

Adaptation and modification of two key instruments to study the self-medication hypothesis in dual diagnosis psychotic patients: a pilot study

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Abstract : Prevalence of comorbid substance dependence in psychosis (dual diagnosis cases) is high and it increases the overall management difficulty. Self-medication Hypothesis (SMH), one explanation to understand such high prevalence, proposes that such individuals “self-medicate” with various substances to alleviate underlying distressing symptoms. Research findings are equivocal and direct empirical studies are very few. Two key instruments to study this area, Stated Reason Scale (SRS) and Perceived Effect Scale (PES), do not capture all aspects of SMH. To adapt and modify these two instruments (SRS and PES) to test SMH in Indian dual diagnosis patients, ten dual diagnosis cases and five controls (psychosis with history of substance use but no substance use disorder) were administered modified and expanded Hindi version of SRS and PES. The face validity was tested; item endorsement and score distribution patterns were calculated. Feedbacks from the patients were noted. Categories of “hallucinations, delusions, mood symptom and negative symptoms” showed appreciable differences in score distribution patterns between two groups. Cases gave more number of reasons greater frequency of reasons for substance use than controls in all categories except “bio-functions and others”. Feedback of patients was descriptive. The modified SRS and PES can be applied to test SMH in better way. However, sample size being small, the behavior of the modified instruments needs to be observed in a larger sample, keeping the feedback of patients in mind.

Keywords: Psychosis, Substance abuse, Dual diagnosis, Self-medication hypothesis.

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INTRODUCTION

Dual-diagnosis patients (co-occurring serious mental illness [SMI] and substance use disorders [SUD]) self-report various reasons for using the substance,¹ and prevalence of substance abuse in schizophrenia is high (40-70%). Dual diagnosis increases the likelihood of relapse, violence, HIV infection, psycho-social complications, treatment non-compliance, overall management difficulty and poorer prognosis.²⁻⁶ Self-medication

hypothesis (SMH) is one proposed explanation for this, which proposes that substance use in psychotic individuals is an attempt to “self-medicate” the underlying distressing symptoms (non-withdrawal related).⁷⁻¹⁴ So, SMH forms the base for planning non-pharmacological treatment (e.g., cognitive-behavioral strategies or coping skills approaches) keeping the self-medication theme in perspective as well as pharmacological treatment towards the management of such

difficult-to-treat patients.

Among many studies, some supported the SMH,^{1,2,5,8,14,17} some claimed partial support¹⁸⁻²² and a few studies showed no support.²³⁻²⁸ Henwood et al.²¹ recently reported that when SMH referred to using substances strictly to cope with symptoms of mental disorders, only 11 out of 72 attributions supported it, whereas when SMH referred to using substances to cope with painful feelings in general, more than half of all attributions supported SMH. Thus, it is important to accurately understand and test the various reasons people give for why they use substances, for which hypothesis-driven studies and use of appropriate "goal-oriented" research instruments are needed. However, many studies mentioned above are "post-hoc"; they have methodological flaws; they have studied SMH in "piece-meal" and they have not tested for possible wide range of symptoms (as reasons for taking substances and perceived effects of the substance on those symptoms).

One study from our Center specifically focused on SMH in substance abusing schizophrenics for the first time in the Indian setting.¹⁴ However, even in this study, items in the key scales used (Stated Reason Scale⁴ and Perceived Effect Scale⁴) have not been able to test SMH in a broader sense and in a more complete way. We attempted to modify these two key instruments (so as to capture maximum possible symptoms considering conceptual and various dimensions of psychotic illness in mind), to observe the behavior, to validate, and to find the ease of applicability of these two instruments in this pilot study, ultimately, to test SMH empirically in a hypothesis-driven approach.

MATERIAL AND METHODS

Sample was drawn from patients attending the out-patient and in-patient section of the Drug De-

addiction and Treatment Center in a tertiary-care referral institute of north India. Because this was a small-sampled pilot study, the sample consisted of ten cases (patients with schizophrenia, schizoaffective disorder, psychosis unspecified and persistent delusional disorder, along with psychoactive substance dependence/harmful use for at least a month preceding intake, diagnosed according to ICD-10 DCR criteria) and five controls (same as cases but with history of only substance use, not meeting ICD-10 DCR criteria for dependence or harmful use). Grossly uncooperative patients (e.g., severe formal thought disorder preventing meaningful communication, mute, acute intoxication or withdrawal, mental retardation), substance induced psychotic disorder, schizotypal disorder and documented neurological or organic brain syndrome were excluded both for cases and controls.

Instruments

Socio-demographic profile sheet (SDS) developed by the department recorded socio-demographic data. Clinical Profile Sheet (CPS) recorded the age of onset, total duration, diagnosis, and family history of psychotic illness; medication dosage and compliance. Drug Abuse Sheet (DAS) recorded the age of onset, type of substances, duration, amount, frequency, last use and family history of use/abuse/dependence. Stated Reasons Scale (SRS)⁴ originally has 15 items, with "yes/no" responses, to questions for various reasons for using substances, by psychotic patients. Since it is important to tap as many psychotic symptoms as possible (including negative symptoms) in order to test the SMH more broadly and more effectively, we expanded the scale (keeping various symptom domains, various diagnostic criteria and conceptual issues of Schizophrenia and psychotic illness in mind) by adding nine more questions such as irritability, anger, anxiety, fearfulness, perplexity, feeling of hopelessness, emptiness, frustration,

indecisiveness, and the detail phenomenological components of delusion and hallucinations. Further, the scoring was made on a 5-point Likert type scale (0 = not at all, 1 = rarely, 2 = sometimes, 3 = often, 4 = almost always). Perceived Effects Scale (PES)⁴ originally has 9 items, pertaining to the substance's perceived effects on their mood, thought and behavior. Responses are scored as increased /same/ decreased. PES was modified by the interviewers by adding nine more new items like irritability, anger, confidence, speech output; work output, socialization, abnormal behavior, loneliness and fearfulness to test the hypothesis more completely. The two main instruments (SRS and PES) in English were translated to Hindi by joint effort of authors, psychiatric social worker and the Hindi department of the institute. The English versions of the modified SRS and modified PES are appended (Appendix 1 and Appendix 2, respectively).

Procedure

The study was conducted at above-mentioned center, after obtaining clearance from the Thesis and Ethics committees of the Institute and with written informed consent obtained from the study subjects. The investigators confirmed the index diagnosis (as per ICD-10-DCR) after history taking, clinical interview and cross checking with the records. Both the cases and controls were administered SDS, CPS, DAS, modified SRS and modified PES, with the help of the author and/or family member, wherever needed. Patient's comfortability with the English/Hindi version was given priority.

A professor of psychiatry and a retired professor of clinical psychology tested the face validity of the two instruments. The behavior of the instruments was analyzed by item endorsement, score distribution patterns and feedback from the patients on the applicability and understandability of the items. For the

modified SRS, weighted scores for cases and controls were calculated by adding the responses (i.e. 0 for using substance "not at all", 1 for using the substance "rarely", 2 for using the substance "sometimes", 3 for using the substance "often" and 4 for using the substance "almost always") of 10 cases / 5 controls on item no.1 to 8 for general reasons (i.e. category I); for Category II (i.e. items 9 to 15, mood reasons), Category III (i.e. items 16 to 18, cognitive reasons), Category IV (i.e. items 19 to 28, negative symptoms), Category V (i.e. items 29 to 34, delusions), Category VI (i.e. items 35 to 42, hallucinations), Category VII (i.e. items 43 to 45, bio-functions), Category VIII (i.e. items 46 to 47, abnormal behaviors), Category IX (i.e. items 48 to 52, other reasons). Similarly, weighted score of twenty perceived effects for case and control was calculated by adding the responses in above-mentioned way. Then mean weighed score of 10 cases and 5 controls were calculated. Range of score was noted by noting the lowest and highest weighted score among case and controls.

RESULTS

A. Summary of item endorsement and score distribution patterns (modified SRS and modified PES) [Table 1]

As compared to the controls, the cases gave more number of reasons or greater frequency of reasons for using substances in all categories except "biofunctions and others". The category of "hallucinations, delusions, mood symptoms and negative symptoms" showed appreciable differences in score distribution patterns between cases and controls.

B. Descriptive feedback from patients

In SRS:

The majority of patients (12 out of 15; 80%) took approximately 30-40 min to complete the two scales. Twelve out of 15 patients needed

Table 1
Summary of item endorsement and score distribution patterns (modified SRS and modified PES)

Reasons Attributed (Category Wise)	ITEM NO.	MEAN WEIGHTED SCORES		RANGE OF SCORES	
		Cases	Controls	Cases	Controls
I. General Symptoms	1-8	11.9	5.0	8-18	2-8
II. Mood symptoms	9-15	15.4	3.8	2-24	1-7
III. Cognitive symptoms	16-18	3.8	1.2	0-9	0-3
IV. Negative symptoms	19-28	15.7	4.4	2-24	1-12
V. Delusions	29-34	11.4	3.8	2-20	0-12
VI. Hallucinations	35-42	12.4	0	1-24	0
VII. Bio-functions	43-45	5.3	1.2	1-9	2-4
VIII. Abnormal behavior	46-47	1.3	0.2	0-4	0-1
IX. Others	48-52	6.5	4.0	1-13	0-20
X. MODIFIED PES	ITEM1-20	23.2	8	17-28	3-18

assistance of the interviewer to understand clearly the items of “delusions and hallucinations”. Five patients needed two sittings with a break of 10 minutes to complete the entire set. Three patients preferred the English version to the Hindi version. Eleven patients interpreted the separate items “To get high” and “To increase pleasure” as same. Five patients were comfortable with “never” instead of “not at all” in frequency row of SRS. Three patients needed assistance of the interviewer in delineating difference between the items “To decrease withdrawal symptoms” and “To avoid withdrawal symptoms”.

In PES:

Seven patients suggested another extra column of “not applicable”. Four patients with dual diagnosis straightway admitted that substance use produced such good effects that when they used substances they did not feel the need of taking the medicines!

DISCUSSION

The modified SRS and PES, tested in this pilot study would presumably be better tools, because

they would test all the dimensions of psychotic illness, would measure the items more quantitatively (on 0 to 4 Likert scale, instead of a dichotomous “Yes/no” response as in the original scale); are translated to Hindi and are validated. Differences were noted between cases and controls in stated reasons for the substance abuse and perceived effect of the substances on symptoms. The category of “negative symptoms, mood symptoms, hallucinations and delusions” showed appreciable differences in score distribution patterns between the two groups. Consistent with previous studies,^{21,22,17,28,29} our study patients also showed that some negative symptoms (e.g., asociality and anhedonia) and some mood symptoms (e.g., negative painful feelings) are the reasons for substance abuse, though, they have not used SRS and PES. Some earlier studies have not directly tested for positive symptoms^{28,29} (delusions and hallucinations in particular), though aggression can be secondary to harboring of delusion and hallucination; and some scales had included “suspicious” as reported reason. But this index study included all dimensions of

delusions and hallucinations in elaborated manner, to see whether these were the reported reasons for substance abuse and have found that, definitely, more number of cases gave these as reasons than controls for substance abuse. In addition, Some biological studies^{29,30} provide support for the fact that nicotine is used as a means of self-medication in schizophrenics so as to “lift up” cognitive, some negative, positive and mood symptoms so much so that some authors tempted to think whether low dose nicotine prescribed therapeutically will help such patients without any physical consequences.²⁹

Individual feedbacks on the modified scales reflected the ease of understandability and applicability of these instruments in such population, though assistance is needed in interpretation of some of the items. The limitations of the study include a small sample size (though it was a pilot study meant only to refine and observe the instruments) and non-random selection of patients. Based on the results and feedbacks, the modified SRS and PES should provide the researchers with a broad-based and methodologically sound set of tools in this important area of research.

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Appendix 1.

Modified and expanded Stated Reasons Scale (SRS).

STATED REASONS SCALE (MODIFIED FROM DIXON, 1991)

People use substances (tobacco, alcohol, and other drugs) for many different reasons. We are interested in learning why you use these, and how often. Please try to think about your reasons for taking each drug at a time. Please remember that there are no 'right' or 'wrong' reasons; it is not your 'test'. We simply want to know more about your own reasons for taking drugs.

For Substance: _____

Reason	0 Not at all	1 Rarely	2 Some times	3 Often	4 Almost always
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General (not symptom-oriented) reasons

1. To get high
2. To increase pleasure
3. To satisfy curiosity
4. To increase confidence
5. To be more creative
6. To work or study better
7. To decrease frustration
8. Just like that (without any reason)

To improve mood symptoms

9. To decrease irritability

10. To decrease anger/ aggression/ violence
11. To decrease anxiety
12. To decrease sadness
13. To decrease hopelessness
14. To decrease fearfulness
15. To decrease tension

To improve cognitive symptoms

16. To decrease indecisiveness
17. To improve thinking efficiency
18. To increase concentration

To improve negative symptoms

19. To talk more (Speech output)
20. To communicate better (Illogical thinking)
21. To go along with the group
22. To increase socialization
23. To decrease loneliness
24. To be able to enjoy things not otherwise enjoyable
25. To increase involvement in family
26. To be able to "feel" emotions like joy, sorrow, etc.
27. To increase energy
28. To decrease feeling of emptiness

Delusions

29. To decrease suspiciousness
30. To decrease the preoccupation with troubling ideas
31. To decrease the emotions attached to the fixed ideas
32. To control "acting on" delusion
33. To decrease the conviction in belief
34. To be more faithful to spouse

Hallucinations

35. To decrease hearing of voices that others cannot hear
36. To decrease the feeling of abnormal sensations on body
37. To decrease abnormal sensations or experiences
38. To decrease seeing things that others cannot see
39. To decrease the intensity of hallucinations
40. To decrease the frequency of hallucinations
41. To decrease the duration of hallucinations
42. To control acting on hallucinations

To improve bio-function

43. To increase sleep
44. To increase appetite
45. To increase sexuality

To improve on abnormal behavior

46. To decrease the socially unacceptable behaviour (Stereotypy, Catatonic symptoms)
47. To decrease abnormal body movements

Other reasons

48. To decrease withdrawal symptoms
 49. To avoid withdrawal symptoms
 50. To decrease the side effects of neuroleptics (e.g., stiffness, salivation, tremors, altered gait)
 51. To decrease the criticism by the public on their behavior (Insight).
 52. Any other (specify)
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Appendix 2.

Modified and expanded Perceived Effects Scale (PES).

PERCEIVED EFFECTS SCALE (MODIFIED FROM DIXON, 1991)

Different substances (tobacco, alcohol, and other drugs) produce different effects on different people. We are interested in learning what effects the following substances have on *you*. Please try to think about each drug at a time and what effects they have on *you*. Please remember that there are no 'right' or 'wrong' reasons; it is not your 'test'. We simply want to know more about the effects of drugs on yourself.

For Substance: _____

Perceived effects of substances (drugs) on your:	Increased	Decreased	Same
1. Anxiety			
2. Depression			
3. Irritability			
4. Anger			
5. Confidence			
6. Energy			
7. Speech			
8. Work output			
9. Socialization			
10. Calmness			
11. Loneliness			
12. Fearfulness			
13. Abnormal behavior			
14. Suspiciousness			
15. Delusions			
16. Hallucinations			
17. Abnormal experience			
18. Trust			
19. Efficiency of mind			
20. Enjoyment			

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