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A task shifting mental health program for an impoverished rural Indian community

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ABSTRACT

Psychiatric disorders constitute a major source of disability across the globe. In India, individuals with mental disorders are diagnosed and treated inadequately, particularly in under-served rural areas. We implemented and evaluated a psychiatric 'task shifting' program for a rural, marginalized, impoverished South Indian tribal community. The program was added to a pre-existing medical program and utilized community workers to improve health care delivery. Following community wide discussions, health workers were trained to provide community education and to identify and refer individuals with psychiatric problems to a community hospital. Subsequently, they also followed up the psychiatric patients to improve treatment adherence. The program was evaluated through medical records and community surveys. Treated patients experienced significant improvement in daily function ($p = 0.01$). Mean treatment adherence scores remained stable at the beginning and end of treatment, overall. The proportion of self-referrals increased from 27% to 57% over three years. Surveys conducted before and after program initiation also suggested improved knowledge, attitudes and acceptance of mental illness by the community. The annual per capita cost of the program was 122.53 Indian Rupees per person per annum (USD 1.61). In conclusion, the community-driven psychiatric task shifting program was implemented successfully. It was accompanied by positive changes in knowledge, attitudes and practice. Initial community consultations and integration with a pre-existing medical program increased acceptance by the community and reduced costs. We recommend a similar model with integrated medical and psychiatric health care in other resource-deficient communities.

1. Introduction

Resources for community based mental healthcare are scarce in many low and middle income countries, yet the demand is comparable to economically advanced nations (Bhana et al., 2010; Patel, 2012). The treatment gap can be addressed using 'task shifting' programs, defined as 'rational redistribution of tasks among health workforce teams, involving the appropriate transfer of specific tasks from specialists to those with abbreviated training' (WHO, 2007; Lehmann et al., 2009). In many countries, there has also been a progressive move from custodial institutionalized specialist care to voluntary, community-based specialist care, with increasing contributions from primary health care. If adequate financial and human resources are available, community specialist care can be delivered effectively, but such resources are generally unavailable in low and middle income countries (LMIC) (Bhana et al., 2010). Furthermore, because of the acute shortage of psychiatric care professionals, task shifting is critical in LMIC for community based mental health treatment (Lehmann et al., 2009; Collins et al., 2011). There are several fundamental problems with task shifting in LMICs. First, there are few, if any, ongoing task shifting efforts or evaluations. Second, critical data for health care planning and infrastructure development are unavailable, and mental health is rarely integrated into health management information systems at the primary health care level. Personnel trained to collect and analyze such data are also scarce. Nevertheless, accumulating evidence indicates that task shifting programs can enhance treatment of psychiatric disorders (Bashir et al., 2000; Sadik et al., 2011) and increase patient satisfaction and outcomes (Sadik et al., 2011), but are yet to be implemented widely (Thara and Rangaswamy, 2013).

These problems are magnified in India, a country with the second largest population in the world. In a representative rural region of India, the number of psychiatrists, psychiatric nurses,

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psychologists and social workers were 0.2, 0.05, 0.03, and 0.03 per 100,000 population, respectively, with only 0.25 inpatient psychiatric beds per 10,000 population (World Health Organization, 2006). As it grapples with these problems, the Indian government is beginning to expand task shifting programs and other health services for the mentally ill. In 2014, the government adopted the National Mental Health Policy of India to address its overwhelming burden of mental illness. The policy broadly aims to "promote mental health, prevent mental illness, promote de-stigmatization and desegregation, ensure socioeconomic inclusion of persons with mental illness by providing accessible, affordable and quality health and social care to all persons through their lifespan, within a rights-based framework". Specifically, this policy will expand the District Mental Health Program to cover all districts in India (http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(14)61973-5/fulltext?rss=yes). The District Mental Health Program began in 1996 and was implemented to train physicians and other healthcare workers in the treatment of mental illness to compensate for the dearth of psychiatrists in rural areas. Similarly, the Mental Healthcare bill, proposed in 2013 also aims to expand the rights and services for the mentally ill (http://www.bmj.com/content/348/bmj.g1507).

Two options are available for task shifting in the Indian context: 'stand alone' programs for mental health care, or mental health programs integrated with medical care. We applied and evaluated the latter option in Tamil Nadu state, South India, consistent with the Indian District Mental Health Program and the National Mental Health Policy. The area covered by our program is home to about 25,000 indigenous citizens known as 'Adivasis', comprising 10% of the region's population (Nimgaonkar et al., 2014). They have endured extreme hardship, including forced dispossession of their land, bonded labor and extreme poverty (http://www.adivasi.net/accord.php). The Action for Community Organization, Rehabilitation and Development (ACCORD) was founded in order to unite the Adivasi tribes, to reclaim their land through demonstrations and court challenges and to improve education and employment through self-reliance.

2. Methods

2.1. Study design

The mental health program was integrated into the pre-existing comprehensive medical program. The program aimed to identify and manage psychiatric disorders rapidly, comprehensively and sustainably, with an emphasis on task-shifting and community participation. Specifically, the program utilized general physicians working at the hospital for primary treatment and village health workers and health animators located at nearby health centers for follow up. Records cataloguing patients' compliance, functionality and treatment regimen were maintained and updated regularly.

The program was initiated in 2005 and preliminary evaluations were conducted in 2008 (http://www.ashwini.org/documents/Ashwini%20Mental%20Health%20document%202009.pdf). The present analyses were performed retroactively based on data from the preliminary evaluations and medical records.

2.2. Settings and sample

The study was conducted in the Gudalur and Pandalur Taluks of the Nilgiris District located within the Nilgiri mountain ranges in the state of Tamil Nadu. The ASHWINI program serves five tribal peoples residing in 184 villages, comprising 2759 families (Supplementary Fig. 1). The mental health program was divided into eight areas (Supplementary Table 1).

2.3. Mental health program (see Supplementary Fig. 2)

2.3.1. Health care delivery

As the Adivasis lacked adequate healthcare, the Association for Health and Welfare in the Nilgiris (ASHWINI) was established in 1990 (http://www.adivasi.net/accord.php). ASHWINI implements healthcare in three tiers (Nimgaonkar et al., 2014). The first tier consists of village health workers (VHWs) who provide basic healthcare in Adivasi villages, including antenatal health services, immunization and growth monitoring for children, first aid and continuity of care for patients on prolonged medication. The second tier comprises eight area health centers managed by "Health Animators", who provide more advanced care. They refer persons with complicated disorders to the Gudalur Adivasi Hospital (GAH), the third tier of care. GAH is a community hospital, staffed predominantly by members of the Adivasi community. ASHWINI also developed a low cost insurance scheme that was recently replaced by a government scheme to cover inpatient costs. Thus, the ASHWINI program improved infant and maternal mortality rates and enabled better control of infectious diseases, but psychiatric disorders remained untreated (http://www.ashwini.org/documents/Insurance%20document%202009.pdf).

Psychiatric care was delivered through the pre-existing ASHWINI three-tiered medical healthcare system consisting of the VHWs, the health animators at the area centers and the GAH staff. The VHWs identified and referred patients to the health animators; both groups also tracked their progress. Physicians evaluated and treated patients at the village, at the area center or at GAH.

2.3.2. Treatment

A combination of education, supportive counseling and pharmacotherapy provided by doctors, health animators and village health workers formed the key components of the treatment that was offered to participants. Supportive counseling consisted of motivating patients, emphasizing the effectiveness and continuation of treatment and encouraging them to go return to work. Due to fiscal limitations, only the following drugs were available: risperidone and injectable fluphenazine for psychosis; imipramine, amitriptyline, fluoxetine, and sertraline for depression; lithium and carbamazepine for bipolar disorder, and phenytoin, phenobarbitone, carbamazepine and clonazepam for seizures. A few patients needed more expensive drugs that were purchased in limited amounts, but most commonly used drugs were ordered in bulk at relatively low cost. If necessary, medicines were given to a relative who dispensed them to the patient. Treatment for alcoholism was not included under the program.

2.3.3. Staff and community education

The mental health program emphasized the basics of mental health and illness, the development of positive attitudes toward those with mental illness, and the attitude that mental illness is a disease. Community education was also directed at ASHWINI staff members and other community workers. The training sessions included video and slide presentations, plays and skits, followed by discussions. Consenting patients also volunteered at the educational sessions to discuss their experience of the effectiveness of their treatment.

2.4. Training

2.4.1. Training for VHWs

Individuals who had good rapport with residents in their village and were motivated to provide care were selected as VHWs in consultation with village leaders. A training curriculum was

developed using manuals published by the National Institute of Mental Health and Neurosciences (NIMHANS), a national research and treatment center (''Mental Health Care by Primary Care doctors'' and ''Manual of Mental Health Care for Health Workers'') (http://www.nimhans.kar.nic.in/). The curriculum utilized audio-visual tools that focused on identifying the symptoms of mental illness. The training consisted of class lectures and monthly team review sessions. Video clips of patients before and after treatment were shown and discussed. Brief skits of village situations involving mental illness were enacted, recorded and discussed. Role-play sessions were used to portray major symptoms and to clarify the roles and responsibilities of workers within the team. The training was supplemented by visits to local psychiatric healthcare facilities to broaden the VHW's awareness of mental illness. The VHWs were evaluated at the end of the three-year mental health program using a questionnaire that covered topics such as symptoms of mental illness, treatment, and follow up. Of the 106 VHW's selected, 96 acquired an adequate knowledge of mental illness (data available with authors). Those who did not perform adequately received additional supervision.

2.4.2. Supplementary training for GAH staff

The GAH health staff comprised of general physicians, nurses and health animators who provided direct mental healthcare for the patient. Workshops were directed by experienced academic psychiatrists from regional medical schools to explain the basics of mental illness, its treatment, the side effects of drugs, and the elements of supportive therapy. During subsequent visits, the psychiatrists evaluated the mental health program's diagnostic practices. The psychiatrists also periodically reviewed treatment regimens for patients, examined the documentation protocols, and advised the staff about community education. The field health staff, including the health animators held monthly review meetings with doctors and social workers. The sessions provided continued training for the staff and a review of their activities within the mental health program. Newly diagnosed patients and progress in the treatment of prior patients were discussed.

2.5. Data collection

Data were collected from three sources: the first survey, medical records and the second survey.

2.5.1. First survey

Two sets of activities were conducted: focus group discussions (FGD) and interviews. At the beginning of the program, focus groups were conducted among village elders in order to understand the knowledge and attitudes toward mental illness, to estimate the burden of psychiatric illness and to raise awareness about mental health in the community. A medical psychiatric social worker coordinated FGDs with village leaders, other members of the community, medical psychiatric social worker, health animators and health volunteers at a public space in each village. Responses were written down in a preprinted form and later entered in the computer.

To collect data for the survey, interviews were conducted in an open-ended format. The knowledge and attitude sections covered four domains: general opinions about mental illness; causes for mental illness; whether the illnesses were treatable and location of treatment. To estimate the burden of illness, key symptoms and manifestations of psychiatric disorders were described. The respondents were asked to enumerate individuals in their village thought to have a mental illness or a psychiatric problem.

2.5.2. Healthcare documentation

A case record, including a full psychiatric history and physical and mental state examination was maintained for each patient. A copy of this record was kept in GAH and a duplicate was kept in the respective area center to enable follow up. The health animators, with the help of the VHWs also maintained a card for each patient that detailed follow up care and progress (Supplementary Table 2). The information from the follow up card was regularly transcribed to the case record. The mental health cards were updated every month and stored in a computerized password protected database available only to authorized personnel. Monthly progress reports of the patients were also sent to the hospital from the area centers.

2.5.3. Second survey

The second survey was conducted three years after the mental healthcare program was initiated. It was expanded to query specific responses generated during the initial survey. Respondents were randomly selected and interviewed throughout the service area.

3. Results

3.1. Demographic characteristics

The mental health program served 118 villages among the Paniya tribe, 22 from the Bettakurumba tribe, 6 from the Mullukurumba tribe and 7 villages from mixed tribes ($N = 2759$ families, Supplementary Fig. 1). The eligible Adivasi population was 13,345 at the beginning and 14,816 at the end of the program. A total of 114 VHWs were trained during this period.

3.2. Estimates of psychopathology from first survey

During focus groups at the beginning of the program, attendees were asked to estimate the number of individuals in their village with mental health abnormalities such as thought disorder, delusions and hallucinations. As precise diagnoses could not be made, the reported psychopathology was classified into 'psychoses' and 'neuroses'. Individuals who reported hallucinations or were considered to have delusions were diagnosed as having psychoses. The term 'neuroses' included depressive disorders and anxiety or panic attacks; individuals who had features of both 'neuroses' and 'psychoses' were included in the psychosis category. Estimates of attempted suicides, completed suicides, alcohol abuse, cannabis abuse, seizure disorders and intellectual disability were also obtained (Table 1).

3.3. Prevalence estimates from medical records

When individuals sought treatment at the area centers or at GAH, they were interviewed and diagnosed by trained physicians, in consultation with psychiatrists who visited periodically. The

Table 1
Estimates of psychopathology from the initial survey.

Psychopathology/dysfunction	*N*
Psychosis	74
Neurosis	35
Attempted suicide	26
Completed suicide	43
Seizures	17
Intellectual disability	11
Alcohol addiction	25
Cannabis addiction	54
Total	**285**

Attendees at focus group meetings held during the initial survey were asked to estimate numbers of individuals in their villages with each type of dysfunction.

number of individuals diagnosed with schizophrenia or other psychoses ($N = 69$) closely approximated the number of individuals with psychoses estimated during the initial survey ($N = 74$, Table 1), but the initial survey under-estimated the prevalence of alcohol abuse/dependence ($N = 25$, vs $N = 35$, initial survey vs medical records) (Table 2).

3.4. Daily function following treatment

The patients' functional levels were estimated during each treatment visit, based on occupational expectations for employed individuals, household responsibilities for housewives and school attendance for children. A three point scale was used, based on the patient's ability to work; (1) the patient could not work because of his/her illness; (2) the patient went to work irregularly; (3) the patient's work was unaffected by the illness. The initial ratings were assigned at either the patient's first check up with a physician or the patient's first follow up visit with a health animator. The final rating indicates the patient's functional level at the last treatment visit. There was significant improvement in function scores (mean ± standard deviation; initial visit: 2.38 ± 0.77, last visit: 2.56 ± 0.70, $N = 157$; $p = 0.01$, paired T-test).

3.5. Adherence to treatment

Treatment adherence was rated over the duration of the patients' treatment by the treating physician at the initial visit and subsequently by the health animators who followed up the patients. A three point scale was adopted; (1) patients who were reluctant to seek treatment or follow up; (2) patients who sought treatment irregularly; (3) patients who cooperated fully with physicians' advice. The mean values of adherence ratings for patients at their first session or the first follow up visit were compared with their adherence ratings at their last visits. There was no significant difference in the ratings for adherence at the beginning and at the last treatment session (mean rating scores ± standard deviation; initial session: 2.73 ± 0.57, last session: 2.75 ± 0.58, $N = 157$; $p = 0.70$, paired T-test).

3.6. Sources of referral

In the first year of the program, 60% of new patients were referred by the health animators and more than a quarter were self-referred (27.1%, Fig. 1). Only a minority was referred by physicians who saw the patients for other medical problems or by other individuals from the patients' villages. By the fourth year, the proportion of self-referrals doubled to 57.1% while the proportion referred by the health animators fell (31.4%). Physicians and other villagers continued to form the minority of referral sources in the fourth year (11.4%).

3.7. Knowledge and attitudes toward mental illness

3.7.1. First survey

Among 184 respondents, 35% said that mental illnesses are caused by supernatural forces, and 45% expressed ignorance about causation. Only 13% of the respondents believed they could be cured, while smaller proportions reported that they were due to 'personal problems' (2%) or that they could not be cured (5%, Fig. 2a). When asked specifically about sites for treatment, over 2/3 of the respondents did not know any site, and only 19% suggested a hospital, with minorities suggesting places of worship (5%) and a similar proportion thought both hospitals and places of worship could be sites for treatment (Fig. 2b). Over half expressed ignorance about specific causes of mental illness, and the remainder in approximately equal proportions considered that the causes were supernatural forces or due to personal problems (Fig. 2c). A majority of respondents did not know any modes of treatment. Only a minority (7%) reported hospital- or herbal medicine-based treatment as possible remedial measures, while over twice this number (15%) said they would seek rituals or traditional healers, and a similar proportion (15%) said that they would use hospitals and traditional healers together (Fig. 2d).

3.7.2. Second survey

The overwhelming majority (94%) considered mental illness to be a 'disease', and 85% believed they could be treated, with 11% believing they could not be treated (4% did not express an opinion, total $N = 508$, Fig. 3). When asked about the site of treatment, 85% considered GAH to be an appropriate site and 4% considered other sites, while 11% did not respond.

3.8. Costs of the healthcare program

The annual costs of the mental health program are provided in Supplementary Table 3. Salaries for healthcare workers account for 36.54% of the costs, while medications accounted for 27.42%. Inpatient care accounted for only 2.08% of the total, consistent

Table 2
Psychiatric disorders treated annually.

Diagnosis	Year 01 (2005)	Year 02 (2006)	Year 03 (2007)	Year 04 (2008)	Total
Schizophrenia	14	2	2	0	18
Other psychoses	51	31	18	19	119
Delusional disorder	0	1	1	0	2
Depression	34	29	23	27	113
Bipolar disorder, Manic episode	2	0	0	0	2
Bipolar disorder, depressive episode	7	4	2	2	15
Somatization disorder	12	2	2	1	17
Adjustment disorder	2	0	0	0	2
Anxiety disorder	7	2	1	0	10
Panic disorder	3	0	2	0	5
Other non-psychotic disorder	5	2	3	0	10
Conversion reaction	0	1	0	0	1
Alcohol abuse/dependence	14	6	9	6	35
Suicidal ideation	37	22	23	16	98
Drug abuse	16	14	3	5	38
Total number of diagnoses	**207**	**137**	**114**	**84**	**542**
Total number of patients	**99**	**64**	**60**	**45**	**268**

Data abstracted from medical records for diagnoses at the first evaluation are provided by year. Note that 151 patients had co-morbid disorders.

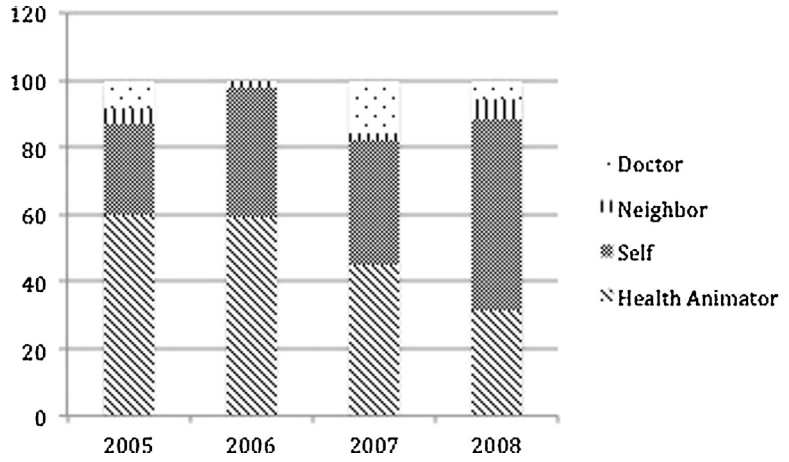

Fig. 1. *Sources of referral.* Data were abstracted from medical records for new patients seen annually. Total number of new patients seen: year 01: 70, year 02: 42, year 03: 51, year 04: 35. (Referral sources were unavailable for 70 patients.)

with the emphasis on community care. Approximately 23.3% of the budget was allocated to capacity building and training. The annual per capita expenditure was 1635,146.66 Rupees (27,132.60 US dollars).

4. Discussion

The ASHWINI mental health program was implemented in 118 villages, even though it faced widespread ignorance and stigmatization of mental illness, poverty and the inaccessibility of many villages. Despite these challenges, the program was successful on several fronts. First, it was possible to train staff at all levels as the first step of an effort to integrate mental health into a comprehensive medical care program that had previously focused solely on treatable acute and chronic medical disorders. Subsequently, the VHWs and health animators conducted focus groups to enable an estimate of the level of knowledge about and attitudes toward mental illnesses among the village leaders. These meetings also enabled estimates about the number of individuals likely to require mental health care. Once treatment was implemented, the pattern of referrals for treatment changed from the initial preponderance of referrals by VHWs and health animators in the first year, to a majority of self referrals in subsequent years. The second survey also suggested that the mental health program enabled positive changes in knowledge and attitudes among community members. The most notable change was the proportion of individuals who believed mental illness was a disease (93%), and could be treated (85%). The medical record data indicate that the program catered to the majority of individuals thought to have severe mental illness, based on the initial survey. Patient cooperation also remained high

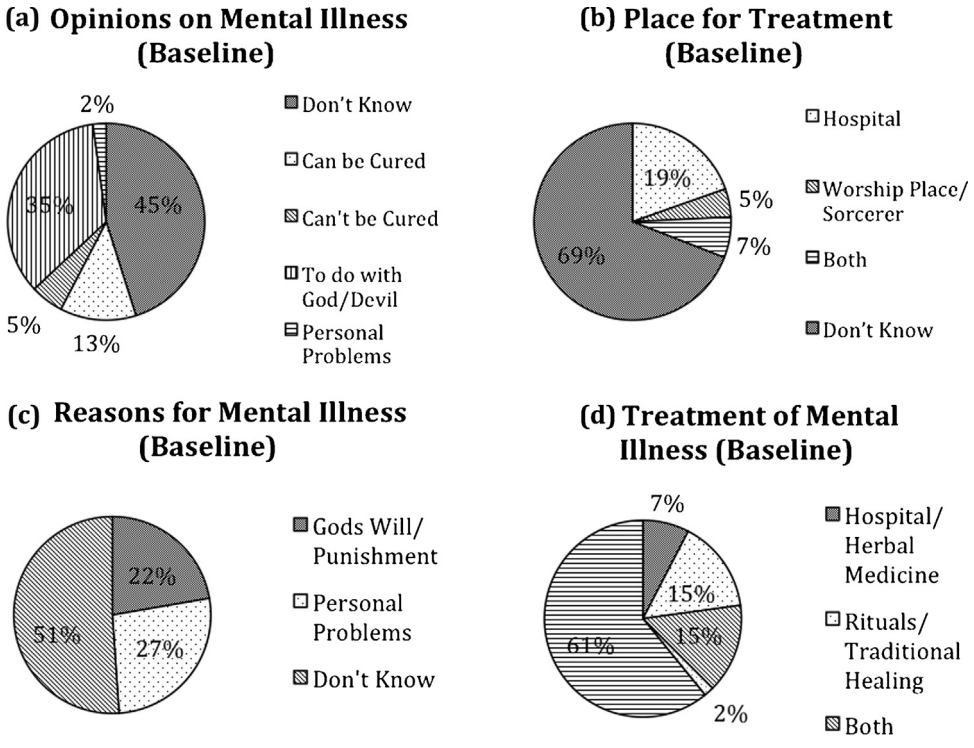

Fig. 2. Responses in the initial survey.

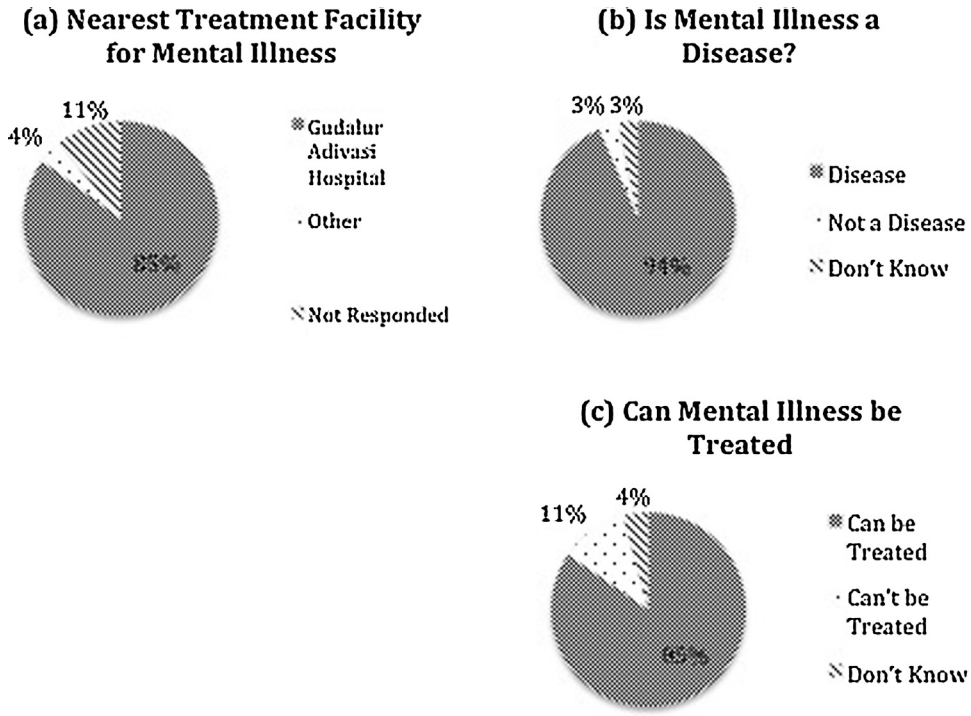

Fig. 3. Responses in the second survey.

throughout treatment. Further, the medical records indicate significant improvement in individual function, despite the limited formulary. The change in referral patterns between the first and the subsequent years suggests increased acceptability.

The success of the program is partly attributable to the pre-existing network of medical healthcare workers who were attuned to local cultural beliefs, the decentralization of healthcare and the mental health educational programs. Furthermore, the integration of mental and physical health programs addressed a central tenet of effective healthcare (Prince et al., 2007). The importance of intensive initial and refresher training as well as continuing supervision should not be underestimated. Patients who were successfully treated and volunteered at educational sessions appeared to increase acceptance of the program. A health insurance program and additional support from a charitable foundation also enabled cost effective delivery. Thus, not only were funds available for healthcare, but also for education and evaluation. Above all, the successful implementation required dedicated staff at all levels.

Other task shifting programs have also been successful in India. One study in Goa evaluated the cost effectiveness of lay health workers to treat depression and anxiety disorders in primary care settings (Buttorff et al., 2012). In public-care facilities, but not in private facilities, healthcare provided by such workers saved costs (Buttorff et al., 2012). In another controlled trial, the efficacy of conventional facility based care for persons with schizophrenia was compared with facility based care plus community-based intervention by community health workers (Chatterjee et al., 2014). The latter was more effective at reducing disability and symptoms of psychosis (Chatterjee et al., 2009).

Notwithstanding the achievements, there are some outstanding issues that need to be addressed in additional studies. The psychiatric diagnoses could not be validated through structured interview schedules. For example, our system using the terms 'psychosis' and 'neurosis' is prone to error. Data for ratings of function and adherence were unavailable in some medical records; observer bias is another concern for the ratings. Further, assessment on functionality should be expanded to include additional criteria such as level of social interactions and maintenance of daily activities. The initial survey was open ended because the level of awareness about mental illness was unknown when the program was initiated. The belief in supernatural causes still persists in the community; e.g., over two thirds believed that black magic is the cause for mental illness in the second survey. Furthermore, questions about which educational method was most effective in changing attitudes remain unanswered. The rates of suicide within the community also appear to be undiminished, based on informal discussions. The limited formulary, dictated by fiscal restraints enabled beneficial effects; still, it is a hurdle for non-responding patients. Though the changes in the second survey could arguably reflect merely rote responses, the progressive change in the pattern of self-referrals suggests that some attitudes did change with regards to treatment seeking behaviors. Nevertheless, additional studies should examine whether stigma in the community toward mental illness has indeed decreased. 'Therapeutic burnout' among the health workers should also be monitored.

In conclusion, a low-cost task-shifting program was successfully implemented in an impoverished rural tribal community in South India. The program facilitated changes in healthcare delivery for the mentally ill and substantially altered knowledge of and attitudes toward mental illness in the community. Similar task shifting programs to provide education and treatment for mental illness can be implemented in other communities but necessarily require adaptation and sensitivity toward differences in cultural and economic norms.

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None.

Conflict of interest statement

None.

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Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at http://dx.doi.org/10.1016/j.ajp.2015.05.044.

References

Bashir, K., Blizard, B., Bosanquet, A., Bosanquet, N., Mann, A., Jenkins, R., 2000. The evaluation of a mental health facilitator in general practice: effects on recognition, management, and outcome of mental illness. Br. J. Gen. Pract. 50 (457), 626–629.

Bhana, A., Petersen, I., Baillie, K.L., Flisher, A.J., The Mhapp Research Programme Consortium, 2010. Implementing the World Health Report 2001 recommendations for integrating mental health into primary health care: a situation analysis of three African countries: Ghana, South Africa and Uganda. Int. Rev. Psychiatry 22 (6), 599–610.

Buttorff, C., Hock, R.S., Weiss, H.A., Naik, S., Araya, R., Kirkwood, B.R., et al., 2012. Economic evaluation of a task-shifting intervention for common mental disorders in India. Bull. World Health Organ. 90 (11), 813–821.

Chatterjee, S., Naik, S., John, S., Dabholkar, H., Balaji, M., Koschorke, M., et al., 2014. Effectiveness of a community-based intervention for people with schizophrenia and their caregivers in India (COPSI): a randomised controlled trial. Lancet 383 (9926), 1385–1394.

Chatterjee, S., Pillai, A., Jain, S., Cohen, A., Patel, V., 2009. Outcomes of people with psychotic disorders in a community-based rehabilitation programme in rural India. Br. J. Psychiatry 195 (5), 433–439.

Collins, P.Y., Patel, V., Joestl, S.S., March, D., Insel, T.R., Daar, A.S., et al., 2011. Grand challenges in global mental health. Nature 475 (7354), 27–30.

Lehmann, U., Van Damme, W., Barten, F., Sanders, D., 2009. Task shifting: the answer to the human resources crisis in Africa? Hum. Resour. Health 7, 49–50.

Nimgaonkar, V., Krishnamurti, L., Prabhakar, H., Menon, N., 2014. Comprehensive integrated care for patients with sickle cell disease in a remote aboriginal tribal population in southern India. Pediatr. Blood Cancer 61 (4), 702–705.

Patel, V., 2012. Global mental health: from science to action. Harv. Rev. Psychiatry 20 (1), 6–12.

Prince, M., Patel, V., Saxena, S., Maj, M., Maselko, J., Phillips, M.R., et al., 2007. No health without mental health. Lancet 370 (9590), 859–877.

Sadik, S., Abdulrahman, S., Bradley, M., Jenkins, R., 2011. Integrating mental health into primary health care in Iraq. Ment. Health Fam. Med. 8 (1), 39–49.

Thara, R., Rangaswamy, P., 2013. Community mental health care in South Asia. World Psychiatry 12, 176–177.

WHO, 2007. Task Shifting: Rational Redistribution of Tasks among Health Workforce Teams: Global Recommendations and Guidelines. World Health Organization, Geneva, Switzerland.

World Health Organization, 2006. WHO AIIMS Report on Mental Health Systems in Uttarakhand, India. WHO and Ministry of Health, Govt of India, Dehradun, Uttarakhand, Delhi, India.