DIAGNOSIS AND ASSESSMENT

Scale for the Measurement of Attitudes Towards Alcohol

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Abstract — Aims: The aim was to analyse the characteristics of, and validate, a new instrument in Italian, ‘Scale for the measurement of attitudes towards alcohol’. The instrument is a means for assessing young people’s risk profile regarding the use of alcohol and identifying the factors that contribute to determining this attitude. Methods: The test was initially composed of 60 items divided into three domains and administered to a sample of 41 subjects. The results revealed the necessity of adapting the test’s conceptual structure: consequently, the items were reduced to 55, divided into five domains. This second version was administered to a sample of 467 students attending upper secondary schools and vocational training schools in the municipality of Siena. Following this second experiment, a third version was realized, which comprised 25 items divided into the same five domains; it was administered to 100 subjects, with an equal number of males and females and an age range of 14–30 years. Analysis of the data obtained resulted in a final structure formed of 15 items in three domains. Results: The final structure of the test has good psychometric properties in terms of both reliability and validity. Conclusions: The ‘Scale for the measurement of attitudes towards alcohol’ can be seen as an instrument for evaluating the factors capable of conditioning the behaviour of people between 18 and 26 years of age towards alcoholic substances.

INTRODUCTION

Ethyl alcohol is one of the ten most dangerous drugs for human health. Its marked ability to induce physical dependence (Nutt et al., 2007) and abuse affects the whole organism, causing particularly serious damage to the digestive, central nervous and cardiovascular systems.

The World Health Organization (WHO), in agreement with the US National Institute of Health, has established the admissible quantities of daily alcohol intake that carry a ‘low risk’ for the healthy adult population as 20–40 g of alcohol for men (2–3 units of alcohol (UA)) and 10–20 g for women (1–2 UA; INRAN, 2003; Scafato et al., 2007a,b; SINU, 1996).

In certain sectors of the population that are considered at particular risk, the consumption of alcoholic beverages is not recommended at all. One of these sectors is that of young people under the age of 16, due to both their lower capacity to metabolize alcohol and their greater susceptibility to the acquisition of behaviour that can be damaging to their health and is frequently maintained into adulthood.

The percentage of young people who consume excessive quantities of alcohol has been increasing constantly in recent years. In Italy, the age of first contact with alcoholic substances is the lowest in Europe: 12.2 years compared with the European mean of 14.6 years (Ministero del Lavoro, della Salute e delle Politiche Sociali, 2008). The latest multipurpose survey carried out by ISTAT (Italian National Institute of Statistics) in 2007, entitled ‘Aspects of daily life’, confirmed that the main abusers of this toxic substance are young people of between 11 and 15 years of age, and that the abuse mainly occurs at weekends. Among adolescents over 16 years of age, the percentage rises to 74%: 46.8% of young males consume more than two units of alcohol per day at the weekend, while 30.6% of females consume the same amount. On a typical Saturday evening, young men consume four strong alcoholic drinks, while young women consume three, preferring soft drinks, cocktails and spirits (ISTAT, 2007a,b).

Alarmingly, alcohol is the first cause of death among young people, due to alcohol-related road accidents in which they are involved as either drivers or passengers (ISTAT, 2007a,b).

The spread of alcohol dependence is equally worrying. While young people of 20–29 years of age represented 9.1% of the users of alcoholism services in 2003, by 2004, the percentage had increased to 9.8%, and the number of young people using such services even below the age of 20 is on the increase (ISTAT, 2007a,b).

The numerous studies on the reasons for alcohol consumption among young people cite a series of factors, many of which individuals are unaware of, related to interpersonal relationships and the social environment young people belong to (Vantamay, 2009).

The majority of theories on alcohol abuse maintain that the causes should not only be sought in the personal characteristics of users, but above all in the social framework, they interrelate with and the role models they follow (Mallett et al., 2009). For example, friends frequently using alcohol (Espada Sánchez et al., 2008) and family making considerable use of alcohol on a regular basis (Mallett et al., 2009) represent important risk factors for the development of a greater intention to consume alcohol among young people.

Considering the gravity and widespread nature of the phenomenon, many action plans have been proposed at the national and European Union levels to protect this age group which, together with women, is most at risk for alcohol-related problems (Scafato, 2007; Scafato et al., 2007a,b). For this reason, it is important to gain awareness of the new drinking trends that are spreading through Italy and are now far removed from the traditional Mediterranean approach to alcohol, characterized by a moderate consumption of beverages with lower alcohol content, such as wine and beer, during meals (Scafato et al., 2007a,b).
The aim of this study was to analyse the characteristics of a new instrument called the ‘Scale for the measurement of attitudes towards alcohol’, designed by the Nutrition Unit and Health Services Satisfaction Centre of the University of Siena, from the point of view of its validation. The instrument was created as a means for assessing risk profiles regarding the use of alcoholic substances and identifying the factors that contribute to determining young peoples’ behaviour.

MATERIALS AND METHODS

The WHO has promoted a diagnostic tool (Babor et al., 2001), Alcohol Use Disorders Identification Test (AUDIT), to help identify the risk profile of consumers of alcoholic substances. This test analyses respondents’ drinking behaviour with the aim of assigning them to a particular risk category. AUDIT identifies three behavioural patterns:

- (a) hazardous drinking: is a pattern of alcohol consumption that can increase the risk of harmful consequences for the user’s health;
- (b) harmful use: refers to alcohol consumption that can affect the user’s physical and mental health and his/her social environment;
- (c) alcohol dependence: repeated consumption of alcohol that can lead to dependence, a loss of control over the quantity used, persistent drinking despite harmful consequences and a physical withdrawal reaction when alcohol use is discontinued.

These characteristics render this tool particularly suitable for the diagnosis of risky drinking behaviour, although in a study published in 2007 Berner et al. (2007) pointed out that it is only suitable for use with a specific target group. Starting with theoretical reflections on the factors that influence alcohol consumption, this contribution seeks to describe the process of developing a tool to discern the profile of risky drinkers and identify the factors that are more likely than others to lead to risky drinking behaviour.

In contrast to other tests, the ‘Scale for the measurement of attitudes towards alcohol’ is based on the assumption that it is possible to relate alcohol consumption to one or more prevailing causes. Thus, it not only allows those who use it to gauge the respondent’s risk level in his/her relationship with alcohol, but also provides information concerning his/her ‘psychological and social illness’, which can then be dealt with effectively to curb alcohol consumption. This approach is innovative as it seeks to identify the causal relationship between predisposing factors and alcohol consumption through a single instrument, by assessing respondents’ risk profile rather than by statistical analysis of sets of data, with the aim of shedding light on phenomena that have become set in time.

The scale was developed on the basis of a conceptual model composed of three domains which, as described in the literature, can represent predisposing factors for risky alcohol consumption. The domains are the following:

- (a) Family: drinking behaviour deriving from imitation of young people’s closest role models (parents, siblings, friends, etc.);
- (b) Social ease: alcohol consumption perceived as a means of facilitating social relations, relationships with the opposite sex and membership of peer groups;
- (c) Unease: alcohol consumption as a way of escaping from feelings of despair, sadness and anger, or of dealing with personal, family or relationship problems.

For each domain, a series of statements was formulated to represent the content of its conceptual structure.

The tool was specifically designed to assess risky drinking behaviour among young people, and therefore, the items refer to behaviour recognized as typical of this age group.

Responses to the statements were given according to a 5-point Likert scale, ranging from ‘absolutely false’ to ‘absolutely true’. The test underwent numerous trials and revisions. The first version of the scale was composed of 60 items, 19 of which regarded the ‘Unease’ domain, 14 the ‘Family’ domain and 27 the ‘Social ease’ domain. The tool was initially tested on a sample of 41 subjects selected according to specific personal details and characteristics. The aim was to check the strength of the conceptual model proposed and the appropriateness of the items used for the scale, aware of the fact that the high number of statements would gradually be reduced as the tool was progressively refined.

The results obtained from the first experiment highlighted the redundancy of numerous items and above all cast doubt upon the strength of the conceptual model initially proposed. Using factor analysis and Cronbach’s alpha, the scale was restructured, reducing the items to 35 and testing a conceptual model based on three rather than five domains:

- (a) Positive sociality: in this case, alcohol has positive connotations, being a way of feeling spontaneous and relaxed and overcoming the shyness that makes people insecure and self-conscious in interpersonal relations; alcohol as a way of facilitating relations with the opposite sex, with friends, etc.; drinking in company is considered to help bonding, make the evening more enjoyable and facilitate the feeling of belonging to a group;
- (b) Personal unease: alcohol as a way of temporarily escaping from a situation that is difficult to deal with, or feelings of despair, sadness or anger. Alcohol seen as an escape, a way out, but also as a way of trying to deal with personal, family or relationship problems;
- (c) Social insecurity: drinking to feel grown-up, fashionable and trendy; drinking as a way of being the centre of attention or the same as others: if everyone else is drinking, emulating them facilitates a feeling of belonging to a group;
- (d) Alcohol as a substance: alcohol gives the drive to take risks and push limits; makes people fearless and more daring; is a way of testing or challenging oneself and experiencing new emotions;
- (e) Economic aspects of drinking: the quantity of alcohol consumed in an evening is strongly related to the low cost and the possibility of getting free drinks.

As can be seen, the conceptual structure of the trial test changed significantly following the first experiment. The only domain maintained was that of ‘Personal unease’. ‘Family’ was eliminated and the items were grouped together in constructs that only partially reflected the original layout. The ‘Positive
sociality’ and ‘Social insecurity’ domains were substituted by ‘Social ease’. Lastly, two new domains were added: ‘Alcohol as a substance’—a means of seeking ‘fun at any cost’—and ‘Economic aspects’—related to the cost of alcoholic drinks, which was found to be one of the most important factors.

Following revision, the new version of the tool was administered to a sample of 467 students of upper secondary schools and vocational training schools in the municipality of Siena. This second experiment highlighted the fragility of some domains in the factor structure, especially ‘Alcohol as a substance’, and the redundancy of various items included in the previous version. The new theoretical structure was found to be more stable and reliable, while the scale performed better the greater the age of the sample. On the basis of these indications, a third version of the scale was formed, maintaining the theoretical structure composed of five domains, but reducing the number of items to 25. The new version was then administered to 100 subjects with an equal number of males and females and an age range of 14–30 years. This experiment revealed the fragility of the tool’s applicability, as it was more effective with specific groups of subjects. It also confirmed the instability of the scale for the domain ‘Alcohol as a substance’ and demonstrated the necessity of considering the ‘Social’ domains as a single factor. A fourth version of the tool was therefore prepared, comprising only 15 items distributed between three domains: ‘Social ease’, ‘Unease’ and ‘Economic Aspects’. Concerning the tool’s setting and addressees, the fourth experiment emphasized that the scale performed particularly well in the age group between adolescence and adulthood, i.e. 18–26.

A questionnaire was administered at the same time as the scale in each experiment, to gather general information on the drinking behaviour and habits of alcohol users. This questionnaire was composed of descriptive questions on issues such as the frequency of drinking, alcohol abuse and the use of alcohol outside mealtimes and social situations (alone or upon waking in the morning). Some of these variables were used in the analysis of the scale’s performance. The differences between the groups interviewed were tested using non-parametric methods for independent samples (Kruskal–Wallis and Mann–Whitney U-test). The following paragraph illustrates the characteristics of the tool obtained as described above, along with the results obtained from the last experiment, which confirmed the structure of the test.

### RESULTS

The ‘Scale for the measurement of attitudes towards alcohol’ is designed as a tool for evaluating the risk profile in relation to alcohol consumption of a specific target of young consumers, between 18 and 26 years of age. Table 1 shows the structure of the test, composed of 15 items grouped into three different domains.

The experimentation confirmed the usefulness of the 5-point Likert scale as a way of responding to the items. The interviewees were, therefore, asked to indicate to what extent they agreed with the statements proposed by the scale, with the lowest score corresponding to ‘absolutely false’ and the highest score corresponding to ‘absolutely true’.

The review process of the tool has given rise to this latest version, which was administered to 115 students on the degree course in Medicine and Surgery at the University of Siena and it was confirmed that the scale has good psychometric properties.

As with the previous trials, evaluation of the scale’s reliability was performed by analysing Cronbach’s alpha coefficient to gauge the internal consistency of the tool, indicating its ability to measure homogeneous constructs in a stable manner. The alpha value calculated for the whole scale was 0.91, which was very high and permitted us to consider this final version of the text suitable for measuring the construct in question in a homogeneous manner.

The same evaluation of internal consistency was performed considering the three conceptual domains separately. The alpha values obtained were as follows:

<table>
<thead>
<tr>
<th>Domain</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domain 1: Social ease:</td>
<td>alpha = 0.91</td>
</tr>
<tr>
<td>Domain 2: Unease:</td>
<td>alpha = 0.79</td>
</tr>
<tr>
<td>Domain 3: Economic aspects:</td>
<td>alpha = 0.84</td>
</tr>
</tbody>
</table>

As can be seen above, the coefficient values were very high, with the exception of the value for Domain 2: ‘Unease’, which was slightly lower than the others but still within acceptable limits. Further analyses revealed that the performance in terms of reliability of the ‘Unease’ domain cannot be improved, as the value of the Cronbach coefficient for this domain did not increase if any of the items were removed from the test.

To evaluate the stability of the tool’s internal consistency, analysis of the Cronbach alpha coefficient was also repeated for subgroups divided according to two variables: age and gender. In the first case, we considered three age groups: ‘under 20 years of age’, ‘20–25’ and ‘26 and over’. For each
of these groups, the alpha coefficient for the whole scale was above 0.89. The variable of gender also gave coefficient values above 0.89 in both cases.

Having established that the scale was sufficiently stable and consistent as a measurement tool (as demonstrated by the reliability analysis), we also needed to assess its validity, to ascertain whether or not it was capable of reproducing the conceptual scheme it was based on. We chose to use construct validity to check the appropriateness of the test for measuring the construct examined.

To study the validity of the scale, we used the maximum likelihood method and extracted the factors that were above the threshold of an eigenvalue of 1. The matrix of the components extracted was then subjected to varimax rotation to obtain the matrix shown in Table 2.

Each item on the scale was attributed to a component according to its score: the higher this score, the more certain it was that the item belonged to the component produced by factor analysis. The factor structure can be seen from the scores in Table 2.

The statements that belong to the same component are highlighted in grey. The structure produced by factor analysis coincides precisely with the grouping of items that we hypothesized as the conceptual basis for the scale, thus confirming the validity of the tool’s construct.

Moreover, as ~63% of the total variance is explained by the three factors identified by the factor analysis, they can be said to substitute the fifteen items that comprised the original scale in a more than satisfactory manner.

**DISCUSSION**

To check the stability of the factor structure, we applied the same technique to specific segments of the sample using the same gender and age groups as employed for the reliability analysis. The factor structure was found to be sufficiently stable even when tested against the specific subgroups of subjects that the sample is composed of.

As mentioned above, the scale’s performance was also analysed for its ability to distinguish the different groups of interviewees in relation to their drinking behaviour. To carry out this comparison, a parameter that represented the best measure of synthesis was used, considering that each domain contains the same number of items and that the best method for creating a scoring system for the results has not yet been studied.

We therefore used as a parameter the sum of the respondents’ scores in the individual items of the test’s three domains. The analysis performed showed that the tool is capable of correctly identifying risky drinking behaviour. In fact, if we consider the variable of the different types of consumers interviewed, who were classified as ‘habitual’ (one or more times a week), ‘occasional’ (once a month) or ‘non-drinkers’ (2 or 3 times a year or never), we observe that the increase in total score in the three domains is significantly associated with increased alcohol consumption ($P < 0.0001$ for each domain analysed). Thus, the test is effective at correctly distinguishing the different risk profiles of the subjects interviewed. This conclusion is further confirmed by analysing the frequency of episodes of drunkenness, which are significantly associated with subjects who have particularly high scores in the three domains of the test ($P < 0.0001$ for each domain analysed).

The results concerning the instrument’s capacity to distinguish subjects in relation to the theoretical factors that can influence drinking behaviour and the risk profile are of particular interest. If we consider two ‘pathological’ behaviours such as drinking alone or upon waking in the morning, both are significantly associated with particularly high scores in the ‘Unease’ domain ($P < 0.011$ for ‘drinking alone’ and $P < 0.038$ for ‘drinking upon waking’). On the other hand, if we consider behaviour that is not pathological but certainly exposes the subject to a higher level of risk, such as drinking alcohol during the day (except as an aperitif), such behaviour is found to be significantly associated with particularly high scores in the ‘Unease’ ($P < 0.019$) and ‘Economic aspects’ ($P < 0.010$) domains. This result highlights the fact that risky behaviour can also be encouraged by accessibility, in the form of the inexpensiveness of alcohol.

The problem of alcohol consumption among young people is a very topical issue, involving issues such as health education, lifestyle and road safety. In today’s society, alcohol is seen as a way of breaking down barriers and overcoming personal limits that can condition our relations with the outside world. It therefore seems possible to facilitate personal and social realization with the help of a substance that is both familiar and acceptable. This ‘familiarity’ with alcohol encourages its widespread use, leading to a worrying increase in the consumption of alcoholic substances especially among young people, many of whom are inspired by social models that associate alcohol with identification and belonging. Faced with the emergence of such risky behaviour, the scientific community is committed to seeking strategies for the prevention and control of the phenomenon. As mentioned above, other tools for the evaluation and diagnosis of risk profiles are available, but few of them are capable of analysing the causes behind risky behaviour.
We have presented a tool that aims to evaluate risk profiles in relation to alcohol consumption among young people and to identify the conceptual domains that can contribute to this behaviour.

The results of the experiments performed have shown that the ‘Scale for the measurement of attitudes towards alcohol’, built on three conceptual domains (Social ease, Unease and Economic aspects) has good psychometric properties in terms of both reliability and validity.

For this reason, the test can be seen as a tool for evaluating the factors capable of conditioning young people’s drinking behaviour and may also be viewed as a starting point for future investigations on selected populations in other geographic areas.

REFERENCES


