Recruitment and Retention Issues Between Online and Face-To-Face Smoking-Cessation Treatment in the Workplace

Sandra Turner
Case Western Reserve University
Cleveland, Ohio

Statement of the Research Problem

In the workplace, employees (and family members) have access to various services and programs to address their mental health, substance abuse and other 'problems in living'. Employee assistance programs (EAPs), work/life resource and referral services, inclusive organizational cultures, and behavioral health care insurance coverage are examples of such support. But very few employees utilize such services for personal help. The potential workplace population with mental health or substance abuse issues could be as high as 40%. Only 8.1% will utilize the treatment available to them (Magellan Behavioral Health Book of Business Claims Paid Utilization Summary norms, February 10, 2003). There are many reasons for this employee reluctance to pursue help. Workers may be in denial about their problem(s), ashamed to admit a problem(s) or the need for help, unable to afford the co-payment portion of treatment, or unable to commit the time for treatment due to their travel schedules, business demands, family responsibilities, or civic involvements. Families may not encourage treatment. Co-workers may distance themselves from anyone receiving behavioral treatment. There may be other reasons as well. This is unfortunate as untreated health and behavioral health conditions cause employees great physical and/or psychic injury and pain, and also detract from their ability to work productively.

One significant behavioral health condition in the workplace is tobacco use. Smoking is a costly national problem. Heavy smokers are at great risk of developing emphysema, lung cancer and various cardiovascular diseases. The cost of the medical care these individuals must eventually receive is a national burden (Prochaska, Norcross, and DiClemente, 1994). It is estimated to cost society $100 billion annually due to medical care, accidents, and productivity losses associated with early mortality (Schmaling and Goldman-Sher, 2000).

Given that employees are reluctant to access traditional face-to-face treatment, would the availability of online behavioral healthcare services increase utilization? Computers and the internet have changed the workplace completely, and there is reason to believe that these technological innovations applied to counseling could aid the social work practice in EAPs. Online interventions have the potential to increase access to services, expand the choice of service options, eliminate certain barriers to treatment, and decrease the costs of services. Online interventions have limitations in that not all people (employees) are comfortable with computers, or the use of computers for therapy. Further, confidentiality and assessment issues associated with using the internet trouble many mental health professionals.

Little is known about the effectiveness of online therapeutic interventions for various mental health or other personal problems. Even less is known about consumer preferences (recruitment) and compliance (retention) with online interventions. Clinical trials are urgently needed to advance knowledge about online counseling and alternate treatment(s). This study used a smoking-cessation treatment program as a model and compared the experience of online and face-to-face treatment for a sample of employees from a large professional services firm. With ready access to computers and the internet, will online counseling enhance recruitment and retention to treatment among employees? Will it be comparable to recruitment and retention through face-to-face assistance? Will it be less successful than face-to-face treatment?

Research Background and Hypotheses

Originally this research study focused on questions that addressed treatment outcomes. Due to the small sample size of those recruited and retained in treatment, these questions could not be answered. The four new research questions in this study were narrowly focused on the relationship between treatment method (online or face-to-face) and several individual, personal characteristics with: 1) recruitment to treatment and 2) retention in treatment sessions or modules. The particular interest of this researcher was in testing the differences between online and face-to-face smoking-cessation treatment methods regarding recruitment and retention for matched groups of subjects. If differences do occur, what is the explanation(s) for those differences? The treatment was the online and face-to-face smoking-cessation venues offered by the American Lung Association.

There were four research questions posed in this study. Research Question I: What are the characteristics of people who enroll in smoking-cessation treatment through online recruitment? Research Question II: Is there a difference between online treatment and face-to-face treatment for smoking-cessation for matched groups of subjects? Hypothesis I (H_o): The rates of treatment recruitment and retention among people who participate in face-to-face treatment will be equal to the rates of treatment recruitment and retention among people who use online treatment protocols. Research Question III: What is the relationship between treatment recruitment and retention and an individual's 'readiness for change'? Research Question IV: Does participating in one's first choice of treatment method affect recruitment and/or retention in treatment?

The transtheoretical model of change was the theoretical basis for this study. It is frequently applied in addiction studies. It was used by the American Lung Associa-tion in designing the treatment methods being studied in this research. According to this theory, 'readiness for change' is more predictive of changing behavior to address a behavioral health condition than any particular treatment modality (*Figure 1*).

Methodology

This study formulated a randomized clinical trial design to test whether the method of receiving assistance, either face-to-face or online, would positively influence starting (recruitment) and/or pursuing (retention) treatment. Since not all the study subjects were randomly assigned to groups, this research used a quasi-experimental between groups design (*Table 1*).

The participants were adult employees and family members from a professional services firm who self-selected for this study. They were highly educated, well-paid, and communicative. All study volunteers had ready access to computers and the internet, and were experienced at communicating online as part of conducting business. For those assigned to the face-to-face smoking-cessation program, access was convenient as the group sessions were offered in the local office.

A sample of 67 was drawn from a single employer in five office locations in five different cities having a total employee population of 8,008. After matching for three descriptive factors, most subjects were randomly assigned to one of two treatment methods: online or face-to-face. The sample was fairly representative of the demographics of the employee population, and consistent with the expected recruitment of smokers from a population of college degreed individuals in this workplace. Sixty-seven represents 6.8% of the estimated smoking population of 985 across these five office locations.

Results

Several measures were utilized in this study. Volunteer participants were matched for three factors: 1) living with a smoking spouse/partner who is quitting now, 2) use of nicotine replacement products during registration, and 3) level of nicotine dependence. Fisher's exact tests and a one-factor between groups analysis of variance showed a significant difference only for 'use of nicotine replacement products during registration'. Those individuals were more likely to be in the random clinic group. However, a logistic regression using these factors in a model was only able to correctly classify 64.2% of the sample.

Demographic variables were correlated with employer means for these demographics. A two-tailed one-sample t test, chi-square tests, Fisher's exact tests, and ranking showed that the study sample was older than the employer's mean, but did not differ significantly from the employer means on other descriptive variables.

'Readiness for change' as measured by intrinsic/extrinsic reasons for quitting in the Reasons for Quitting (RFQ) Scale was expected to be evenly distributed between the two samples (face-to-face and online). This was accurate, as 95.5% of registrants scored as being ready for change, with the randomly assigned online group scoring significantly more ready for change than the other two groups. However, approximately 55% of all registrants across all study groups did not begin treatment. So the operationalization of the transtheoretical model of change using the Reasons for Quitting (RFQ) Scale did not explain the differences in recruitment to and retention in treatment among the three study groups.

There was a significant difference in the mean number of sessions attended by the members of each group (random clinic, random online, and non-random online). Participants in the random clinic group were significantly more likely to be retained in treatment than those in the random online group. Conversely, those in the random online group were significantly more likely to drop-out of treatment compared to the clinic group. The non-random online group was not significantly different from either of the other two groups. The random online group attended significantly fewer sessions than the sample mean. The other two groups did not differ significantly from the sample mean (*Graph 1*).

Both: 1) the venue of treatment, and 2) exercising choice of treatment seemed influential for recruitment and retention. A one-factor between groups analysis of variance revealed that the face-to-face treatment group was more likely to start (recruitment) and continue (retention) in treatment compared to either of the two online groups. Further, those engaged in their choice of treatment venue attended the most treatment sessions, independent of which treatment group they were assigned. A negative binomial regression analysis found that adding 'participating in one's choice of treatment' to the model including the matching factors and readiness for change increased the likelihood of attending more sessions by 334%. A negative binomial regression analysis of the model including 'assignment to treatment group' and 'choice of treatment' increased the likelihood of attending more sessions by 399%. A negative binomial regression analysis of a model comprised of 'readiness for change' and 'choice of treatment' increased the likelihood of attending more sessions by 376% (*Table 2*).

'Readiness for change' may signal the desire to change behavior, but other theories, like social support, may be required in order to engage in either treatment or psycho-education that will provide the tools and develop the skills to actually change behavior. Choice is shown to exert a significant influence on recruitment and retention. That theory should also be considered in future experimental studies.

Utility for Social Work Practice

This dissertation study suggests that those receiving their choice of treatment were significantly more likely to start treatment and to attend more sessions. Those in the face-to-face group attended significantly more sessions than either of the online groups. The randomly assigned online group was significantly more ready for change, but

attended significantly fewer sessions. The ease of accessing treatment online does not necessarily increase treatment recruitment and retention.

Future research of online smoking-cessation treatment should explore the impact of combining: 1) a strictly text-based online intervention, and 2) required contact with a facilitator or peer(s) through electronic, telephonic, or in-person communication. This contact could vary from a single contact at the beginning of registration, through contact at each module of treatment. Elements of social support theory may need to be incorporated in the conceptualization of the next study. Perhaps 'readiness for change' signals the desire to change behavior. But that desire requires evident social support in order to engage in treatment or psycho-education that will provide the tools and develop the skills to actually change behavior.

Also, in future research the online behavior of subjects on the treatment website could be objectively described, using tracking technology to capture time spent and sites explored online. It may be necessary in practice to screen a person for online counseling in order to determine his/her ability to benefit from this venue. The personal characteristics associated with successful online treatment would also be an interesting aspect of future research.

The behavioral health topic of this study, along with the venue of online counseling, is too important and timely to the health of American workers and their families to be ignored. Additional study on their relationship is imperative. This dissertation study offers guidance for those next research steps.

References

American Lung Association. (1999). *Freedom From Smoking Guide for Clinic Facilitators*. Washington, D.C.: American Lung Association.

American Lung Association. (2001). History of the Freedom From Smoking® Program. Retrieved February 2, 2003, from the American Lung Association website: http://www.lungusa.org/ffs/protected/history/index.html.

Centers for Disease Control and Prevention MMWR - Cigarette Smoking Among Adults - United States, 2001. Vol. 52.

Cohen, G. E., & Kerr, B. A. (1998). Computer-Mediated Counseling: An Empirical Study of a New Mental Health Treatment. *Computers in Human Services,* 15(4), 13-25.

Coleman, M. F. (2000). *Online Therapy and the Clinical Social Worker*. Washington, D.C.: National Association of Social Workers, Inc.

Grohol, J. M. (2004). *The Insider's Guide to Mental Health Resources Online* (4th ed.). New York: The Guilford Press.

Heinlen, K. K. (student). (2000). Descriptive Analysis of Web Counseling Practices and Compliance with Current Ethical Standards. at *Cleveland State University.* Master's thesis. Department of Education.

Kraus, R. (2004). Online Counseling: A Handbook for Mental Health Professionals. San Diego: Elsevier.

Laszlo, J. V., Esterman, G., & Zabko, S. (1999). Therapy Over the Internet? *Theory, Research and Finances. CyberPsychology and Behavior,* 2(4), 293-307.

Lichtenstein, E., & Glasgow, R. E. (1992). Smoking Cessation: What Have We Learned Over the Past Decade? *Journal of Consulting and Clinical Psychology*, 60(4), 518-527.

McBride, C. M., Curry, S. J., Stephens, R. S., Wells, E. A., Roffman, R. A., & Hawkins, J. D. (1994). Intrinsic and Extrinsic Motivation for Change in Cigarette Smokers, Marijuana Smokers, and Cocaine Users. *Psychology of Addictive Behaviors,* 8(4), 243-250.

Metanoia. (2002). Is E-therapy Effective? M. Ainsworth www.metanoia.org/imhs/alliance.htm.

Meyer, G. (2003). *American Lung Association of Wisconsin Freedom From Smoking Online Study.* Brookfield, Wisconsin: Baseline Research.

Moher, M., Hey K., & Lancaster, T. (2004). Workplace Interventions for Smoking Cessation. *The Cochrane Library,* (1).

Moolchan, E. T., Radzius, A., Epstein, D. H., Uhl, G., Gorelick, D. A., Cadet, J. L., & Henningfield, J. E. (2002). The Fagerstrom Test for Nicotine Dependence and the Diagnostic Interview Schedule: Do They Diagnose the Same Smokers? *Addictive Behaviors,* 27(1), 101-113.

National Association of Social Workers. (2000). *Online Therapy Examined.* Washington, D.C.: National Association of Social Workers, Inc.

O'Neill, J. V. (2002). EAPs Offer Multitude of Internet Services. Vol. 47(1), 14. Washington, D.C.: National Association of Social Workers.

Polauf, J. (1996-1999). E-mail as a Modality for Crisis Intervention? Retrieved April 23, 1999, from Onlinetelehealth.net/telehealth/e-mail.html.

Polauf, J. (1998). Psychotherapy on the Internet, Theory and Technique. nyreferrals.com/psychotherapy.

Prochaska, J. O., & DiClemente, C. C. (1986). Toward a comprehensive model of change. in W. E. Miller, & N. Heather (Editors), *Treating Addictive Behaviors* (pp. 3-27). New York: Plenum Press.

Prochaska, J. O., Redding, C. A., & Evers, K. E. (1997). The transtheoretical model and stages of change. K. Glanz, F. M. Lewis, & B. K. Rimer (Editors), Health Behavior and Health Education (Second ed., pp. 60-84). San Francisco: Jossey-Bass Publishers.

Sampson, J. P. Jr., Kolodinsky, Robert W., & Greeno, B. P. (1997). Counseling on the information highway: Future Possibilities and Potential Problems. *Journal of Counseling and Development*, 75(3), 203-212.

Sampson, J. P. Jr., & Loesch, L. C. (1985). Computer Preparation Standards for Counselors and Human Development Specialists. *Journal of Counseling and Development*, 64, 31-33.

Shiffman, S. (1993). Smoking cessation treatment: Any progress? *Journal of Consulting and Clinical Psychology*, 61(5), 718-722.

Stead, L. F., & Lancaster, T. (2000). Group Behaviour Therapy Programmes for Smoking Cessation. *The Cochrane Library*, 4.

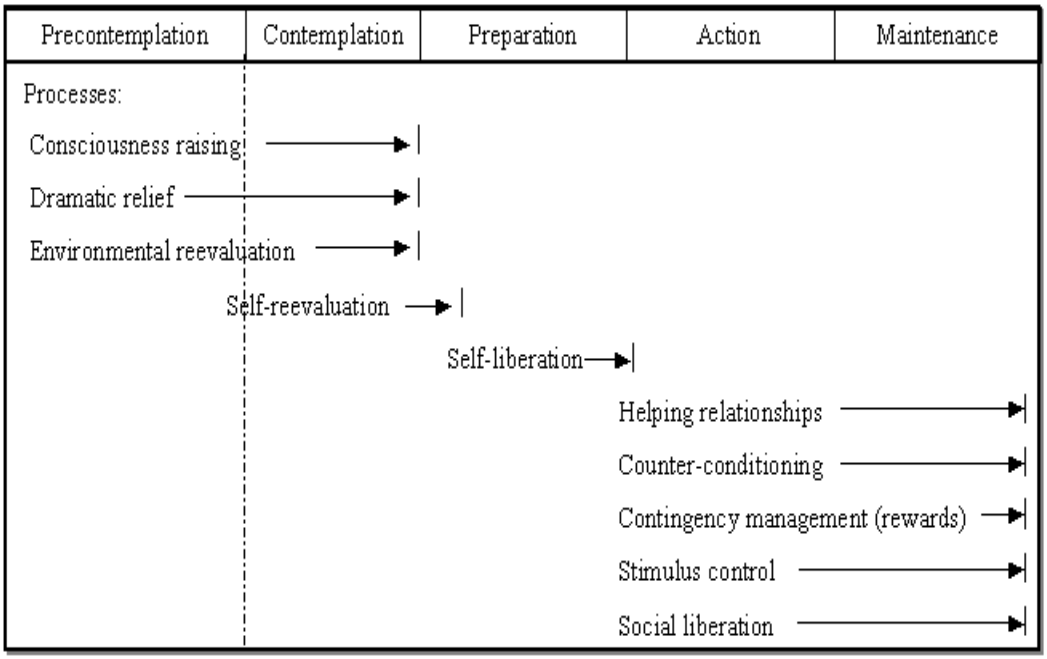
Suler (a), J. R. (2001). Assessing a Person's Suitability for Online Therapy: The ISMHO Clinical Case Study Group. CyberPsychology & Behavior, 4(6), 675-679, www.ismho.org/suggestions.html.

Suler, J. R. (2001). The online clinical case study group: An e-mail model. *Cyberpsychology & Behavior: The Impact of the Internet, Multimedia and Virtual Reality on Behavior and Society*, 4*(*6), 711-722.

U.S. Department of Health and Human Services. (1996). *Smoking Cessation* (Clinical Practice Guideline No.18. AHCPR Publication No. 69-0692 ed.). Rockville, M.D.: U.S. Department of Health and Human Services, Public Health Service, Agency for Health Care Policy and Research.

Figures

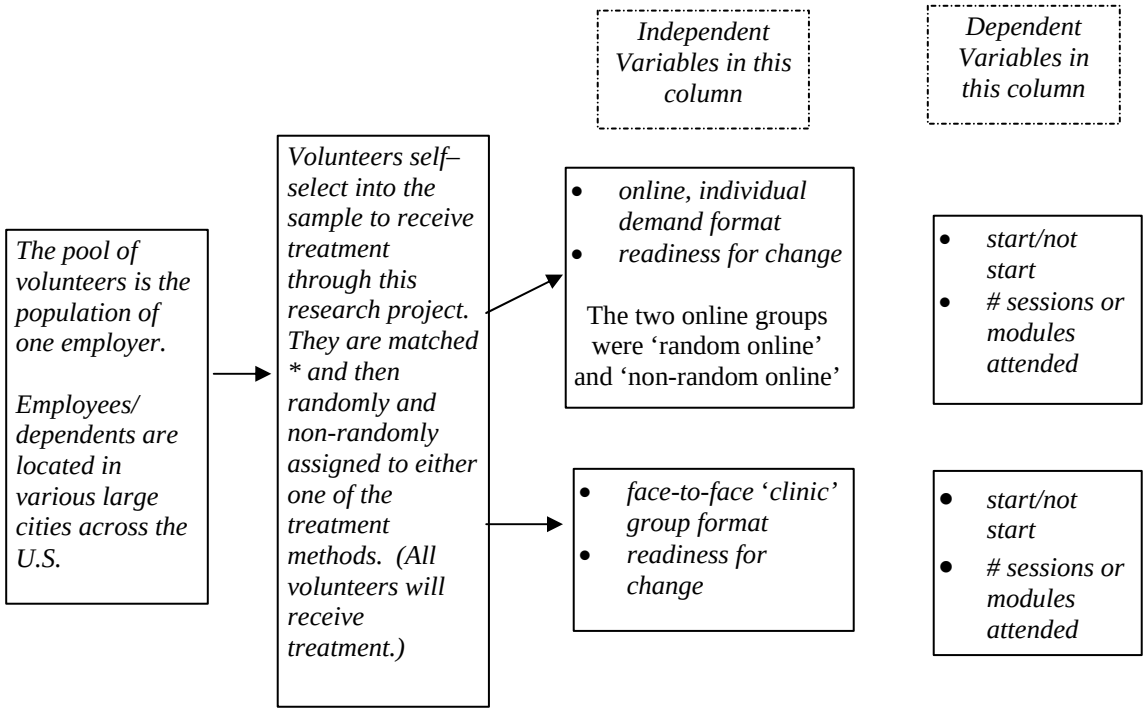
Figure 1. Stages of Change
Transtheoretical Model of Change



(Prochaska, Norcross, DiClemente,1994)

Tables

Table 1. Research Design Flowchart



*Matching factors are living with a smoking spouse/partner who is quitting now, use of nicotine replacement products during registration, and level of nicotine dependence.

'Readiness for change' as measured by 'intrinsic/extrinsic reasons for quitting' was expected to be evenly distributed between the two samples, and so was not matched prior to random assignment to either the *online* or face-to-face (*clinic*) treatment venue.

Measurement Intervals

T_1 = baseline data prior to treatment: personal demographics, level of addiction, living with a smoking spouse/partner who is quitting now, use of nicotine replacement products, and readiness for change.	T_2 = data at time of completion of treatment: # of modules or sessions completed; # of cigarettes (and other forms of tobacco) used from Quit Day through completion of treatment; using nicotine replacement therapy; having telephone contact with the facilitator; choice of treatment method; self-initiated use of the other treatment method	T_3 = data one-month post treatment conclusion (or not completed in the case of drop-outs): # of cigarettes (and other forms of nicotine) used from the end of treatment or drop-out; using nicotine replacement therapy; having telephone contact with the facilitator

Table 2. Relative Importance Between 'Assignment to Treatment' Group and 'Choice of Treatment' to Predict 'Sessions Attended'

	Parameter Estimate (Coefficient)	Standard Error	Exponent of Parameter (95% C.I.)	
Intercept	.5812	.5001		
Assignment to treatment group	-.3606	.2467	.697258	(.429944 - 1.130658)
Choice of treatment	1.3842	.4382	3.991631	(1.690966 - 9.422496)*

*p =.0025

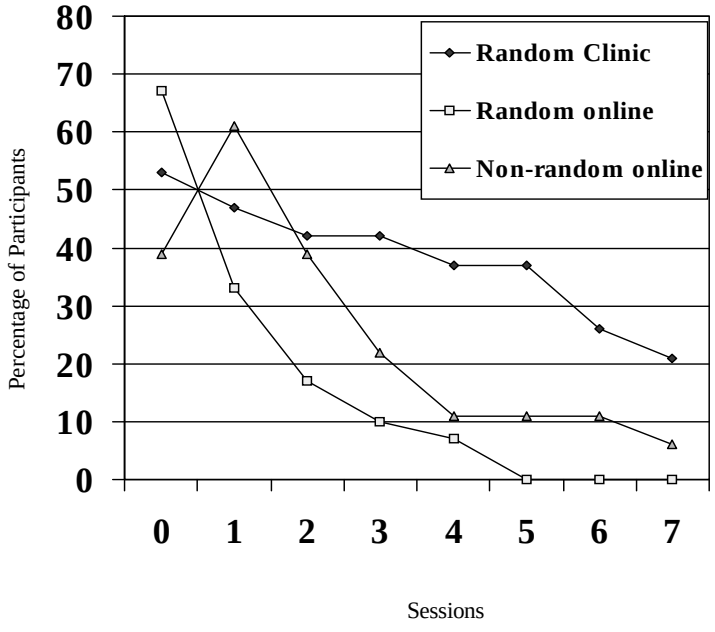
Graphs

Graph 1. Number of Sessions Attended by Subset (RC, RO, NRO)

Hypothesis I

0 sessions = no treatment

1-7 sessions = treatment



	no treatment	1	2	3	4	5	6	7	sessions
Random clinic	53% (10)	47% (9)	42% (8)	42% (8)	37% (7)	37% (7)	26% (5)	21% (4)	participants
Random online	67% (20)	33% (10)	17% (5)	10% (3)	7% (2)	0% (0)	0% (0)	0% (0)	participants
Non-random online	39% (7)	61% (11)	39% (7)	22% (4)	11% (2)	11% (2)	11% (2)	6% (1)	participants