Validation of vocational assessment tool for persons with substance use disorders

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Background: Work-related problems are a serious concern among persons with substance use but due to lack of a standardized tool to measure it; these problems are neither systematically assessed nor appropriately addressed. Most existing measures of work performance cater to the needs of the workplace rather than focusing on the workers’ perception of the difficulties at work. Aim: To develop a standardized instrument to measure work-related problems in persons with substance use disorders. Methods: Qualitative data obtained from interviews with substance users were used to develop a scale. The refined list of the scale was circulated among an expert panel for content validation. The modified scale was administered to 150 cases, and 50 cases completed the scale twice at the interval of 2 weeks for test–retest reliability. Results: Items with a test–retest reliability kappa coefficient of 0.4 or greater were retained and subjected to factor analysis. The final 45-item scale has a five-factor structure. The value of Cronbach’s alpha of the final version of the scale was 0.91. Conclusions: This self-report questionnaire, which can be completed in 10 min, may help us in making a baseline assessment of the work-related impairment among persons with substance use and the impact of substance use on work.

Keywords: Occupation, substance use, vocational difficulties, work-related problems

Occupation is central to the existence of functioning and wellbeing of an individual. Substance use and occupation are related to each other in several aspects. Studies in India and Western countries have shown that substance use in workplace affect work productivity, increases the rate of absenteeism, occupational injuries, disrupt work environment, and burdens the family financially and emotionally.1-3 On the other hand, occupational culture and adverse working conditions such as high demands of the job, overstress, excessive physical demands, discriminatory treatment, psychological humiliation, insecurity, ambiguity, and time pressure may facilitate substance use as a coping mechanism.4,5 Studies have also shown that occupation has an effect on recovery of the substance users. At workplace, a person with past substance use experience adverse employment outcomes including employers hesitancy to hire, discrimination, and stigma.6 People with a history of substance use disorder had a higher rate of involuntary job loss in the previous year.7 In contrast, it has been equivocally proved that retention of gainful and productive employment is an important psychosocial indicator of good prognosis in persons with substance use disorder.8

Even though instruments measuring the work functioning exists with acceptable psychometric properties, utility of them was not considered in relation to substance use disorder population as their impairments may differ from...
other working population. Moreover, the focus of those instruments has been on absenteeism and productivity and not much about employees’ perception. Clients are the experts of their own occupational needs and priorities. They are also better suited to express their needs, choices, and difficulties faced at the vocation. Client-centered occupational therapy needs to assess the vocational difficulties experienced by people who misuse drugs, and what priorities they attach to them. There is limited evidence in the literature on the exact nature of these problems from the workers’ point of view and role of occupational therapy in vocational rehabilitation.

Appropriate delivery of an intervention requires better planning by identifying the problem areas in the vocational repertoire. Understanding of perceived vocational issues in substance use disorders patients in a more structured manner will be of particular value for generating the evidence base for the occupational therapists working in this area. In view of the lack of structured instruments to measure the vocational difficulties perceived by the substance users, the present research aimed at designing a brief tool to measure the vocational difficulties perceived by the persons with substance use disorder.

METHODS

The study was conducted at specialized deaddiction services provided at a tertiary care Hospital in South India. The participants for the study were recruited from an inpatient setting.

To be included in the study, the patients were required to be older than 18 years of age, fulfilling the diagnostic criteria for substance dependence as per the International Classification of the Diseases, 10th revision (ICD-10). To be included in the study, patients were required to be able to read the questionnaire. Participants with comorbid psychiatric disorders, currently in withdrawal state clinically, and those who were not cooperative for interview were excluded from the study. All the patients were recruited after obtaining a written informed consent.

The instrument development was through a multistage process of item generation, selection and scaling, field testing, and refinement procedures. Item generation was done from the detailed, qualitative interviews with 48 persons seeking treatment for substance use disorders admitted to the center over a 3-month period. Interviews were done, after ensuring persons were free of withdrawal symptoms and from sedative effects of drugs for detoxification by a qualified psychiatrist. The phrases used by the patients during the qualitative interviews were considered while framing the items for the questionnaire. Negative items were also framed to address response set bias.

Forty-five items were selected for the initial scale and a five-point Likert scale was used with frequency options ranging from “Always” to “Never.” The pilot tool was then circulated among the experts in the field for validation. The expert's opinions on clarity, comprehensiveness, item relevancy, and ease of use were sought. Items that received a score of <4 from >20% of experts were revised or deleted. Suggestions/modifications provided by more than an expert were incorporated. The study was approved by the ethics review board of the institute.

RESULTS

The participants were recruited through convenient sampling method over a period of 6 months. We recruited 168 patients admitted in the ward and among them five patients refused to be part of the study, six patients were not able to read the questionnaire, and seven patients had comorbid psychiatric conditions. Finally, we had 150 patients who were recruited in the study. Participants who were informed about the questionnaire and its purpose and taken consent for their participation. The scale was administered after 1 week when the patient was clinically free from withdrawal symptoms and the sedative medications as per the qualified psychiatrist. Among 150 patients, 50 completed the questionnaire twice over 15 day’s interval to provide data for test–retest reliability.

Sociodemographic profile

The study included a total of 147 men and three women. The mean age of the sample was 35.6 years (standard deviation [SD] 8.6 years), with a mean of 12 years (SD 2.7 years) education. The occupation of the sample include 19 (13%) were unemployed, 6 (4%) students, 13 (9%) farmers, 28 (19%) unskilled, 26 (18%) semiskilled, 21 (14%) skilled, 10 (7%) clerical, 22 (15%), and 5 (3%) were professionals with 58% of them were working in unorganized sectors. Most participants had received a diagnosis of alcohol-dependence syndrome as per the ICD-10 [Table 1].

Face and content validity

The scale was sent to six experts in the field of addiction and rehabilitation. They gave their opinion on the adequacy of the content, clarity, item relevancy, and ease of use by rating the item on a five-point Likert scale ranging from “strongly disagree” to “strongly agree.” The mean age of the expert consensus group was 48 years (SD
10.5 years), ranging from 33 to 63 years and their mean experience in the field of psychiatry and rehabilitation was 20.5 ± 8.6 years. Items regarding employers were revised to accommodate students as four of the six experts felt the need to revise those items. Two items on the family expectations on work performance and its influence on substance use were added to the instrument to make it a 47-item one.

Test and retest reliability
Test–retest reliability of responses to the statements was examined using the Cohen’s kappa statistic. The Cohen’s kappa coefficients ranged from 0.247 up to 0.776 [Table 2]. The items with a weighted kappa coefficient below 0.4 were removed and other 45 items were retained.

Factor analysis
The 45 items of the scale were subjected to a factor analysis and subsequent orthogonal (varimax) rotation to understand the factor structure. This yielded five factors based on the observation of the scree plot of eigenvalues; values were 9.5, 2.6, 2.4, 2.1, and 1.8 for factors 1–5; the sixth factor had an eigenvalue of 1.5 and thus this and subsequent factors were not considered further. After rotation, items with loadings <0.3 on any of the first five factors were not retained.

Items with factor loadings 0.3 and above were retained. Items are loaded on five different factors. The first factor had 11 items contributing for 21% of variance. The second factor involved 12 items with 5.9% of variance. The third factor also had 11 items with 5.3% variance. The fourth factor had six items which contribute to 4.8% variance of the scale. The fifth factor involved five items with 4% variance [Table 3].

Internal consistency
Internal consistency of the final scale (and subscales) was estimated using Cronbach’s alpha. The score for the five factors ranged from 0.754 to 0.818. The score for the 45 items of the final version was 0.91.

### Table 1: Diagnostic breakup of the participants

| Diagnosis                          | Subjects % (N) |
|------------------------------------|----------------|
| Alcohol Dependence syndrome (ADS)  | 32 (48)        |
| Opioid Dependence syndrome         | 11 (17)        |
| Polysubstance Dependence syndrome  | 10 (15)        |
| Cannabis Dependence syndrome       | 4 (6)          |
| Opioid Dependence syndrome         | 11 (17)        |
| Nicotine Dependence syndrome (NDS) | 3 (5)          |
| Inhalant Dependence syndrome       | 1 (2)          |
| ADS + NDS                          | 38 (57)        |

### Table 2: Kappa coefficient values for corresponding items

| Item                                                                 | Kappa Coefficient |
|----------------------------------------------------------------------|-------------------|
| I strive for personal development                                    | 0.247             |
| I feel that I have excess free time                                  | 0.446             |
| I tend to lose control over anger                                    | 0.601             |
| I feel that I am not as good as others                               | 0.477             |
| I know that others are better / not aware of my condition            | 0.609             |
| I feel anxious                                                       | 0.585             |
| I lose interest easily                                               | 0.632             |
| I am happy with my work environment                                  | 0.484             |
| I feel that I am overstressed at work                                | 0.593             |
| I feel insecure at the workplace                                     | 0.729             |
| I feel that my work condition has an effect on substance use         | 0.537             |
| I feel that the use of substance by colleagues has an impact on my substance use | 0.548             |
| I feel that my work timings has an effect on substance use           | 0.452             |
| I have been late to work because of substance use                    | 0.696             |
| I feel difficult at times to go to work because of substance use     | 0.602             |
| I have taken leave due to substance use                              | 0.603             |
| I find it difficult to keep up the time                              | 0.563             |
| I feel difficulty in performing tasks due to health complications of substance use | 0.673             |
| I feel difficulty in performing work due to withdrawal symptoms      | 0.606             |
| I have to work at a lower level because of substance use             | 0.572             |
| I am earning less money as a result of substance use                 | 0.499             |
| My colleagues at workplace criticize me for substance use            | 0.638             |
| I feel isolated in my workplace because of substance use             | 0.607             |
| I feel that decisions taken by me at workplace are appropriate       | 0.648             |
| I look up for additional responsibilities                             | 0.277             |
| I lose interest at work                                              | 0.732             |
| I am comfortable with the work timings                               | 0.561             |
| I am able to concentrate on doing things                             | 0.546             |
| I am satisfied with my work performance                              | 0.561             |
| I am able to accomplish the tasks assigned to me in time             | 0.750             |
| I have been facing problems in tasks given to me                     | 0.566             |
| I lack in confidence to perform a particular task                     | 0.643             |
| I am attentive at performing task                                    | 0.603             |
| I have been abstaining from work                                     | 0.443             |
| I am punctual to work                                                | 0.645             |
| I borrow money from colleagues to support my substance use           | 0.660             |
| I feel that I am underpaid                                            | 0.446             |
| I feel that I have been denied promotion / increment                 | 0.578             |
| Family expectations on my work performance has an effect on substance use | 0.537             |
| I feel that expectations of the family has an effect on my work      | 0.657             |
| I feel that my work environment has to be improved                   | 0.536             |
| I feel free to express / communicate myself with others              | 0.419             |
| I find it difficult to get solution for my problems                  | 0.561             |
| I have been facing any problems (arguments/quarrels) with employers/Teachers | 0.720             |
| I have been warned by the employer / teachers                        | 0.776             |
| I have been facing any problems (arguments/quarrels) with colleagues | 0.692             |
| I feel that I should have better relation with others                | 0.528             |
Table 3: Factor structure

| Performance | Environment | Personal | Substance | Time |
|-------------|-------------|----------|-----------|------|
| Free time   | 0.33        |          | 0.32      |      |
| anger       | 0.48        |          |           |      |
| good        | 0.32        |          |           |      |
| restless    | 0.62        |          |           |      |
| anxious     | 0.68        |          |           |      |
| interest    | 0.53        |          |           |      |
| Happy env    | 0.51        |          |           |      |
| stress      | 0.40        |          |           |      |
| insecure    | 0.30        |          |           |      |
| condition   | 0.55        |          |           |      |
| colleague   | 0.47        |          |           |      |
| Work timings|             |          | 0.56      |      |
| late        |             |          | 0.60      |      |
| difficult go|             |          | 0.63      |      |
| leave       |             |          | 0.70      |      |
| time        | 0.33        | 0.34     | 0.35      | 0.34 |
| Health complic | 0.34        | 0.35     | 0.31      |      |
| withdrawal  |             |          |           |      |
| Lower level |             |          | 0.67      |      |
| Less money  |             |          | 0.71      |      |
| critics     |             |          | 0.68      |      |
| isolation   |             |          | 0.64      |      |
| Decision making | 0.42        | 0.45     |           |      |
| L interest  | 0.48        |          |           |      |
| Comfort timing | 0.50        |          |           |      |
| concentration| 0.54        |          |           |      |
| satisfied   | 0.72        |          |           |      |
| accomplish  | 0.68        |          |           |      |
| Facing problems | 0.47        |          |           |      |
| confidence  | 0.52        |          |           |      |
| attention   | 0.67        |          |           |      |
| abstinent   | 0.32        |          |           |      |
| punctual    | 0.42        |          |           |      |
| borrow      | 0.30        | 0.34     |           |      |
| underpaid   | 0.53        |          |           |      |
| promotion   | 0.59        |          |           |      |
| Family exp. work | 0.60        |          |           |      |
| Family expectations | 0.44        |          |           |      |
| Work environment | 0.33        |          |           |      |
| Communication | 0.34        |          |           |      |
| Problem solving | 0.48        |          |           |      |
| Employer Problem | 0.64        |          |           |      |
| Employer Warning | 0.60        |          |           |      |
| colleague problem | 0.62        |          |           |      |
| Better relations | 0.52        |          |           |      |

**DISCUSSION**

The present study aimed at developing a brief standardized vocational assessment tool to measure the difficulties faced by the persons with substance use disorders at workplace. The goal of the vocational assessment therapy in mental health is to develop skills and obtain the supports needed for independent, interdependent, productive living, improved participation in daily life, and better quality of life.[13] In substance use disorders, a direct relation exists between the viable employment and recovery and also it acts as a reinforcing factor in recovering persons to maintain his or her sobriety.[14] The research aimed at developing brief scale so that the vocational difficulties perceived by the substance use disorder patients documented and appropriate rehabilitation can be done to keep them in viable employment.
The tool developed in the research was developed through a multistaged process of item generation, selection and scaling, field testing, and refinement procedures. All possible items were pooled and measurements of reliability, consistency, and the factor analysis were used to understand the final dimensions. The sociodemographic and clinical profile of the sample was a representation of the sample from the center.\textsuperscript{[13]}

The vocational assessment tool developed aims to understand the occupation in terms of the personal factors, work factors, environmental factors, substance-related factors, and time-related factors. Even though the items pooled were from the qualitative interviews with the substance users, all the items were either the contributing factors or the consequence of the substance use, and their mention in the literature is unquestionable.\textsuperscript{[1,4,5,12,13,16]}

The first factor contained 11 items which mainly concerned with the individual decision-making capabilities, satisfaction, attention, and confidence at the workplace. These factors are necessary for one’s performance and abilities at workplace. Thus, this factor was labeled as work performance. These items are found in literature as the factors having an impact on the performance at workplace.\textsuperscript{[5,12,16]}

The second factor involved 12 items that mainly concerned with the perception of the person regarding problems at workplace, warning at workplace, family expectations, promotion at the workplace, and underpaid at workplace. These items are related to interpersonal relation at workplace and family expectations on work performance. Thus, they were named as environmental factors. Literature supports the influence of items such as family influence and pressure from others on the work performance.\textsuperscript{[5,12]}

The third factor involved 11 items which were concerned with the perception of the individual regarding the problem with anger, anxiety, restless, stress at normal situations, interests, and insecurity. These items are mainly concerned with individual behaviors, one’s interest, and attitudes and thus were grouped as a personal factor. These items are concerned with interests, values, and vulnerabilities such as anger, anxiety referring to the process by which one choose, experiments, and interprets occupational behaviors.\textsuperscript{[5,12,14]}

The fourth factor involved six items on the effect of the substance on the person regarding health complications, withdrawal symptoms, criticism, isolation at the workplace, and less money due to substance use. These items were grouped as substance-related factors, and these have an effect on the work performance due to substance abuse.\textsuperscript{[14]}

The fifth factor involved five items that mainly concerned with the problem with the timings and punctuality at the workplace. These items were grouped as time-related factors.\textsuperscript{[12]}

The overall content of the scale addressed all of the commonly concerned items in vocational assessment literature such as behaviors, attitudes, personal characteristics, communication skills, and lifestyle conditions that can contribute to the individual’s success in occupation.\textsuperscript{[16]}

Item on personal development and additional responsibilities scored 0.247 and 0.277, respectively, on kappa coefficient for test–retest reliability may have been due to the ambiguity and ambivalence attached to these items. Other items of the scale kappa coefficient value ranged from 0.4 to 0.776 which is moderate to substantial agreement over the time.\textsuperscript{[17]}

Internal consistency of the final version of the scale with Cronbach’s alpha value of 0.91 reveals excellent reliability.\textsuperscript{[18]}

CONCLUSION

The scale is a brief instrument which will take around 10–15 min for administration and it will be helpful to know the perceived difficulties of persons with substance use disorders.

Strengths and limitations

The content of this scale arose directly from earlier qualitative data obtained from the detailed interview with the cases admitted to a substance use treatment facility. The participants recruited were unselected and they belong to varied psychosocial backgrounds. The questionnaire was administered when participants were sober, free from withdrawal symptoms and was not on sedating medications to get a more accurate perception from them. Response set bias was counteracted by positive, as well as negative wording.

The tool is subjective in the study followed a convenient sampling method which might have led to sample bias, with those who chose to participate having different perceptions than those who did not. Further evaluation in larger groups of participants with this instrument may reveal a better picture of vocational difficulties perceived by them. Nevertheless, it has promise as a vocational self-evaluation tool in patients with substance use disorders to assist occupational therapist to document vocational problems and develop rehabilitation packages for patients.

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Conflicts of interest
There are no conflicts of interest.

REFERENCES

1. Merrick ES, Volpe-Vartanian J, Horgan CM, McCann B. Alcohol and drug abuse: Revisiting employee assistance programs and substance use problems in the workplace: Key issues and a research agenda. Psychiatr Serv 2007;58:1262-4.
2. World Health Organization (WHO). Global Status Report on Alcohol. Geneva: World Health Organization; 2004.
3. Murthy P, editor. Partnerships for Drug Demand Reduction in India: Developing Community Drug Rehabilitation and Workplace Prevention Programmes. United Nations Drug Control Programme, Ministry of Social Justice and Empowerment, Government of India, International Labour Organization, European Commission; 2002. Available from: http://www.unodc.org/india/en/Partnerships_808_Report.html.
4. Comerford AW. Work dysfunction and addiction. Common roots. J Subat Abuse Treat 1999;16:247-53.
5. Elsayed YA, Al-Zahrani MA, Rashad MM. Factors affecting mental fitness for work in a sample of mentally ill patients. Int J Ment Health Syst 2009;3:25.
6. Luoma JB, Twohig MP, Waltz T, Hayes SC, Roget N, Padilla M, et al. An investigation of stigma in individuals receiving treatment for substance abuse. Addict Behav 2007;32:1331-46.
7. Baldwin ML, Marcus SC, De Simone J. Job loss discrimination and former substance use disorders. Drug Alcohol Depend 2010;110:1-7.
8. Kerrigan AJ, Kaough JE, Wilson BL, Wilson JV, Bostick R. Vocational rehabilitation of participants with severe substance use disorders in a VA veterans industries program. Subst Use Misuse 2004;39:2513-23.
9. Nieuwenhuijsen K, Franke RL, van Dijk FJ. Work functioning measurement: Tools for occupational mental health research. J Occup Environ Med 2010;52:778-90.
10. Law M, Baptiste S, Mills J. Client-centred practice: What does it mean and does it make a difference? Can J Occup Ther 1995;62:250-7.
11. Townsend E, Langille L, Ripley D. Professional tensions in client-centered practice: Using institutional ethnography to generate understanding and transformation. Am J Occup Ther 2003;57:17-28.
12. Davies R, Cameron J. Self-identified occupational competencies, limitations and priorities for change in the occupational lives of drug misuse people. Br J Occup Ther 2010;73:251-60.
13. Arbesman M, Logsdon DW. Occupational therapy interventions for employment and education for adults with serious mental illness: A systematic review. Am J Occup Ther 2011;65:238-46.
14. Scorzelli JF. Has Malaysia’s drug rehabilitation effort been effective? Int J Psychosoc Rehabil 2009;13:21-4.
15. Chand P, Naveen CK, Murthy P, Isaac M. Addressing alcohol addiction: Lessons from a hospital based audit. Indian J Med Res 2013;137:394-6.
16. Kielhofner G, editor. A Model of Human Occupation: Theory and Application. 2nd ed. Baltimore, MD: Williams and Wilkins; 1995.
17. Chinn S, Burney PG. On measuring repeatability of data from self-administered questionnaires. Int J Epidemiol 1987;16:121-7.
18. Gliem JA, Gliem RR. Calculating, Interpreting, and Reporting Cronbach’s Alpha Reliability Coefficient for Likert-type Scales; 2003. Available from: http://www.hdl.handle.net/1805/344. [Last accessed on 2015 Jun 30].