THE ONGOING QUEST FOR SUB-TYPING SUBSTANCE ABUSE: CURRENT STATUS

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ABSTRACT

Substance abuse is a heterogenous disorder that necessitates classification for purposes of evaluation and treatment. Although a large number of typologies have been generated, the research has mostly focussed on alcoholism. The typologies of 'age at onset' and 'Cloninger's Type 1/Type2' have been extensively researched even though there is a lack of adequate validation. The present review of various typologies focusses more on the conceptual and methodological issues. A critique of the typological work is presented; highlighting the paucity of Indian research in this important area of substance abuse.

Key words: Typology, classification, alcoholism, drug abuse

"One of the most enduring exercises in the history of therapeutics has been the tendency to name and to classify" (Babor & Dolinsky, 1988). The same process has been applied to the field of substance misuse i.e. abuse and dependence. The wealth of research carried out in classifying the types of substance users is clearly visible if one searches for such material. But, is this due to a consistent follow-up on a specific path or is it arising out of multiple and different forays? To be able to answer this question, one will need to understand the concept and current status of classification of substance abuse.

A "type" refers to an idealized construction of some observer, based on a combination of biological or social characteristics; and derived from logical rules that assemble into meaningful clusters individuals who are similar in a majority of relevant aspects (Babor & Dolinsky, 1988). Similarly, the word "typology" means a classification system and a set of decision rules used to differentiate relatively homogenous groups (Babor, 1994).

NEED FOR TYPOLOGY IN ADDICTION

Addiction is a multifactorial illness with contributions from genetic, personality, social and environmental factors. Development and research into categorical approach to differentiation of this complex interplay can help in its better understanding.

Apart from helping develop an understanding of etiology, typological grouping could help in progress related to clinical and biological research. The clinical implications related to treatment approaches for addictive disorders can be derived from typological processes.

APPROACHES IN TYPOLOGY

(a) 'How' i.e. Methodology: Various methodological approaches can be employed, either alone or in conjunction. These have generally been found complementary to each other and keeping in mind the typologies in current focus, their combined use appears more relevant. The various types are:

1. Descriptive - This is arising out of clinical observation; over the years being supplemented by researchers through quantitative evaluation methods. Currently, application of statistical clustering methods has further refined the data.
2. Genetic epidemiology - This is based mainly on twin and adoption studies.

3. Experimental Research - This is through laboratory based methods for the purpose of studying biological markers. This approach is applied for high-risk groups.

4. Treatment Response - This is related to comparison of treatment response in various therapeutic modalities.

(b) ‘With What’ i.e. Parameters: Typology research has employed various parameters for developing classificatory systems. These have been derived from socio-demographic, clinical (illness-related), personality, biological and environmental variables. Depending upon their use i.e., solely or in conjunction, parameters can be clubbed as: 1) unidimensional e.g. age at onset, gender. 2) bidimensional and 3) multidimensional e.g. type I/II.

Having developed some understanding of typology, it is now pertinent to examine - as to what is ideal or best suited for research and clinical application.

(Ideal) Characteristics of Typology

Numerous typologies have been put forth but only a few have attempted to tailor to the practical needs of either clinicians or researchers. Therefore, it becomes important to examine and realize as to what should be an ideal typology.

(a) Number of categories in a given typology should not be numerous. This is so as the ‘over-splitting’ methodology will not be able to guide practical and research approaches.

(b) Homogeneity within categories i.e. individuals included in a given type should be similar with respect to the major distinguishing features of the illness. They should be so similar that the sub-types generated are distinct from each other.

(c) Comprehensiveness i.e. most, if not all, cases should be accounted for in a representative sample of persons with a specific addiction. Hence while developing a typology, the sample should be drawn from the universe having characteristics specific to that particular illness.

(d) Specificity i.e. care should be taken to avoid including variables which can confound issues, or which can themselves act as typological markers without being related to the illness.

(e) Stability i.e. the variables included in a given typology should not be state dependent or temporary. They should be present or accessible whenever a patient comes in contact with a clinician or researcher.

(f) Multidimensionality i.e. variables incorporated should be greater than one and should take into account varied relevant aspects of the illness. Using a single-parameter typology can lead to limited application and utility in multifactorial illnesses like substance abuse.

(g) Utility i.e. being helpful from a research and clinical viewpoint. The typologies should be able to permit rational assignment of patients to the most appropriate aspects of treatment system e.g. treatment matching, treatment intensity etc.

(h) Cross-Cultural Applicability i.e. typology developed in one cultural setting has replicability and application in a different cultural set-up (after controlling for the established cross-cultural differences).

(i) Validity i.e. demonstration of its robustness in application to research in that field. The typology formulated should have predictive, construct and discriminative validity (Babor et al. 1992a).

However, the parameters mentioned above cannot be easily fulfilled by any one given typology. Commensurate with this statement, an attempt will be made later on to see as to how ‘ideal’ are the various important typologies in the field of addiction.

Typology in ‘Alcoholism’

Typological thinking has been in operation for nearly 150 years now. Starting from the 1850’s, more than 50 typologies have been advocated so far. If one traces the historical concepts, it will be evident that typology in alcoholism can be broadly classified into - prescientific (pre-Jellinek) period, Jellinek era (1941-1960), Post Jellinek era.

Pre-Jellinek period: The typologies generated in the prescientific era (1850-1941) were from
France, Germany, USA and UK and had the following commonalities i.e. being mostly multidimensional, craving as a concept and basis for differentiation, pattern of consumption explained by type of dependence and chronicity as the final common pathway (Babor & Dolinsky, 1988).

**Jellinek Era**: Based on clinical observations and an in-depth study of the previous typologies, Bowman & Jellinek (1941) created a hierarchical classificatory system. This was further refined, modified and proposed as a five-fold typological theory by Jellinek in 1960. Although 5 types viz. Alpha, Beta, Epsilon, Gamma and Delta were proposed, yet the ones considered relevant to the current concept of dependence are - Gamma and Delta (table-1). It is relevant to mention here that Jellinek proposed this classification on the basis of the drinking pattern of alcoholics and took into consideration the etiology variables, alcoholism process variables and types of damage consequent to drinking. Hence, the typological approach of Jellinek is of the 'multidimensional' variety.

**Post-Jellinek period**: In this period, there were radical changes in the approach of researchers towards developing and validating typologies. Essentially speaking, certain key elements characteristic of the approach of researchers in this period were a) Systematic Approach:

| TABLE 1 | COMPARISON OF JELLINEK'S 'GAMMA' AND 'DELTA' ALCOHOLICS |
|--------|--------------------------------------------------|
| Element/Variable | Gamma alcoholic | Delta alcoholic |
| Etiological       |                   |                  |
| Psychological vulnerability | High          | Low              |
| Socio-cultural influences | Low-Moderate | High             |
| Economic influences | Low-Moderate | High             |
| Alcohol process   |                   |                  |
| Nature of dependence | Primarily   | Primarily        |
| Loss of control   | Psychological    | Physical         |
| Inability to abstain | Low          | High             |
| Progression       | Rapid           | Slow             |
| Nutritional status | Poor          | Fair             |
| Types of Damage   |                   |                  |
| Physical/Psychological | Low High  | Low High         |
| Socioeconomic     | High            | High             |

Looking at alcoholics in an empirical yet systematic manner by two methods. First is the 'a priori' approach in which alcoholics are classified into two or more groups based on pre-defined criteria and then compared with each other on relevant variables. Secondly is the 'a posteriori' approach in which alcoholics are studied and then analysed to determine homogenous groups arising out of the same (Babor & Dolinsky, 1988). b) Statistical Analyses: Comparative statistics have been applied for the typologies generated by the 'a priori' approach. However, multivariate statistics have been the mainstay with employment of factor analysis and cluster analysis for arriving at homogenous groups. c) Dimensional Typologies: Although categorical typologies have been generated, yet the focus has been on single or multiple dimensions. Even amongst the multidimensional typologies, some of the differences listed appear to represent two parts of the same dimension.

This will be more clear when we examine the major typologies. Firstly let us examine the 'uni-dimensional' typologies. This will be followed by the 'multi-dimensional' typologies. The various typologies are listed in table 2. Research on these typologies is abundant; mostly

| TABLE 2 | TYPOLOGIES IN ALCOHOLISM |
|---------|--------------------------|
| Typological parameter/Typology | Subtypes |
| Jellinek | Gamma/Delta |
| Gender | Male/Female |
| Parental Alcoholism | Neither alcoholic/one or both alcoholic |
| Personality disorder | Neurotic/Psychotic/Classic/ alcoholic |
| Psychopathology (primary/secondary) | ASP anxiety disorder/Primary alcoholic |
| Drinking pattern | Episodic/Steady/Binge/Sporadic |
| Age at onset | Early/Late; <25>/25 years; <20 >20 years |
| Cloninger. | Type 1/Type 2 |
| von Knorring | Type 1/Type 2 (Hierarchical) |
| Grilgan | Type 1/Type 2 (Dimensional) |
| Babco | Type A-Type B |
| Morey & Skinner | Early stage/Affiliative/Schizoid |
| Zucker | Antisocial/Developmentally cumulative/Negative affect/Developmentally limited |
| Read | Pure/Contaminated |
focussing on Cloninger’s Type 1/Type 2, Age at onset, Drinking pattern, Psychopathology etc.

UNIDIMENSIONAL TYPOLOGIES

1. Gender: Studies have reported later onset, more rapid course and higher prevalence of depression with respect to males (Babor et al., 1992a). It has been mentioned that females may have either primary alcoholism or secondary alcoholism (Schukit et al., 1969).

2. Psychopathology (Primary/Secondary): Alcoholics with antisocial personality (ASP) have earlier (younger) onset, rapid progression, more complications, poorer treatment outcome and prognosis as regards primary alcoholics (Hesselbrock et al., 1984; Goodwin et al., 1971).

3. Parental Alcoholism: Positive family history of alcoholism is associated with a similar pattern as ASP alcoholics, though evidence related to treatment and prognosis is equivocal (Frances et al., 1984; Winokur et al., 1970).

4. Personality: Minnesota Multiphasic Inventory (MMPI) has been used for classifying types of personalities. However, external validation against alcohol-related parameters is limited (Babor et al., 1992a).

Before proceeding further, it is pertinent to mention some commonalities in the above stated typologies (Babor & Dolinsky, 1998; Babor et al., 1992a). These have been able to successfully differentiate alcoholics on various parameters. However, the degree of overlap observed has not been controlled for to estimate the individual and unique contribution of each typology. Lastly, apart from one study (Babor et al., 1992a) these have not been subjected to convergent validity and it was observed that these typologies are not strong predictors of outcome status and show lack of discrimination as regards features and patterns of drinking. Due to the same, impetus was given to developing multidimensional typological models; the foundation for which had been established by Cloninger’s hypothesis (1987) of Type 1 and Type 2 alcoholism.

However due to findings that emerged from research on the multidimensional typologies (which will be discussed later), there was a resurgence of interest in the unidimensional models.

5. Drinking Pattern: Although some studies had been carried out in the 1970s and early 1980s using this variable, yet all of them had suffered from the drawbacks of lack of uniformity among definitions for drinking patterns and inability to pinpoint the constructs being measured by the same (as they were derived hypothetically). To overcome these caveats, a computer generated algorithm was developed to systematize drinking patterns by Epstein et al. (1995) which showed that ‘steady drinkers’ had later age at onset (>25 years), with more tendency to drink in the treatment and post treatment phases and manifesting more loss of control.

6. Age at onset (AAO): Buydens-Branchey et al. (1989) made the pertinent observation that AAO of alcoholism was an important parameter in the typological research. Although some researchers (Lee & DiClimente, 1985; Von Knorring et al., 1985) had used AAO for studying alcoholics, yet Buydens-Branchey et al. (1989) were probably the first to use it as a criterion for subtyping alcoholics. Since then, numerous studies have been carried out which have yielded the following results viz: early onset is associated with greater complications, higher incidence of paternal alcoholism, with greater possibility of depression, suicide and incarceration for crimes with respect to late onset (Buydens - Branchey et al., 1989; Glenn & Nixon, 1991, 1996; Varma et al., 1994; Fenaughty & Fisher, 1998). Additional research has shown external validity with Cloninger’s Typology (Varma et al., 1994; Glenn & Nixon, 1996). The advantage of AAO-based typology is its very simplicity and potential for immediate clinical application.

However, this unidimensional parameter is itself fraught with difficulties. Firstly, the AAO has been defined differently viz. 25 years (Varma et al., 1994), 20 years (Buydens-Branchey et al., 1989) or not clearly specified (Glenn & Nixon, 1996; Fenaughty & Fisher, 1998). Secondly, studies have not mentioned about the techniques for measurement/elicitation of AAO. Thirdly, AAO has been defined differently in relation to
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key points during development of alcoholism e.g. age at problem drinking, age at development of dependence etc. Therefore, till these caveats are handled, confidence placed on the results obtained with this parameter will not be high.

7. Miscellaneous: Recently Johnson et al. (1996 & 1998) using cluster analysis have proposed a typology based on the genetic versus environmental loading for alcoholism. Three sub-types were identified i.e. mild, severe and dysocial. However, replication of findings of this group is not available.

Another typological approach is by Watson et al. (1990) based on alcohol-consumption after effects giving rise to five variables viz. hangover, euphoria, flushing, seizures & sleepiness. These were differentially correlated with MMPI scores suggesting some degree of utility. Again, however, no replicative research is available.

BIDIMENSIONAL TYPOLOGY

Read et al. (1992) developed a bidimensional typology based on the observations of frequent co-occurrence of family history of alcoholism and other psychiatric disorders with presence of additional (comorbid) psychiatric illness. They gave the 'pure' monosyndromatic and 'contaminated' polysyndromatic groups which differed in that the 'pure' had later (>35 years) AAO, fewer medical, legal and personal complications and a benign course. Despite being originally carried out on nearly 600 alcoholics, no further research has been available thereafter.

MULTIDIMENSIONAL TYPOLOGIES

As mentioned earlier, certain difficulties faced with the unidimensional typologies led to the development of multidimensional typologies which were based on certain common characteristics and assumptions viz. (a) alcoholics differ with regard to at least four important characteristics - etiological elements, onset and course, presenting symptoms and drinking patterns (b) while certain subtypes may exhibit cardinal traits (ASP, early onset, positive family history), in many cases these overlap in the same alcoholics (c) pure types based on unidimensional variables are difficult to identify (d) lack of comprehensive assessment has led to focus on limited range of variables (Babor et al., 1992a).

1. Morey et al. (1984) Model: This has been developed from alcohol use questionnaire by applying cluster analysis posting 3 types viz.

- Early stage problem drinkers (with drinking problems but no major symptoms of dependence)
- Affiliative drinkers (socially oriented, daily drinkers with moderate dependence)
- Schizoid drinkers (socially isolated, binge drinkers with severe dependence)

2. Zucker's (1987) Developmental Model: Four subtypes were generated i.e. antisocial alcoholism (early onset with genetic diathesis, antisocial behaviour and a poor prognosis), developmentally cumulative alcoholism (primary alcohol use leads to dependence and psychiatric disorders), negative affect alcoholism (occurs in women where alcohol is used to regulate mood or enhance social relationships), developmentally limited alcoholism (heavy drinking remitting to social type on assumption of successful adult and family career).

3. Cloninger's (1981) Type 1/2: Although clinical characteristics of two sub-groups of alcoholics were identified by Cloninger et al. (1981) (through their cross-fostering study) and replicated later (Sigvardsson et al., 1996), yet it was in 1987 that the typology was formulated (in combination with personality traits) (Cloninger, 1987).

| Characteristics         | Type 1   | Type 2   |
|-------------------------|----------|----------|
| Alcohol related problems|          |          |
| Usual age of onset (years) | After 25 | Before 25 |
| Inability to abstain    | Infrequent| Frequent |
| Loss of control         | Frequent  | Infrequent|
| Fighting and arrests    | Infrequent| Frequent |
| Guilt and fear          | Frequent  | Infrequent|
| Personality traits      |          |          |
| Novelty seeking         | Low      | High     |
| Harm avoidance          | High     | Low      |
| Reward dependence       | High     | Low      |
At least 10 studies are available till date which have tried to evaluate the applicability of Cloninger's typology to patients of alcoholism. To date, the major findings emerging out of these studies are - failure to validate the typology, modifications appear to increase degree of validity and only some characteristics appear to be present consistently. Another problem associated with the typology is its lack of validation in females (Glenn & Nixon, 1996; Sannibale & Hall, 1998).

Numerous reasons have been cited for the failed validations - differing methods of classification and sample (inpatients or university students) etc. However a recent study by Sannibale and Hall (1998), despite potentially controlling for such confounders, failed to validate Cloninger's typology in alcoholics though an earlier Irish study (Farren & Dinan, 1996) had validated the construct.

4. Von Knorring's (1985) Criteria : Von Knorring et al. (1985) developed criteria based on Cloninger's criteria and gave two types i.e. Type I and Type II. This classification is developed on clinical grounds (Lamparski et al., 1991); is quite similar to Cloninger's Type 1 and 2 but the emphasis is different (Lamparski et al., 1991) viz. Cloninger's typological concept appears to give equal credence to AAO with drinking patterns and social complications while von Knorring's concept is hierarchical i.e. AAO being the primary parameter followed by treatment initiation and, lastly the complications. Type 1 alcoholic was characterized by later (> 25 years) AAO of subjective problems related to alcohol, later age of contact (>30 years) for purposes of treatment and absence of social, occupational, legal and family complications. Type 2 alcoholic had younger AAO, earlier treatment contact and presence of complications in at least two of the areas-social, occupational, legal and family.

Some studies have been unable to validate this typology (Lamparski et al., 1991) which could be due to methodological differences. However, a study from Ireland (Farren & Dinan, 1996) was able to validate the same.

5. Gilligan's (1988) Criteria : This was again developed by Cloninger's group for identifying type 1 and 2 abusers using the Alcohol Symptom Scale (Gilligan et al., 1988). Hence, it is a modification of Cloninger's Typology yielding scores along a continuum from -3 to +3. The scores are obtained by summing four negatively weighted type 2 symptoms (inability to abstain, fights, reckless driving, treatment for problem drinking) and five positively weighted type 1 symptoms (tried to limit drinking, guilt, benders, cirrhosis, AAO > 25 years).

Using this modified typology of Cloninger, Sannibale and Hall (1998) were not able to validate the original typology.

6. Babor's (1992b) Type A/B : This typology was derived by assessing 321 male and female alcoholics on seventeen variables (with operational definitions) using cluster analysis, ANOVA and discriminant function analysis (DFA).

Two types viz. Type A and Type B were identified. Type A alcoholic had later AAO with lesser risk factors, severity, dependence, complications, dysfunction, distress, comorbidity and previous treatment history.

A further DFA was carried out to increase the clinical efficacy and validate the typology (Brown et al., 1994). This yielded only 5 variables that could distinguish the 2 types i.e. severity of dependence, childhood risk factors, comorbidty of antisocial personality disorder (ASPD), physical complications and life time severity. However, no further studies have been carried out on this typology, reasons for which are unclear.

7. Miscellaneous : Using Latent Class Analysis for life time symptoms of alcohol dependence, Bucholz et al. (1996) were able to differentiate 4 classes in relation to problem/non-problem drinking.

Another such analytic method was applied by Kendler et al. (1998) to alcoholic twin pairs thereby generating two major sub-types.

Hauser and Rybakowski (1997) applied cluster analysis to AAO, family history, severity, psychiatric and somatic illnesses to generate 3 types. Type I was characterized by later AAO, high family history of alcoholism and mild course severity. Types II and III had earlier AAO and severe course but
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differed on other parameters. Type 2 had positive family history of alcoholism and presence of comorbid ASP whereas Type 3 had presence of comorbid psychiatric and somatic illness with positive family history of psychiatric illness.

Therefore, from the above discussion it can be seen that the important and more researched typologies are the ones given by Jellinek (1960), Cloninger (1981) and Babor et al. (1992b) along with AAO. The construct and predictive validity of these typologies has been attempted in recent years. Of these, AAO and Cloninger's Type 1/Type 2 have been subjected to maximum scrutiny by researchers. AAO has been found to have better construct validity (Irwin et al., 1990; Varma et al., 1994) than the conflicting results obtained for type 1/type 2 (von Knorring et al., 1985; Lamparski et al., 1991; Vailliant, 1994; Sannibale & Hall, 1998). Validation of these 2 concepts is, however, not present for all parameters. Despite this, the Type 1/2 typology is the one which has been subjected to careful research and despite all limitations or contraindications, is one of the most useful classification still available (Varma, 1994).

TYPOLOGY IN 'DRUG ABUSERS'

Research in relation to drugs other than alcohol is far and few which has led Epstein (1994) to give the following comment "sub-type literature has been limited to alcoholic sub-types, not substance abuse sub-types". Majority of the research in this area has been on opioid/narcotic users; a little on nicotine users with mixed drug patients forming the sample for rest of the studies. (a) Regarding studies on 'drug abuse' in general researchers have used two types of methods for classification viz. i) Clinical Observation : Cancrini et al. (1985) classified drug users into 4 types - traumatic, actual, transitional, sociopathic and correlated them with treatment type and prognosis. ii) Age at onset : Clark et al. (1998) classified substance users into various groups using cut-off age of 18 years and found that adolescent - onset adults had higher use of cannabis and hallucinogens, rapid dependence for first and subsequent substances and higher comorbidity

(b) Opioid dependence patients have been classified using parameters which are mainly unidimensional. i) Personality : Berzins et al. (1974) used the MMPI to conclude that there were 2 groups with one having elevated psychopathic deviance and depression. ii) Psychopathology : Recently, work has emerged (Brooner et al., 1997; Alterman et al., 1998) which has shown antisociality as an important variable. Brooner et al. (1997) showed that presence of comorbidity (especially ASPD) was associated with severe dependence and complications. Alterman et al. (1998) found that 6 clusters of opioid addicts could be identified with 'antisociality' as the variable. iii) Social Processes : Some studies (Shaffer et al., 1983; Cancrini et al., 1988) have shown antisociality as an important variable. Brooner et al. (1997) showed that presence of comorbidity (especially ASPD) was associated with severe dependence and complications. Alterman et al. (1998) found that 6 clusters of opioid addicts could be identified with 'antisociality' as the variable. iv) AAO : This important parameter, as is evident from research on alcoholism, has surprisingly not been the focus of attention. To date, the only study by De (1996) found that AAO of 20/21 years could distinguish two groups of opioid abusers. The early onset group had single status, preferred oral opioids, developed more often dependence on sedatives and nicotine, greater family H/O dependence, more complications and global psychopathology with higher sensation seeking. A close look at these variables points to the possibility of a common underlying concept of early onset in opioid abusers with the early-onset type proposed for alcoholism.

TYPOLOGY IN 'SMOKERS'

Although personality assessment of smokers has been studied, yet the results are inconclusive. Recently, the study by Patton et al. (1997), using cluster analysis, identified two groups. Those with high neuroticism were younger, using other substances and had antisocial and higher alcohol-related problems. However, apart from his study, typology of 'smokers' has not really moved ahead, reasons are not clear.

INDIAN RESEARCH

Despite a high prevalence of drug and
alcohol abuse, efforts into developing or validating typologies for them are limited. In alcoholics, two studies are available. The first (Varma et al., 1994) evaluated AAO and subgrouped alcoholics with early and late-onset dependence. They additionally provided part external validation to Cloninger's typology. A recent study by Selvaraj et al. (1997) compared male and female alcoholics and found basis for differentiating alcoholics on the parameter of 'gender'. In opioid abusers, only a single study is available to date which tried to establish the utility of AAO for subtyping them (De, 1996).

SUMMARY AND CRITIQUE

Therefore, it appears that research in substance abuse disorders has focussed primarily on alcohol with a few studies in relation to opioids and nicotine. There are no available studies on other substances of abuse e.g. cannabis, benzodiazepines, volatile solvents, cocaine etc. Why this is so is surprising as abuse of all these substances are encountered at a high rate. Secondly, despite wealth of research available as regards the original construct and validation, especially on alcohol, the applicability or utility of various typologies in the current diagnostic systems (DSM-IV & ICD-10) is missing. Thirdly, no attempt has been made to correlate the typological constructs with the dependence construct (in relation to severity and quality) developed in recent years. Fourthly, despite relatively extensive research, a lot of methodological and conceptual issues are not settled which hinder the interpretation and generalizability of results e.g. definitions of various parameters (age at onset, alcoholism, drinking patterns etc.), applicability of typology to abusers or dependence patients or both, sampling problems i.e. which population is to be studied. Fifthly, no attempt has been made till now to evaluate the typologies in a cross-cultural aspect. There is paucity of research from countries over the world with the exception of USA, Sweden, Australia. Sixthly, paucity of research from India is reflected in that only three studies are available till date. Seventhly, research on alcoholism reveals a few significant features viz. Type 1/2 is the most studied of all typologies, construct validity is present maximally for AAO and Type 1/2 typologies, but there is lack of predictive validity for all typologies. Finally, it can be said that a lot of typologies are available; especially for alcohol dependence. But the question before us - is there a need for pursuing with the same? If one looks closely at the major typologies in alcoholism, a common theme that seems to emerge is the categorization of patients into two broad groups i.e.

- One type characterised by early onset, rapid development of dependence, more complications, more psychopathology, positive family history and poorer prognosis.
- The second type characterised by later onset, less virulent course, lesser complications, low loading on family history, less psychopathology and better prognosis.

This pattern is reflected in the typology of opioid abusers (De, 1996) and smokers too.

If such is the case, then it appears that near similar types (apart from minor variations) are being generated through different methodologies; on different samples. Hence, the need of the hour appears to be to focus on validation (external, predictive) of these parameters (individually or in clusters) rather than developing newer models. This should prove to be more cost effective in the long run and help in the better understanding and management of individuals afflicted by substance abuse.

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