



Employment functioning in people with severe mental illnesses living in urban vs. rural areas in India

Chitra Khare^{1,2} · Kim T. Mueser^{2,3,4}  · Daniel Fulford^{1,4} · Vidyadhar G. Watve⁵ · Neeraj J. Karandikar⁶ · Sailee Khare⁷ · Dipti N. Karandikar⁶ · Susan R. McGurk^{2,3,4}

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Abstract

Purpose Research on employment in people with severe mental illnesses (SMI) in developing countries is sparse and largely limited to employment rates. We conducted a comprehensive study of work, interest in work, and perceived benefits and barriers to work in people with SMI in India.

Methods Semi-structured interviews were conducted with 550 individuals with SMI receiving private psychiatric outpatient services in two districts in western India, one urban (Pune) and the other rural (Ahmednagar).

Results More than half of the participants were employed, with significantly more men working (79.4%) than women (35.9%). Higher rates of work were found in rural areas (77.8%), where most work was in family agricultural businesses, than in urban areas (48.9%), where most work was for independent employers. Participants in rural areas worked fewer hours and earned less money, and reported fewer benefits and fewer problems related to work than urban participants. Over 45% of participants working for independent employers found jobs with help from families and extended social networks. Most unemployed participants wanted to work, and desired a variety of supports, including assistance with job finding and illness management.

Conclusions Gender-specific social role expectations and families play an important role in work in people with SMI in India. Despite higher rates of work in this sample than most studies from developed countries, a significant subgroup was unemployed but wanted to work. Persons with SMI in developing countries may benefit from the adaptation of validated vocational rehabilitation approaches in developed countries to their cultural context.

Keywords Severe mental illness · Schizophrenia · Employment · Developing countries · India

Introduction

Schizophrenia is one of the fifteen most burdensome diseases in both developing and developed countries [1]. Schizophrenia and other severe mental illnesses (SMI) are characterized by persistent adverse effects on personal, social, and occupational functioning [2], including obtaining and sustaining work [3]. Research from developed countries has typically reported rates of employment below 25% in people with SMI [3, 4], with unemployment associated with lower

education [5], diagnosis of schizophrenia (vs. mood disorder) [6], and cognitive impairment [7]. Despite these low employment rates, surveys indicate that between 55 and 75% of people with SMI want to work [8–10].

Much less is known about employment in people with SMI in developing countries, despite substantial sociocultural and economic differences from developed countries, and the shortage of professional and financial resources for treatment [11–13]. The high societal and economic costs of SMI in developing countries underscore the importance of improving work outcomes in this population [14, 15]. To inform the development or adaptation of vocational rehabilitation in developing countries, a more complete understanding of employment in people with SMI is needed.

In contrast to the low rates of work in people with SMI in developed countries, studies from developing countries such as China [16, 17], Ethiopia [18], Malaysia [19, 20],

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✉ Kim T. Mueser
mueser@bu.edu

Extended author information available on the last page of the article

Nigeria [21, 22], and India [23–28] indicate higher rates of employment, ranging from 40 to 77%. However, most of these studies lack specific information about work (e.g., employer, job types, hours worked, wages earned), and had other limitations such as small sample sizes [23, 24, 26] and exclusion of women [23, 28].

There is also a need for more research on employment comparing people living in urban vs. rural areas in developing countries. Rural areas tend to have a more informal and accommodative work culture than urban areas [17] and differ in the types of jobs available and wages paid [29, 30], but also have lower access to psychiatric treatment [31, 32]. One epidemiological study from China showed that employment rates were three times higher for people with schizophrenia in rural compared to urban areas [17], warranting direct comparisons of work functioning.

Finally, little is known about interest in work among unemployed people with SMI in developing countries. In one study, 38 of 59 individuals with schizophrenia (64.4%) wanted to work [33]. Furthermore, research has shown that stigma hinders employment of people with SMI in developing countries [34–36], but little is known about other barriers to work, and the supports desired by people who want to work.

To address these questions, we conducted a study at two sites in India to examine rates and patterns of work, interest in work, and perceived benefits and barriers to work in people with SMI. Based on previous research from developed countries, we hypothesized that employment would be related to past work, younger age, higher education, being married, mood disorder diagnosis (vs. schizophrenia), no prior hospitalizations, shorter duration of illness, and absence of comorbid medical conditions. In addition, on the basis of the national employment survey of the general population in India, we postulated that male gender and rural residence would be associated with work status [37].

Methods

The study was conducted at the psychiatric outpatient departments of two private hospitals in two districts in the state of Maharashtra, western India. Boston University's Institutional Review Board approved the study. Of the two study sites, one had an ethics committee that reviewed the study protocol and indicated that it was exempt from their oversight. All participants provided informed consent before enrolling in the study.

Study sites

The two sites were Poona Hospital and Research Center in Pune, and Manasdeep Psychiatric and Addiction Treatment

Center in Ahmednagar. Pune is a city of three million people in a predominantly urban district of nine million people living within 15,000 km². Poona Hospital and Research Center has 300 beds and provides assessment and treatment services for people with physical and mental illnesses.

Ahmednagar is a much smaller city of 350,000 people in a predominantly rural district of four million people residing in 17,000 km². Manasdeep Psychiatric and Addiction Treatment Center is a small private 20 bed psychiatric hospital providing services mainly to people from the Ahmednagar district. The psychiatry outpatient departments at both hospitals provide primarily pharmacological services to approximately 100–130 patients daily.

Participants

Inclusion criteria for the study were: (1) primary medical record diagnosis of schizophrenia, schizoaffective disorder, bipolar disorder, or major depression; (2) age between 18 to 60 years; (3) verbally fluent in Marathi language; (4) residing in Pune or Ahmednagar districts; and (5) willing and able to provide informed consent. Chart diagnoses of persons with SMI have been found to be reliable when compared to structured clinical interviews [38]. A total of 550 individuals with SMI participated in the study ($n = 275$ per site).

Procedures

Psychiatrists at each site referred interested patients to the site interviewer, who obtained informed consent and administered the interview. Family members frequently accompanied patients to their outpatient appointments, and with participant permission often attended the interview. The study was conducted from August 2016 through March 2017.

Measures

A semi-structured interview was designed for the study. The first author translated the interview into Marathi, which was then back translated into English by a native Marathi speaker. Discrepancies between the two versions were resolved through discussion. One interviewer at each site with a minimum of a Master's degree conducted the interviews.

The interview included 49 items covering demographics, psychiatric history, medical disorders, and work status and history. Questions were adapted from studies of work in people with SMI in developed countries [39, 40], and informed by the relevant research literature and input from vocational rehabilitation experts in the US, and senior clinicians with expertise in treating individuals with SMI in India.

Demographic and clinical characteristics

Demographic (e.g., age, gender) and clinical characteristics (e.g., duration of illness, psychiatric hospitalizations) were collected. The census handbooks for Pune [41] and Ahmednagar [42] were used to determine the urban or rural residential status of participants.

Work history and current work

Work was defined as any work done for money. Agricultural work on family farms was counted if some of the yield was sold, but not if all was consumed by the family. Household work for one's own family was not counted. The number of months worked during the last 5 years was ascertained, with work for 12 months or more coded as a recent work history [39].

Current work status was coded as working or not working. Job type, title, nature of job, employer (independent, family, or self-employed), start date, hours worked weekly, and monthly income were obtained for the current job. For participants who were working on family farms that sold some of their yield, the total hours worked per week was estimated without distinguishing between time spent on crop production for sale vs. family consumption. For participants working for a family business who were not paid a separate wage, income was estimated by dividing the total family income by the number of working family members, adjusting for the amount of time the participant worked. Job type was coded according to the Indian Ministry of Labor and Employment's National Classification of Occupations, 2015 [43–45], which includes nine levels ranging from highly skilled (1) (e.g., senior government officials, managers) to minimally skilled occupations (9) (e.g., laborers, servants).

Work satisfaction, benefits of work and problems related to work

Work satisfaction and perceived benefits and problems related to work were queried for employed participants. Satisfaction was rated on a 5-point Likert scale ranging from 1 (totally dissatisfied) to 5 (totally satisfied). Perceived benefits of work were assessed with five yes/no questions (money, improved self-esteem, help managing mental illness, improved social status, having something to do), with the number of benefits summed per participant. Problems related to work were assessed with ten yes/no questions (stress, long work hours, transportation problems, dealing with coworkers, psychiatric symptoms, medication side effects, cognitive difficulties, low energy/stamina, physical

health, difficulty keeping a job), with the number of problems summed per participant.

Currently not working participants

Unemployed participants were asked about reasons for not working, including: household responsibilities, stress, increase in symptoms, stigma of mental illness, or difficulty finding or keeping a job. Participants who were not currently interested in work were asked whether they would be interested in working in the future. A "yes" to either question was coded as 'interested in working.' Participants who were interested in work were asked what supports would help them work (e.g., help finding a job, managing symptoms).

Statistical analyses

To evaluate whether participants with schizophrenia-spectrum disorders differed from those with mood disorders in prior psychiatric hospitalizations, a χ^2 analysis was conducted on the history of hospitalization (yes/no), and a *t*-test was performed on number of hospitalizations. Demographic and clinical characteristics of participants living in urban vs. rural areas, and those working vs. not working, were compared using χ^2 tests for categorical variables and *t*-tests for continuous variables. A logistic regression analysis was performed to evaluate which variables were uniquely associated with current work status by entering variables in two blocks: the first block included variables hypothesized to be related to work based on previous research (except recent work), and the second block included other variables significantly associated with work in the univariate analyses.

To determine whether the nature of work differed between people living in urban vs. rural areas, χ^2 tests and *t* tests were performed on work characteristics (e.g., type of employer, hours worked per week). Differences in continuous work variables between employers (independent, family or self-employment) were evaluated by performing one-way analyses of variance (ANOVAs), followed by Games-Howell post hoc tests [46]. In addition, we computed χ^2 analyses and *t* tests to evaluate differences in work characteristics between participants working for independent employers vs. for family.

Participants who were interested in work were compared with those not interested in work on demographic and clinical characteristics. Significant variables were included in a logistic regression to identify unique predictors. χ^2 analyses were used to compare differences in specific perceived barriers to work and desired job supports between participants interested in work who were living in urban vs. rural areas, and *t* tests were performed to compare the groups on the total number of barriers and desired supports. Data were analyzed using the Statistical Package for Social Sciences (SPSS).

Results

Eight participants were dropped because they were students or volunteer workers, leaving 542 participants in the analyses. There were no significant differences between the schizophrenia-spectrum and mood disorder groups in the history of psychiatric hospitalizations or number of hospitalizations.

Demographic and Clinical characteristics of urban vs. rural samples

Table 1 provides the demographic and clinical characteristics of the participants, and comparisons between participants in urban vs. rural areas. In the total sample, the mean age was 39.1 years old and slightly over half of the participants lived in urban areas. The majority of participants were male, had the education of 12th grade or below, had been married (single: 19.7%; currently married: 69.0%; divorced/separated/widowed: 11.3%), and had schizophrenia. A total of 330 (60.9%) participants were currently employed, and 369 (68.1%) had worked in the last 5 years.

Compared to participants from rural areas, those from urban areas were older, had higher education and family income, a longer duration of illness, were more likely to have schizophrenia and comorbid medical conditions, and were less likely to have married, to have been hospitalized, to be employed (77.8% vs. 48.9%, respectively), or to have a work history.

Demographic and clinical correlates of current work

A similar pattern of associations was found between the demographic and clinical correlates of current work status of participants living in urban and rural areas. Therefore, the results from the total sample are presented in Table 2. Employed participants were significantly younger, and were more likely to be male, married, live in rural areas, live with more family members, have families with lower income (Mdn = \$131/month vs. \$385/month), have a mood disorder and history of hospitalization, and to use tobacco or alcohol than unemployed participants. For the logistic regression analysis, family income (excluding participants' income) was used, based on quartiles (lowest to highest) due to the skewness of the variable. This analysis is presented in Supplementary Table 1. The overall logistic regression model was significant ($\chi^2 = 237.75$, $p < .001$), with unique predictors of work including marital status (OR = 1.93, $p = 0.04$), rural residence (OR = 2.94, $p < 0.001$), male gender (OR = 5.40, $p < 0.001$), younger

age (OR = 0.96, $p = 0.02$), higher number of family members (OR = 1.13, $p = 0.02$), and lower family income (OR = 0.46, $p < 0.001$). Mood disorder diagnosis was marginally associated with employment (OR = 0.63, $p = 0.05$).

Characteristics of work among employed participants

Of the 16 participants who reported working at two jobs, 14 worked mainly at one job, while two worked equally at both jobs. The two participants who worked equally at both jobs were dropped from the analyses of work characteristics, whereas information about the primary job was used for the remaining 14 participants. Twenty participants (6.1%) reported working fewer than 20 h/week, 80 (24.4%) worked 20–40 h/week, 185 (56.4%) worked 41–60 h/week, and 43 (13.1%) worked more than 60 h/week.

Table 3 presents the work characteristics of employed participants living in urban vs. rural areas. Jobs in urban areas were significantly more skilled and paid higher wages than jobs in rural areas (Ms = \$375 vs. \$130, respectively), and were perceived by participants to have both more benefits and more problems. Individuals working for independent employers in rural areas also reported receiving significantly more help from family or friends in getting the job than those in urban areas (58.7% vs. 41.1%).

The one-way ANOVAs comparing work characteristics between different employers showed significant differences in hours worked/week, monthly income, perceived benefits and problems related to work (Table 4). Post hoc analyses indicated that people employed in a family business worked significantly fewer hours and earned less than those working for independent employers (Ms = 42.7 h vs. 48.2 h; Ms = \$120 vs. \$319), but did not differ from self-employed participants. Family work was also associated with fewer work-related benefits and problems than self- or independent employment.

Supplementary Tables 2 and 3 present the specific benefits and problems related to working for independent employers vs. family. The most commonly reported benefit of work was improved self-esteem (95.8%), followed by money (94.8%), help managing the mental illness (92.7%), improved social status (69.2%), and having something to do (61.2%). Participants working for independent employers reported more total benefits and were significantly more likely to report social status and having something to do as benefits of work. Cognitive difficulties (45.1%) were the most commonly reported problem related to work, followed by stress (36.4%), low energy (32.5%), symptoms (21.7%), medication side-effects (15.7%), long hours (14.7%), dealing with coworkers (12.9%), difficulty keeping a job (12.9%), physical health (12.9%), and transportation (12.6%). Participants working for independent employers reported more

Table 1 Demographic and clinical characteristics of study participants living in urban vs. rural areas

Categorical variables	Total <i>n</i> = 542 <i>n</i> (%)	Urban <i>n</i> = 317 <i>n</i> (%)	Rural <i>n</i> = 225 <i>n</i> (%)	<i>df</i>	χ^2
District					
Pune	268 (49.4%)	239 (75.4%)	29 (12.9%)	1	205.68***
Ahmednagar	274 (50.6%)	78 (24.6%)	196 (87.1%)		
Gender					
Male	311 (57.4%)	178 (56.2%)	133 (59.1%)	1	0.47
Female	231 (42.6%)	139 (43.8%)	92 (40.9%)		
Education					
12th grade or below	369 (68.1%)	184 (58.0%)	185 (82.2%)	1	35.40***
Above 12th grade	173 (31.9%)	133 (42.0%)	40 (17.8%)		
Marital status					
Never married	107 (19.7%)	80 (25.2%)	27 (12.0%)	1	14.55***
Ever married	435 (80.3%)	237 (74.8%)	198 (88.0%)		
Living situation					
Independent	13 (2.4%)	11 (3.5%)	2 (0.9%)	1	3.74
With family	529 (97.6%)	306 (96.5%)	223 (99.1%)		
Diagnosis					
Schizophrenia-spectrum	330 (60.9%)	210 (66.2%)	120 (53.3%)	1	9.21**
Major mood disorder	212 (39.1%)	107 (33.8%)	105 (46.7%)		
Past psychiatric hospitalization					
Yes	339 (62.5%)	157 (49.5%)	182 (80.9%)	1	55.25***
No	203 (37.5%)	160 (50.5%)	43 (19.1%)		
Current medical condition (s)					
Yes	141 (26.0%)	109 (34.4%)	32 (14.2%)	1	27.79***
No	401 (74.0%)	208 (65.6%)	193 (85.8%)		
Current tobacco use					
Yes	204 (37.6%)	110 (34.7%)	94 (41.8%)	1	2.80
No	338 (62.4%)	207 (65.3%)	131 (58.2%)		
Current alcohol use					
Yes	37 (6.8%)	27 (8.5%)	10 (4.4%)	1	3.43
No	505 (93.2%)	290 (91.5%)	215 (95.6%)		
Current work status					
Yes	330 (60.9%)	155 (48.9%)	175 (77.8%)	1	46.09***
No	212 (39.1%)	162 (51.1%)	50 (22.2%)		
Recent past work					
Yes	369 (68.1%)	191 (60.3%)	178 (79.1%)	1	21.53***
No	173 (31.9%)	126 (39.7%)	47 (20.9%)		
Continuous variables					
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)		<i>t</i>
Age	39.1 (8.9)	40.1 (9.1)	37.6 (8.5)	540	3.13**
Total family income (monthly) (USD)	595 (985)	760 (1201)	363 (461)	434.46	5.35***
Total family income (monthly) ^a	2.4 (1.1)	2.7 (1.1)	2.0 (0.9)	507.65	−7.64***
Duration of illness (years)	11.7 (6.9)	13.2 (7.6)	9.6 (5.3)	539.99	6.27***

^aBased on a 4 point ordinal scale, with higher numbers pertaining to higher income. The four categories were determined by quartiles: ≤ \$167, \$167.3–385, \$385.1–692, ≥ \$692.1

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 2 Demographic and clinical comparisons between employed vs. unemployed participants

Categorical variables	Working <i>n</i> = 330 <i>n</i> (%)	Not working <i>n</i> = 212 <i>n</i> (%)	<i>df</i>	χ^2
District				
Pune	131 (48.9%)	137 (51.1%)	1	32.08***
Ahmednagar	199 (72.6%)	75 (27.4%)		
Residence				
Urban	155 (48.9%)	162 (51.1%)	1	46.09***
Rural	175 (77.8%)	50 (22.2%)		
Gender				
Male	247 (79.4%)	64 (20.6%)	1	105.27***
Female	83 (35.9%)	148 (64.1%)		
Education				
12th grade or below	230 (62.3%)	139 (37.7%)	1	1.01
Above 12th grade	100 (57.8%)	73 (42.2%)		
Marital status				
Never married	53 (49.5%)	54 (50.5%)	1	7.21*
Ever married	277 (63.7%)	158 (36.3%)		
Living situation				
Independent	10 (76.9%)	3 (23.1%)	1	1.43
With family	320 (60.5%)	209 (39.5%)		
Diagnosis				
Schizophrenia-spectrum	183 (55.5%)	147 (44.5%)	1	10.45**
Major mood disorder	147 (69.3%)	65 (30.7%)		
Past psychiatric hospitalization				
Yes	224 (66.1%)	115 (33.9%)	1	10.24**
No	106 (52.2%)	97 (47.8%)		
Current medical condition				
Yes	84 (59.6%)	57 (40.4%)	1	0.13
No	246 (61.3%)	155 (38.7%)		
Current tobacco use				
Yes	155 (76.0%)	49 (24.0%)	1	31.29***
No	175 (51.8%)	163 (48.2%)		
Current alcohol use				
Yes	34 (91.9%)	3 (8.1%)	1	16.03***
No	296 (58.6%)	209 (41.4%)		
Recent past work				
Yes	315 (85.4%)	54 (14.6%)	1	290.91***
No	15 (8.7%)	158 (91.3%)		
Continuous variables				
	M (SD)	M (SD)		<i>t</i>
Age	38.4 (8.7)	40.1 (9.1)	540	2.10*
Total family members	5.1 (2.5)	4.5 (2.6)	540	2.73**
Monthly family income excluding participant income (USD)	261 (393)	729 (1405)	232.36	-4.72***
Monthly family income excluding participant income ^a	2.1 (1.1)	3.1 (0.9)	489.08	-11.05***
Duration of illness (years)	11.5 (6.8)	12.2 (7.3)	540	1.16

^aBased on a 4 point ordinal scale, with higher numbers pertaining to higher income. The four categories were determined by quartiles: ≤\$76.9, \$77–223, \$223.1–495.1, ≥\$495.2

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Table 3 Work characteristics of employed participants living in urban vs. rural areas

Variable	Total <i>n</i> = 328 M (SD)	Urban <i>n</i> = 154 M (SD)	Rural <i>n</i> = 174 M (SD)	<i>df</i>	<i>t</i>
Hours worked per week	45.7 (15.1)	46.6 (15.1)	44.9 (15.1)	326	0.99
Monthly income (USD)	245 (377)	375 (505)	130 (123)	169.15	5.84***
Duration of current job (months)	114.5 (112.8)	103.7 (114.3)	124.1 (110.8)	326	−1.63
Job satisfaction ^a	4.2 (1)	4.1 (1.1)	4.3 (0.8)	280.84	−1.83
Benefits of work (number) ^b	4.2 (0.9)	4.5 (0.7)	3.9 (0.9)	321.15	5.55***
Problems related to work ^c (number)	2.2 (2.1)	3.1 (2.4)	1.4 (1.5)	256.97	7.53***
National Classification of Occupations (NCO) scale ^d	5.8 (2.4)	4.5 (2.2)	7.1 (2.0)	326	−11.33***
Type of employer		<i>n</i> (%)	<i>n</i> (%)		χ^2
Independent employer	155 (47.3%)	108 (70.1%)	47 (27.0%)	2	88.71***
Family	131 (39.9%)	20 (13.0%)	111 (63.8%)		
Self-employed	42 (12.8%)	26 (16.9%)	16 (9.2%)		
Source for finding job (independent employers only; <i>n</i> = 153)		<i>n</i> (%)	<i>n</i> (%)		χ^2
Self	82 (53.6%)	63 (58.9%)	19 (41.3%)	1	3.99*
Family, other relatives, friends	71 (46.4%)	44 (41.1%)	27 (58.7%)		
Type of job ^e					
Managers	3 (0.9%)	3 (1.9%)	0 (0.0%)	–	–
Professionals	37 (11.3%)	31 (20.1%)	6 (3.4%)	1	22.71***
Technicians and associate professionals	22 (6.7%)	20 (13.0%)	2 (1.1%)	1	18.29***
Clerks/clerical support workers	41 (12.5%)	32 (20.8%)	9 (5.2%)	1	18.19***
Service and sales workers	47 (14.3%)	30 (19.5%)	17 (9.8%)	1	6.27*
Skilled agricultural, forestry and fishery workers	48 (14.6%)	2 (1.3%)	46 (26.4%)	1	41.32***
Craft and related trade workers	30 (9.1%)	20 (13.0%)	10 (5.7%)	1	5.15*
Plant and machine operators and assemblers	9 (2.7%)	5 (3.2%)	4 (2.3%)	–	–
Elementary occupations ^f	91 (27.7%)	11 (7.1%)	80 (46.0%)	1	61.45***

^aHigher numbers pertain to higher levels of job satisfaction on 1–5 scale

^bHigher numbers pertain to more benefits of work (range 0–5)

^cHigher numbers pertain to more problems related to work (range 0–10)

^dLower numbers pertain to higher-skilled jobs on 1–9 scale

^eEach job type with a minimum of 20 participants was compared to all other type of jobs with a χ^2 test

^fOf the total 91 jobs in elementary occupations 71 were agricultural laborers, including 3 people in urban areas and 68 people in rural areas

* $p < 0.05$; ** $p < 0.01$; *** $p < .001$

total problems related to work, as well as significantly more of each type of problem except low energy and physical health.

Interest in work among unemployed participants

Among the 212 participants who were not working, 164 (77.4%) expressed interest in work (144 wanted work currently, 20 wanted work in the future). A similar pattern of demographic and clinical correlates of interest in work was found between participants in urban and rural areas.

Therefore, the findings of the total sample of unemployed participants are presented in Supplementary Table 4. Interest in work was significantly associated with recent work, male gender, younger age, higher education, not having married, shorter duration of illness, and not having a co-morbid disorder.

The overall logistic regression analysis predicting interest in work was significant ($\chi^2 = 49.93$, $p < 0.001$), with significant variables including male gender (OR = 3.59, $p = 0.025$), younger age (OR = 0.93, $p = 0.015$), and higher education level (OR = 4.28, $p = 0.004$).

Table 4 Comparison of work characteristics of participants working for different employers

Variable	Total <i>n</i> = 328 M (SD)	Independent employer <i>n</i> = 155 M (SD)	Family <i>n</i> = 131 M (SD)	Self-employed <i>n</i> = 42 M (SD)	<i>df</i>	<i>F</i>
Hours worked per week	45.7 (15.1)	48.2 (13.1)	42.7 (16.0)	46.3 (17.9)	2, 106.69	4.83 ^a
Monthly income (USD)	245 (377)	319 (345)	120 (157)	361 (725)	2, 94.04	22.20 ^{***a}
Duration of current job (months)	114.5 (112.8)	98.8 (121.4)	128.9 (101.8)	127.2 (107.2)	2, 325	2.86
Job satisfaction ^b	4.2 (1)	4.1 (1.1)	4.3 (0.9)	4.2 (0.9)	2, 325	1.21
Benefits of work ^c	4.2 (0.9)	4.4 (0.8)	3.8 (0.9)	4.6 (0.6)	2, 134.76	20.06 ^{***a}
Problems related to work ^d	2.2 (2.1)	2.8 (2.3)	1.4 (1.5)	2.4 (2.3)	2, 105.97	21.32 ^{***a}

^aWelch's test

^bHigher numbers pertain to higher levels of job satisfaction on 1–5 scale

^cHigher numbers pertain to more benefits of work (range 0–5)

^dHigher numbers pertain to more problems related to work (range 0–10)

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Perceived barriers to work and the desired job supports

Table 5 displays perceived barriers to work and desired job supports of participants interested in work who were living in urban vs. rural areas. Overall, difficulty finding a job (34.8%) was the most common barrier, followed by having to manage the household (34.1%), difficulties keeping a job (25.6%), stress (25.6%), increase in symptoms (21.3%), and stigma (14.6%). Urban participants reported significantly more total barriers than rural participants, and were more likely to report stigma and difficulty keeping a job as obstacles to work.

The most common job support desired by participants interested in work was assistance with finding a job (88.4%), followed by help with stress (70.1%), symptoms (62.8%), cognitive difficulties (60.4%), co-workers (49.4%), medication side effects (38.4%), and transportation (34.8%). Urban participants wanted more total job supports, and significantly more of each type of support except help with the job search. Statistically controlling for diagnosis did not affect the difference between urban vs. rural participants in the number of job supports desired [$F = (1, 161) = 39.79, p < 0.001$].

Discussion

A moderately high proportion (60.9%) of persons with SMI in this study were employed, with the average person working 45.7 h/week and earning \$245 per month. Employment rates were higher among participants living in rural areas (77.8%), where the most common type of job was agricultural work (54.8%), compared to urban areas (48.9%), where clerical (20.8%), and service jobs (19.5%) were most

common. These employment rates are substantially higher than the 10%–25% rates reported for people with SMI in developed countries [3, 4]. Other studies from developing countries have also reported higher employment rates than developed countries [17, 21, 25]. However, this study improves upon methodological limitations of previous research from developing countries by its large sample size, the inclusion of both men and women in urban and rural sites, as well as the detailed information obtained about work, and interest in work and desired job supports among those unemployed.

One reason for the higher rate of work in persons with SMI in this study (and others from developing countries) appears to be the high proportion of participants working in family businesses (40%), mainly farming (75.5% of those working in a family business), compared to developed countries [17, 27]. The Indian economy is primarily agrarian, with about 50% of the general population employed in the agricultural sector [47], most on family farms. Family work may be easier to obtain and retain for persons with SMI than competitive work, and provide greater access to support and more flexibility in work hours and responsibilities [17, 27]. Consistent with these advantages, participants working in family businesses reported fewer work-related problems, including fewer illness-related problems (e.g., symptoms, cognitive difficulties), and worked fewer hours than those working for independent employers ($M_s = 42.7$ vs. 48.2, respectively).

The social norm of family businesses in India involves a strong expectation that all members will work in the business, which may increase the willingness of families to accommodate individual members' needs [48], including a relative with SMI. Interestingly, compared to participants who were working for independent employers, those working for the

Table 5 Perceived barriers and desired job supports of unemployed participants interested in work in urban vs. rural areas

Barriers	Total <i>n</i> = 164 <i>n</i> (%)	Urban <i>n</i> = 128 <i>n</i> (%)	Rural <i>n</i> = 36 <i>n</i> (%)	<i>df</i>	χ^2
Managing household					
Yes	56 (34.1%)	43 (33.6%)	13 (36.1%)	1	0.07
No	108 (65.9%)	85 (66.4%)	23 (63.9%)		
Stress					
Yes	42 (25.6%)	37 (28.9%)	5 (13.9%)	1	3.32
No	122 (74.4%)	91 (71.1%)	31 (86.1%)		
Increase in symptoms					
Yes	35 (21.3%)	29 (22.7%)	6 (16.7%)	1	0.60
No	129 (78.7%)	99 (77.3%)	30 (83.3%)		
Stigma					
Yes	24 (14.6%)	23 (18.0%)	1 (2.8%)	1	5.19*
No	140 (85.4%)	105 (82.0%)	35 (97.2%)		
Difficulty finding job					
Yes	57 (34.8%)	43 (33.6%)	14 (38.9%)	1	0.34
No	107 (65.2%)	85 (66.4%)	22 (61.1%)		
Difficulty keeping job					
Yes	42 (25.6%)	41 (32.0%)	1 (2.8%)	1	12.62***
No	122 (74.4%)	87 (68.0%)	35 (97.2%)		
	M (SD)	M (SD)	M (SD)		<i>t</i>
Total barriers ^a	1.6 (1.2)	1.7 (1.3)	1.1 (0.8)	80,24	3.09**
Job supports					
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)		<i>p</i> (Fisher's exact test)
Job search					
Yes	145 (88.4%)	115 (89.8%)	30 (83.3%)		0.37
No	19 (11.6%)	13 (10.2%)	6 (16.7%)		
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)		χ^2
Managing stress					
Yes	115 (70.1%)	103 (80.5%)	12 (33.3%)	1	29.79***
No	49 (29.9%)	25 (19.5%)	24 (66.7%)		
Managing symptoms					
Yes	103 (62.8%)	94 (73.4%)	9 (25.0%)	1	28.22***
No	61 (37.2%)	34 (26.6%)	27 (75.0%)		
Transportation					
Yes	57 (34.8%)	52 (40.6%)	5 (13.9%)	1	8.85**
No	107 (65.2%)	76 (59.4%)	31 (86.1%)		
Managing medication side effects					
Yes	63 (38.4%)	58 (45.3%)	5 (13.9%)	1	11.72**
No	101 (61.6%)	70 (54.7%)	31 (86.1%)		
Help with cognitive functioning					
Yes	99 (60.4%)	88 (68.8%)	11 (30.6%)	1	17.13***
No	65 (39.6%)	40 (31.3%)	25 (69.4%)		
Help dealing with co-workers					
Yes	81 (49.4%)	76 (59.4%)	5 (13.9%)	1	23.25***
No	83 (50.6%)	52 (40.6%)	31 (86.1%)		
	M (SD)	M (SD)	M (SD)		<i>t</i>
Total job supports ^b	4.0 (2.2)	4.6 (2.0)	2.1 (1.7)	162	-6.50***

^aHigher numbers pertain to more barriers^bHigher numbers pertain to more job supports**p* < 0.05; ***p* < 0.01; ****p* < 0.001

family were less likely to endorse improved social status and having something to do as benefits of work, perhaps because they viewed their work as an obligation rather than a way of enhancing their social position outside of their family or fulfilling a sense of purpose. Moreover, although participants working for family reported fewer problems related to work, they also endorsed fewer benefits and earned substantially lower wages than those working for other employers ($M_s = \$120$ vs. $\$319$ per month). It should be noted that at least some of the lower wages earned by participants working for family businesses may be due to the fact that information was obtained on total hours worked and wages earned on family farms without distinguishing between hours worked for yield that was sold vs. consumed by the family.

The role of the family in contributing to the high work rates in this study may extend beyond employment in family businesses. Finding work can be difficult for persons with SMI due to symptoms, associated functional impairments, and stigma. Families facilitated job finding for study participants through their extended social networks: almost half (46.4%) of participants working for independent employers got their jobs with the help of family or other social connections. Research in the general population shows that both strong and weak social connections play an important role in obtaining jobs both for people in developed and developing countries [49]. Families in more collectivistic cultures such as India may compensate for the smaller social networks of people with SMI [50, 51] by providing more assistance in job finding through their larger social networks.

An additional factor that may have contributed to the relatively high rate of work is the private psychiatric outpatient settings from where the study took place. Private treatment for medical illnesses is common in India, including psychiatric disorders, with approximately 70% of medical care provided by the private sector [52, 53]. Although private treatment is charged on a sliding fee scale, families seeking such treatment for a relative may have greater financial and social resources than those seeking treatment at public hospitals, which could contribute to higher rates of employment for their relatives with SMI.

Another possible factor related to the higher rate of employment in this study and others from developing countries is the lack of disability insurance in developing countries compared to developed countries. Receipt of disability income in persons with a first episode of psychosis is associated with reduced likelihood of subsequently working [54]. Furthermore, the generosity of disability benefits programs in developed countries is related to lower employment rates in supported employment programs, and loss of benefits is a common concern of people with SMI contemplating work [55].

The higher rates of work in rural than urban areas appear to be partly due to the greater proportion of family

businesses, accounting for 60% of all jobs in rural areas compared to only 13% of jobs in urban areas. However, even when people working for family businesses were excluded, participants in rural areas were more likely to be employed than in urban areas (56.1% vs. 45.5%). Differences in the role of families in helping a member get a job with an independent employer may explain some of these differences in work rates. In rural areas, 58.7% of jobs with independent employers were obtained through family or other social contacts, compared to only 41.1% in urban areas. The lower rate of jobs obtained through family and social contacts in urban areas may partly reflect the impact of urbanization on the breakdown of family and social supports in India [56].

In addition to high rates of work, employed participants worked for average 45.7 h per week, considerably more than reported in studies from developed countries. For example, an online survey study in the US of 529 employed people self-identified as having SMI, only 31% reported working more than 40 h a week [57], compared to 69.5% in the present study. In a combined analysis of four controlled studies comparing supported employment with control vocational programs, the study participants who worked competitively worked an average of only 18.9 and 22.3 h/week, respectively [58].

The high number of hours worked in this study mirrors the higher work hours in the general population in developing countries compared to developed ones. Specifically, in India people living in rural areas work an average of 48 h/week (vs. 44.9 h/week for study participants), and those in urban areas work an average of 56 h/week (vs. 46.6 h for study participants) [59]. While the number of hours worked per week for participants was less than the general population in India, it nevertheless appears high, raising questions about the accuracy of the work reported.

We explored the plausibility of the reports by examining the types of jobs held by study participants who worked the most hours/week. Among the 43 participants who worked over 60 h per week, 29 worked in a shop, on a farm, or as a security guard. Jobs in small to medium size shops selling goods such as groceries, prepared food, and clothing were usually open for long hours, involved working with other employees, and may not have been busy much of the day. Farm work was typically comprised of sowing, watering, weeding, spraying and harvesting, and was carried out collectively by co-workers (often other family members). Participants working as security guards were primarily responsible for monitoring the premises of a business or home, often working 12 h per day, 6 or 7 days/week. These jobs are known to sometimes be associated with long work hours in India, providing some support for the validity of the reported hours of work.

While these types of jobs involved long work hours, they may not have required high effort all of the time, and may

not have been especially stressful. More generally, it is possible that there are more low-stress jobs in India and other developing countries than developed countries. Support for this conjecture is provided by the concept of surplus labor, which is defined as when more people are employed for a given job than are required to perform the work [60]. Surplus labor is often observed in developing countries, particularly in rural agricultural sectors [61], but also in urban labor markets to some extent. An implication of surplus labor may be that there are lower demands on worker productivity, which may reduce the effort required at work and associated stress. Greater access to less stressful, lower-skilled jobs that require less effort may contribute to more people with SMI working, and working longer hours. More research is needed to investigate the association between surplus labor, employment, and perceived stress of work in people with SMI in developing countries.

A large majority of the unemployed participants were interested in work (77.4%), similar to studies in developed countries, where 55% to 75% of people with SMI want to work [8, 10, 62, 63]. Interest in work was higher in individuals who were male, younger, and had higher education levels. The higher rate of work in men than women (79.4% vs. 35.9%, respectively), as well as interest in work (92.2% vs. 70.9%, respectively) is not surprising given the strong social role expectations in India that men are the primary earners, and married women are primarily responsible for running the household [23, 24]. Consistent with this, marital status was unrelated to interest in work in men, whereas unmarried women were significantly more interested in work (100%) than married women (65.6%).

A minority of unemployed participants who were interested in work identified specific barriers to employment. Only 14% indicated that stigma was a barrier, and between 21% (increase in symptoms) and 35% (difficulty finding a job) identified other barriers. Nevertheless, 88% of the unemployed participants reported wanting help finding a job, and over 60% wanted help managing their illness (e.g., coping with stress and symptoms) and improving their cognitive functioning. These findings suggest that unemployed people with SMI in India want help working and could benefit from vocational services. Furthermore, employed participants, particularly those working for independent employers, indicated a number of problems related to work such as cognitive difficulties or stress, suggesting that vocational supports could improve work functioning or reduce burden of illness in employed people with SMI in India.

Supported employment has the strongest evidence base of vocational rehabilitation approaches for people with SMI in developed countries [64], but there are few reports of it in developing countries, including India [65]. Successful implementation of supported employment may

require adaptation to the context of India. Since study participants identified help coping with their psychiatric disorder as a desired job support, one possible adaptation would be to integrate teaching illness self-management skills [66] into supported employment. Another potential adaptation would be the systematic involvement of families in supported employment, including help with job finding through their extended social networks, collaboration on illness management, and facilitating work in family businesses [67].

Several limitations of this study should be noted. First, standardized measures of diagnosis, symptoms, or psychosocial functioning were not used, limiting information about the clinical functioning of the participants. Second, family members' perspectives about the employment of their relative were not obtained. Considering the importance of families to work in this study, their perceptions of their relative's ability to work, as well as challenges and facilitators of work, could inform the development of vocational services for this population. Third, the focus of this study was on understanding paid employment in people with SMI in India, and hence we did not assess unpaid work which may be equivalent to a paid job, such as fulfilling domestic responsibilities, which is the traditional role for women in Indian society. Future research should examine the broader range of role functioning beyond work in people with SMI in India, including household and educational functioning.

These limitations notwithstanding, the large sample size and rich data in this study provide strong evidence that employment in persons with SMI in India is higher than in developed countries and that families play an important role in supporting a relative working. Despite the higher rates of work, a significant proportion of participants were unemployed (39.1%), and most of those wanted to work and indicated desire for a range of job supports. The findings suggest that attention should be paid to adapting models of vocational rehabilitation to the cultural context of developing countries to improve the employment outcomes of persons with SMI.

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Compliance with ethical standards

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Affiliations

Chitra Khare^{1,2} · Kim T. Mueser^{2,3,4}  · Daniel Fulford^{1,4} · Vidyadhar G. Watve⁵ · Neeraj J. Karandikar⁶ · Sailee Khare⁷ · Dipti N. Karandikar⁶ · Susan R. McGurk^{2,3,4}

Chitra Khare
chitrak@bu.edu

Daniel Fulford
dfulford@bu.edu

Vidyadhar G. Watve
vidyadharw@gmail.com

Neeraj J. Karandikar
karandikarneeraj@gmail.com

Sailee Khare
sailee.khare@outlook.com

Dipti N. Karandikar
diptineeraj2005@gmail.com

Susan R. McGurk
mcgurk@bu.edu

² Center for Psychiatric Rehabilitation, Boston University, 940 Commonwealth Ave. West, Boston, MA 02215, USA

³ Department of Occupational Therapy, Boston University, Boston, MA 02215, USA

⁴ Department of Psychological and Brain Sciences, Boston University, Boston, MA, USA

⁵ Department of Psychiatry, Poona Hospital and Research Centre, Sadashiv Peth, Pune, Maharashtra 411030, India

⁶ Manasdeep Psychiatric and De-Addiction Center, Dr. Karandikar Hospital, Laltaki, Siddharthnagar, Ahmednagar, Maharashtra 414001, India

⁷ KEM Hospital and Research Centre (KEMHRC), Sardar Moodliar Road, Rasta Peth, Pune, Maharashtra 411011, India

¹ College of Health and Rehabilitation Sciences: Sargent College, Boston University, 635 Commonwealth Ave, Boston, MA 02215, USA