Schizophrenia Research 228 (2021) 472–480

Contents lists available at ScienceDirect

Schizophrenia Research

journal homepage: www.elsevier.com/locate/schres

A longitudinal analysis of employment in people with severe mental illnesses in India

Chitra Khare [a,b], Susan R. McGurk [b,c,d], Daniel Fulford [a,d], Vidyadhar G. Watve [e], Neeraj J. Karandikar [f], Sailee Khare [g], Dipti N. Karandikar [f], Kim T. Mueser [b,c,d,*]

[a] College of Health and Rehabilitation Sciences: Sargent College, Boston University, 635 Commonwealth Ave., Boston, MA 02215, USA
[b] Center for Psychiatric Rehabilitation, Boston University, 940 Commonwealth Ave. West, Boston, MA 02215, USA
[c] Department of Occupational Therapy, Boston University, Boston, MA 02215, USA
[d] Department of Psychological and Brain Sciences, Boston University, Boston, MA, USA
[e] Department of Psychiatry, Poona Hospital and Research Centre, Sadashiv Peth, Pune, Maharashtra 411030, India
[f] Manasdeep Psychiatric and De-addiction Center, Dr. Karandikar Hospital, Laltaki, Siddharthnagar, Ahmednagar, Maharashtra 414001, India
[g] KEM Hospital and Research Centre (KEMHRC), Sardar Moodliar Road, Rasta Peth, Pune, Maharashtra 411011, India

ARTICLE INFO

Article history:
Received 26 June 2020
Received in revised form 4 January 2021
Accepted 17 January 2021
Available online xxxx

Keywords:
Severe mental illness
Schizophrenia
Employment
India
Longitudinal
Developing countries

ABSTRACT

Purpose: Little is known about the longitudinal trajectories of employment in people with severe mental illnesses (SMI) in developing countries, including India. We examined stability and change in work status, interest in work, problems and benefits related to work among employed participants, and barriers and desired job supports among unemployed participants.
Methods: We conducted a one-year follow-up with 550 participants with SMI receiving psychiatric outpatient treatment in two hospitals in two districts in India. A total of 459 (83.5%) participants completed follow-up interviews.
Results: Rates of employment were stable across the one-year period, with over 60% employed at baseline and follow-up assessment. More than 80% who worked at both assessments were working in the same job for an average duration of 10 years. Among participants who were unemployed at baseline, 16.9% started working at follow-up, an outcome associated with interest in work and efforts to find work at baseline. Interest in work of those unemployed at both assessments was lower at follow-up than baseline, but over 60% of participants wanted to work across both assessments, and endorsed desired supports for their job search.
Conclusions: There is considerable stability of work in people with SMI in India. Working in the same job for the long term may have contributed to consistent work. Most unemployed participants who wanted to work at baseline were not working at follow-up, and expressed a desire for help with job search, suggesting the need for vocational services to help people with SMI in developing countries obtain employment.

1. Introduction

Unemployment rates in people with schizophrenia and other severe mental illnesses (SMI) are lower in developing countries, ranging from 23% to 60% (Olagunju et al., 2016; Shibre et al., 2015; Srinivasan and Tirupati, 2005; Yang et al., 2013), than in developed countries, where more than 75% are not working (Marwaha et al., 2009; Salkever et al., 2007). Nevertheless, this unemployment has dire implications for families in developing countries, where loss of a single worker can threaten the family's ability to meet basic living needs (Raut et al., 2014). Furthermore, unemployed people with SMI in both developed (Frounfelker et al., 2011; Westcott et al., 2015) and developing countries want to work (Nagaswami et al., 1985).

While several studies have reported employment rates in people with SMI in developing countries, they tend to lack basic details about the nature and extent of work, including types of jobs, employer, hours worked, and wages earned. Furthermore, some studies have excluded women (Prasad and Acharya, 2014; Srinivasan and Thara, 1997), and most have been conducted in a single setting (e.g., Midin et al., 2011; Srinivasan and Tirupati, 2005), limiting generalizability of findings. There is also a lack of information about the longitudinal course of employment, including changes in work status. One ten year follow-up study from India of male outpatients with schizophrenia indicated 63–73% were working in any given year (Srinivasan and Thara, 1997), although work consistency over the years was not examined. An epidemiological study from rural China reported that 88% individuals with

* Corresponding author at: Boston University, Center for Psychiatric Rehabilitation, 940 Commonwealth Avenue West, Boston, MA, 02215, USA.
E-mail address: mueser@bu.edu (K.T. Mueser).

https://doi.org/10.1016/j.schres.2021.01.004
0920-9964/

schizophrenia were working at baseline and 77% were employed ten years later, with moderate consistency in employment status (Ran et al., 2011). However, neither study examined who is most likely to lose, change, or get a job. Finally, little is known about perceived benefits and problems related to work among employees, or interest in work, perceived barriers to work, and desired job supports among unemployed persons with SMI.

In contrast to developed countries, where supported employment has been shown to improve vocational outcomes for persons with SMI (Frederick and VanderWeele, 2019), little progress has been made in vocational rehabilitation in developing countries (Harish et al., 2020; Jagannathan et al., 2020). Supported employment helps people find jobs on the open labor market that match their skills and preferences without requiring extensive prevocational assessment or training, and then providing supports to facilitate job maintenance or transition to another job (Becker and Drake, 2003). Longitudinal data on interest in work and perceived barriers among people with SMI in developing countries are needed to inform potential adaptations of vocational interventions in these countries. Moreover, specific information about the types of assistance desired by people who want to work, and problems related to work among those who are employed, could provide insights into potential targets for interventions for these individuals.

To address these gaps, we conducted a longitudinal evaluation of employment in people with SMI receiving outpatient services at two private hospitals, one in an urban and one in a rural district in India, with two assessments conducted one year apart (Khare et al., 2020). Results from the initial assessment indicated that 60.9% of participants were working, with higher employment rates in rural than urban settings (77.8% vs. 48.9%), which were mainly accounted for by the high proportion of family-owned businesses in rural areas (e.g., farming). Most unemployed participants wanted to work and indicated wanting a variety of job supports, including help finding a job and coping with mental illness.

This paper presents findings from the one-year follow-up of this cohort. The analyses were guided by questions regarding stability in work rates and interest in work, reasons for job changes and job losses, and correlates of obtaining a job at follow-up. The study also examined consistency of perceived benefits and problems related to work in workers, and in barriers and desired supports among unemployed participants who wanted to work.

2. Method

The study was conducted at the psychiatry outpatient departments of two private hospitals in the state of Maharashtra in western India: Poona Hospital and Research Center in Pune, a predominantly urban district, and Manasdeep Psychiatric and Addiction Treatment Center in Ahmednagar, a predominantly rural district (Maharashtra Directorate of Census Operations, 2011). One of the two study sites had an ethics committee that reviewed the study protocol, and stated that anonymous survey research was exempt from their oversight. The Institutional Review Board of Boston University approved the study. Informed consent for the baseline and follow-up assessments was obtained from all participants at baseline (see Khare et al., 2020).

2.1. Participants

SMI was defined as including both schizophrenia-schizoaffective and major mood disorder diagnoses. Major depression was included because the treatment gap for depression is even larger than schizophrenia in developing countries (Lora et al., 2012; Patel et al., 2016), and people with more severe disorders are more likely to receive treatment (Patel et al., 2016). Inclusion criteria were: 1) medical record diagnosis of schizophrenia, schizoaffective disorder, bipolar disorder, or major depression; 2) age 18–60 years old; 3) verbally fluent in Marathi language; 4) residing in Pune or Ahmednagar districts and receiving outpatient treatment at one of the two hospitals; and 5) willing and able to provide informed consent. A total of 550 individuals with SMI (275/site) participated in the baseline assessment.

2.2. Procedures

One interviewer at each site with a minimum of a Master's degree was trained to administer the interview. A convenience sampling method was used to enroll participants. At the beginning of the study, the first author and the interviewers explained the study to the psychiatrists at the outpatient departments of the hospitals, who described the study to the patients and referred interested patients to the interviewers. The number of outpatients informed about the study was not tracked. The interviewers obtained informed consent and conducted the baseline interviews. Family members were sometimes present during the interview with the participant's permission. The interviewers or the first author contacted participants one year later to schedule the follow-up assessment. Phone interviews were conducted when in-person meetings were not possible ($n = 137$). Interviews were conducted in a separate room in the outpatient clinic, each lasting 20–30 min.

The flow of study participants from referral to follow-up is provided in Supplementary Fig. 1. A higher proportion of outpatients agreed to participate at Ahmednagar site (99.2%) than in Pune (81.4%). This may reflect the fact that a single psychiatrist provided outpatient services at Ahmednagar compared to several psychiatrists in Pune. Of the 550 participants assessed at baseline, 459 (83.5%) completed the one-year follow-up. T tests and χ^2 tests comparing completers with non-completers on demographic and clinical characteristics (Supplementary Table 1) revealed only one significant difference: participants with schizophrenia-schizoaffective disorder were less likely to complete the follow-up than those with bipolar disorder or major depression (19.3%, 14.9%, 2.2%, respectively; $\chi^2 = 8.86$, $p = .012$). Of the 459 participants who completed the follow-up, the average age was 39.12 years (age distribution: 18–30 years old: 20.3%; 31–40 years old: 37.2%; 41–50 years old: 28.1%; 51–60 years old: 14.4%), 57.5% were male, 59.9% were urban residents, 59.3% had schizophrenia-schizoaffective disorder, 31.2% had bipolar disorder, and 9.6% had major depression.

2.3. Measures

Most of the questions from the survey instrument developed for the baseline study were retained for the follow-up (see Khare et al., 2020). Modifications were made to capture changes that may have occurred over the past year. The one-year follow-up interview contained 53 questions in everyday Marathi language, with interviewers free to rephrase questions as needed. Two interviewers and the first author administered the interview. Weekly supervision was conducted with the interviewers to discuss assessment-related issues and coordinate follow-up interviews.

2.3.1. Demographic and clinical characteristics

Information related to demographic (e.g., marital status) and clinical characteristics (e.g., psychiatric hospitalizations in the past year) was obtained.

2.3.2. Current work status, and benefits and problems related to work

Current work status was coded as working or not working. Information about current job was obtained, including title, employer, duties, hours worked/week, and monthly earnings. The National Classification of Occupations (NCO) 2015 was used to code job type (Indian Ministry of Labour and Employment, 2015), which consists of nine codes ranging from highly skilled (1) to elementary occupations (9). Job categories 1–8 were considered to be "skilled work" and category 9 was considered to be "unskilled work." To calculate monthly income of participants working in family-run businesses who were not paid separate wages,

total family income was divided by the number of family members working, adjusting for the amount of time the participant worked.

Questions about the perceived benefits and problems related to work were identified from the relevant research literature (e.g., Becker et al., 2007; Dunn et al., 2008; Marwaha and Johnson, 2004; McGurk and Meltzer, 2000; Mueser et al., 2016, 1997). Employed participants were asked five yes/no questions to assess perceived benefits of work (e.g., money), with the number of benefits endorsed summed. Perceived problems related to work (e.g., stress) were assessed with 10 yes/no questions, with the number of problems endorsed summed.

2.3.3. Currently not working participants

Unemployed participants were asked about reasons for not working (e.g., managing household), whether they were currently interested in work, and if not whether they would be interested in working in the future. Participants who responded 'yes' to either question were coded as 'interested in working,' and were then asked about different supports that might help them work (e.g., help finding a job).

2.3.4. Work over the past 12 months

The same information was obtained for each job worked over the past year as for current work (Section 2.3.2), as well as start and end date, and reasons for job termination.

2.4. Statistical analyses

Stability of work status over the one-year period was evaluated by computing a Kappa statistic. Kappa values were interpreted using the convention of Landis and Koch (1977): 0.81–1.00: almost perfect; 0.61–0.80: substantial; 0.41–0.60: moderate; 0.21–0.40: fair; 0.00–0.20: slight; <0.00: poor. A McNemar test was computed to evaluate change in work status over the year.

Work status at baseline and follow-up of urban vs. rural residents, men vs. women, and diagnostic groups were compared using χ^2 tests. Work characteristics (e.g., income) of participants who were working at both assessments were compared with respect to urban/rural residence, gender, and diagnosis using χ^2 tests, *t*-tests, and analysis of variance (ANOVA).

For participants working at baseline who either changed jobs or were unemployed at follow-up, we calculated frequencies for reasons for job change or ending. Participants who were working at both assessments were compared with those who stopped working at follow-up on demographic and clinical characteristics, and disclosure of mental illness to employer (among those working for independent employers) using χ^2 tests and *t*-tests. For participants who were unemployed at baseline, we examined the demographic, clinical, and work interest factors associated with working at follow-up by computing χ^2 analyses and *t*-tests.

The consistency and changes in specific benefits and problems related to work among participants working in the same job at both assessments were examined by computing Kappa statistics and McNemar tests. Pearson correlations and paired *t*-tests were computed to evaluate consistency and change in number of benefits and number of work-related problems endorsed at baseline and follow-up.

Kappa statistics were computed to evaluate consistency of interest in work and efforts to find work over the one-year, and McNemar tests were performed to examine changes in interest and efforts among participants who were unemployed at both assessments. Similarly, Kappa statistics were calculated to evaluate consistency and McNemar tests were computed to examine changes in specific barriers to work and desired job supports among participants who were unemployed at both assessments and wanted to work. Consistency and changes in number of barriers and number of desired job supports across the two assessments were evaluated by computing Pearson correlations and paired *t*-tests.

3. Results

Two participants who completed the follow-up reported being full-time students and one reported working as a volunteer. These participants were excluded from the analyses, leaving 456 participants for the final analyses.

3.1. Consistency in work status

Of the 456 participants, 257 (56.4%) were working at both assessments, 148 (32.4%) were not working at either assessment, 21 (4.6%) were working at baseline but not follow-up, and 30 (6.6%) were not working at baseline but were employed at follow-up. The Kappa for work status was significant ($k = 0.76$; $p < .001$), whereas the McNemar test was not, indicating work status was consistent over time. Among the 148 participants who were not working at both assessments, only 8 (5%) worked during the intervening months.

Of the 257 participants employed at both assessments, 218 (84.8%) had worked continuously in the same job for the year, while 10 (3.9%) took a break of at least one month before returning to their job. For the 228 participants working in the same job at both assessments, the average duration on the job was 125.35 months. At follow-up, 18 participants reported working in two jobs; for analyses related to work characteristics, the job at which the most hours were worked was considered the primary job.

Table 1 presents the work status at both assessments of participants living in urban vs. rural areas, and comparisons of work characteristics of participants who were working at both assessments. Similar to the correlates of work status at baseline (Khare et al., 2020), rural participants were significantly more likely to be working at both assessments, with the majority working for family and employed in unskilled jobs, and earned lower income while working more months over the past year than their urban counterparts. Supplementary Table 2 compares the work status of male vs. female participants across both assessments and the work characteristics of those employed at both assessments. Similar to gender differences at baseline (Khare et al., 2020), men were more likely to be working at both assessments in higher skilled jobs than women, and worked more hours/week and earned higher income. Supplementary Table 3 provides a similar comparison of participants in the three diagnostic groups. Persons with bipolar disorder were more likely to work at both assessments than those with schizophrenia-schizoaffective disorder or major depression. There were no diagnostic differences in any work characteristics among participants working at both assessments.

3.2. Change in jobs and job loss

Of the 29 participants who changed jobs between the assessments, the reasons for change included: finding a better job ($n = 12$; 41.5%), undesirable job characteristics (e.g., shift work; $n = 5$; 17.2%), mental illness (e.g., symptom increase; $n = 5$; 17.2%), seasonal work ($n = 4$; 13.8%), and life changes (e.g., marriage; $n = 3$; 10.3%). Among the 21 participants who stopped working between baseline and follow-up, reasons for job ending were: mental illness-related ($n = 9$; 42.9%), life changes ($n = 8$; 38.1%), laid off ($n = 3$; 14.3%), and did not like the job ($n = 1$; 4.7%). Supplementary Table 4 compares demographic and clinical characteristics of participants who stopped working by follow-up with those who continued working. Only one variable was related to continuity of work: men (94.7%) were significantly more likely to continue working at follow-up than women (85.5%). Participants who were working for independent employers at baseline and follow-up ($n = 118$; 34.7%) did not differ in disclosure of mental illness to their employer from participants working at baseline but not at follow-up ($n = 10$; 30%).

Table 1
Work status of participants living in urban vs. rural areas at baseline and one-year follow-up, and characteristics of work for participants who were employed at both assessments.

Work status of participants at baseline and follow-up assessments					
	Total N = 456	Urban n = 272	Rural n = 184		
	n (%)	*n* (%)	*n* (%)	*df*	χ^2
Not working at both assessments	148	112 (41.2%)	36 (19.6%)	2	30.4***
Working at either assessment	51	35 (12.9%)	16 (8.7%)		
Working at both assessments	257	125 (46.0%)	132 (71.7%)		

Characteristics of work for participants employed at baseline and follow-up assessments					
	Total *n* = 257	Urban *n* = 125	Rural *n* = 132		
		n (%)	*n* (%)	*df*	χ^2
Type of employer					
Independent	119	86 (68.8%)	33 (25.0%)	2	74.5***
Family	97	14 (11.2%)	83 (62.9%)		
Self	41	25 (20.0%)	16 (12.1%)		
Type of job					
Skilled job	193	114 (91.2%)	79 (59.8%)	1	33.7***
Unskilled job	64	11 (8.8%)	53 (40.2%)		
	M (SD)	*M (SD)*	*M (SD)*	*df*	*t*
Hours worked per week	45.5 (14.3)	45.9 (15.4)	45.1 (13.2)	255	0.49
Monthly income (USD)	249 (268)	357 (324)	147 (138)	165.7	6.7***
Job duration (in months)	123.7 (111.9)	114.1 (116.7)	132.8 (106.9)	255	−1.3
Number of months worked in the past year	11.6 (1.3)	11.4 (1.7)	11.8 (0.8)	172.4	−2.4*
Type of job[a] (National Classification of Occupations)	5.8 (2.4)	4.7 (2.2)	6.9 (2.0)	255	−8.6***

* $p < .05$; ** = $p < .01$; *** $p < .001$.
[a] Higher number pertains to lower skilled job.

3.3. Correlates of getting a new job

Table 2 compares participants who were unemployed at both assessments with those who were unemployed at baseline but working at follow-up on baseline interest in work, efforts to find work, number of desired job supports, and baseline demographic and clinical characteristics. Individuals who began working at follow-up were more likely to be interested in work at baseline, to have made efforts to find work, and wanted more job supports than those who remained unemployed. Starting work was also associated with being male, younger age, higher educational level, and never having married. There were no differences between the two groups on any clinical characteristics.

3.4. Consistency of interest in work and efforts to find work

Interest in work and efforts to find work among unemployed participants at both assessments is presented in Table 3. Interest in work was moderately stable over time, with 80.4% of participants either interested in work at both assessments or not interested in work at both assessments. However, there was a significant decline in interest in work, from 73% at baseline to 62.8% at follow-up. Efforts to find work was also moderately stable across the two assessments but did not change over time, with 85.8% of participants who wanted to work either trying to find work or not trying at both assessments.

3.5. Consistency in benefits and problems related to work

Table 4 presents the percentages of participants employed in the same job at both assessments who endorsed specific problems and benefits related to work at each assessment. Kappa statistics for all problems were significant (range: 0.29–0.51), indicating some stability of endorsement of specific problems over time. Four problems were moderately stable over time: dealing with co-workers, low energy/stamina, medication side effects, and stress (Kappa range: 0.44–0.51). Significantly fewer overall problems related to work were endorsed at follow-up than baseline, as well as fewer specific problems, except for medication side-effects and long hours.

We explored whether the reduction in number of problems related to work might be partly due to participants who had more recently obtained work at baseline experiencing more problems initially and reporting fewer problems later as they became more familiar with the job. We computed a *t*-test to compare the number of problems reported at baseline by participants who had been working ≤1 year in the same job ($n = 32$) with the number of problems reported by those who had been working >1 year ($n = 196$), which was significant ($Ms =$ 2.81, 2.02, respectively, $t = 2.02$, $df = 226$, $p = .044$). At one year, a *t*-test indicated that the number of problems was no longer significantly different between the groups ($Ms = 1.47, 1.44$, respectively). Thus, the reduction in number of problems endorsed may be partly due to more recently employed participants at baseline becoming more accustomed to their jobs one year later.

All the Kappa statistics for perceived specific benefits of work were significant, indicating some stability of specific benefits over time (range: 0.15–0.48), with the most stable benefits being having something to do ($k = 0.48$) and improved social status ($k = 0.44$). Fewer participants indicated that work helped with mental illness management at follow-up (87.3%) than baseline (95.6%), but there were no changes in the other benefits of work.

3.6. Consistency of barriers to work and desired job supports

For unemployed participants who were interested in work at both assessments, the specific barriers and desired job supports at each assessment are displayed in Table 5. The Kappa statistics for specific barriers were all significant (range: 0.39–0.62), with managing household as the most consistent obstacle ($k = 0.62$; $p < .001$). McNemar tests indicated that the proportion of participants who reported difficulty finding a job as a barrier to work was higher at follow-up than baseline, while the proportions of participants endorsing stigma and difficulty keeping a job were lower. Participants who had recently worked were more likely to report difficulty keeping a job was a barrier at both assessments than those who had worked in the more distant past (baseline $Ms = 3.86, 8.76$ years,

Table 2
Comparisons between participants not working at baseline who started working at follow-up vs. not working at baseline and follow-up.

Categorical variables	Total n =178	Started working n = 30	Did not start working n = 148		
	n (%)	n (%)	n (%)	df	χ^2
Residence					
Urban	135	23 (17.0%)	112 (83.0%)	1	0.01
Rural	43	7 (16.3%)	36 (83.7%)		
Gender					
Male	54	22 (40.7%)	32 (59.3%)	1	31.56***
Female	124	8 (6.5%)	116 (93.5%)		
Education					
12th grade or below	117	13 (11.1%)	104 (88.9%)	1	8.04*
Above 12th grade	61	17 (27.9%)	44 (72.1%)		
Marital status					
Never married	47	14 (29.8%)	33 (70.2%)	1	7.62*
Ever married	131	16 (12.2%)	115 (87.8%)		
Diagnosis					
Schizophrenia-schizoaffective disorder	118	20 (16.9%)	98 (83.1%)	1	0.002
Major mood disorder	60	10 (16.7%)	50 (83.3%)		
Past psychiatric hospitalization					
Yes	97	14 (14.4%)	83 (85.6%)	1	0.89
No	81	16 (19.8%)	65 (80.2%)		
Current medical condition(s)					
Yes	49	4 (8.2%)	45 (91.8%)	1	3.64
No	129	26 (20.2%)	103 (79.8%)		
Current tobacco use					
Yes	43	8 (18.6%)	35 (81.4%)	1	0.12
No	135	22 (16.3%)	113 (83.7%)		
Current alcohol use					
Yes	2	1 (50.0%)	1 (50.0%)		.31[a]
No	176	29 (16.5%)	147 (83.5%)		
Interest in work					
Yes	135	27 (20.0%)	108 (80.0%)	1	3.94*
No	43	3 (7.0%)	40 (93.0%)		
Efforts to find work in past one month					
Yes	41	14 (34.1%)	27 (65.9%)	1	11.37**
No	137	16 (11.7%)	121 (88.3%)		
Received help in finding work in past one month					
Yes	26	8 (30.8%)	18 (69.2%)		.05[a]
No	152	22 (14.5%)	130 (85.5%)		
Continuous variables	*M (SD)*	*M (SD)*	*M (SD)*	*df*	*t*
Age	40.13 (9.48)	35.50 (10.25)	41.07 (9.08)	176	-3.00**
Monthly family income (USD)	769 (1516)	607 (763)	801 (1627)	176	-0.64
Duration of illness (years)	12.37 (7.18)	11.10 (7.37)	12.62 (7.14)	176	-1.06
Total barriers[b]	1.56 (1.29)	1.80 (1.45)	1.51 (1.26)	176	1.11
Total job supports[c]	3.16 (2.58)	4.00 (2.41)	2.99 (2.59)	176	1.97*

* = $p \leq .05$; ** = $p < .01$; *** = $p < .001$
[a] . p value based on Fisher's exact test
[b] . Higher numbers pertain to more barriers
[c] . Higher numbers pertain to more job supports

respectively, $t = -2.86$, $p = .006$; follow-up $Ms = 3.2, 8.9$ years, $t = -3.21$, $p = .003$).

The Kappa statistics for desired job supports indicated some stability of desired job supports over the one-year period (range: 0.24–0.59), with five supports moderately consistent: help dealing with co-workers, symptoms, cognitive difficulties, stress, and finding a job. The total number of job supports wanted decreased significantly from baseline to one year, as did desire for four of the seven specific supports: dealing with coworkers, symptoms, medication side-effects, and transportation (but not job search, stress, and cognition).

4. Discussion

This study examined employment in a large cohort of people with SMI receiving psychiatric outpatient services at two private hospitals in two districts in India over a one-year period. The work rates at the

Table 3
Consistency of interest in work and efforts to find work among participants who were unemployed at both assessments (n = 148).

	Baseline	Follow-up	Consistently yes or no across both assessments		
	n (%)	n (%)	n (%)	Kappa	McNemar p
Interested in work					
Yes	108 (73.0%)	93 (62.8%)	86 (58.1%)	0.56***	.008
No	40 (27.0%)	55 (37.2%)	33 (22.3%)		
Efforts to find work					
Yes	27 (18.2%)	20 (13.5%)	13 (8.8%)	0.47***	.19
No	121 (81.8%)	128 (86.5%)	114 (77.0%)		

* = $p \leq .05$; ** = $p < .01$; *** $p < .001$.

Table 4
Consistency and change in problems and benefits related to work among participants who were working in the same job at both assessments ($n = 228$)

Problems related to work	Baseline	Follow-up	Consistently yes or no across both assessments		
	n (%)	*n* (%)	*n* (%)	Kappa	McNemar *p*
Stress					
Yes	82 (36.0%)	67 (29.4%)	50 (21.9%)	0.51***	.04
No	146 (64.0%)	161 (70.6%)	129 (56.6%)		
Medication side effects					
Yes	33 (14.5%)	30 (13.2%)	18 (7.9%)	0.50***	.70
No	195 (85.5%)	198 (86.8%)	183 (80.3%)		
Low energy/stamina					
Yes	74 (32.5%)	46 (20.2%)	35 (15.4%)	0.45***	< .001
No	154 (67.5%)	182 (79.8%)	143 (62.7%)		
Dealing with co-workers					
Yes	27 (11.8%)	14 (6.1%)	10 (4.4%)	0.44***	.01
No	201 (88.2%)	214 (93.9%)	197 (86.4%)		
Psychiatric symptoms					
Yes	56 (24.6%)	38 (16.7%)	24 (10.5%)	0.39***	.01
No	172 (75.4%)	190 (83.3%)	158 (69.3%)		
Cognitive difficulties					
Yes	104 (45.6%)	73 (32.0%)	54 (23.7%)	0.38***	< .001
No	124 (54.4%)	155 (68.0%)	105 (46.1%)		
Long hours					
Yes	27 (11.8%)	19 (8.3%)	10 (4.4%)	0.37***	.17
No	201 (88.2%)	209 (91.7%)	192 (84.2%)		
Transportation problems					
Yes	25 (11.0%)	13 (5.7%)	8 (3.5%)	0.37***	.02
No	203 (89.0%)	215 (94.3%)	198 (86.8%)		
Physical health					
Yes	30 (13.2%)	17 (7.5%)	9 (3.9%)	0.32***	.02
No	198 (86.8%)	211 (92.5%)	190 (83.3%)		
Difficulty keeping a job					
Yes	28 (12.3%)	12 (5.3%)	7 (3.1%)	0.29***	.002
No	200 (87.7%)	216 (94.7%)	195 (85.5%)		
	M (SD)	*M (SD)*		Pearson *r*	*t*
Number of problems related to work[a]	2.13 (2.06)	1.44 (1.64)		0.71***	7.13***
Benefits of work	*n* (%)	*n* (%)	*n* (%)	Kappa	McNemar *p*
Something to do					
Yes	145 (63.6%)	141 (61.8%)	115 (50.4%)	0.48***	.69
No	83 (36.4%)	87 (38.2%)	57 (25.0%)		
Improved social status					
Yes	158 (69.3%)	163 (71.5%)	134 (58.8%)	0.44***	.58
No	70 (30.7%)	65 (28.5%)	41 (18.0%)		
Money					
Yes	218 (95.6%)	218 (95.6%)	210 (92.1%)	0.16*	1.00
No	10 (4.4%)	10 (4.4%)	2 (0.9%)		
Managing mental illness					
Yes	218 (95.6%)	199 (87.3%)	193 (84.6%)	0.15**	.001
No	10 (4.4%)	29 (12.7%)	4 (1.8%)		
Improved self-esteem					
Yes	221 (96.9%)	213 (93.4%)	208 (91.2%)	0.15*	.09
No	7 (3.1%)	15 (6.6%)	2 (0.9%)		
	M (SD)	*M (SD)*		Pearson *r*	*t*
Number of benefits of work[b]	4.21 (0.93)	4.10 (1.08)		0.51***	1.71

* = p <.05; ** = p < .01; *** = p < .001
[a] . Higher numbers pertain to more problems related to work (range 0-10)
[b] . Higher numbers pertain to more benefits of work (range 0-5)

Table 5
Consistency and change in barriers to work and desired job supports among participants who were unemployed but interested in work at both assessments.

Barriers to work ($n = 86$)	Baseline	Follow-up	Consistently yes or no across both assessments		
	n (%)	*n* (%)	*n* (%)	Kappa	McNemar *p*
Managing household					
Yes	30 (34.9%)	31 (36.0%)	23 (26.7%)	0.62***	1.00
No	56 (65.1%)	55 (64.0%)	48 (55.8%)		
Difficulty in keeping job					
Yes	24 (27.9%)	14 (16.3%)	11 (12.8%)	0.47***	.02
No	62 (72.1%)	72 (83.7%)	59 (68.6%)		
Stress					
Yes	20 (23.3%)	15 (17.4%)	10 (11.6%)	0.47***	.30
No	66 (76.7%)	71 (82.6%)	61 (70.9%)		
Difficulty in finding job					
Yes	29 (33.7%)	45 (52.3%)	25 (29.1%)	0.45***	.002
No	57 (66.3%)	41 (47.7%)	37 (43.0%)		
Stigma					
Yes	12 (14.0%)	5 (5.8%)	4 (4.7%)	0.42***	.04
No	74 (86.0%)	81 (94.2%)	73 (84.9%)		
Increase in symptoms					
Yes	12 (14.0%)	13 (15.1%)	6 (7.0%)	0.39***	1.00
No	74 (86.0%)	73 (84.9%)	67 (77.9%)		
	M (SD)	*M (SD)*		Pearson *r*	*t*
Number of barriers to work[a]	1.48 (1.15)	1.43 (1.10)		0.57***	0.42
Desired job supports	*n* (%)	*n* (%)	*n* (%)	Kappa	McNemar *p*
Job search					
Yes	77 (89.5%)	79 (91.9%)	75 (87.2%)	0.59***	.69
No	9 (10.5%)	7 (8.1%)	5 (5.8%)		
Managing Stress					
Yes	60 (69.8%)	51 (59.3%)	46 (53.5%)	0.52***	.06
No	26 (30.2%)	35 (40.7%)	21 (24.4%)		
Help in attention, concentration, memory					
Yes	53 (61.6%)	44 (51.2%)	37 (43.0%)	0.46***	.09
No	33 (38.4%)	42 (48.8%)	26 (30.2%)		
Managing symptoms					
Yes	56 (65.1%)	45 (52.3%)	39 (45.3%)	0.46***	.04
No	30 (34.9%)	41 (47.7%)	24 (27.9%)		
Help in dealing with coworkers					
Yes	43 (50.0%)	25 (29.1%)	22 (25.6%)	0.44***	<.001
No	43 (50.0%)	61 (70.9%)	40 (46.5%)		
Managing medication side effects					
Yes	35 (40.7%)	21 (24.4%)	15 (17.4%)	0.33**	.01
No	51 (59.3%)	65 (75.6%)	45 (52.3%)		
Transportation					
Yes	31 (36.0%)	11 (12.8%)	8 (9.3%)	0.24*	<.001
No	55 (64.0%)	75 (87.2%)	52 (60.5%)		
	M (SD)	*M (SD)*		Pearson *r*	*t*
Number of desired job supports[b]	4.13 (2.16)	3.21 (1.95)		0.52***	4.19***

* = p <.05; ** = p < .01; *** = p < .001
[a] . Higher numbers pertain to more barriers
[b] . Higher numbers pertain to more job supports

two assessments were similar, with 60.9% working at baseline, and 62.9% working one-year later. These relatively high employment rates compared to developed countries are consistent with other studies of work from developing countries (Srinivasan and Thara, 1997; Thara, 2004). The findings that 56.4% of participants were working at both assessments, 32.5% not working at both assessments, and only 11.1% changed work status suggest that work status is relatively stable over time in the absence of vocational services. This consistency of work

status is comparable to research from rural China that reported stable work status for 77% of participants over a ten year period (Ran et al., 2011).

One reason for the high consistency in work is the long job tenure, an average of 10 years for individuals employed in the same job at both assessments. Long-term employment may confer several advantages, including more support from co-workers and employers, greater mastery of job tasks, and higher pay. These advantages may be particularly important for people with SMI as they may reduce work-related stress and increase the person's perceived value to others.

Among the 10.4% of participants who changed jobs from baseline to follow-up, the most frequent reason was to get a better job (41.5%), with only 17.2% reporting mental illness as the reason. Mental illness-related factors played a more important role for people who stopped working (7.5%), with 42.9% citing it as the primary reason for the job ending. These findings are consistent with research from developed countries showing that problems related to mental illness can reduce job performance (Auerbach and Richardson, 2005), and is one important reason for job loss (Becker et al., 1998; Cook, 1992; Lanctôt et al., 2013).

Participants working in the same job at both assessments endorsed fewer work-related problems at follow-up. This reduction appeared to be partly due to the longer duration of time on the job at follow-up. Specifically, participants who had worked for a year or less on their job at baseline reported more work-related problems than those who had been working for more than a year, whereas one year later both groups reported fewer problems and there was no difference in number of problems. However, a sub-group of participants consistently reported problems related to work at both assessments, with cognitive difficulties (23.7%) and stress (21.9%) being the most common. These problems are consistent with the research in developed countries (Fossey and Harvey, 2010; Henry and Lucca, 2004; Honey, 2003), and may have important implications for job performance. A potential focus of intervention for employed people in India could be on reducing these illness-related problems in order to increase job performance and personal well-being.

Among the participants who were unemployed at baseline, 16.9% were working at follow-up. Consistent with the predictors of work status and interest in work in Khare et al. (2020), male gender and younger age were associated with getting a job. Moreover, participants with higher education levels were more likely to obtain work by follow-up, which also predicted interest in work in Khare et al. (2020). These findings suggest that people with SMI in India who are older, female, and have less education, could especially benefit from vocational services.

Unemployed participants who were interested in work at baseline were more likely to be employed at follow-up (20%) than those not interested (7.0%), and those who tried to find work in the month before baseline were even more likely to obtain employment (34.1%) than those who did not (11.7%). One U.S. study showed a similar pattern of associations between interest in work and efforts to find work among unemployed persons with schizophrenia and work one and two years later (Mueser et al., 2001). Desire for work and attempts to find it appear to be important contributors to future employment in people with SMI. Interestingly, the only inclusion criterion for supported employment for persons with SMI is the desire to work (Becker and Drake, 2003).

Although people who were interested in work at baseline were more likely to be employed by follow-up, overall interest declined among those who remained unemployed (73% vs. 62.8%). This reduction may be partly due to the frustration of not being able to find a job. Indeed, the percentage of participants who reported difficulty finding a job as a barrier to work increased from 33.7% at baseline to 52.3% at follow-up. Getting jobs is evidently a major challenge for individuals with SMI in India who want to work, and was identified as a desired support by approximately 90% of unemployed participants at both assessments.

These findings point to the potential role of interventions for improving employment functioning in people with SMI in India, and the need for the most basic of all vocational services, assistance getting a job. Practical and timely help in finding a job is a defining feature of the Individual Placement and Support (IPS) model of supported employment (Becker and Drake, 2003), which has been shown to improve work outcomes in multiple studies in developed countries (Bond et al., 2020). Other features of IPS may also have relevance to improving work in the Indian context, such as providing time unlimited supports after people obtain a job.

In addition to these practical supports, the results suggest that people with SMI in India who want to work need help managing their psychiatric illness. At both assessments over 40% of the unemployed participants who were interested in work wanted help with their mental illness, including dealing with stress, and coping with symptoms and cognitive difficulties. Furthermore, problems related to mental illness was the most common reason for job loss cited by participants over the one-year follow-up period. Even participants who were working stably at the same job at both assessments frequently endorsed mental illness related problems. Vocational services designed for the context of India may need to attend to improving illness management of people with SMI (Mueser et al., 2006) in order to enhance their employment functioning.

In the IPS model vocational services are integrated with clinical and other rehabilitative treatment teams (Becker and Drake, 2003). However, in India, most people with SMI only receive pharmacological treatment. These findings suggest that supported employment may need to go beyond its usual focus on work to also enhancing people's capacity to effectively manage their mental illness. This could be accomplished by incorporating aspects of illness self-management, such as the Illness Management and Recovery (IMR) program (McGuire et al., 2014), into vocational services. Considering the importance of the family to work and life in general in India, and the fact than many participants were working for family-owned businesses or obtained their jobs through family contacts (Khare et al., 2020), the inclusion of family members in providing such adapted services would be critical.

The findings related to employment functioning in people with SMI in this and other studies from developing countries need to be viewed in the context of the availability of psychiatric services in these countries. Approximately 70% of people with SMI in developing countries (including India) do not receive psychiatric treatment (Gautham et al., 2020; Lora et al., 2012), with people not receiving treatment having more severe symptoms and worse functioning than those who do (Padmavathi et al., 1998; Thirthalli et al., 2009). Notably, evidence from India suggests that the receipt of psychiatric treatment for schizophrenia is not related to family income, but rather to family size, with untreated people more likely to live with larger extended families (Padmavathi et al., 1998; Srinivasan et al., 2001), where the economic consequences of an untreated member with SMI may be less. The present findings suggest that the prospects for employment among persons with SMI who are not receiving treatment would significantly improve if they were able to access even basic treatment, such as medication.

Another important consideration is whether the person with SMI is receiving private or public sector psychiatric services. Although private sector services cost more, they are also more available, with approximately 70% of healthcare provided by the private sector in India (Indian Ministry of Statistics and Programme Implementation, 2019; Rajkumar, 2015). People with SMI receiving private psychiatric services may have advantages over those receiving public services, such as less severe (and costly) mental illnesses and families with higher income or more resources, which could contribute to higher employment rates. Recent research on work in people with SMI receiving public sector outpatient services has provided some support for these hypotheses (Khare et al., 2021).

Several limitations of this study should be noted. First, the use of a convenience sample makes it possible that the study participants had

better clinical functioning than the average person with SMI receiving treatment at the outpatient clinics, resulting in higher rates of employment. Relatedly, the lack of standardized clinical assessments makes it difficult to know how symptomatic study participants were. Second, information about employment activity over the previous 12 months was collected retrospectively and was subject to recall bias. Third, data related to employment in formal or informal sector was not obtained. As 80% of employment in the general population is in the informal sector (Ghose, 2004; Verick and Chaudhary, 2016), this information could have shed light on the rates of work observed in this study. Fourth, information regarding job accommodations was not obtained, which might have enhanced understanding of job maintenance. Fifth, although we obtained data on consistency of problems related to work among employed participants, we did not explore the impact of those problems on work performance. Future research should examine this issue.

This longitudinal study provides evidence of stability of employment in people with SMI in India, with over 80% of those employed at both assessments working throughout the year. The study also showed that interest in work was relatively stable and was associated with a modest increase in the chances of working at follow-up, suggesting that the majority of people who want to work could profit from vocational services to aid in job attainment. Additional findings such as perceived barriers and desired job supports among the unemployed participants further underscore the need for culturally relevant vocational rehabilitation to help people with SMI pursue and sustain work, and advance in the workplace.

CRediT authorship contribution statement

Chitra Khare conceptualized the overall study, conducted data collection and entry, conducted the statistical analyses, and wrote the initial draft and revised drafts of the paper. Susan R. McGurk and Kim T. Mueser provided input into the study design, interview instrument, statistical analyses, and provided feedback on drafts of the paper. Daniel Fulford provided input on the interview instrument, statistical analyses, and drafts of the paper. Vidyadhar G. Watve and Neeraj Karandikar provided access to the study population and provided feedback on drafts of the paper. Sailee Khare and Dipti Karandikar contributed to refinement of the interview instrument, conducted data collection and entry, and provided feedback on drafts of the paper.

Declaration of competing interest

The authors declare that they have no conflict of interest.

Acknowledgments

We are grateful to the following people for their help and contributions to various aspects of conducting the research project:

India: Dr. Manjiri Dixit, Dr. I. Ganguly, Suchitra Joshi, Dr. Amruta Karande-Patil, Dr. Himani Kulkarni, Dr. Sameer Kulkarni, Savita Prabhune, Dr. J. Ravindranath, staff of Manasdeep Psychiatric and Deaddiction Center, Ahmednagar and Poona Hospital and Research Center, Pune, and all study participants.

U.S.: Staff at the Center for Psychiatric Rehabilitation, Boston University. This work was completed in partial fulfillment of requirements for the Ph.D. in Rehabilitation Sciences, Boston University

Role of the funding source

This research was supported by the Dudley Allen Sargent Research Fund at Boston University to the first author (Chitra Khare). The funding source had no role in the production of this study, including either the data analysis or review of the manuscript.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.schres.2021.01.004.

References

Auerbach, E.S., Richardson, P., 2005. The long-term work experiences of persons with severe and persistent mental illness. Psychiatr. Rehabil. J. 28, 267–273. https://doi.org/10.2975/28.2005.267.273.

Becker, D.R., Drake, R.E., 2003. A Working Life for People with Severe Mental Illness. Oxford University Press, New York.

Becker, D.R., Drake, R.E., Bond, G.R., Xie, H., Dain, B.J., Harrison, K., 1998. Job terminations among persons with severe mental illness participating in supported employment. Community Ment. Health J. 34, 71–82. https://doi.org/10.1023/A:1018716313218.

Becker, D., Whitley, R., Bailey, E.L., Drake, R.E., 2007. Long-term employment trajectories among participants with severe mental illness in supported employment. Psychiatr. Serv. 58, 922–928. https://doi.org/10.1176/appi.ps.58.7.922.

Bond, G.R., Drake, R.E., Becker, D.R., 2020. An update on individual placement and support. World Psychiatry 19, 390–391. https://doi.org/10.1002/wps.20784.

Cook, J.A., 1992. Job ending among youth and adults with severe mental illness. J. Ment. Health Adm. 19, 158–169. https://doi.org/10.1007/BF02521316.

Dunn, E.C., Wewiorski, N.J., Rogers, E.S., 2008. The meaning and importance of employment to people in recovery from serious mental illness: results of a qualitative study. Psychiatr. Rehabil. J. 32, 59. https://doi.org/10.2975/32.1.2008.59.62.

Fossey, E.M., Harvey, C.A., 2010. Finding and sustaining employment: a qualitative meta-synthesis of mental health consumer views. Can. J. Occup. Ther. 77, 303–314. https://doi.org/10.2182/cjot.2010.77.5.6.

Frederick, D.E., VanderWeele, T.J., 2019. Supported employment: meta-analysis and review of randomized controlled trials of individual placement and support. PLoS One 14, 1–26. https://doi.org/10.1371/journal.pone.0212208.

Frounfelker, R.L., Wilkniss, S.M., Bond, G.R., Devitt, T.S., Drake, R.E., 2011. Enrollment in supported employment services for clients with a co-occurring disorder. Psychiatr. Serv. 62, 545–547. https://doi.org/10.1176/ps.62.5.pss6205_0545.

Gautham, M.S., Gururaj, G., Varghese, M., Benegal, V., Rao, G.N., Kokane, A., Chavan, B.S., Dalal, P.K., Ram, D., Pathak, K., Lenin Singh, R.K., Singh, L.K., Sharma, P., Saha, P.K., Ramasubramanian, C., Mehta, R.Y., Shibukumar, T.M., Deuri, S.P., Krishnatreya, M., Gogoi, V., Sobhana, H., Sengupta, S., Banerjee, I., Sharma, S., Giri, A.K., Kavishvar, A.B., Dave, K.R., Chauhan, N.T., Sinha, V.K., Goyal, N., Thavody, J., Anish, P.K., Bina, T., Pakhare, A.P., Mittal, P., Ray, S., Chatterji, R., Akoijam, B.S., Singh, H., Gojendro, Kayina, P., Singh, L.R., Das, S., Puri, S., Garg, R., Kashyap, A., Satija, Y., Gaur, K., Sharma, D., Sathish, R.V., Selvi, M., Krishnaraj, Singh, S.K., Agarwal, V., Sharma, E., Kar, S.K., Misra, R., Neogi, R., Sinha, D., Saha, S., Halder, A., Aravind, B.A., Amudhan, R.S., Banandur, S.P., Subbakrishna, D.K., Marimuthu, T.P., Kumar, B.B., Jain, S., Reddy, Y.J., Jagadisha, T., Sivakumar, P.T., Chand, P.K., Muralidharan, K., Reddi, S., Kumar, C.N., Prasad, M.K., Jaisoorya, T.S., Janardhanan, C.N., Sharma, M.P., Suman, L.N., Paulomi, S., Kumar, K., Sharma, M.K., Manjula, M., Bhola, P., Roopesh, B.N., Kishore, M.T., Veena, S., Mary, K.A.R., Anand, N., Srinath, S., Girimaji, S.C., Vijayasagar, K.J., Kasi, S., Muralidhar, D., Pandian, R.D., Hamza, A., Janardhana, N., Raj, E.A., Majhi, G., 2020. The National Mental Health Survey of India (2016): prevalence, socio-demographic correlates and treatment gap of mental morbidity. Int. J. Soc. Psychiatry 66, 361–372. https://doi.org/10.1177/0020764020907941.

Ghose, A.K., 2004. The employment challenge in India. Econ. Polit. Wkly. 39, 5106–5116.

Harish, N., Jagannathan, A., Kumar, C.N., Thirthalli, J., Chaturvedi, S.K., Kumar, D., Bhola, P., Prasad Muliyala, K., Thanapal, S., Radhakrishnan, G., Angothu, H., Jayarajan, D., 2020. Development of vocational potential assessment tool and counseling module for persons with severe mental disorders. Asian J. Psychiatr. 47, 101866. https://doi.org/10.1016/j.ajp.2019.101866.

Henry, A.D., Lucca, A.M., 2004. Facilitators and barriers to employment: the perspectives of people with psychiatric disabilities and employment service providers. Work 22, 169–182.

Honey, A., 2003. The impact of mental illness on employment: consumer's perspectives. Work 20, 267–276.

Indian Ministry of Labour and Employment, 2015. National Classicfication of Occupations (New Delhi).

Indian Ministry of Statistics and Programme Implementation, 2019. Key Indicators of Social Consumption in India: Health (New Delhi).

Jagannathan, A., Harish, N., Venkatalakshmi, C., Kumar, C.N., Thirthallli, J., Kumar, D., Bhola, P., Prasad, M.K., Thanapal, S., Hareesh, A., Jayarajan, D., Govindan, R., Chaturvedi, S.K., 2020. Supported employment programme for persons with severe mental disorders in India: a feasibility study. Int. J. Soc. Psychiatry 66, 607–613. https://doi.org/10.1177/0020764020918278.

Khare, C., Mueser, K.T., Fulford, D., Watve, V.G., Karandikar, N.J., Khare, S., Karandikar, D.N., McGurk, S.R., 2020. Employment functioning in people with severe mental illnesses living in urban vs. rural areas in India. Soc. Psychiatry Psychiatr. Epidemiol. 55, 1593–1606. https://doi.org/10.1007/s00127-020-01901-0.

Khare, C., Mueser, K.T., Bahaley, M., Vax, S., McGurk, S.R., 2021. Employment in people with severe mental illnesses receiving public sector psychiatric services in India. Psychiatry Research 296, 113673. https://doi.org/10.1016/j.psychres.2020.113673.

Lanctôt, N., Bergeron-Brossard, P., Sanquirgo, N., Corbière, M., 2013. Causal attributions of job loss among people with psychiatric disabilities. Psychiatr. Rehabil. J. 36, 146–152. https://doi.org/10.1037/prj0000002.

Landis, J.R., Koch, G.G., 1977. The measurement of observer agreement for categorical data. Biometrics 33, 159–174. https://doi.org/10.2307/2529310.

Lora, A., Kohn, R., Levav, I., McBain, R., Morris, J., Saxena, S., 2012. Service availability and utilization and treatment gap for schizophrenic disorders: a survey in 50 low- and middle-income countries. Bull. World Health Organ. 90, 47–54B. https://doi.org/10.2471/BLT.11.089284.

Maharashtra Directorate of Census Operations, 2011. District Census Handbook Ahmednagar (Mumbai).

Marwaha, S., Johnson, S., 2004. Schizophrenia and employment: a review. Soc. Psychiatry Psychiatr. Epidemiol. 39, 337–349. https://doi.org/10.1007/s00127-004-0762-4.
Marwaha, S., Johnson, S., Bebbington, P.E., Angermeyer, M.C., Brugha, T.S., Azorin, J.-M., Killian, R., Hansen, K., Toumi, M., 2009. Predictors of employment status change over 2 years in people with schizophrenia living in Europe. Epidemiol. Psichiatr. Soc. 18, 344–351. https://doi.org/10.3402/jev.v3.24646.
McGuire, A.B., Kukla, M., Green, A., Gilbride, D., Mueser, K.T., Salyers, M.P., 2014. Illness management and recovery: a review of the literature. Psychiatr. Serv. 65, 171–179. https://doi.org/10.1176/appi.ps.201200274.
McGurk, S.R., Meltzer, H.Y., 2000. The role of cognition in vocational functioning in schizophrenia. Schizophr. Res. 45, 175–184. https://doi.org/10.1016/S0920-9964(99)00198-X.
Midin, M., Razali, R., ZamZam, R., Fernandez, A., Hum, L.C., Shah, S.A., Radzi, R.S., Zakaria, H., Sinniah, A., 2011. Clinical and cognitive correlates of employment among patients with schizophrenia: a cross-sectional study in Malaysia. Int. J. Ment. Heal. Syst. 5, 14. https://doi.org/10.1186/1752-4458-5-14.
Mueser, K.T., Becker, D.R., Torrey, W.C., Xie, H., Bond, G.R., Drake, R.E., Dain, B.J., 1997. Work and nonvocational domains of functioning in persons with severe mental illness: a longitudinal analysis. J. Nerv. Ment. Dis. 185, 419–426.
Mueser, K.T., Salyers, M.P., Mueser, P.R., 2001. A prospective analysis of work in schizophrenia. Schizophr. Bull. 27, 281–296. https://doi.org/10.1093/oxfordjournals.schbul.a006874.
Mueser, K.T., Meyer, P.S., Penn, D.L., Clancy, R., Clancy, D.M., Salyers, M.P., 2006. The illness management and recovery program: rationale, development, and preliminary findings. Schizophr. Bull. 32. https://doi.org/10.1093/schbul/sbl022.
Mueser, K.T., Drake, R.E., Bond, G.R., 2016. Recent advances in supported employment for people with serious mental illness. Curr. Opin. Psychiatry 29, 196–201. https://doi.org/10.1097/YCO.0000000000000247.
Nagaswami, V., Valecha, V., Thara, R., Rajkumar, S., Menon, M.S., 1985. Rehabilitation needs of schizophrenic patients: a preliminary report. Indian J. Psychiatry 27, 213–220.
Olagunju, A.T., Adegbaju, D.A., Uwakwe, R., 2016. Disability among attendees with schizophrenia in a Nigerian hospital: further evidence for integrated rehabilitative treatment designs. Ment. Illn. 8, 40–46. https://doi.org/10.4081/mi.2016.6647.
Padmavathi, R., Rajkumar, S., Srinivasan, T.N., 1998. Schizophrenic patients who were never treated - a study in an Indian urban community. Psychol. Med. 28, 1113–1117. https://doi.org/10.1017/S0033291798007077.
Patel, V., Xiao, S., Chen, H., Hanna, F., Jotheeswaran, A.T., Luo, D., Parikh, R., Sharma, E., Usmani, S., Yu, Y., Druss, B.G., Saxena, S., 2016. The magnitude of and health system responses to the mental health treatment gap in adults in India and China. Lancet 388, 3074–3084. https://doi.org/10.1016/S0140-6736(16)00160-4.
Prasad, H.G., Acharya, V., 2014. A cross sectional study of employment pattern in patients with severe mental illness. Indian J. Occup. Ther. 46, 35–40.
Rajkumar, S., 2015. Mental health services in India. J. Sociol. Soc. Welf. 18, 41–55.
Ran, M.-S., Chen, S., Chen, E.Y., Ran, B.Y., Tang, C.P., Lin, F.R., Li, L., Li, S.G., Mao, W.J., Hu, S.H., 2011. Risk factors for poor work functioning of persons with schizophrenia in rural China. Soc. Psychiatry Psychiatr. Epidemiol. 46, 1087–1093. https://doi.org/10.1007/s00127-010-0285-0.
Raut, L.K., Pal, M., Bharati, P., 2014. The economic burden of disability in India: estimates from the NSS data. SSRN Electron. J., 1–32 https://doi.org/10.2139/ssrn.2432546.
Salkever, D.S., Karakus, M.C., Slade, E.P., Harding, C.M., Hough, R.L., Rosenheck, R.A., Swartz, M.S., Barrio, C., Yamada, A.M., 2007. Measures and predictors of community- based employment and earnings of persons with schizophrenia in a multisite study. Psychiatr. Serv. 58, 315–324.
Shibre, T., Medhin, G., Alem, A., Kebede, D., Teferra, S., Jacobsson, L., Kullgren, G., Hanlon, C., Fekadu, A., 2015. Long-term clinical course and outcome of schizophrenia in rural Ethiopia: 10-year follow-up of a population-based cohort. Schizophr. Res. 161, 414–420. https://doi.org/10.1016/j.schres.2014.10.053.
Srinivasan, T.N., Thara, R., 1997. How do men with schizophrenia fare at work? A follow-up study from India. Schizophr. Res. 25, 149–154. https://doi.org/10.1016/S0920-9964(97)00016-9.
Srinivasan, L., Tirupati, S., 2005. Relationship between cognition and work functioning among patients with schizophrenia in an urban area of India. Psychiatr. Serv. 56, 1423–1428. https://doi.org/10.1176/appi.ps.56.11.1423.
Srinivasan, T.N., Rajkumar, S., Padmavathi, R., 2001. Initiating care for untreated schizophrenia patients and results of one year follow-up. Int. J. Soc. Psychiatry 47, 73–80.
Thara, R., 2004. Twenty year course of schizophrenia: the Madras longitudinal study. Can. J. Psychiatr. 49, 564–569.
Thirthalli, J., Venkatesh, B.K., Kishorekumar, K.V., Arunachala, U., Venkatasubramanian, G., Subbakrishna, D.K., Gangadhar, B.N., 2009. Prospective comparison of course of disability in antipsychotic-treated and untreated schizophrenia patients. Acta Psychiatr. Scand. 119, 209–217. https://doi.org/10.1111/j.1600-0447.2008.01299.x.
Verick, S., Chaudhary, R., 2016. India Labour Market Update. International Labour Organization.
Westcott, C., Waghorn, G., McLean, D., Statham, D., Mowry, B., 2015. Interest in employment among people with schizophrenia. Am. J. Psychiatr. Rehabil. 18, 187–207. https://doi.org/10.1080/15487768.2014.954162.
Yang, L.H., Phillips, M.R., Li, X., Yu, G., Zhang, J., Shi, Q., Song, Z., Ding, Z., Pang, S., Susser, E., 2013. Employment outcome for people with schizophrenia in rural v. urban China: population-based study. Br. J. Psychiatry 203, 272–279. https://doi.org/10.1192/bjp.bp.112.118927.