rev* 2006; **3**: CD004606.
- 106 Stice E, Shaw H. Eating disorder prevention programs: A meta-analytic review. *Psychol Bull* 2004; **130**: 206–27.
- 107 Barlow J, Parsons J. Group-based parent-training programmes for improving emotional and behavioural adjustment in 0–3 year old children. *Cochrane Database Syst Rev* 2003; **2**: CD003680.
- 108 Bonhauser M, Fernandez G, Puschel K, et al. Improving physical fitness and emotional well-being in adolescents of low socioeconomic status in Chile: results of a school-based controlled trial. *Health Promot Int* 2005; **20**: 113–22.
- 109 Yu DL, Seligman ME. Preventing depressive symptoms in Chinese children. *Prevention and Treatment* 2002; **5**: 9.
- 110 Sharif F, Armitage P. The effect of psychological and educational counselling in reducing anxiety in nursing students. *J Psychiatr Ment Health Nurs* 2004; **11**: 386–392.
- 111 Osinowo HO, Olley B, Adejumo AO. Evaluation of the effect of cognitive therapy on perioperative anxiety and depression among Nigerian surgical patients. *West-African J Med* 2003; **22**: 338–342.

- 112 Mann J, Apter A, Bertolote J, et al. Suicide prevention strategies: a systematic review. *JAMA* 2005; **294**: 2064–74.
- 113 Eddleston M, Rezvi Sheriff MH, Hawton K. Deliberate Self-Harm in Sri Lanka: an overlooked tragedy in the developing world. *BMJ* 1998; **317**: 133–35.
- 114 Goldney RD. Suicide prevention: a pragmatic review of recent studies. *Crisis* 2005; **26**: 128–40.
- 115 Gunnell D, Eddleston M. Suicide by intentional ingestion of pesticides: A continuing tragedy in developing countries. *Int J Epidemiol* 2003; **32**: 902–09.
- 116 Konradsen F, Dawson A, Eddleston M, Gunnell D. Pesticide self-poisoning: thinking outside the box. *Lancet* 2007; **369**: 169–70.
- 117 Konradsen F, van der Hoek W, Cole DC, et al. Reducing acute poisoning in developing countries: options for restricting the availability of pesticides. *Toxicology* 2003; **192**: 249–61.
- 118 Wu Z, Detels R, Zhang J, Li V, Li J. Community base trial to prevent drug use amongst youth in Yunnan, China. *Am J Public Health* 2002; **92**: 1952–57.
- 119 Babor TF, Caetano R, Casswell S, et al. Alcohol: no ordinary commodity. Research and Public Policy. Oxford: Oxford Medical Publication, Oxford University Press, 2003.
- 120 Bang A, Bang R. Community participation in research and action against alcoholism. *World Health Forum* 1991; **12**: 104–09.
- 121 Qian M, Yan Y, Chen Z, Wang D. Meta-analysis on the relationship between children's intelligence and factors as iodine deficiency, supplement iodine and excessive iodine. *Zhonghua-Liu-Xing-Bing-Xue-Za-Zhi* 2002; **23**: 246–49.
- 122 Can G, Okten A, Green J. The role of local mass media in promoting the consumption of iodized table salt. *Health Educ Res* 2001; **16**: 603–08.
- 123 Engle P, Black M, Behrman J, et al. Strategies to avoid the loss of developmental potential in more than 200 million children in the developing world. *Lancet* 2007; **369**: 229–42.
- 124 Hamadani JD, Huda SN, Khatun F, Grantham-McGregor SM. Psychosocial stimulation improves the development of undernourished children in rural Bangladesh. *J Nutr* 2006; **136**: 2645–52.
- 125 Dybdahl R. A psychosocial support programme for children and mothers in war. *Clin Child Psychol Psychiatry* 2001; **6**: 425–36.
- 126 Gardner JM, Walker SP, Powell CA, Grantham-McGregor S. A randomized controlled trial of a home-visiting intervention on cognition and behavior in term low birth weight infants. *J Pediatr* 2003; **143**: 634–39.
- 127 Walker SP, Chang SM, Powell CA, Grantham-McGregor SM. Effects of early childhood psychosocial stimulation and nutritional supplementation on cognition and education in growth-stunted Jamaican children: prospective cohort study. *Lancet* 2005; **366**: 1804–07.
- 128 Walker SP, Chang SM, Powell CA, Simonoff E, Grantham-McGregor SM. Effects of psychosocial stimulation and dietary supplementation in early childhood on psychosocial functioning in late adolescence: follow-up of randomised controlled trial. *BMJ* 2006; **333**: 472.
- 129 Kagitcibasi C, Sunar D, Bekman S. Long-term effects of early intervention: Turkish low-income mothers and children. *J Appl Dev Psychol* 2001; **22**: 333–61.
- 130 Puura K, Davis H, Mantymaa M, et al. The outcome of the European early promotion project: mother-child interaction. *Int J Mental Health Promotion* 2005; **7**: 82–94.
- 131 Raine A VP, Dalais C, Mellingen K, Reynolds C, Mednick SA. Early educational and health enrichment at age 3–5 years is associated with increased autonomic and central nervous system arousal and orienting at age 11 years: evidence from the Mauritius Child Health Project. *Psychophysiol* 2001; **38**: 254–66.
- 132 Inter-agency Standing Committee (IASC). IASC guidelines on mental health and psychosocial support in emergency settings. Geneva, Switzerland: IASC, 2007.
- 133 Summerfield D. The invention of post-traumatic stress disorder and the social usefulness of a psychiatric category. *BMJ* 2001; **322**: 95–98.
- 134 van Ommeren M, Saxena S, Saraceno B. Mental and social health during and after acute emergencies: emerging consensus? *Bull World Health Organ* 2005; **83**: 71–75.
- 135 Jones L, Rrustemi A, Shahini M, Uka A. Mental health services for war-affected children—Report of a survey in Kosovo. *Br J Psychiatry* 2003; **183**: 540.
- 136 Silove D, Manicavasagar V, Baker K, et al. Indices of social risk among first attenders of an emergency mental health service in post-conflict East Timor: an exploratory investigation. *Aus N Z J Psychiatry* 2004; **38**: 929.
- 137 Bryant RA, Moulds ML, Nixon RV. Cognitive behaviour therapy of acute stress disorder: a four-year follow-up. *Behav Res Ther* 2003; **41**: 489–94.
- 138 Neuner F, Schauer M, Klaschik C, Karunakara U, Elbert T. A comparison of narrative exposure therapy, supportive counseling, and psychoeducation for treating posttraumatic stress disorder in an African refugee settlement. *J Consult Clin Psychol* 2004; **72**: 579.
- 139 Bryant RA. Recovery after the tsunami: timeline for rehabilitation. *J Clin Psychiatry* 2006; **67** (suppl 2): 50–55.
- 140 Batniji R, van Ommeren M, Saraceno B. Mental and social health in disasters: Relating qualitative social science research and the Sphere standard. *Soc Sci Med* 2006; **62**: 1853.
- 141 van Emmerik AAP, Kamphuis JH, Hulsbosch AM, Emmelkamp PMG. Single session debriefing after psychological trauma: a meta-analysis. *Lancet* 2002; **360**: 766.
- 142 Thabet AA, Vostanis P, Karim K. Group crisis intervention for children during ongoing war conflict. *Eur Child Adolesc Psychiatry* 2005; **14**: 262.
- 143 National Institute for Mental Health. Mental health and mass violence: evidence-based early psychological interventions for victims/survivors of mass violence: a workshop to reach consensus on best practices. Washington (DC): US Government Printing Office. NOH Publication No. 02-5138, 2002.
- 144 WHO. Mental health in emergencies: mental and social aspects of health of populations exposed to extreme stressors. Geneva, Switzerland: World Health Organization, 2003.
- 145 Igreja V, Kleijn WC, Schreuder BJN, Van Dijk JA, Verschuur M. Testimony method to ameliorate post-traumatic stress symptoms—community-based intervention study with Mozambican civil war survivors. *Br J Psychiatry* 2004; **184**: 251.
- 146 Wolmer L, Laor N, Dedeoglu C, Siev J, Yazgan Y. Teacher-mediated intervention after disaster: a controlled three-year follow-up of children's functioning. *J Child Psychol Psychiatry* 2005; **46**: 1161–8.
- 147 Basoglu M, Livanou M, Salcioglu E, Kalender D. A brief behavioural treatment of chronic post-traumatic stress disorder in earthquake survivors: results from an open clinical trial. *Psychol Med* 2003; **33**: 647.
- 148 Basoglu M, Salcioglu E, Livanou M, Kalender D, Acar G. Single-session behavioral treatment of earthquake-related posttraumatic stress disorder: A randomized waiting list controlled trial. *J Trauma Stress* 2005; **18**: 1.
- 149 Layne CM, Pynoos RS, Saltzman WR, et al. Trauma/grief-focused group psychotherapy: school-based postwar intervention with traumatized Bosnian adolescents. *Group Dyn* 2001; **5**: 277.
- 150 Goenjian AK, Steinberg AM, Najarian LM. Prospective study of posttraumatic stress, anxiety and depressive reactions after earthquake and political violence. *Am J Psychiatry* 2000; **157**: 911–95.
- 151 Bolton P, Tang AM. An alternative approach to cross-cultural function assessment. *Soc Psychiatry Psychiatr Epidemiol* 2002; **37**: 537.
- 152 Department of Mental Health and Substance Abuse. Dollars, DALYs and decisions: economic aspects of the mental health system. Geneva: World Health Organization, 2006.
- 153 World Health Organization. Mental Health Atlas. Geneva: World Health Organization, 2005.
- 154 Patel V, Chisholm D, Kirkwood B, Mabe D. Prioritising health problems in women in developing countries: comparing the financial burden of reproductive tract infections, anaemia and depressive disorders in a community survey in India. *Trop Med Int Health* 2007; **12**: 130–39.
- 155 Chisholm D, Sekar K, Kumar K, et al. Integration of mental health care into primary care. Demonstration cost-outcome study in India and Pakistan. *Br J Psychiatry* 2000; **176**: 581–88.
- 156 Srinivasa Murthy R, Kishore Kumar KV, Chisholm D, Thomas T, Sekar K, Chandrashekari CR. Community outreach for untreated schizophrenia in rural India: a follow-up study of symptoms, disability, family burden and costs. *Psychol Med* 2005; **35**: 341–51.

- 157 *Lancet* Global Mental Health Group. Scale up services for mental disorders: a call for action *Lancet* 2007; published online Sept 4. DOI:10.1016/S0140-6736(07)61242-2.
- 158 Hyman S, Chisholm D, Kessler R, Patel V, Whiteford H. Mental Disorders. In: Jamison D, Breman J, Measham A, et al., eds. Disease control priorities in developing countries (2nd Edition). New York: Oxford University Press, 2006.
- 159 Chisholm D, Sanderson K, Ayuso-Mateos JL, Saxena S. Reducing the global burden of depression: population-level analysis of intervention cost-effectiveness in 14 world regions. *Br J Psychiatry* 2004; **184**: 393–403.
- 160 Araya R, Flynn T, Rojas G, Fritsch R, Simon G. Cost-effectiveness of a primary care treatment program for depression among low-income women in Santiago, Chile. *Am J Psychiatry* (in press).
- 161 Rupp A. The economic consequences of not treating depression. *Br J Psychiatry* 1995; **166**: 29–33.
- 162 Cohen A, Kleinman A, Saraceno B, eds. World mental health casebook: social and mental health programs in low income countries. New York: Kluwer Academic/Plenum, 2002.
- 163 Petersen I. Comprehensive integrated primary mental health care for South Africa. Pipedream or possibility? *Soc Sci Med* 2000; **51**: 321–34.
- 164 Mooren TT, de Jong K, Kleber RJ, Ruvic J. The efficacy of a mental health program in Bosnia–Herzegovina: impact on coping and general health. *J Clin Psychol* 2003; **59**: 57–69.
- 165 Henderson DC, Mollica RF, Tor S, Lavelle J, Culhane MA, Hayden D. Building primary care practitioners' attitudes and confidence in mental health skills in a post-conflict society: a Cambodian example. *J Nerv Ment Dis* 2005; **193**: 551–59.
- 166 Qureshi NA, Van Der Molen HT, Schmidt HG, Al-Habeeb TA, Magzoub ME. Effectiveness of a training programme for primary care physicians directed at the enhancement of their psychiatric knowledge in Saudi Arabia. *Educ Health (Abingdon)* 2006; **19**: 52–60.
- 167 Cohen A. The effectiveness of mental health services in primary care: the view from the developing world. Geneva: World Health Organization, 2001.
- 168 Chatterjee S, Patel V, Chatterjee A, Weiss H. Evaluation of a community based rehabilitation model for chronic schizophrenia in a rural region of India. *Br J Psychiatry* 2003; **182**: 57–62.
- 169 Saraceno B, van Ommeren M, Batniji R, et al. Barriers to improvement of mental health services in low-income and middle-income countries. *Lancet* 2007; published online Sept 4. DOI:10.1016/S0140-6736(07)61263-X.
- 170 Rojas G, Araya R, Lewis G. Comparing sex inequalities in common affective disorders across countries: Great Britain and Chile. *Soc Sci Med* 2005; **60**: 1693–703.
- 171 Araya R, Rojas G, Fritsch R, Acuna J, Lewis G. Santiago Mental Disorders Survey: prevalence and risk factors. *Br J Psychiatry* 2001; **178**: 228–233.
- 172 Araya R, Lewis G, Rojas G, Fritsch R. Education and income: which is more important for mental health? *J Epidemiol Community Health* 2003; **57**: 501–05.
- 173 Minoletti A, Sacaria A. Plan Nacional de Salud mental en Chile: 10 años de experiencia. *Rev Panam Salud Publica* 2005; **18**: 346–58.
- 174 Araya R, Rojas G, Fritsch R, Frank R, Lewis G. Inequities in mental health care after health care system reform in Chile. *Am J Public Health* 2006; **96**: 109–13.
- 175 Patel V, Thara R. Meeting mental health needs in developing countries: NGO innovations in India. New Delhi: Sage (India), 2003.
- 176 Department of Mental Health and Substance Abuse. Country projects on mental health: Selected cases. Geneva: World Health Organization, 2004.
- 177 Department of Mental Health and Substance Abuse. Working with countries: Mental health policy and service development projects. Geneva: World Health Organization, 2002.
- 178 McKenzie K, Patel V, Araya R. Learning from low income countries: mental health. *BMJ* 2004; **329**: 1138–40.
- 179 Desjarlais R, Eisenberg L, Good B, Kleinman A. World mental health: problems and priorities in low-income countries. Oxford: Oxford University Press, 1995.
- 180 Patel V, Kleinman A, Saraceno B. Beyond evidence: the moral case for international mental health. *Am J Psychiatry* 2006; **163**: 1312–15.