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Effects of a personified guide on adherence to an online program for alcohol abusers.

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The Effects Of A Personified Guide On Adherence To An Online

Program For Alcohol Abusers

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Abstract

The quality of the therapeutic alliance has robust effects on the outcome of psychotherapy, and even psychopharmacologic interventions. Automated behavioral health programs which are being developed to increase access to mental health treatment are administered in the absence of direct human participation, thereby precluding the development of a traditional therapeutic relationship. The aim of this study was to develop a personified guide designed to stimulate reactions similar to those experienced in a therapeutic relationship, and evaluate the effect of the guide on adherence to and satisfaction with an online alcohol use evaluation program. After completing a battery of four standard questionnaires used to evaluate problem drinking, 288 subjects were randomized to receive feedback on their results in text form or via a multimedia condition involving a personified guide. Those who received feedback via the guide demonstrated greater levels of program adherence by completing more modules. Reported satisfactions levels did not differ between the two conditions. Encouraging the personification of an automated behavioral health intervention may lead to greater levels of engagement with the program.

Introduction

Automated treatment of psychiatric disorders has the potential to expand access to care, while substantially decreasing costs. Interest in this area has led to computer-assisted therapies that have been developed and tested for a number of indications, including alcohol abuse (1, 2), depression (3, 4), panic disorder (5), and phobias (6)

Unlike online therapy, which involves a patient and a therapist communicating via an electronic medium, automated therapy is delivered by having the patient interact directly with a software application, thereby precluding the establishment of a traditional therapeutic alliance. This may be problematic because the relationship between the therapeutic alliance and treatment outcome is highly robust, and has been found to play a substantial role in interpersonal psychotherapy, cognitive behavioral therapy, and even clinical management of antidepressant medication treatment (7). Weiss et al, for example, found that in a sample of 31 depressed outpatients treated with antidepressants, measures of the alliance accounted for between 21% and 56% of the variance in the outcomes (8).

Despite the absence of a true relationship, individuals have emotional reactions to inanimate objects. In classic object relationship theory, extreme attachment to transitional objects is a normal part of childhood (9). For toddlers, the transitional object may be a blanket or a stuffed animal, however more relevant to automated therapy, diaries have also been described as transitional objects for female adolescents. Sosin reported that "the

diary mirrors, soothes, helps inhibit frightening impulses, and helps integrate inner and outer realities" (10).

Discovering characteristics of computer programs that tend to enhance positive emotional reactions may have important ramifications for the efficacy of automated behavioral interventions. Encouraging the personification of a computer program may increase a user's level of commitment to the behavioral intervention. For example, subjects who received a digital photograph of the solicitor in the body of the email agreed more readily to a request to complete a survey than those who received text only (11).

The current study presented feedback to alcohol abusing subjects on their drinking patterns based on an automated, Internet-based evaluation. User response to text-only feedback was compared to multimedia feedback that included an animated photograph of woman's face which personified the program as she guided the user through the feedback modules. The aim of the study was to evaluate differences in adherence to the feedback section of the evaluation, and the level of perceived helpfulness of each module and the program as a whole.

Methods

Subjects underwent an automated drinking evaluation at www.alcoholcheckup.com. The

principles and methods of this research web site have been described in detail in an

earlier report (12). Potential subjects were provided with information about the study and

a clickable link to indicate that they understood, and agreed to participate in it. No

identifying information was obtained from subjects. The study was approved by the

George Washington University Institutional Review Board.

The evaluation consisted of an alcohol consumption questionnaire, and three

questionnaires which assessed the effects of alcohol use on a subject and his functioning.

After completing all four questionnaires, each subject received individualized feedback

designed to raise his level of intellectual and emotional appreciation of the negative

effects of alcohol on his life. Subjects were randomized into two groups: one group was

presented the results in text form with HTML formatting, while the other received the

results in a multimedia context. The processing algorithms that determined the actual

content of the feedback that the two groups received were identical.

The multimedia framework was created using Flash MX (Macromedia Inc., San

Francisco). It began with the appearance of a photograph of woman's face representing a

guide who would lead the subject through the feedback process, and explain the

relevance of each questionnaire. The Flash presentation contained no audio in order to

reduce the risk of drawing attention to a subject accessing the program in a public environment.

After the result of each questionnaire was presented, subjects rated its usefulness on a five point Likert scale. The perceived usefulness of the program was calculated for each group, and the results compared to one another. The number of feedback modules completed was used as a measure of adherence to the program, and means were calculated for each group. All analyses were conducted using the SPSS for Windows software version 12.0 (SPSS Inc., Chicago), and two tailed statistical significance level was set at $p < 0.05$. The effects of the Alcohol Use Disorders Identification Test (AUDIT), score, a widely used measure of disease severity, on perceived helpfulness and program adherence levels was evaluated in order to assess the influence of this variable as a moderating factor. The t-test was performed for the primary hypothesis: the comparison of adherence and perceived helpfulness between experimental groups.

Results

Over the course of 18 months, 322 subjects registered to obtain access to the program, and began the evaluation by filling out the first questionnaire. Of these, 288 (89.4%) completed the entire evaluation, and became eligible to view the feedback modules. Demographic and alcohol use data for subjects in the text group and subjects in the multimedia group are described in the Table. More than half the subjects were male, and subjects reported consuming an average of more than 30 standard drinks per week. This level of alcohol consumption was associated with high levels of alcohol-related problems as measured by the AUDIT, in which a score of eight is the cut-off for a putative alcohol use disorder (13). Most subjects began as underage drinkers. There were no significant differences between the two groups on any of the measures.

Compliance was high among both groups. Overall 3.1% completed one feedback module, 2.1% completed two, 9.4% completed three, and 85.4% completed all feedback modules. Subjects who received feedback from the personified guide demonstrated a small, but statistically significant, increase in program adherence compared to subjects who received text-only feedback. On average, those working with the personified guide viewed 3.90 feedback modules, while the text-only group averaged 3.69 (p<0.01). The Figure shows the percentage of subjects in each group who completed one, two, three, or four modules. All of the subjects in the multimedia group completed at least three modules, and the majority in both groups completed all four.

There were no differences in reported helpfulness between the two experimental groups. The average total helpfulness score for multimedia subjects was 12.2 compared to 12.1 for the text-only group (p=0.74).

Drinking problem severity, as measured by the AUDIT, did not have an effect on program adherence (r=0.040, p=0.501), but higher AUDIT scores were associated with a greater sense that the evaluation and feedback were helpful (r=0.246, p<0.001).

Discussion

Alcoholics tend to respond with resistance when therapists and others exert pressure on them to change their drinking behavior. However, a motivational interviewing approach, which identifies and amplifies concerns about alcohol use that patients themselves report, can increase a desire for sobriety (14). Additionally, information that is seen to be objective, such as the result of a standard assessment battery, is less likely to elicit resistance compared to arguments which appear to be based on value judgments. Although the current study did not address the issue of resistance or defensiveness, an automated evaluation program that processes information obtained directly from the user would be expected to be viewed as objective. The completion rate of 85.4% suggests that subjects found the experience to be an acceptable one.

Subjects who were randomized to receive feedback via the personified guide completed more feedback modules on average than the text-only group. Related to the high level of completion of all modules seen in the sample as a whole (85.4%), the effect of the guide was small, though statistically significant. This finding suggests that engagement with the therapy, one of the key elements of a therapeutic relationship (15), may be enhanced by the use of multimedia designed to symbolize a human therapist. Subjects who interacted with the guide did not rate the helpfulness of the experience differently compared to the text-only group.

With regard to the practical relevance of these findings, an important question is whether greater treatment adherence in the absence of greater perceived helpfulness can confer a clinical benefit. Evidence derived from studies of involuntary treatment show that those coerced into substance abuse treatment respond in ways similar to voluntary admissions (16). That is, patients who do not believe substance abuse treatment will be beneficial to them, but participate under threat of legal sanction, appear to benefit as much as other patients. Additionally, retention in treatment is the strongest predictor of outcome in substance abuse treatment programs (17), indicating that program characteristics that enhance adherence may be particularly relevant to overall effectiveness.

Although the multimedia condition was designed to trigger reactions similar to what occurs within a therapeutic alliance, the design of the study does not provide any information on whether this was, in fact, the mechanism behind the finding of greater adherence to the program. Alternative hypotheses must be considered. One possibility relates to data showing that substance abusers tend to be sensation-seeking, and respond more positively to high-arousal stimuli (18). Drug prevention campaigns in the mass media which use a strategy called "sensation-seeking targeting" have demonstrated behavioral evidence for effectiveness (19). The feedback modules which incorporated multimedia may have benefited from a similar phenomenon. Additionally, there may have been other unknown factors associated with the multimedia condition that led to greater rates of adherence.

The high degree of overall compliance with the online alcohol evaluation was probably related to its short length. Completing the four questionnaires took about 20 minutes, and the feedback modules required another ten to fifteen minutes. In this context, a modest increase in program adherence may be of limited clinical value. Nevertheless, as expanded versions of online behavioral interventions for alcohol abuse and other disorders become more extensive, finding ways to enhance user's acceptance of the programs, and engagement with them over more extended periods of time will become important. A benefit of using an automated program is that modifications can be incorporated easily, and the improved intervention protocol will then be delivered consistently. Creating a knowledge base of program attributes that lead to better outcomes for all users, or subgroups of users, will permit a continuous evolution in the effectiveness of these types of programs.

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Table. Demographic and alcohol use data

	Text	Multimedia
Age	37.2 (11.8)	36.0 (12.1)
Percent female	37.2%	31%
Age of first drink	16.4 (3.9)	17.4 (5.5)
Drinks per week	34.3 (31.6)	32.4 (50.8)
AUDIT score	17 (8.8)	15.7 (8.4)
Ethnicity		
Hispanic or Latino	7.0%	4.1%
Not Hispanic or Latino	83%	83.5%
No response	10%	12.4%
Race		
American Indian or Alaska Native	2.3%	2.5%
Asian	2.3%	4.1%
Black or African American	1.7%	1.6%
Native Hawaiian or Other Pacific Islander	0%	0%
White	87.2%	86.8%
Percent selecting more than one race	0%	0%
No Response	6.5%	5.0%

Except for gender, ethnicity and race the values are the mean with the standard deviation in parentheses

Percentage of Subjects Completing Modules