DEVELOPMENT OF A SCALE TO ASSESS ATTITUDES TOWARD DRINKING AND ALCOHOLISM

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ABSTRACT

Responses from 205 subjects to a 51-item self-report Likert scale for assessment of attitudes toward drinking and alcoholism (SAADA-I) were subjected to a principal component factor analysis with varimax rotation. The resultant 29 item modified version of the scale (SAADA-II) had four factors named "Acceptance", "Rejection", "Avoidance" and "Social dimension", and explaining 8.59%, 8.35%, 4.76% and 3.79% of the variance respectively (total variance explained 25.49%). Measures of internal consistency and stability over time both yielded overall satisfactory results. The complex, multidimensional nature of the attitudes toward drinking and alcoholism is emphasized by this study. Also, the scale, after further modifications, may be used as a sound psychometric index for measuring such attitudes especially in the care-givers, professionals and burden-sharers dealing with alcohol dependent persons.

Key Words: Attitude, drinking, alcohol, alcoholism, scale, factor analysis

The study of attitudes toward drinking and alcoholism is important for several reasons. First, amongst the various student populations, it has been shown that attitude, belief and actual behaviour toward substance use are correlated (Bhadra and Girija, 1981; Singh and Khan, 1981; Spencer and Navratnam, 1980). Second, negative attitudes of medical students and physicians toward "alcoholics" and "drug addicts" may lead to underdiagnosis and maltreatment in various medical settings (Abed and Neira-Munoz, 1990; Chappel and Schnoll, 1977; Geller et al., 1989; Paton, 1989). Third, adverse attitudes of non-medical staff at various treatment facilities may also give rise to distress and discriminatory behaviour towards the patients of drug dependence (Ball and Ross, 1991; Nurco et al., 1988). Finally, negative attitudes of family members towards drinking and drug taking have recently been shown to increase their subjective burden of care for alcohol or drug dependent patients in the family (Basu et al., 1996). This has obvious management implications, both in term of psychological health of the care giver in family as well as acceptance or rejection of the patient in the long run.

A few scales or questionnaire for assessment of attitudes toward substance abuse are currently available, e.g. a) Substance Abuse Attitude Survey (Chappel et al., 1985); b) Attitude towards Drug Addiction (Singh, 1982); c) Attitude towards Injecting Drug Users Scale (Ross and Darke, 1992); and d) Attitude towards Alcoholism (Chakravarthy and Kaliappan, 1995). The first two studies surveyed that attitudes of students; the third surveyed adolescents and the last study focussed on the attitudes of the spouses of alcoholics.

Although the systematic study of attitudes in this area is more than three decades old now...
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(e.g. Mendelson et al., 1964), there is a striking paucity of psychometrically sound scales for measuring attitudes toward substance taking behaviour. Most of the previous studies have used some items or questionnaire purported to tap attitudes towards substance use. The psychometric properties of these items or questionnaires have largely been neglected. Even granted the difficulties inherent in establishing the construct or content validity of such an instrument, it is nevertheless both important as well as feasible to know its dimensionality, factor structure, internal consistency and stability over time. This has only rarely been done.

Thus, a need was felt to develop a scale for assessing attitudes toward drinking and alcoholism improving these drawbacks and lacunae. A companion study on a scale to assess attitudes towards drug-taking (in contrast to drinking) is published elsewhere (Basu et al., 1997).

MATERIAL AND METHOD

This study was conducted at the Drug De-addiction and Treatment Centre (DDTC), Department of Psychiatry, Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh. It was undertaken in several phases as follows:

Phase I: Construction of scale items

The items were pooled from two sources:
(a) Direct in-depth interview of close relatives of alcohol dependent persons admitted to DDTC. The relatives were asked as to how they generally felt about people using alcohol, whether they viewed alcohol abuse as a medical, social, or moral/characterological problem, whether alcohol use might be permitted in certain sociocultural and event-related contexts, what remedial actions might be taken to curb this problem, and other such related topics. The interviews were unstructured and generally open-ended.

(b) Published sources of various items reported to assess attitude towards substance abuse. These included some of the references mentioned earlier and also a WHO conducted international study report on community response to alcohol related problems (Ritson, 1985). Items generated from these sources were, of course, modified according to the needs of the present study.

Based on the above, an initial pool for 58 self-report items was drawn up. It was conceived of as a Likert type scale, ratable on 5 points of full agreement (rated as 1) through full disagreement (rated as 5).

Phase II: Face validity

The item pool was then circulated to 20 professionals (from the disciplines of Psychiatry, Clinical Psychology, Social Psychology and Psychiatric Social Work) for comments on content, language and general suitability of the items. They were also requested to suggest modifications, deletion and additions to the item pool in the light of the above. Taking the latter into consideration, a consensus was arrived at amongst the authors regarding the final items (with modification duly incorporated) to be retained in the scale. This resulted in a 51-item scale (7 items were deleted). It was named as Scale for Assessment of Attitudes toward Drinking and Alcoholism; first version (SAADA-I) and was put to further testing. Although considered rather lengthy at this stage, the scale was expected to be further pruned after factor analysis when the items with poor factor loading would be dropped. Also, a Hindi translation of the items was done. Each item in English was immediately followed by its Hindi version, keeping in mind the literacy status of the target population.

Phase III: Factor analysis of SAADA-I

The scale was then administered to 205 subjects from the general population. This was drawn from a) the attendants of the patients visiting outpatient facilities of the Institute, b)
relatives and attendants of patients visiting or admitted to DDTC and c) the staff of the institute and their relatives. The sampling was non-random and heterogenous. The age range was 13-66 years (mean 31.6, sd 11.1); education varied from illiterate to postgraduate status (mean years of education : 13.9, sd 6.6); male : female ratio was 0.84 : 1 ; most subjects (89%) were urban dwellers and majority were Hindu (67%). All of them denied having abuse of alcohol themselves, although this could not possibly be corroborated always.

The 51 items of SAADA-I were then subjected to principal component factor analysis followed by varimax rotation. Subject to item ratio was 4.02 : 1. Criteria for retention of factors included : eigen values more than 1, factor loading on each item not less than 0.4; and at least four items in a factor if that had to be retained in the final scale.

Phase IV : Testing the stability over time

The scale was re-administered to 30 subjects after a period of 4-6 months. Four forms were returned incomplete; here test-retest reliability was calculated on 26 subjects’ responses.

Other statistical procedures undertaken to test the psychometric properties of the scale included Cronbach’s alpha coefficient, and item-item and item-total correlations for each factor.

RESULTS

The rotated factor matrix gave rise to a nine factor solution explaining 62.70% of the variance. However, since 5 factors had less than four items, these were not retained as per the criteria mentioned above. Also, 22 items failed to load above 0.4 in the rotated matrix and these were also deleted. Thus we were left with four factors and 29 items. Further analysis as reported below is focused on this 4-factor and 29-items modified scale which is hereafter referred to as SAADA-II (Scale for Assessment of Attitudes toward Drinking and Alcoholism-second version). These four factors together explained 25.49% of the variance.

The factor structure of SAADA-II along with the items in each factor (with factor loadings), percent variance explained and Cronbach’s alpha coefficient of each factor is presented in Table 1).

Each of the four factors explained 8.59%, 8.35%, 4.76% and 3.79% of the variance respectively. All the factors were unipolar (i.e., the items were unidirectional in each factor) pointing towards either a favourable or an unfavourable attitudes. Different factors, however, differed in their polarity.

Factor I comprised of nine items indicating acceptance and endorsement of drinking in moderation, e.g., “Alcohol in moderate quantity is good for health” (item-1) “One may drink but not become "high" or "out" (item 2), and “Society should sanction drinking in limited amounts under special circumstances” (item 5). To make the scoring consistent with other factors these items were reverse-keyed. Thus a higher score on this factor would indicate agreement with items and hence a favourable attitude. This factor was termed as "Acceptance".

Factor II, On the contrary was composed of eight items indicating rejection of drinking and alcoholism, e.g., “All alcoholics should be put in jail" (item 10), "Alcohol is always harmful irrespective of the quantity, frequency and duration of drinking" (item 13), "Legal sale of alcohol should be banned" (item 11) etc. This factor was named, therefore, "Rejection". A lower score on this factor would indicate agreement with items and hence an unfavourable attitude. Conversely, a higher score would point towards a relatively favourable attitude.

The third factor consisted of five items concerning avoidance of alcohol taking behaviour or alcoholics, e.g. “If I come across a drunk person on the road, I will promptly go to the other side” (item 24). These items were straight keyed, so that a lower score (indicating agreement with the items) would point towards
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### TABLE 1
THE SCALE FOR ASSESSMENT OF ATTITUDES TOWARD DRINKING AND ALCOHOLISM, SECOND VERSION (SAA-DA-II) : ITEM LOADING, VARIANCE EXPLAINED AND CRONBACH'S ALPHA

| No. | Item | Item loading on factor (decimals removed) |
|-----|------|------------------------------------------|
|     |      | Factor I: Acceptance                      |
|     |      | variance explained : 8.59%                |
|     |      | Cronbach's alpha : 0.78                   |
| 1.  | Alcohol in moderate quantity is good for health. | 60 |
| 2.  | One may drink but not become “high” or “out”. | 71 |
| 3.  | In parties, marriage and other such ceremonies drinking should be allowed. | 58 |
| 4.  | My culture and background do permit drinking in moderate amounts. | 75 |
| 5.  | Society should sanction drinking in limited amounts under special circumstances. | 55 |
| 6.  | I would prefer my family member rather to drink at home than in public. | 58 |
| 7.  | I would prefer my family member to drink in parties or social gathering rather than alone at home. | 47 |
| 8.  | Having a drink is one of the pleasures of life. | 41 |
| 9.  | One should get drunk once in a while e.g. after a big success. | 41 |
|     |      | Factor II: Rejection                      |
|     |      | variance explained : 8.35%                |
|     |      | Cronbach's alpha : 0.91                   |
| 10. | All alcoholics should be put in the jail. | 62 |
| 11. | Legal sale of alcohol should be banned. | 65 |
| 12. | There is practically no difference between drinking and drunkenness. | 71 |
| 13. | Alcohol is always harmful, irrespective of the quantity, frequency and duration of drinking. | 53 |
| 14. | If feasible, I would not allow any of my family members to enter the house if they came dead drunk late at night. | 43 |
| 15. | Alcoholism is a sin. | 50 |
| 16. | I would not like that any of my family member drink at all. | 47 |
| 17. | Alcoholism is a moral/character disorder. | 44 |
| 18. | Drinking should be a taboo in every family. | 58 |
| 19. | Drinking is just another way of committing suicide. | 58 |
|     |      | Factor III: Avoidance                     |
|     |      | variance explained : 4.78%                |
|     |      | Cronbach's alpha : 0.46                   |
| 20. | It is better not to touch alcohol in the first place. | 60 |
| 21. | I would feel ashamed if anyone in my family ever got drunk. | 56 |
| 22. | Drink often brings out the animal (Monster) inside the human. | 68 |
| 23. | Foreigners may drink but not an Indian. | 43 |
| 24. | If I come across a drunk person on the road, I will promptly go to the other side. | 52 |
|     |      | Factor IV: Social dimension               |
|     |      | variance explained : 3.79%                |
|     |      | Cronbach's alpha : 0.57                   |
| 25. | The more educated a person is, the more likely he is to become an alcoholic. | 68 |
| 26. | The more religious a person is, the less likely he is to become an alcoholic. | 62 |
| 27. | Once an alcoholic, always an alcoholic. | 47 |
| 28. | If an army man drinks rum/whisky it's all right. | 42 |
| 29. | People with grown up children should not drink at all. | 48 |

Total variance explained = 25.46%
Cronbach's alpha (whole scale) = 0.90
TABLE 2
TEST-RETEST RELIABILITY CO-EFFICIENTS
FOR SAADA-II (N=26)

| Item | Pearson's r | Factor | Pearson's r |
|------|-------------|--------|-------------|
| 1    | 0.59**      | I      | 0.93***     |
| 2    | 0.52**      | II     | 0.86***     |
| 3    | 0.59**      | III    | 0.64***     |
| 4    | 0.66***     | IV     | 0.89***     |
| 5    | 0.67***     | Total  | 0.65***     |
| 6    | 0.60**      |        |             |
| 7    | 0.66***     |        |             |
| 8    | 0.30        |        |             |
| 9    | 0.57**      |        |             |
| 10   | 0.50**      |        |             |
| 11   | 0.56**      |        |             |
| 12   | 0.64***     |        |             |
| 13   | 0.57**      |        |             |
| 14   | 0.74***     |        |             |
| 15   | 0.56**      |        |             |
| 16   | 0.75***     |        |             |
| 17   | 0.67***     |        |             |
| 18   | 0.68***     |        |             |
| 19   | 0.47*       |        |             |
| 20   | 0.42*       |        |             |
| 21   | 0.10        |        |             |
| 22   | 0.59**      |        |             |
| 23   | 0.09        |        |             |
| 24   | 0.47*       |        |             |
| 25   | 0.11        |        |             |
| 26   | 0.69**      |        |             |
| 27   | 0.28        |        |             |
| 28   | 0.48*       |        |             |
| 29   | 0.30        |        |             |

*p<0.05; **p<0.01; ***p<0.001; df=24

A negative attitude towards drinking. Although having some overlap with factor II, the items of factor III were not so much concerned with active rejection, providing punishment to drinking behaviour or viewing alcoholism as a sin or as a moral/character disorder as the items in factor II were. Rather, these factor III items were more concerned with preferred personal avoidance of drinking behaviour by self or others. Therefore, the factor was named "Avoidance".

Finally, factor IV was made up of five items concerned with socio-cultural aspects or "prototypes" of drinking, e.g. "The more religious a person is, the less likely he is to become an alcoholic" (Items 26), and "if an army man drinks rum/whisky, it's all right" (Item 28). For purpose of consistency, these items were also reverse-keyed and the factor was named "Social dimension".

Cronbach's alpha coefficients were high to moderate for all the factors as well as for the whole scale. Other tests of internal consistency included item-item and item-total correlations in each factor. Generally high positive correlations were found in both the cases (item-item and item-total). Since the factors were already obtained by varimax rotation of the factor matrix, inter-factor correlations would have been redundant.

Finally, stability over time was tested by test-retest correlations of individual item scores, factor scores and total scale scores (table 2). The total scale score and each of the four factor scores had highly significant test-retest reliability (Pearson's r values ranging between 0.64 to 0.96). Similarly, most of the individual items also had significant test-retest correlations except 6 items.

DISCUSSION

These data indicate that there are several dimensions of attitudes towards drinking and alcoholism. Also, these dimensions seem to have construct validity in the sense that they are meaningfully interpretable and conceptually distinct. Hence, these may form the basis for a psychometric instrument.

So far, attitudes toward substance abuse have generally been considered to be unidimensional i.e. positive or negative, favourable or unfavourable, in an overall, generalized fashion. Only recently factor analytic research has demonstrated that this may not be the case, and that attitudes may actually exist along different dimensions (Ross and Darke, 1992) on which a person may vary. For example, it is possible for one to passively accept or even actively endorse some drinking behaviour (e.g. on social occasions) and yet reject the alcoholic as "all alcoholics should be put in jail". Conversely, a person not at all endorsing drinking either actively or even passively may, however be sympathetic and

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favourably disposed toward the alcoholics as people who need treatment and not punishment. This is quite understandable in the common-sense "intuitive" way, but our empirical research tends to mathematically corroborate such multi-dimensionality of attitudes, further defining and partly quantifying the concept. Recent research has shown the bearing of context and other complex factors on the opinion towards permissible level of drinking (Treno and Hennessy, 1992). Dismissing a composite attitude towards drinking as either 'positive' or 'negative' does not appear to do justice to the complexity of the concept. The present paper can be said to have established the multi-dimensionality of the concept, which may be now psychometrically measured and put to further use.

An audit of the strength and limitations of this study is in order. The strengths include: a large sample size; sample coming from heterogeneous population (thus increasing the scope of applicability of the scale, rather than confining it to only students or only spouses); pooling of items through multiple sources; subjects-item ratio of 4.02:1 (which is acceptable for applying Multivariate statistics in social and behavioural sciences); and a long test-retest interval of 4-6 months.

One relative limitation of this study is that the factor analysis was exploratory rather than confirmatory in nature. For this, replication of the factor structure on a different sample is required. Another limitation is the rather small total variance (25.5%) explained by the SAADA-II (although SADDA-I items had explained 62.7% of variance). This just shows that the work is not yet complete and more items, properly selected, need to be taken up in future revisions of the scale. In particular some of the factors not retained in the second version of the scale due to our predetermined criteria (i.e., each factor to have at least 4 items) may actually have a number of useful and valid items which could have increased the variance explained. A later version of the scale may incorporate these or similar other items and then the factor structure should be re-examined on a different sample. Finally 6 out of 29 items had nonsignificant test-retest reliability, though it must be viewed in the context of a long test-retest interval of 4-6 months, during which a respondent may actually undergo an attitudinal modification process due to various reasons. It must also be remembered that test-retest reliability for factor scores was high overall. Further, the other measure of reliability (Cronbach's alpha) ranged from high to moderate for the factors as well as for the entire scale.

Summing up, the data suggest that attitudes towards drinking and alcoholism can be characterized by at least four interpretable dimensions, and that these dimensions provide a useful psychometric index for their measurement. Further studies should address the issues of concurrent and discriminant validity, correlates of these attitudes in terms of characteristics of the subjects studied, and, finally, effects of these attitudes on the burden sharing and care of the alcohol dependent person.

Taken together with the Scale to Assess Attitude towards Drug-taking behaviour (Basu et al., 1997) and after further refinement as mentioned above, this assessment instrument can aid in planning comprehensive management strategies for the patients with substance use disorders and for their burden-ridden families. Also, since attitudinal characteristics importantly influence one's propensity to acquire knowledge, skills and to learn new behaviour, fostering proper attitudes toward drinking and alcoholism is an essential component of teaching medical students and other related personnel about alcohol (Ritson, 1990). An assessment scale such as this one may be gainfully employed for pre-and post-evaluation in a course, workshop or similar teaching-learning activity.

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