ACCEPTABILITY OF COMPUTERIZED SELF-REPORT OF ALCOHOL HABITS: A PATIENT PERSPECTIVE

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Abstract — The acceptability of computerized assessment of alcohol habits was explored in 57 consecutive out-patients over a 6-month period. Altogether, 46 men and 11 women agreed to complete a paper and pencil questionnaire exploring their opinion about computerized assessment. The study focused on the patients’ acceptance of computerized testing and also on whether some sub-groups had reservations. The participants indicated that they had no general anxiety towards computers and did not mind being assessed by their use. Nearly half of the men were not convinced of the usefulness of computers as a means of asking about alcohol habits. The same level of confidence was recorded with regard to whether doctors would make better assessments using computers. Around one-quarter of both men and women were worried that computers might cause doctors to spend less time with the patients and that staff might lose the personal contact with patients. Because of the small sample size, we conclude tentatively that a computerized lifestyle test appears to be an acceptable method both to men and women with different educational backgrounds. However, two important issues need to be further addressed, namely concerns about confidentiality and loss of personal contact.

INTRODUCTION

Earlier studies have underscored the feasibility of screening for alcohol-related health problems in various health care settings. Simple screening tools for early identification of alcohol-related problems have been shown to be reliable and acceptable among both physicians and patients (Wallace and Haines, 1985; Allen et al., 1995; Maisto et al., 1995). More comprehensive self-report questionnaires have received increasing interest in specialized alcohol treatment centres during the past decade (Berglund et al., 1988). However, many of these self-report questionnaires have rather complicated scoring indices, which often take a considerable time to calculate manually. As human–computer interaction technologies have improved, self-disclosure questionnaires have been transferred to computer administration in many areas (Mead and Drasgow, 1993). The conversion of standardized self-report questionnaires into a computerized test offers additional efficiency through immediate registration of answers into the computer, fast and accurate scoring and indexing of the results and finally, graphics and printed reports that could be presented immediately to the patients (Skinner et al., 1987).

The reliability of lifestyle assessment using computers has been examined by Skinner et al. (1987) in a number of studies. In a study on 117 out-patients in a family practice, Skinner found a test–retest reliability of 0.85 when repeating a 20-min computerized lifestyle questionnaire a few weeks after the first assessment. The accuracy of computerized assessments in estimating alcohol consumption has been reported to be at the same level or better than face-to-face interviews (Waterton and Duffy, 1984; Bernadt et al., 1989; Davis and Morse, 1991; Skinner, 1993). In a study by Siddal and Keogh (1993), nine chemical dependency counsellors rated computer reports of substance abuse for usefulness and accuracy. The accuracy of computer interpretive reports of substance abuse was found to be above 80%. Thus, in general, the measurement properties of standardized questionnaires seem not to change when computerized (Barry and Fleming, 1990; Davis et al., 1992).

However, since the very first introduction of computers into the health care sector, there have
been concerns regarding the acceptability of computerized assessment to both patients and staff (Skinner, 1993). Several authors have listed the theoretical advantages of using computers in lifestyle-related assessments, such as alcohol habits. Bungey et al. (1989) stated that computers seem to be a quick, effective, and probably a cost-beneficial way to provide information in a clinical setting. The same researchers noted that computers can provide immediate feedback about lifestyle or alcohol habits that can be used as a focus for further discussions with the physician. Waterton and Duffy (1984) have suggested that computers might increase the accuracy of reporting on lifestyle-related questions. The same authors also reported a somewhat higher refusal rate for computer surveys compared with traditional interviews. However, the refusal rate for computers was not very high and was explained by a normal fear and suspicion concerning new technology. Skinner et al. (1987) pointed out the possibility that computerized assessment might facilitate a more open attitude concerning personal risk behaviour. In the area of alcohol misuse, the patients might modify their answer in a traditional interview setting in order to avoid the reactions or displeasure of the interviewer. This could to a certain extent be overcome by a computerized assessment (Duffy and Waterton, 1984).

A different aspect has been reported by Duffy and Waterton (1984), who found that computerized assessment encouraged the patients to take the interview more seriously, since the presence of computers represents an obvious investment of time and money. Furthermore, the novelty of the approach might add to the beneficial effects of computers, although this effect will probably diminish as computers become more widespread in the community.

Even though computerized lifestyle assessment seems to offer a great deal of advantage in comparison with traditional face-to-face interviews, we still need to know more about human factors that influence the interface between computer, patients, and health care staff. Is there a subgroup of patients who do not benefit from computerized assessment, and are we missing some valuable information in exchange for the convenience of computers? These are just some issues that further research needs to explore.

The focus in the present study was on the patient perspective. The main aim was to investigate the acceptability of computerized lifestyle assessment, addressing alcohol-related issues, in an out-patient setting in a specialized clinic. The study was undertaken at the same time as computerized tests were introduced to the clinic. The clinic had no previous major experience in using comprehensive assessment questionnaires. Furthermore the study intended to explore whether any subgroups of the participants had reservations in performing the computerized test.

SUBJECTS AND METHODS

Subjects

The study included 57 consecutive individuals with alcohol-related problems who voluntarily sought out-patient treatment at the University Hospital’s Dependency Clinic during the autumn of 1995 and the spring of 1996. The clinic is the only specialized treatment centre for people with alcohol and drug mis-use in Linköping, a municipality in southern Sweden with around 130 000 inhabitants. All patients were treated for withdrawal symptoms and did not report any symptoms for at least 1 week before the computerized assessment. After giving informed consent, all patients who were asked to participate agreed to perform the computerized test.

The majority of the patients were males (80%) with a similar mean age of 42 years for men (SD 15 years) and women (SD 11 years). The highest educational level was similar for both men and women. Primary school was the highest educational level for 20%, high school for 35%, university for 4%, whereas the remainder, 41%, had received some kind of vocational education. Compared to the municipality at large, the participants had a lower educational status with regard to high school and university level, whereas there were more individuals with a vocational education. As regards to employment, 57% of the male and 45% of the female participants were employed. The largest occupational category by far consisted of various kinds of manual labour, followed by health care and social service workers. Compared to the municipality, the percentage employed was less than in the population at large, as 80% of the women and 83% of the men in the general population were employed.
**Methods**

All individuals included in the study were first seen by a staff member for a routine face-to-face interview. This interview focused on reasons for seeking help, including current alcohol and drug abuse history. At the next visit, a week later, the patients performed the computerized test. A week after this visit, the patients were given feedback about the test by a physician before treatment was initiated.

An office at the clinic was converted into a computer assessment room containing a desk and chair, in addition to which there were two armchairs and a small table. The computer and the keyboard were hidden behind the desk and the only part of the computer visible to the patient was the screen, which was a touch screen, where the patients had only to touch the screen to indicate their answer. After instructions from a staff member, the patients were left alone in order to perform the test at their own pace and without any disturbance from the staff. At all times, the patients could ask for assistance, but hardly any patients asked for help as they managed the computer arrangement easily.

The first questionnaire we used was a Swedish version of the Alcohol Use Inventory (AUI). This is a standardized questionnaire with 75 questions exploring alcohol-related problems. The AUI, translated into Swedish and adapted to national cultural conditions by Månsson et al. (1993), has proven to be a reliable and valid instrument for rating severity of alcohol dependence. In addition, a psychological well-being questionnaire containing 120 questions was used. This has been used extensively in a number of different patient categories — including individuals with alcohol-related problems (Hörnquist, 1989). Both questionnaires required around 20 min to complete.

Before the computerized test, all patients were asked to express, using a paper and pencil questionnaire, their opinion about computerized assessment instead of a traditional face-to-face interview or written questionnaire. Fifteen questions explored the patients' feelings about the computerized test. After the test, the patients were asked another four questions exploring any change in their attitude to the test and also their experience of it. Basic sociodemographic data about each individual participating were also collected at this time as part of the written questioning.

The results were analysed using the SPSS software packet version 7.5. For each variable, the frequency of confirming answers was calculated. Spearman's bivariate correlation coefficient was calculated between the different variables in order to explore any correlation between different answer profiles. Bivariate cross-tabulations were also performed in order to elucidate any correlation between educational status and various answer profiles. The ANOVA test was used in order to test for significant differences between the mean age of the participants and the answer profile of the different variables.

**RESULTS**

As seen in Table 1, the participants indicated that they had no general anxiety towards computers and did not mind being assessed by the use of computers. The answer profile, however, contained some contradictions. Thus, although a general trust of computers was apparent, some participants simultaneously expressed a concern about the computerized test with regard to confidentiality. Six participants (10%) indicated that they would consider finding another clinic if they were asked to use a computer. This subgroup did not differ significantly from the remaining participants with regards to gender, age, educational level, and employment status. A bivariate correlation between sex and all variables in the questionnaire displayed no significant gender difference in the answering profile. Also, cross-tabulations with regard to relationship between the various answers and educational level did not reveal any significant correlation.

With regard to whether computers are a satisfactory way of asking about alcohol habits, nearly half of the men were not convinced about the benefit of using computers. The same level of confidence was recorded with regard to whether doctors would make better assessments through computers. Around one-quarter of both men and women were worried that computers might cause doctors to spend less time with the patients and that the staff might lose personal contact with the patients.

Bivariate correlation analyses between all variables in the questionnaire revealed generally low values, but in some cases significant correlations.
Thus, those who indicated ‘computers are a good way to ask about alcohol habits’ and ‘computers can help the doctors in their work’, also reported ‘doctors would make a better assessment with computers’ (r = 0.54 and r = 0.67; P < 0.01). More surprisingly, those individuals who were ‘worried about confidentiality’ were also more concerned about ‘whether the staff will lose personal contact with the patients’ (r = 0.46, P < 0.01). Those individuals who did not find the test particularly interesting (Table 2 question 1) showed no significant correlation with regard to all 15 questions in Table I.

After the computerized test, a majority of both men and women indicated that the test was easy to perform and that the results would be helpful in treatment (Table 2). The majority would also recommend other people to do the same test. However only half of both sexes found the test exciting and interesting (Table 2). However, nine participants (16%) thought that the test was more difficult than expected. There was no significant difference between this subgroup and the rest of the participants with regards to gender, age, educational level, and employment status.

DISCUSSION

In this study, thoughts and feelings concerning computerized assessments were elucidated before and after a number of individuals went through a computerized lifestyle test. The acceptability of a method can be judged by the refusal rate (Waterton and Duffy, 1984). We did not have any refusals and are therefore satisfied with acceptability. Although it could be argued that this is not a surprising result due to the ubiquitous use of computers in Swedish society, the use of computers in the health care system was a relatively new phenomenon at the time of the study. It is quite natural, according to Waterton
and Duffy (1984), that new technology raises some fear and suspicion.

Approximately half of the male participants expressed doubt about the usefulness of a computerized test before its performance. However, after the test, less than 20% expressed doubt as to whether the results would be helpful in the treatment. Around 80% would recommend other people to undertake the test. A similar rise in acceptance after computerized testing was shown by Skinner (1993) in a previous report, where the preference for a computerized test instead of interview or a written questionnaire rose from 13 to 43% after the participants had performed the test.

The concern about the impersonality of computers raised by Bungey et al. (1989) was partly confirmed by our study, as about one-quarter of our subjects expressed concern in this context according to Table 1 (questions 12 and 15). This concern was positively correlated to a worry about confidentiality. We did not ascertain whether the participants in reality experienced less personal contact with the staff due to introduction of the computerized test. However, this is an important issue for future research.

Although the main weakness of the study is the low number (11) of female participants who were involved, it is noteworthy that we found no gender differences in the answering profile. Nor did we find any significant difference with regard to educational status. However, the sample size only allows us to suggest these as tentative conclusions. Thus, the number of participants was too small to explore subgroup differences with regard to sex, age, and educational status. The influence of these factors on acceptance of computers in the health care sector needs exploration.

The strength of the study is that it included consecutive patients attending the clinic during a 6-month period. All patients seeking help during this period clearly stated that the computerized test concerning alcohol habits was acceptable to them. Similar observations have been made in other health care areas, e.g. blood donor screening (Locke et al., 1992). Only a few patients seem to worry about the new technology. The foremost benefit of using computers, as we experience it in the assessment of alcohol habits, is that the patients obtain a feeling that they are being taken seriously with a non-judgemental attitude. Nevertheless, two important issues that need to be further addressed are concerns about confidentiality and loss of personal contact. Furthermore, studies are needed to analyse the influence of the severity of alcohol-related problems on the acceptability of computers.

**REFERENCES**


