American Journal of Psychiatric Rehabilitation

Original Research Article

Rapid Screening Tool for Addiction by Caregivers- A Novel Approach

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INTRODUCTION

Addiction is a major public health crisis that affects millions globally, leading to severe physical, psychological, and social consequences. Substance use disorders (SUDs), including alcohol, tobacco, and illicit drug addiction, as well as behavioral addictions such as gambling and internet addiction, often remain undetected until they cause significant harm. Early identification is crucial for timely intervention and treatment, yet many cases go unnoticed due to stigma, denial, or lack of awareness (Volkow et al., 2016).

A standardized screening tool for addiction is essential in identifying at-risk individuals and initiating appropriate care. Studies have shown that early detection significantly improves treatment outcomes and reduces long-term societal costs (Saitz, 2017). Self- reporting screening tools such as the Alcohol Use Disorders Identification Test (AUDIT) and the Drug Abuse Screening Test (DAST) provide healthcare professionals with structured methods to assess addiction risk and severity (Babor et al., 2001). These tools enable the early identification of problematic substance use patterns, allowing for timely intervention and prevention of further complications.

Moreover, integrating screening tools into routine healthcare settings enhances accessibility to care. Primary care physicians, emergency departments, and community health workers can use brief, validated screening instruments to identify patients needing further assessment or referral to specialized treatment (McNeely et al., 2016). Given that addiction is often associated with mental health disorders, using comprehensive screening tools can help detect co-occurring conditions, facilitating holistic treatment approaches (Substance Abuse and Mental Health Services Administration [SAMHSA], 2020).

In conclusion, implementing a reliable addiction screening tool is critical for improving early diagnosis, treatment, and prevention efforts. By addressing addiction proactively, healthcare systems can mitigate its widespread impact on individuals and society.

It has been noted that the person having Substance Use Disorder often conceal their substance use behaviour. Hence, many a false negative cases are observed on self administered questionnaire. In many a cases, even the health care givers are unaware about the signs/ symptoms of addiction in their patient. For the same issue, there felt a need to develop an interviewer based questionnaire to rapidly assess the issue.

To the best of our knowledge, no such interviewer based screening tool exists till date to screen the patient with Substance Use Disorder.

MATERIALS AND METHODS

A **cross-sectional study** was conducted, where participants were grouped in two groups- one with caregivers of children who were known to have Substance Use Disorder while the other group comprised of caregivers of children who were known not to have Substance Use Disorder. Both groups filled the Mukesh And Nikhil Addiction Screening (MANAS) Scale consisting of 15 parameters namely Tremors, Mood Swings, Unexplained Injuries, Remaining Aloof, Increased Financial Demands, Negative Changes in Schoolwork/ missing school/ college or declining grades, Unusual Smells or chemical odors, Disturbed Sleep, Changed Relationships with family members/ friends, Secretive About Possessions or Activities, Goes Out Often from home/ disappears for a long period of time, Burn or Soot Marks, Anxiety Symptoms, Nausea/Vomiting and Seizures, after taking informed consent from the caregivers ensuring voluntary participation and confidentiality. Ethical committee clearance was taken from IGIMS, Patna vide Letter No- 403/IEC/IGIMS/2025 dated 29/05/2025. The duration of study was kept to be 3 months or 200 participants (100 participants in each group) which ever would be earlier. The study followed the Helsinki ethical guidelines.

Participant Recruitment

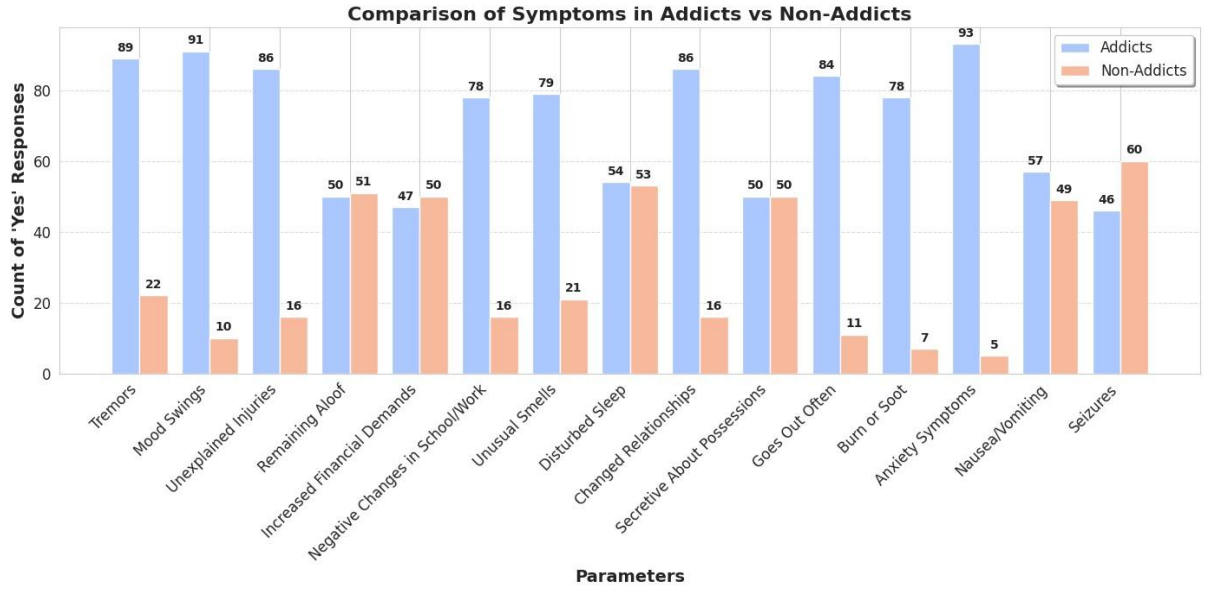
Randomly sampled participants were recruited from primary care clinics, addiction treatment centers and general community settings.

Data Collection

Caregivers (Guardian of Participants, parents, teachers etc) completed the MANAS scale independently or with clinician assistance. No blood samples or any invasive tests were done.

Inclusion and Exclusion criteria
Young adults in the age group of 13 years to 30 years were included.
Participants suffering from organic mental illness were excluded.
Participants not providing consent were excluded.
Statistical Analysis- A chi-squared test of independence was utilized quantitatively to test for independence between the observed frequencies and expected distributions under the null hypothesis that the frequencies follow the same distributions for a range of addiction-related parameters. The data was also analysed using other appropriate statistical methods using SPSS for Windows (version 22.0, Chicago, IL).

RESULTS:
Addiction manifests through a spectrum of physiological, psychological, and behavioral alterations.



1. Tremors-

Group	Yes	No
Addicts	89	11
Non-Addicts	22	78
Chi-Squared Value	88.19	
P-Value	<0.05	

Above table shows that tremors were significantly more common in addicts group with 89% reporting this symptom compared to only 22% of non-addicts groups.

2. Mood Swings-

Group	Yes	No
Addicts	91	9
Non-Addicts	10	90
Chi-Squared Value	128.01	
P-Value	<0.05	

Above table shows that mood swings were significantly more common in addicts group with 91% reporting this symptom compared to only 10% of non-addicts groups.

3. Unexplained Injuries -

Group	Yes	No
Addicts	86	14
Non-Addicts	16	84
Chi-Squared Value	95.26	
P-Value	<0.05	

Above table shows that unexplained injuries were significantly more common in addicts group with 86% reporting this symptom compared to only 16% of non-addicts groups.

4. Remaining Aloof-

Group	Yes	No
Addicts	50	50
Non-Addicts	51	49
Chi-Squared Value	0.00	
P-Value	1.0	

Above table shows that the prevalence of aloofness was nearly identical in both addicts and non-addicts groups.

5. Increased Financial Demands-

Group	Yes	No
Addicts	47	53
Non-Addicts	50	50
Chi-Squared Value	0.08	
P-Value	0.78	

Above table shows that the increased financial demands was nearly identical in both addicts and non-addicts groups.

6. Negative Changes in Schoolwork/ missing school/ college or declining grades-

Group	Yes	No
Addicts	78	22
Non-Addicts	16	84
Chi-Squared Value	74.69	
P-Value	<0.05	

Above table shows that negative changes in schoolwork/ missing school/ college or declining grades were significantly more common in addicts group with 78% reporting this symptom compared to only 16% of non-addicts groups.

7. Unusual Smells or chemical odors-

Group	Yes	No
Addicts	79	21
Non-Addicts	21	79
Chi-Squared Value	64.98	
P-Value	<0.05	

Above table shows that unusual smells or chemical odors were significantly more common in addicts group with 79% reporting this symptom compared to only 21% of non-addicts groups.

8. Disturbed Sleep-

Group	Yes	No
Addicts	54	46
Non-Addicts	53	47
Chi-Squared Value	0.00	
P-Value	1.0	

Above table shows that the disturbed sleep was not statistically significant in both addicts and non-addicts groups.

9. Changed Relationships with family members/ friends -

Group	Yes	No
Addicts	86	14
Non-Addicts	16	84
Chi-Squared Value	95.26	
P-Value	<0.05	

Above table shows that changed relationships with family members/ friends were significantly more common in addicts group with 86% reporting this symptom compared to only 16% of non-addicts groups.

10. Secretive About Possessions or Activities-

Group	Yes	No
Addicts	50	50
Non-Addicts	50	50
Chi-Squared Value	0.00	
P-Value	1.0	

Above table shows that the secretive about possessions or activities was not statistically significant in both addicts and non-addicts groups.

11. Goes Out Often from home/ disappears for a long period of time-

Group	Yes	No
Addicts	84	16
Non-Addicts	11	89
Chi-Squared Value	103.94	
P-Value	<0.05	

Above table shows that the above parameter was significantly more common in addicts group with 84% reporting this symptom compared to only 11% of non-addicts groups.

12. Burn or Soot Marks -

Group	Yes	No
Addicts	78	22
Non-Addicts	7	93
Chi-Squared Value	100.26	
P-Value	<0.05	

Above table shows that the above parameter was significantly more common in addicts group with 78% reporting this symptom compared to only 07% of non-addicts groups.

13. Anxiety Symptoms-

Group	Yes	No
Addicts	93	7
Non-Addicts	5	95
Chi-Squared Value	151.44	
P-Value	<0.05	

Above table shows that the anxiety symptoms were significantly more common in addicts group as compared to non-addicts groups.

14. Nausea/Vomiting-

Group	Yes	No
Addicts	57	43
Non-Addicts	49	51
Chi-Squared Value	0.98	
P-Value	0.32	

Above table shows that nausea/ vomiting was not statistically significant in both addicts and non-addicts groups.

15. Seizures-

Group	Yes	No
Addicts	46	54
Non-Addicts	60	40
Chi-Squared Value	3.39	
P-Value	0.06	

Above table shows that seizures was not statistically significant in both addicts and non-addicts groups.

DISCUSSION-

In our study, tremors were significantly more common in addicts group, with 89% reporting this symptom compared to only 22% of non-addicts group. Similar findings were observed in the study conducted by Flavel et al, 2012 and Bauer, 1996. Tremors could be linked to withdrawal effects, neurological impacts of drug use, or stimulant abuse. In our study, mood swings were significantly more common in addicts group as compared to non-addicts groups. Similar findings were observed in the study conducted by Parmar and Kaloiya, 2018 and Angsukiattitavorn et al, 2020. Mood swings may result from drug-induced changes in brain chemistry, withdrawal effects, or emotional instability due to addiction. Unexplained injuries were significantly more common in addicts group as compared to non-addicts groups in our study. These injuries may be attributed to impaired coordination, high-risk behavior, or self-harm tendencies associated with addiction. Similar findings were also observed in the studies conducted by Lau et al, 2024 and Adjei et al, 2023. In our study, no statistical significant relation was observed between addict and non-addict group in terms of parameter of remaining aloof. However, in studies conducted by Young et al, 2001 and Hunt and Azrin, 1973, they concluded that person with SUD frequently withdraw from others. This discrepancy in observation of our study may be due to the increased use of social media and mobile phones these days. In our study, no statistical significant relation was observed between addict and non- addict group in terms of parameter of increased financial demands. However, in study conducted by Paim et al, 2012, they concluded that person with SUD frequently had increased financial demands. This could be due to other underlying factors specific to our study population, such as socioeconomic background, support systems, or alternative sources of financial aid.

In our study, negative changes in schoolwork/ missing school/ college or declining grades were significantly more common in addicts group as compared to non-addicts groups. Similar findings were observed in the study conducted by Skidmore et al, 2016 and Zufferey et al, 2007. Drug use often affects cognitive function, motivation, and discipline, which could explain this result. In our study, unusual smells or chemical odors were significantly more common in addicts group as compared to non-addicts groups. Similar findings was observed in the study conducted by Zhu et al, 2016. Unusual smells or chemical odors could be due to drug residues, smoke, or other substances that leave a distinctive odor on the breath, skin or clothing. In our study, it was observed that the disturbed sleep was not statistically significant in both addicts and non-addicts groups, however, in study conducted by Vignau et al, 1997, they observed positive associations between being a poor sleeper and the use of cigarettes, alcohol inebriation, and illicit drug use, reinforcing the link between disturbed sleep patterns and substance use. This difference in observation could be due to external factors such as prevalent sleep issues in the general population or other underlying conditions influencing sleep disturbances irrespective of substance use. In our study, changed relationships with family members/ friends were significantly more common in addicts group as compared to non-addicts groups. Similar findings were observed in the studies conducted by Bauman et al, 1992, Farrell and White 1998 and Ary et al, 1993. Drug use often leads to isolation or conflict with family and friends. In our study, it was found that both addicts and non-addicts exhibited secrecy regarding possessions in equal proportions. This suggests that secrecy about personal belongings is not necessarily a distinguishing characteristic of addiction. However, in study conducted by Desai et al, 2024, they observed contradictory findings. This difference in observation could be due to while secrecy regarding possessions may not be directly linked to addiction, social isolation—a behavior often associated with secrecy—shows a notable connection to substance use disorders.

According to a study by Griffiths, 2005, "salience" refers to when the particular activity becomes the most important activity in the person's life and dominates their thinking (preoccupations and cognitive distortions), feelings (cravings), and behavior (deterioration of socialized behavior). Even when not actively using, addicts will be thinking

about the next time they will be consuming the substance, leading to neglect of responsibilities and prolonged absences. This behavior explains why addicts may spend long periods away from home in pursuit of these altered states. These behavioral patterns align with our findings, reinforcing that frequent absences and erratic behavior are symptomatic of addiction, as individuals prioritize substance use over stability in their daily lives. This may be linked to social behaviors surrounding drug use, such as attending parties, meeting dealers, or engaging in high-risk activities. In our study, burn or soot marks were significantly more common in addicts group as compared to non-addicts groups. This aligns with behaviors associated with drug use, such as using lighters, pipes, or handling substances that leave residue. Similar findings were observed in the studies conducted by Barillo and Goode R, 1996 and Mc Gill et al, 1995. In our study, anxiety symptoms were significantly more common in addicts group as compared to non-addicts groups. Similar findings were observed in the study conducted by Grant et al, 2004. Drug use can significantly alter brain chemistry, leading to heightened anxiety levels.

Nausea and vomiting are common adverse effects of substance use, often leading to early discontinuation, under-dosing, and inadequate analgesia. In our study, the distribution of nausea and vomiting was similar in both groups, suggesting that it is not strongly associated with addiction. While withdrawal or drug effects could cause nausea, it is also a common symptom unrelated to substance use. In our study, seizures were not statistically significant among the two groups whereas, in a study conducted by Mattoo et al, 2009, they observed a strong association between substance use and seizure occurrence. Seizures can manifest as a symptom of both intoxication and withdrawal, depending on the type of substance used. However, occurrence of Nausea/ vomiting or seizure due to any cause possible, is in itself a medical condition, cannot be ignored and need to be addressed by concerned specialist doctor per se.

CONCLUSION-

The statistical evaluation of addiction-related behavioral and physiological parameters using the chi-squared test revealed significant differences between addicts and non-addicts for the majority of the assessed variables. However, six parameters—Remaining Aloof, Increased Financial Demands, Disturbed Sleep, Secretive About Possessions, Nausea/Vomiting, and Seizures—were found to be statistically insignificant ($p > 0.05$), indicating that their presence or absence does not exhibit a strong correlation with addiction in this dataset. Despite this statistical insignificance, it is imperative to analyze the clinical and behavioral implications of these parameters in the context of addiction screening.

Among the six statistically insignificant parameters, three—Nausea/Vomiting, Seizures, and Disturbed Sleep—are well-established medical conditions that cannot be entirely disregarded in addiction assessment. Such lack of statistical significance may be linked to multiple factors, such as inconstancy in individual medical histories, coexisting neurological disorders etc. These conditions, although statistically inconclusive in this dataset, remain clinically relevant as they often appear in withdrawal syndromes associated with substance abuse. Therefore, their inclusion in the Mukesh And Nikhil Addiction Screening (MANAS) Scale remains justified from a medical perspective.

The parameters—Remaining Aloof, Increased Financial Demands, and Secretive About Possessions—showed no significant statistical correlation with addiction. This suggests that they are not consistent indicators across the general population. Other elements like personality characteristics, socioeconomic status, or outside stressors may affect such behaviors independent of addiction, contributing to their failure to show statistical correlation. Therefore, such parameters may not be primary markers in screening for addiction but may act as ancillary behavioral markers.

After refining the parameters to statistical and clinical significance, 12 of the 15 parameters in the Mukesh And Nikhil Addiction Screening (MANAS) Scale model come out as strong predictors of addiction that need urgent medical attention. Their statistically significant correlation with addiction ($p < 0.05$) validates their accuracy in distinguishing between addicts and non-addicts. These results validate the utility of Mukesh And Nikhil Addiction Screening (MANAS) Scale as an early screening measure, allowing for timely intervention and medical assessment of individuals presenting these symptoms.

A well-structured screening instrument not only increases diagnostic precision but also increases access to treatment, promoting an active response to addiction recovery. The Mukesh And Nikhil Addiction Screening (MANAS) Scale has the potential to identify gaps in prevailing deaddiction protocols. Further, the incorporation of medically significant but statistically insignificant parameters such as nausea/vomiting, seizures, and disturbed sleep ensures that essential physiological symptoms are not overlooked in clinical assessments.

It is hence concluded that if any one of the symptoms like Disturbed sleep, nausea/ vomiting and seizures are ticked yes alone or in combination, or if among the rest 09 parameters more than 04 are ticked yes,

then, it is imperative for caregivers to seek out the help of medical experts.

A large sample size and multi centric study preferably in population group of different ethinicity may enhance the predictive accuracy of Mukesh And Nikhil Addiction Screening (MANAS) Scale.

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REVISED VERSION OF MANAS Scale-
Mukesh And Nikhil Addiction Screening (MANAS) Scale

S. No.	Items	Yes	No
1	Tremors (Shaky Body or Hands)		
2	Mood Swings		
3	Unexplained Injuries		
4	Negative changes in schoolwork/ missing school/ college or declining grades		
5	Unusual smells or chemical odors		
6	Changed relationship with family members/ friends		
7	Goes out often from home/ disappears for long periods of time		
8	Burn or soot on fingers or lips		
9	Anxiety symptoms such as Panic attacks, Dizziness, Excessive Sweating, Dry mouth etc.		
10	Disturbed sleep		
11	Nausea/ vomiting		
12	Seizure		

Seek Medical Expert help if:-

1. Either of sl no. 10, 11 or 12 are ticked yes.
2. If among sl no. excluding 01- 09- more than 04 are ticked yes.