MANAGING NON-COMMUNICABLE DISEASE IN PRIMARY CARE: ECONOMIC EVALUATION OF A TASK-SHIFTING INTERVENTION FOR COMMON MENTAL DISORDERS IN INDIA

WEB APPENDIX

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Details of Cost Calculations

Participants were asked to provide their health care utilization and out of pocket expenditures on a cost-of-illness inventory. For relatively frequent events such as outpatient consultations and medication use, the period of recall was 2 months. For less frequent events, such as hospital admissions, clinical investigations and visits to religious or traditional healing centers, the recall period was the entire period between follow-up points.

Health System Costs: Monetary values for each of these cost categories were estimated as follows:

- Outpatient costs: The total outpatient costs were derived by multiplying resource use (transport cost plus consultation time with provider plus any actual cost) by their respective unit cost or price and the number of contacts within the past two months. Unit costs for consultation with a public service doctor were calculated on the basis of an earlier analysis of a sample of facility records,[1] updated to the base year for this study. Fees paid to private health care providers were assumed to be the actual cost for these consultations. The total outpatient costs are the sum of visits to the public, private or traditional healers for the two months preceding the outcome assessment, multiplied by the number of two-month increments since the last assessment. For example, the outpatient costs were multiplied by two to cover the four months between the 2 and 6 month follow-up points.
- Inpatient costs: Public hospital costs were calculated as the total fee paid by the patient plus the number of nights spent in the public institution multiplied by a unit cost, estimated as described for outpatient costs (Patel et al, 2003).[1] Fees paid to private hospitals were assumed to be the actual cost for these visits. Inpatient costs were reported over the entire period between follow-up assessments.
- Clinical investigation costs: The clinical investigation costs were obtained from participant self-report of total investigation costs since the last assessment.
- Medication costs: The medication costs were obtained from participant self-report of total medication costs over the past two months. These costs were estimated in a systematic procedure involving triangulating information about specific medicines, including psychotropic drugs (which were then costed by a pharmacist using a drug formulary) and actual expenditures reported by the participant. Medication costs were reported for the two months preceding the outcome assessment and extrapolated, as described for out-patient costs.
- Intervention costs: The additional human resource use associated with the intervention itself was derived from clinical process indicator records (Table 1). Based on a costing template which included the costs of training, supervision by a mental health specialist and the salary costs of a full-time lay counselor, we estimated the unit cost of 1.31 rupees per minute for the lay counselor. This sum was multiplied by the amount of time reported by the clinical records to arrive at the intervention cost.

Time costs: Time costs were estimated as time taken by participants for health care or lost time at work. The total time was estimated as follows:

- Average time to travel plus the average time waiting to be seen by the doctor plus the average time spent with the provider times the number of contacts over the past two months. These were then extrapolated to cover the full number of months of follow-up between visits.
- Days of lost work derived from the WHO-DAS. These were asked over the last month, and then were averaged over the time since the last follow-up visit. The outcome was then inverted to represent days worked, rather than days of lost work due to the difficulties in interpreting the incremental cost effectiveness ratios.
- Family days of lost work. These were asked over the last month, and then were averaged over the time since the last follow-up visit.

We used the minimum wage for unskilled laborers of 150 rupees per day from India's Ministry of Labor (http://labour.nic.in/wagecell/welcome.html) to estimate the time costs for each participant. In addition, we estimated lost income for family members who had to take time off from work to care for the participant by applying the number of days a family member or other caregiver had taken off for this reason. As with the health system costs, the reported costs were extrapolated to cover the time since the last report.

Table 1: Intervention Costs, Collaborative Stepped Care, 2009 Rupees and US Dollars

	Number of Units	Unit Cost (Rupees)	Unit Cost (USD)
Health Counselor Salary (monthly)	25	10,000	180
Supervision Cost (monthly)[a]	2	3,708	**67**
Training Cost (monthly)[b]	25	604	**11**
Total Monthly Cost		14,313	**257**
Per Minute Cost (assuming 20 day per month, 8 hours /day)		1.19	0.02
Management and agency cost		10%	--
Total Health Counselor Cost per Minute[c]		1.31	**0.02**

[a.] Assumption: 2 visits per month to each clinic for half-day (i.e. one full day per clinic per month)+ one day/month for base supervision shared by 12 clinics.

[b.] Assumptions: 25 Health Counselors trained over 45 days, training valid for two years to derive the per month cost.

[c.] The monthly estimates are divided by the number of working days (25) per month and number of working hours (8 per day).