



ORIGINAL ARTICLE

Relationship between non-psychotic morbidity and substance dependence in male prisoners suffering from dissocial personality disorder



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Abstract

Background and objectives: To study (1) comparative prevalence of non-psychotic morbidity (NPM) in male dissocial personality disorder (DPD) patients with or without psychoactive substance dependence (SD).

(2) Relationship of NPM with pattern and duration of SD.

Methods: This was a 20-month single blind cross sectional hospital-based study with a sample size of total 1036 male prisoners ≥ 18 years of age suffering from DPD (study = 518, control = 518). Participants in study group fulfilled further criteria of being suffering from SD.

Results: Majority of participants in both groups were unemployed, married individuals with occupational skills of less than skilled labour level and educational attainment of higher secondary level or lesser. Intensity of substance use was higher in study participants with NPM than those without NPM, and they started consuming substance at younger age, had a longer duration of substance use and dependence, and majority of them had onset of NPM after onset of SD. NPM was present in 350 (67.6%) of study participants against 159 (30.7%) in controls. Study participants had especially high prevalence of Major Depressive Disorder (MDD)/Recurrent Depressive Disorder (RDD) (24.9%) and Adjustment Disorder (13.3%). Among study participants, 203 (58%) participants with NPM used ≥ 3 psychoactive substances against 33 (19.7%) in those without NPM.

Conclusions: The results suggested that a higher burden of NPM exists in substance using DPD population than those without NPM and occurrence of NPM in turn leads to earlier onset and increased severity of SD in this population.

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Introduction

Personality disorder (PD) affects 6% of the world population, and the differences between countries show no consistent variation.¹ PD leads to a disturbance in functioning as great as that in most major mental disorders.²

Dissocial PD (DPD) is associated with high rates of separation and divorce; unemployment and inefficiency; and poor quality of life for the individual and his/her family.³ Offenders with DPD are usually young, have a high suicide risk, high rate of mood, anxiety, substance use, psychotic, somatoform disorders, borderline personality disorder, Attention Deficit Hyperactivity Disorder (ADHD).⁶ Health care utilization by DPD patients is excessive.³

In a study, 10% of male prisoners were found to be suffering from personality disorder.⁷ More antisocial acts were perpetrated by alcohol and drug users than by nonusers and main risk factors for perpetrating antisocial acts were being male, using alcohol and other drugs.⁸ Almost 47–63% of male prisoners and 21–31% of female prisoners had DPD.⁹ Similarly, the prevalence of DPD is higher among patients in alcohol or other drug (AOD) abuse treatment programs than in the general population,¹⁰ suggesting a link between DPD and AOD abuse and dependence. Offenders with DPD are more likely to have substance use disorder.^{4,11–13} Since very few of these studies have employed standardized interviews; hence underestimation of PD prevalence cannot be ruled out. DPD is significantly associated with persistent alcohol, cannabis and nicotine use disorders (adjusted odd ratios 2.46–3.51) than general population.

Prisoners are several times more likely to have psychosis and major depression, and about ten times more likely to have DPD than the general population.¹⁴

Some of the problems in studying various clinical aspects related with DPD have been (a) it is only in recent times that a consensus has emerged for the definition of DPD. The studies carried out until recently have employed variable definition of DPD. (b) Other sources of variation include variable expertise of therapist, sampling techniques, geographical variations and time period of the study.

Although only about one-third of the world's prisoners live in western countries, about 99% of available data from prison surveys are derived from western populations, which underscores the need for greater forensic psychiatric research in non-western populations.¹⁴ Literature from India in this area is scanty.

Objectives

To study (1) comparative prevalence of NPM in male DPD patient with or without SD (2) relationship of NPM with pattern and duration of SD.

Methods

This was a 20-month single blind cross sectional hospital-based study with a convenience sample size of total 1036 participants (study = 518, control = 518). This study was conducted at Central Jail Hospital (CJH), New Delhi which is largest prison hospital setting in India with both inpatient and outpatient departments. Prior to initiation of study

approval in this regard was obtained from Ethical committee of CJH after protocol presentation.

Inclusion criteria

1. Prisoners diagnosed to be suffering from both substance dependence and DPD by ICD-10 (DCR) criteria in past one month.
2. Male participant.
3. Age 18 years or above.
4. Participant willing to give a written informed consent.

Exclusion criteria

1. Participants who were not co-operative for the interview for study purposes, as per the clinical judgement of the researcher. The rationales behind the clinical judgements of researcher were recorded.
2. Inability to speak sufficient English or Hindi.
3. Those participants with severe physical illness (like hepatic encephalopathy, severe debilitating illness) or severe cognitive illness (with Mini Mental Status Examination (MMSE) score < 23) that might have hampered the assessment process.
4. Lifetime diagnosis of psychosis and/or Bipolar Affective Disorder (BPAD).
5. Participants currently suffering from personality disorder except DPD as per International Personality Disorder Examination (IPDE).

Inclusion criteria for control participants

Participants found matching with study participants on socio-demographic and clinical parameters except presence of psychoactive SD.

Instrument used: (a) **International personality disorder examination (IPDE)**: semi-structured interview using ICD-10 criteria has 67 set of questions and time required in its completion is 150 min.¹⁵ In participants who were unable to understand English, North Indian Hindi translation which was standardized and used in previous studies was used.¹⁶

(b) **Basic socio-demographic Performa**: it included questions to obtain information regarding socio-demographic characteristics of SD. Socio-demographic characteristics such as age, sex, marital status, education, occupation, employment status, religion and residence were recorded.

(c) **The mini-mental state examination**: The MMSE is a 30-point questionnaire test designed by Folstein et al. that is used to screen for cognitive impairment. Each component is rated from 0 to 1. In the time span of about 10 min it samples various functions including orientation, memory, arithmetic skills, language use and comprehension and basic motor skills. Cognitive deficits in participants were ruled out using MMSE.¹⁷

(d) **Schedule for Clinical Assessment in Neuropsychiatry (SCAN)**: the assessment of psychiatric morbidity in participants was performed by a SCAN-based clinical interview in which clinical interview.¹⁸

(e) **The Severity of Dependence Scale (SDS)**: the SDS developed by Gossop et al. was used to rate severity of

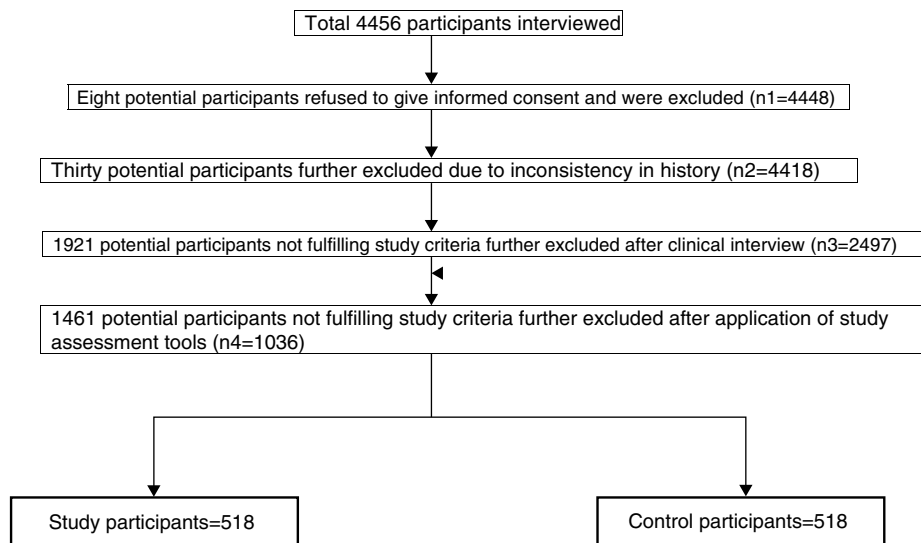


Figure 1 Flowchart of steps followed in study.

substance dependence in individuals. It is a 5-item scale that measures the degree of psychological dependence specifically related to the individual's feeling of impaired control over and preoccupation and anxiety towards drug taking. Score of each item ranges from 0 to 3.¹⁹

The psychiatric diagnosis in the present study was made as per ICD-10 (DCR) criteria. The data so generated was then subjected to statistical analysis.⁵

Assessment procedure

Participants fulfilling study criteria were included in the study after obtaining a written informed consent for the same. The physical examination and MMSE screening of the participants were done to make the necessary exclusion. Assessment tools were applied in the order starting from the Performa to assess the socio-demographic characteristics, SCAN, IPDE and SDS. Application of all these tools was only done by single trained psychiatrists involved in the study. Confidentiality and privacy were maintained during the assessment. During assessment if author came across any information which might have helped in better treatment of patient then those details were provided to respective treating team.

Statistical analysis and data collection

Data were entered in the data-based computer program and were analyzed using the statistical package for social sciences (SPSS 15.0.1).²⁰ Descriptive (frequency and percentage) and inferential statistics (Chi-square test and *t*-test) were used to interpret the data. A '*p* value' of <0.05 is considered as significant (Fig. 1).

Results

Total 4456 prisoners were interviewed out of which 3420 were excluded because of following reasons: (1) eight (five

in study and three in control group) for refusal to give consent for study related assessment, (2) thirty due to inconsistency in history and inability to recall some/multiple past details with potential bearing on current study, (3) 1921 individuals after clinical interview as were unlikely to fulfil study criteria and (4) 1461 after assessment were not fulfilling study criteria (mostly diagnosis of DPD). Among 1921 individuals were excluded after clinical interview, and thirty were either suffering from psychosis/BPAD or had lifetime history of psychosis/BPAD.

According to Table 1, mean age \pm SD of study participants was 38.3 ± 10 which was similar to finding of control participants (39.2 ± 10.6). The difference in age of study and control participants was statistically insignificant ($t = 1.41$, p -value = 0.16, SE of difference = 0.64).

Majority of participants were unemployed married individuals who did not have educational skills of more than higher secondary and occupational skills of more than unskilled labour level. No statistical difference was found between two groups in terms of socio-demographic variables.

According to Table 2, difference between prevalence of NPM in study and control participants was statistically significant (χ^2 value 331.1; dof 3, p value 0.0001). Prevalence of MDD/RDD (24.9%) and adjustment disorder (13.3%) in study participants was much higher than in control participants.

According to Table 3, the mean score \pm SD score of study participants having NPM on SDS scale was 10.41 ± 1.34 against 8.5 ± 1.6 in those without NPM. Considering maximum possible score on SDS of 15 in an individual, there was severe substance dependence among study participants. The difference in SD score of psychoactive substance using participants with and without NPM was statistically significant (p value < 0.0001, $t = 14.24$, SE of difference = 0.13).

According to Table 4, study participants with NPM compared to those without NPM start consuming substance at younger age as well as have greater duration of substance use and dependence and this difference was statistically significant.

Table 1 Socio-demographic profile of study and control participants.

	<i>N</i>	Minimum	Maximum	Mean \pm SD			
Age of study participants in yrs	518	23	63	38.3 \pm 10.0			
Age of control participants in yrs	518	22	64	39.2 \pm 10.6			
	Number of study participants (<i>n</i> = 518)	Percentage (%)	Number of control participants (<i>n</i> = 518)	Percentage (%)	χ^2 value	df	<i>p</i> value
<i>Education</i>							
Illiterate	106	20.5	95	18.3	0.28	3	0.42
Under-metric	146	28.2	153	29.5			
Graduate and above	106	20.5	99	19.1			
<i>Occupation</i>							
No occupation	126	24.3	136	26.3	3.46	6	0.75
Unskilled	135	26.1	126	24.3			
Semi-skilled worker	125	24.1	118	22.8			
Skilled	35	6.8	40	7.7			
Professional	34	6.6	39	7.5			
Business	36	6.9	35	6.8			
Student	27	5.2	24	4.6			
<i>Employment</i>							
Unemployed	288	55.6	284	54.8	0.13	1	0.72
Employed	230	44.4	234	45.2			
<i>Marital status</i>							
Married	275	53.1	274	52.9	3.3	2	0.19
Unmarried	189	38.2	177	32.2			
Separated/Widowed	54	8.7	67	14.9			

p-Value less than 0.05 considered statistically significant.

Table 2 Prevalence of NPM in study and control participants.

NPM	Number of study participants (<i>n</i> = 518)	Percentage (%) of study participants	Number of control participants (<i>n</i> = 518)	Percentage (%) of control participants			
Obsessive Compulsive Disorder (OCD)	51	9.9	22	4.3			
Generalized Anxiety Disorder (GAD)	51	9.9	34	6.6			
MDD/RDD	129	24.9	61	11.8			
Adjustment Disorder	69	13.3	20	3.9			
Somatoform Disorder	58	11.2	25	4.8			
Habit and impulse disorder	44	8.5	17	3.3			
Participants not having NPM	168	32.4	359	69.3	$\chi^2 = 331.1$, dof = 3, <i>p</i> < 0.0001		
Participants having one NPM	191	36.9	86	16.6			
Participants having two NPM	96	18.5	44	8.5			
Participants having three or more than three NPM	63	12.2	29	5.6			

Note: some participants had more than one psychiatric disorder.

Table 3 Substance use characteristics – I.

	N	Minimum	Maximum	Mean \pm SD
SDS score of study participants not having NPM	168	6.4	10.5	8.5 \pm 1.16
Study participants having NPM				
SDS score of study participants having one NPM	191	8.1	11.8	9.99 \pm 1.1
SDS score of study participants having two NPM	96	8.9	12.3	10.59 \pm 0.91
SDS score of study participants having three or more NPM	63	9.6	12.9	11.4 \pm 0.83
Total	350	8.1	12.9	10.41 \pm 1.34

Table 4 Substance use characteristics – II.

	Years	Number of study participants with NPM (n = 350)	Percentage of study participants with NPM	Number of study participants without NPM (n = 168)	Percentage of study participants without NPM	χ^2 value	dof	p value
Age of onset of substance use	10–20	115	32.9	60	35.7	9.84	3	0.02
	20–30	123	35.1	64	38.1			
	30–40	60	17.1	32	19			
	40–50	52	14.9	12	7.1			
Duration of substance use	0–5	63	18.0	37	22.0	9.97	4	0.04
	6–10	70	20.0	42	25.0			
	11–15	88	25.1	49	29.2			
	16–20	96	27.4	28	16.7			
	>20	33	9.4	12	7.1			
Duration of substance dependence	0–5	119	34	64	38.1	14.68	3	0.002
	6–10	147	42	79	47			
	11–15	59	16.9	22	13.1			
	16–20	25	7.1	3	1.8			

Table 5 depicts that among study participants with NPM, majority i.e. 61.4% had onset of NPM after onset of SD which points towards possible contribution of SD to onset of NPM.

According to Table 6, more than 80% study participants with NPM were suffering from alcohol, opioid and cannabis dependence either alone or in various combinations. Number of participants with use of three or more than three substances at a time was much more common in study participants with NPM than in those without NPM. Difference between substance consumption pattern of participants with and without NPM was found to be statistically significant (χ^2 value = 96.53; dof = 3; $p < 0.0001$). Among study participants, cannabis dependence is most common (68.3%) followed by opioid (61.1%) and alcohol (60.3%). While among control participants, alcohol dependence is most common (76.8%) followed by cannabis (62.5%) and opioid (56%).

Table 5 Temporal relation between onset of NPM (n = 350) and SD.

Onset of NPM	Number of study participants with NPM	Percentage in study participants with NPM
Before onset of SD	135	38.6
After onset of SD	215	61.4

Discussion

The present study compared only DPD having problem of substance disorder with those not having problem of substance disorder regarding prevalence of psychiatric morbidity. The rationale to include only male prisoners in the study was based on the fact that substance use in general population is known to occur more frequently in men than women.²¹ Also prevalence of DPD^{4,22} and rate of conviction in females is less, and by including females required sample size would have become large, which was not feasible. The results therefore, can be generalized only for male population.

Patients with lifetime diagnosis of either psychosis or BPAD were excluded from the study as reliability of personality measurement in those suffering from psychosis is not clear.²³ Hence overall psychiatric morbidity is likely to be much higher than that in the current study.

Information on NPM, substance use and DPD was based on self report. Although some participants might have minimized their levels of substance use, earlier methodological studies on this issue⁴ have shown that collateral reports do not necessarily indicate higher substance use levels when compared with self report. Participants with cognitive impairment and/or co-morbid severe medical illness and who were not co-operative for the interview were planned to be excluded as this could have hampered the assessment.

Table 6 Prevalence of various psychoactive substance use/dependence in study participants.

	Psychoactive substance	Number of study participants suffering from NPM (<i>n</i> = 350)	Percentage in study participants suffering from NPM	Number of study participants not suffering from NPM (<i>n</i> = 168)	Percentage in study participants not suffering from NPM
Participants with dependence to one substance	Alcohol dependence	8	2.4	16	9.5
	Cannabis dependence	0	0	16	9.5
	Opioid dependence	8	2.4	20	11.9
	Benzodiazepine dependence	0	0	0	0
	Other substance dependence	0	0	0	0
	Total	16	4.8	52	31.0
Participants with dependence to two substance	Alcohol and cannabis dependence	13	3.7	19	11.3
	Alcohol and opioid dependence	21	6.1	19	11.3
	Alcohol and benzodiazepine dependence	21	6.1	16	9.5
	Alcohol and other substance dependence	17	4.8	6	3.6
	Cannabis and opioid dependence	24	6.9	11	6.5
	Cannabis and benzodiazepine dependence	16	4.5	6	3.6
	Cannabis and other substance dependence	0	0	0	0
	Opioid and benzodiazepine dependence	0	0	6	3.6
	Opioid and other substance dependence	17	4.8	0	0
	Benzodiazepine and other substance dependence	0	0	0	0
Total	129	36.9	85	50.6	
Participants with dependence to three substance	Alcohol, opioid and cannabis dependence	34	9.6	16	9.5
	Alcohol, cannabis and benzodiazepine dependence	25	7.2	11	6.5
	Alcohol, cannabis and other substance dependence	34	9.6	0	0
	Cannabis, opioid and benzodiazepine dependence	38	11.0	0	0
	Cannabis, opioid and other substance dependence	17	4.8	0	0
	Opioid, benzodiazepine and other substance dependence	17	4.8	0	0
	Total	165	47	27	16.1
	Polysubstance dependence	38	11.0	6	3.6

However no exclusion in the study was required on the above account.

In the current study no attempt to rate severity of PD was done though according to earlier study only small minority (probably one in 20) of PD cases suffer from severe PD.²⁴ Only participants above 18 years of age were included in the study because though personality related patterns are usually evident during late childhood or adolescence, but the requirement to establish their stability and persistence restricts the use of the term 'disorder' for adults.²⁵

The current study finding was consistent with previous study finding of young and poorly educated people having highest prevalence of DPD.²⁶

Those participants with NPM were more likely to use three or more than three substance at a time but because of both drug use pattern and type of PD being heterogeneous in nature, in current sample size it was beyond scope of this study to draw conclusion on relation of NPM with pattern of individual substance use and vice versa. This issue can be better addressed in future study with larger sample size focusing on specific type of substance use or NPM. SDS score of study participants in this study was similar to earlier study SDS score (mean \pm SD: 10.2 \pm 1.7)²⁷ in prisoners admitted for deaddiction at same centre. The latter study had not taken PD into consideration, and on the basis of the findings of these two studies it cannot be conclusively proclaimed whether DPD has any impact on severity of substance dependence.

The prevalence of alcohol dependence of 59.8% in the current study is much higher than earlier studies' finding of alcohol abuse and dependence rate of 11.5–30% in male prisoners.^{28,29} Still higher prevalence rate of 69.2% was present in study participants suffering from psychiatric morbidity. Other drugs also showed similar higher rates of consumption.

Study findings provide some evidence to support the possibility raised in earlier study that given high co-morbidity of PD with AXIS I disorders and especially high odd ratios of PD with AXIS I co-morbidity, the possibility exists that PD affects the onset, persistence and severity of co-morbid AXIS I disorders.³⁰ Questions in this regard can be better answered in future longitudinal epidemiological research on PD.

There is a high rate of comorbidity^{1,3–6} between personality disorders.³¹ In the current study, participants suffering from other disorders were not excluded as it would have required much higher sample size which was not possible in this study setting. Possibility of study finding having been influenced by other PD cannot be completely ruled out.

Generally, when a person (or a prisoner) gets old, it may lead to give her/him a kind of maturity that may result in a decrease in prevalence of DPD, and this factor may be the reason for presence of young age participants in our study.³²

Conclusions

Results suggest that a high burden of substance-related morbidity exists in DPD population, and treatment of this marginalized population poses a serious challenge to health authorities especially to psychiatrists. Prevalence of NPM in DPD patients suffering from SD is much higher than in non-substance-using population. In study participants with NPM,

severity of psychoactive SD was higher than in those not having NPM with more prisoners in this group using three or more substances.

Limitations

- (1) Limitations of the study include its generalizability. This was a hospital-based study conducted on male prisoners and results cannot be applied to the general population, women and children.
- (2) Results are subjected to possible recall bias due to the self-reported nature of this study. Author has reduced this potential bias by the using validated self-report measures.
- (3) DPD diagnosis was based on a single instrument, and being a prison setting with its legal limitations it was not possible to interview family members or other informants, who could have provided additional information.

Conflict of interest

There is no conflict of interest in this study.

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