Schizophrenia treatment in the developing world: an interregional and multinational cost-effectiveness analysis

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Objective Schizophrenia is a highly disabling disease and is costly to treat. We set out to establish what are the most cost-effective interventions applicable to developing regions and countries.

Methods Analysis was undertaken at the level of three WHO subregions spanning the Americas, Africa and South-East Asia, and subsequently in three member states (Chile, Nigeria and Sri Lanka). A state transition model was used to estimate the population-level health impact of older and newer antipsychotic drugs, alone or in combination with psychosocial intervention. Total population-level costs (in international dollars or local currencies) and effectiveness (measured in disability-adjusted life years averted) were combined to form cost-effectiveness ratios.

Findings The most cost-effective interventions were those using older antipsychotic drugs combined with psychosocial treatment, delivered via a community-based service model (I$ 2350–7158 per disability-adjusted life year averted across the three subregions, I$ 1670–3400 following country-level contextualisation within each of these subregions). The relative cost-effectiveness of interventions making use of newer, "atypical" antipsychotic drugs is estimated to be much less favourable.

Conclusion By moving to a community-based service model and selecting efficient treatment options, the cost of substantially increasing treatment coverage is not high (less than I$ 1 investment per capita). Taken together with other priority-setting criteria such as disease severity, vulnerability and human rights protection, this study suggests that a great deal more could be done for persons and families living under the spectre of this disorder.

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Une traduction en français de ce résumé figure à la fin de l'article. Al final del artículo se facilita una traducción al español. الترجمة العربية لهذه الخلاصة في نهاية النص الكامل لهذه المقالة.

Introduction

The chronic course and debilitating effects of schizophrenia combine to create a disease which imposes very considerable clinical, social and economic consequences on societies throughout the world, resulting in it being a leading contributor to global and regional levels of disability and the overall disease burden.[1] The accumulated effectiveness and cost-effectiveness evidence regarding treatment responses to the burden of schizophrenia provides encouraging but hardly remarkable indications. Two Cochrane systematic reviews have clearly shown the superiority but limited acceptability of older antipsychotic drugs such as chlorpromazine or haloperidol over placebo,[2,3] while the arrival of newer, "atypical" antipsychotic drugs has made available to patients and clinicians a set of pharmacological treatment options that are as effective and somewhat more tolerable than conventional neuroleptic drugs. There is also now an accumulation of evidence that assesses the cost-effectiveness of these drugs within randomized trials.[4–7] There are also positive findings for the cost-effectiveness of family interventions to reduce the impact of family stress[8] and of a short psychoeducational programme to improve patient adherence to medication.[9] The cost-effectiveness of these interventions in developing regions of the world, however, is far less well established. The aim of the present work was therefore to provide a baseline assessment of cost-effectiveness for different regions of the developing world, using best available data on the epidemiological burden of schizophrenia, treatment costs and coverage, and the effectiveness of different interventions. To test the validity of these estimates, we subsequently carried out several country-specific studies in the WHO African, Americas and South-East Asia regions.[10]

Methods

Analytical framework

Through its CHOICE work programme (CHOosing Interventions that are Cost-Effective), WHO has

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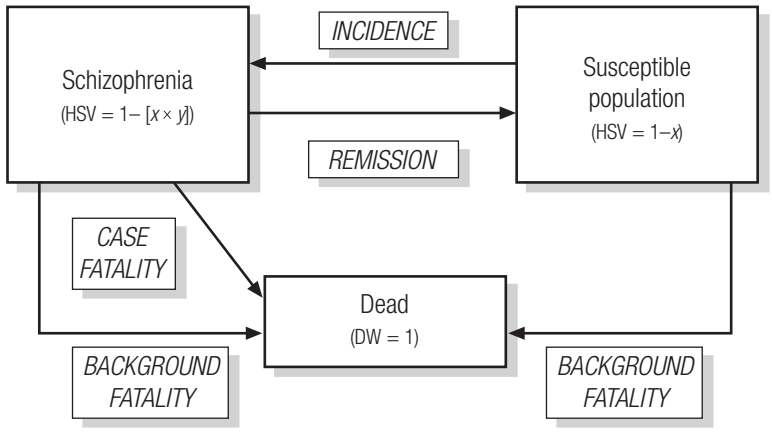
developed a standardized form of cost-effectiveness analysis that aims to provide policy-makers with comparable results for interventions related to diseases or risk factors across the entire health sector.[11,12] Initial application of WHO-CHOICE focused on the generation of cost-effectiveness databases at the level of epidemiologically-defined WHO subregions of the world.[13–17] The existence of such information, however, provides no guarantee that findings and recommendations will actually change health policy or practice at the national level (where policies are determined and resources actually allocated). Current efforts are therefore focused on context-specific analyses at the national level.[18] Such a process of contextualisation provides a powerful test of the validity and robustness of regional analyses. Specific efforts to contextualize regional results for schizophrenia and other psychiatric disorders at the national level are reported elsewhere.[19–21] Here we present analytical inputs and results for three countries (Chile, Nigeria and Sri Lanka) together with those for their corresponding WHO subregion – Africa, Americas and South-East Asia. Summary results for other WHO subregions are available from the WHO-CHOICE web site (available at: http://www.who.int/choice).

Epidemiology and natural history

Schizophrenia was modelled as a severe, chronic disorder with a high level of disability, excess mortality from natural and unnatural causes, and a low rate of remission over the longer term (Fig. 1). The incidence, prevalence, remission and case-fatality of schizophrenia in WHO subregions has been estimated as part of the Global Burden of Disease study, based on a review of the relevant epidemiological literature (Table 1).[22–24] The validity of this epidemiological disease model for schizophrenia has been evaluated at the country level in Spain.[25] Since no recent population-wide survey data were available for schizophrenia in any of the three study countries, no revision was made to these regional values. Nevertheless, and in spite of the inherent variability in psychiatric diagnosis and classification, regional prevalence values are consistent with available data, including a recent prevalence study in Chile,[26] a meta-analysis that covered low-income countries such as Nigeria[27] and a study conducted some 30 years ago in Sri Lanka.[28]

Fig. 1. **Population model**



DW, disability weight; HSV, health state valuation (1 – DW); *x*, disability weight for general population; *y*, disability weight for population with schizophrenia

Estimating intervention effectiveness

Intervention analysis focused on efficacious and available treatments for schizophrenia, specifically "typical" (older) antipsychotic drugs (e.g. chlorpromazine, haloperidol) and "atypical" (newer) antipsychotic drugs (e.g. risperidone, olanzapine), alone or in combination with psychosocial treatment. Since first onset of schizophrenia is currently not preventable, observed incidence also represents the epidemiological situation that would prevail without intervention. Concerning remission and case-fatality, we find no substantive support for rates being modified by the specific effects of the treatments considered here (as opposed to, for example, spontaneous full remission or the potential contribution of a more supportive social environment), so these rates likewise remain constant for both treated and untreated scenarios. Accordingly, the relative effectiveness of these treatments was evaluated with respect to control of positive and negative symptoms together with associated levels of disability.

To calculate improvements in disability compared to (untreated) natural history, we adopt a recently developed approach in which treatment effect sizes reported in controlled trials are converted into an equivalent change in disability weight.[29,30] Thirty general practitioners were asked to rate a series of vignettes, each adjacent vignette representing one standard deviation increased clinical severity for schizophrenia. The resulting conversion factor of 0.181 can be multiplied by effect sizes reported in the meta-analytic literature[31,32] to give the corresponding change in disability weight (Table 2). At the country level, baseline effect sizes for psychosocial treatment were set somewhat higher (20%) than those reported in the international literature[31] because of evidence for a more powerful impact of intervention in developing countries from two recent studies of treated schizophrenia in India.[33,34]

Estimating intervention costs

For the regional analysis, both a hospital-based and community-based outpatient service model were costed. At the national level, country teams focused only on the service model that had policy support for scaling-up (which in all cases was the community-based service model). For the regional analysis, annual expected resource requirements per "average" patient (with ranges denoting differing utilization for acute versus chronic cases) included: daily antipsychotic drug supply (e.g. 300–500 mg chlorpromazine) plus anticholinergic medication (where indicated) and laboratory procedures (1–4 tests); psychosocial intervention (6–12 sessions, where applicable); primary care (6–12 visits); outpatient attendances (20–50% of cases, monthly visits); day care (community model

Table 1. **Epidemiological rates[a] for schizophrenia in three WHO subregions[b]**

WHO region	Age (years)	Males				Females			
		Incidence	Prevalence	Remission	Case fatality	Incidence	Prevalence	Remission	Case fatality
Africa	15–29	0.48	3.15	26.9	2.7	0.39	2.38	26.9	2.9
subregion D	30–44	0.22	6.08	29.2	4.7	0.49	7.52	29.3	4.3
	45–59	0.08	4.71	29.1	7.3	0.10	6.39	29.1	5.7
Nigeria	60–69	0.05	3.78	29.2	15.6	0.05	5.10	29.8	15.3
	70–79	0.12	2.82	29.0	32.9	0.01	3.17	29.3	31.9
	80+	0.21	2.42	29.0	70.4	0.12	1.88	29.0	68.9
Americas	15–29	0.49	4.00	29.3	1.0	0.59	4.78	29.4	0.3
subregion B	30–44	0.19	5.99	29.1	1.7	0.11	6.28	29.1	0.7
	45–59	0.20	6.00	29.0	4.0	0.19	6.00	29.0	2.3
Chile	60–69	0.24	6.00	29.0	10.1	0.21	6.00	29.0	6.5
	70–79	0.30	6.00	29.0	21.5	0.26	6.00	29.0	14.6
	80+	0.47	6.00	29.0	49.1	0.41	6.00	29.0	38.5
South-East Asia	15–29	0.59	5.26	29.4	1.2	0.56	4.32	29.5	0.7
subregion B	30–44	0.17	7.33	29.1	1.8	0.28	7.75	29.1	1.1
	45–59	0.16	6.40	29.0	4.0	0.19	7.17	29.0	3.1
Sri Lanka	60–69	0.06	5.45	29.1	9.6	0.06	6.16	29.0	8.1
	70–79	0.12	4.29	29.0	20.8	0.11	4.68	29.0	19.4
	80+	0.17	3.25	29.0	47.3	0.16	3.42	29.1	47.3

[a] Rate per 1000 population.
[b] DisMod II software (© WHO) was used to produce these data.
Source: WHO Global Burden of Disease study[22]

only: 20–50% of cases, 1–2 attendances per week); acute inpatient care (hospital-based model: 25–50% of cases, average length of stay: 21–56 days; community-based model: 10–50% of cases, average length of stay: 14–28 days); longer-term inpatient care (hospital model: 20–50%, length of stay: 90–180 days) or residential care (community model: 10–30%, length of stay: 90–180 days). Country-specific values concerning the frequency and intensity of health care uptake were based on available survey data (Chile) or on local expert opinion and a Delphi consensus panel survey of mental health professionals (Nigeria, Sri Lanka; a description of the Delphi study methodology is presented by C Ferri et al.).[35]

Resource items were multiplied by their respective unit costs to give an annual cost per treated case, expressed either in international dollars (regional analysis) or local currency units (national analysis). Region- and country-specific unit costs for primary and secondary care services, together with other default resource inputs such as salaries of health professionals, were estimated on the basis of regression analyses carried out on a large, multinational dataset that predicted cost as a function of gross domestic product per capita (plus other explanatory variables).[36] Predicted costs at the country level, which were generally found to be robust when compared to available hospital data or pay scales, were replaced by local values wherever reliable data were available. Drug prices for the regional analysis were obtained from the International Drug Price Indicator Guide (available at: http://erc.msh.org/dmpguide) and from hospital pharmacies at the country level.

Results

Effectiveness of treatment

The population-level impact of first-line treatment of schizophrenia with older and newer antipsychotic drug therapies, alone or in combination with psychosocial intervention and case management, is shown in Table 3. At existing treatment coverage rates, which ranged from as low as 20% in Nigeria to as high as 80% in Chile, the current mix of single or combination therapies avert between 20–260 disability-adjusted life years (DALYs) per year per one million total population. By contrast, scaled-up implementation of the most effective treatments (at a target coverage level of 70–90%) is expected to avert between 230–575 DALYs per year per one million population, equivalent to 0.08–0.14 DALYs or 30–50 "disability-free days" per treated case per year. The incremental effect of combining psychosocial intervention with pharmacotherapy is estimated to be substantial (at least 65% more DALYs averted). Country results diverged from regional findings, not only because of different levels of treatment coverage but also due to higher rates of anticipated non-adherence to medication at the national level. In no instance, however, did the rank order of treatment effectiveness change.

Costs

Total costs encapsulating both the use of health-care services as well as associated training and administrative programme expenditures are also shown in Table 3. Costs relate to the annual cost (in millions of currency units) per one million total population, which equates to cost per capita. Only results for the community-based service model are shown here, but

Table 2. **Schizophrenia treatment effect size estimates**

Intervention scenario	Effect size (ES)		Source	Disability weight (0 = no disability)	
	Comparator	Value (SD improvement)		(Conversion = ES * 0.181)[a]	% improvement over null
Null (no treatment)	–	–	22	0.627	–
Placebo	No treatment	0.050	3	0.618	–1%
Older antipsychotic drug	Placebo	0.465	32	0.534	–15%
Newer antipsychotic drug	Placebo	0.495	32	0.528	–16%
Older antipsychotic drug + psychosocial intervention	Older antipsychotic drug	0.390	31	0.463	–26%
Newer antipsychotic drug + psychosocial intervention	Older antipsychotic drug	0.390	31	0.458	–27%

DALY, disability-adjusted life year; ES, effect size; SD, standard deviation.

[a] Andrews et al.[29] obtained health state preference scores/utility values for a series of health states reflecting 1 SD improvement over placebo. The mean change on disability weight associated with 1 SD change in clinical improvement for schizophrenia was 0.181.

it is important to note that our regional analysis estimated that costs of the hospital-based service model exceed those of the community-based service model by approximately 33–50%, reflecting greater use of resource-intensive services such as acute and long-term psychiatric inpatient care.

In the regional analysis, the estimated treatment cost per capita for community-based provision of older antipsychotic drugs was I$ 0.74 (WHO African subregion D), I$ 2.10 (WHO South-East Asia subregion B) and I$ 3.13 (WHO Region of the Americas subregion B), equivalent to I$ 306, I$ 617 and I$ 980 per treated case, respectively; country contextualisation results produced lower figures of I$ 1.52 (Chile), I$ 0.39 (Nigeria) and I$ 0.57 (Sri Lanka). Interventions making use of newer (atypical) antipsychotic drugs (clozapine in Chile, risperidone in Nigeria and Sri Lanka), which in the regional analysis were estimated to be two to four times more costly than older drugs (I$ 3–6 per capita), were found to be lower than regional values in Chile and Sri Lanka (less than I$ 3 per capita), but very much higher than predicted in Nigeria (more than I$ 10 per capita). These results reflect the important influence of national drug procurement mechanisms and resulting supply prices. For example, at the time of the study, 2 mg risperidone could be obtained for 4.5 rupees (US$ 0.06) in Sri Lanka, compared to 255 Naira (US$ 2.50) in Nigeria, a 40-fold difference! Concerning adjuvant psychosocial treatment, additional costs including training were generally very modest on account of the relatively low salary levels prevailing in these regions and countries.

Cost-effectiveness

Relative to the natural history situation of no intervention for schizophrenia, combination interventions that are based on a community-based service model and which use older rather than newer antipsychotic drugs were found to be most cost-effective (Table 3). The cost per DALY averted (or healthy life year gained) for this intervention across the three WHO subregions ranged from I$ 2350 in WHO African subregion D to I$ 7158 in WHO Region of the Americas subregion B; at the national level, cost-effectiveness ratios ranged between I$ 1670 (Nigeria) and I$ 3400 (Chile). At the regional level, the cost-effectiveness of newer antipsychotic drugs implemented within a community-based service model without adjuvant psychosocial treatment was estimated to range between I$ 13 000 and I$ 20 000. Following contextualisation, the range widened substantially, from below I$ 9000 in Chile and Sri Lanka to more than I$ 80 000 in Nigeria. In all regions and countries, this represented the least efficient of the treatment strategies that were evaluated.

Uncertainty analysis

Deterministic uncertainty analysis showed that discounting the future stream of health gains by 3% per year (as done in the baseline analysis) has a relatively negligible impact on results, whereas removing age-weights – which give higher value to the middle years of life – significantly reduced the total estimated health gain (by 25%). In a second step, probabilistic uncertainty analysis showed the influence that stochastic variability in key drivers of cost and effect had on cost-effectiveness baseline results. For effectiveness, the conversion factor for translating effect sizes into disability weight change was the variable imbued with greatest uncertainty. For costs, drug prices together with average duration and the unit cost of a hospital inpatient stay were allowed to vary. Allowing for the correlation that exists between total costs and effects (range: 0.78–0.98), scatter plots with 1000 simulations were generated with the software programme MCLeague.[37] Fig. 2 shows the results for Chile. When viewed in logarithmic terms (since total cost and effect variables were found to have a bivariate lognormal distribution), the uncertainty "clouds" for each intervention do not overlap, indicating that results are robust to plausible variability in these key input parameters. Greater uncertainty surrounds interventions that use newer, atypical antipsychotic drugs.

Discussion

In light of the public health consequences of schizophrenia, this study set out to examine the cost-effectiveness of interventions capable of reducing its clinical and societal burden in the de-

Table 3. **Costs and effects of schizophrenia treatment**

WHO region	**Africa**			**Americas**			**South-East Asia**		
WHO subregion or country	**Subregion D**	**Nigeria**		**Subregion B**	**Chile**		**Subregion B**	**Sri Lanka**	
Total population (millions)	294.1	113.9		430.9	15.1		293.8	18.6	
GDP per capita (I$, 2000)	1 381	903		7 833	9 636		3 915	3 292	
Current coverage rate (% of cases treated now)[a]	25	20		50	80		40	50	
Target coverage rate (% of cases to be treated)	80	70		80	90		80	80	
Effectiveness (DALYs averted)[b]									
Current situation	99	23		189	261		205	121	
Older (typical) antipsychotic drug	200	124		295	302		319	241	
Newer (atypical) antipsychotic drug	215	148		317	321		343	289	
Older antipsychotic drug + psychosocial treatment	341	237		501	555		542	453	
Newer antipsychotic drug + psychosocial treatment	350	261		514	575		557	529	
Cost (I$/LCU per capita, 2000)[c]	**I$**	**Naira**	**I$**	**I$**	**Pesos**	**I$**	**I$**	**Rupees**	**I$**
Current situation	0.51	5	0.12	2.98	435	1.69	2.18	7	0.35
Older (typical) antipsychotic drug	0.74	16	0.39	3.13	392	1.52	2.10	11	0.57
Newer (atypical) antipsychotic drug	2.86	427	10.67	6.42	730	2.83	5.72	27	1.37
Older antipsychotic drug + psychosocial treatment	0.80	16	0.40	3.59	487	1.89	2.36	22	1.12
Newer antipsychotic drug + psychosocial treatment	2.93	428	10.70	6.93	826	3.20	6.01	39	1.96
Cost-effectiveness (I$/LCU per DALY averted)[c]	**I$**	**Naira**	**I$**	**I$**	**Pesos**	**I$**	**I$**	**Rupees**	**I$**
Current situation	5 174	209 430	5 236	15 770	1 664 113	6 450	10 680	58 276	2 914
Older (typical) antipsychotic drug	3 705	127 676	3 192	10 622	1 299 506	5 037	6 583	47 085	2 354
Newer (atypical) antipsychotic drug	13 295	2 882 052	72 051	20 289	2 271 496	8 804	16 689	94 848	4 742
Older antipsychotic drug + psychosocial treatment	2 350	66 790	1 670	7 158	877 211	3 400	4 356	49 231	2 462
Newer antipsychotic drug + psychosocial treatment	8 374	1 637 168	40 929	13 476	1 437 717	5 573	10 804	73 937	3 697

(Table 3, cont.)

WHO region	Africa			Americas			South-East Asia		
WHO subregion or country	Subregion D	Nigeria		Subregion B	Chile		Subregion B	Sri Lanka	
Incremental cost-effectiveness (I$/LCU per DALY averted)[d]	I$	Naira	I$	I$	Pesos	I$	I$	Rupees	I$
Current situation	Dominated	Dominated		Dominated	Dominated		Dominated	Dominated	
Older (typical) antipsychotic drug	Dominated	Dominated		Dominated	Dominated		Dominated	47 085	2 354
Newer (atypical) antipsychotic drug	Dominated	Dominated		Dominated	Dominated		Dominated	Dominated	
Older antipsychotic drug + psychosocial treatment	2 350	66 790	1 670	7 158	877 211	3 400	4 356	51 674	2 584
Newer antipsychotic drug + psychosocial treatment	237 286	16 804 726	420 118	253 554	17 412 144	67 489	255 820	222 239	11 112

DALY, disability-adjusted life year; I$, International dollar; LCU, local currency unit.
[a] Estimated level of formal treatment coverage in the population (excludes informal health-care provision).
[b] Discounted, age-weighted DALYs averted by intervention per year per 1 million population, relative to no intervention.
[c] Millions of currency units (discounted at 3%) per 1 million population per year, i.e. per capita.
[d] The additional cost needed to avert one extra DALY (compared to the next most cost-effective option).

veloping world. The purpose of such an exercise is to locate the relative position of schizophrenia interventions within a wider cost-effectiveness and priority-setting framework in the health sector. This is relevant because treatment of schizophrenia is all too often regarded as overly expensive or unaffordable.

Policy implications

There are several policy implications that arise from this attempt to generate economic evidence for the treatment of schizophrenia. First, it is important to note that the current situation is not the most efficient way to proceed. A similar conclusion has been drawn in the context of the Australian mental health system.[29] Use of a "do-nothing" baseline comparator, as was implemented here, reveals that there are alternative strategies that represent a more cost-effective use of resources than the current mix (which is weighed down by the prevailing reliance on relatively high-cost institutional care). Second, all alternatives carry an additional cost to the current situation because they assume – on equity grounds – a higher level of coverage within the population in need. But that cost need not be excessive; for example, an extra 11 Naira or I$ 0.27 per capita would need to be invested each year to move from a treatment coverage of 20% to 70% in Nigeria.

Third, the least costly option is to restrict treatment to older antipsychotic drugs provided within a community-based service model. However, it makes better clinical and economical sense to go further and provide adjuvant psychosocial treatment to patients and families. For a modest extra cost there is a substantial additional impact on the disability or functioning levels of persons living with schizophrenia. In the three countries represented here, the cost per healthy year of life for this intervention is in the range of I$ 1700–3400, a value that falls below the international yardstick of average income per capita in all but the lowest-income countries.[38]

Fourth, and by contrast, switching first-line treatment to newer antipsychotic drugs has a very modest expected incremental impact on health outcomes but, depending on the price reached for these drugs, has a potentially ruinous effect on the financial feasibility of scaled-up provision of treatment (as would be the case in Nigeria, for example). This conclusion is in line with recent empirical research in Australia, the United Kingdom and the United States of America.[7,8] The Assessing Cost-Effectiveness in Mental Health (ACE-MH) project in Australia[39,40] also found an unfavourable level of cost-effectiveness for atypical antipsychotic drugs (an incremental cost of A$ 48 000–92 000 per DALY compared to conventional neuroleptics). However, when generic forms of these medications become more widely available, the picture could change dramatically with regard to cost-effectiveness, so our results should not be taken to imply that low-income countries should permanently exclude these newer medications from their public health systems.

Limits of economic modelling

The pursuit of a process of contextualization at country level represents an important test and validation of the model and results developed by WHO-CHOICE for schizophrenia, but there remain several concerns and limitations to modelling exercises of this kind. Most importantly, models can only be as good as the data that underlie them, and in this respect many of the epidemiological and efficacy input values

used in this analysis still rely on international or regional estimates. There remains an ongoing need to enhance the empirical basis upon which estimation of the use, cost, outcome and impact of services for people with schizophrenia can be made at the national level. A further concern relates to the use of summary measures such as disability-adjusted life years as an outcome measure for schizophrenia treatment, since it is not as sensitive to clinical change as condition-specific measures, does not deal adequately with the issue of comorbidity (particularly substance abuse) and does not reflect the impact of treatment on carers or families. For the purpose of establishing the relative efficiency of schizophrenia care in relation to other investment possibilities in the health sector, however, the DALY is a suitable choice because it provides a direct link to disease burden estimates and enables results to be compared to the many studies of other health interventions using this metric in the particular context of developing countries.[13–17]

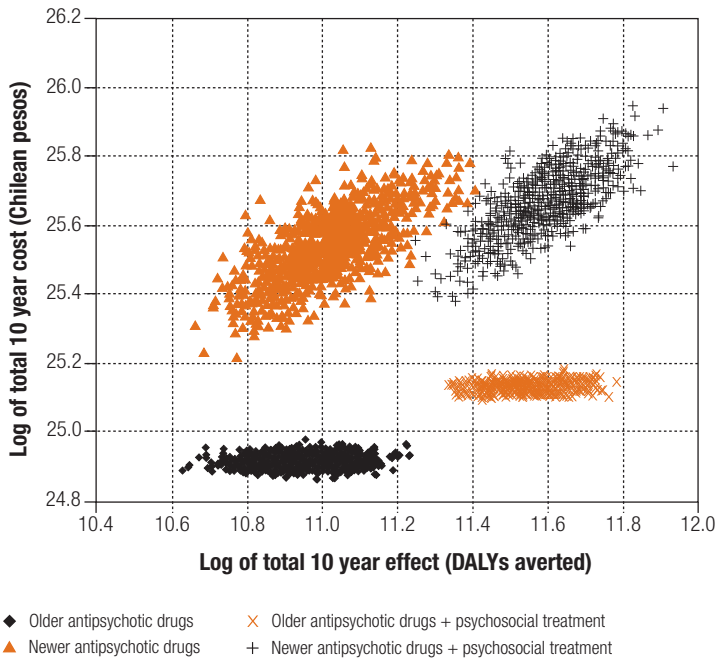
No attempt was made in the present analysis to measure costs or effects incurred outside the health system (such as time spent seeking or providing care by the patient and informal carer) or the non-health benefits of schizophrenia treatment including workforce and household productivity gains. Where such measurements have been attempted,[34] a sharp decline in family burden and informal caregiving has been observed, which, in the context of a broader evaluative framework, would enhance the attractiveness of assessed interventions. Concerning employment outcomes, several targeted intervention schemes have been tested and found to have some success on labour force participation, but the potential economic benefits of such initiatives are not expected to be substantial.[41]

Other decision-making criteria

Although it is new and informative, evidence for the comparative cost-effectiveness of schizophrenia interventions in different regions or countries of the world provides only one input into the decision-making process. The ACE-MH project, for example, employed a set of "second stage" criteria – strength of evidence, equity, feasibility and acceptability – to qualify efficiency findings and promote the use of a broader set of criteria in setting priorities.[39,40] Similar (unpublished) exercises were undertaken in Nigeria and Sri Lanka which indicated that equity considerations – which give more weight to interventions that promote wider access and target more severe conditions and younger age groups – were collectively given at least as much weight as the efficiency criterion of cost-effectiveness. While treatment of schizophrenia does not particularly benefit children, onset does typically occur in adolescence or the earlier years of adulthood; treatment addresses and alleviates a very severe and often long-term condition of health; and it can also alleviate the financial burden and associated impoverishment of families if it is made available to underserved populations.[34]

In conclusion, economic arguments against the widespread or scaled-up provision of treatment for persons with schizophrenia are fuelled by current inefficiencies (mainly related to disproportionate budgetary allocations to mental hospitals) and exacerbated by misinformation and stigma. These analyses suggest that efficient interventions are in fact reasonably cost-effective (against the international yardstick of average per capita income) and deserve particular consideration in terms of other key priority-setting criteria. ■

Fig. 2. **Cloud graph showing stochastic uncertainty around costs and effects of schizophrenia interventions in Chile**



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Résumé

Analyse interrégionale et multinationale du rapport coût/efficacité pour le traitement de la schizophrénie dans le monde en développement

Objectif La schizophrénie est une maladie hautement handicapante et coûteuse à traiter. Nous nous sommes efforcés de déterminer les interventions les plus efficaces parmi celles applicables aux régions et aux pays en développement.

Méthodes L'analyse a été effectuée au niveau de trois régions de l'OMS, comprenant les Amériques, la région africaine et l'Asie du Sud-est, puis dans trois de leurs Etats Membres (le Chili, le Nigeria et le Sri Lanka). Un modèle de transition d'état a été utilisé pour estimer l'impact sanitaire en population de médicaments antipsychotiques anciens et plus récents, seuls ou associés à une intervention psychosociale. A partir des coûts totaux pour les populations (en dollars internationaux ou en monnaie locale) et de l'efficacité (mesurée en perte d'années de vie corrigée de l'incapacité évitée), on a établi les rapports coût/efficacité.

Résultats Le meilleur rapport coût/efficacité a été établi pour les interventions associant des antipsychotiques anciens et un traitement psychosocial, délivrés par un service à base de communautaire (I$ 2350 – 7158 par perte d'année de vie corrigée de l'incapacité évitée pour l'ensemble des trois régions et I$ 1670 – 3400 après contextualisation au niveau des pays dans chacune des régions). Le rapport coût/efficacité des interventions faisant usage d'antipsychotiques nouveaux et « atypiques » est estimé comme nettement moins favorable.

Conclusion Si l'on passe à un service à base de communautaire et si l'on choisit des options de traitement efficaces, le coût d'une augmentation substantielle de la couverture thérapeutique n'est pas élevé (moins de I$ 1 d'investissement par habitant). Cette étude, ainsi que d'autres critères de définition des priorités tels que la gravité de la maladie, la vulnérabilité et la protection des droits de l'homme, laissent à penser que beaucoup de choses pourrait être faites pour les personnes et leurs familles confrontées dans la vie à ce trouble.

Resumen

Tratamiento de la esquizofrenia en el mundo en desarrollo: análisis interregional y multinacional de la costoeficacia

Objetivo La esquizofrenia es una enfermedad muy discapacitante y de tratamiento costoso. Decidimos determinar cuáles son las intervenciones más costoeficaces aplicables a los países y regiones en desarrollo.

Métodos Se emprendieron análisis en tres subregiones de la OMS que abarcaban las Américas, África y Asia Sudoriental, y posteriormente en tres Estados Miembros (Chile, Nigeria y Sri Lanka). Se utilizó un modelo de transición de estados para estimar el impacto sanitario en la población de medicamentos antipsicóticos viejos y nuevos, solos o en combinación con medidas psicosociales. A partir de los costos totales a nivel poblacional (en dólares internacionales o en las monedas nacionales) y de la eficacia (medida como el número de años de vida ajustados en función de la discapacidad evitados) se calculó la relación costo-eficacia.

Resultados Las intervenciones más costoeficaces fueron las basadas en el uso de los medicamentos antipsicóticos más viejos unidos a tratamiento psicosocial, en el marco de un modelo de servicios basados en la comunidad (I$ 2350-7158 por año de vida ajustado en función de la discapacidad evitado en las tres subregiones, I$ 1670-3400 tras la contextualización por países dentro de cada una de esas subregiones). Se calcula que la relación costo-eficacia relativa de las intervenciones basadas en medicamentos antipsicóticos «atípicos» más nuevos es mucho menos favorable.

Conclusión Adoptando un modelo de servicio comunitario y seleccionando opciones terapéuticas eficaces, el costo de aumentar sustancialmente la cobertura de tratamiento no es elevado (menos de I$ 1 por habitante). Considerados junto con otros criterios de fijación de prioridades como la gravedad de la enfermedad, la vulnerabilidad y la protección de los derechos humanos, el presente estudio parece indicar que se puede ayudar mucho más a las personas y las familias que viven bajo la amenaza de ese trastorno.

ملخص

معالجة الفُصام في البلدان النامية: تحليل الفعَّالية لقاء التكاليف على الصعيد الأقاليمي والمتعدد البلدان

الهدف: الفُصام مرض يسبب العجز في معظم الأحيان ويستدعي تكاليف باهظة لمعالجته. وقد بدأنا في توضيح أكثر التدخلات فعَّالية لقاء التكاليف، وقابلية للتطبيق في الأقاليم والبلدان النامية.

الطريقة: أجرينا التحليل على مستوى ثلاثة أقاليم فرعية لمنظمة الصحة العالمية ضمن الإقليم الأمريكي والأفريقي وجنوب شرق آسيا، وبالتالي في ثلاثة بلدان هي تشيلي ونيجيريا وسيريلانكا، واستخدمنا نموذجاً مرحلياً لكل بلد لتقدير مستوى تأثر صحة السكان من الأدوية المضادة للذهان الجديدة والقديمة، عند استخدامها بمفردها أو مع تدخلات نفسية اجتماعية، وقد جمع مستوى التكاليف لجميع السكان (مقومة بالدولار الدولي أو بالعملات المحلية) مع قياس مدى الفعَّالية (مقدرة بسنوات العمر المصححة وفقاً لتفادي العجز) للحصول على معدلات الفعَّالية لقاء التكاليف.

الموجودات: لقد كانت أكثر التدخلات فعالية لقاء التكاليف تلك التدخلات

التي استخدم فيها أدوية مضادة للذهان قديمة إلى جانب معالجة نفسية اجتماعية، مقدمة من خلال نماذج الخدمات المجتمعية (2350 – 7158 دولاراً دولياً لكل سنة من سنوات العمر المصححة وفقاً لتفادي العجز). فيما كانت الفعَّالية النسبية لقاء التكاليف للتدخلات التي استخدم فيها أدوية أحدث وأدوية مضادة للذهان غير نموذجية أقل مقبولية بكثير.

الاستنتاج: لم تـزدد تكاليف التغطية بالمعالجة عند التحول إلى نموذج الخدمات المجتمعية مع انتقاء خيارات فعَّالة بشكل كبير للمعالجة (فلم تـتجاوز دولاراً دولياً واحداً لكل فرد). فإذا أخذت هذه النتيجة مع معايـير وضع الأولويات مثل شدة المرض ومدى التأثر وحماية حقوق الإنسان، فإن الدراسة تشير إلى أن هناك الكثير مما يمكن عمله للأفراد وللأسر الذين يعيشون تحت وطأة هذا المرض.

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