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Preventing Addiction Related Suicide: A Pilot Study

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Abstract

Persons addicted to alcohol and drugs are at 5–10 times higher risk for suicide as compared to the general population. To address the need for improved suicide prevention strategies in this population, the Preventing Addiction Related Suicide (PARS) module was developed. Pilot testing of 78 patients demonstrated significant post-treatment changes in knowledge (t (66) = 12.07, p= .000) and attitudes (t (75) = 6.82, p = .000) toward suicide prevention issues. Significant gains were maintained at one-month follow-up for changes in knowledge (t (55) = 6.33, p= .000) and attitudes (t (61) = 3.37, p= .0001), with changes in positive help seeking behaviors in dealing with suicidal issues in friends (χ^2 (1) =10.49, p = .007), family (χ^2 (1) = 9.81, p = .015), and self (χ^2 (1) = 19.62, p= .008) also observed. The PARS was also highly rated by treatment staff as feasible within their standard clinical practice.

Keywords

suicide; prevention; group therapy; addictions; treatment development

1. Introduction

Although suicide is often primarily considered a "mental health issue", related to affective disorders in particular, studies consistently show that suicide and suicidal behavior are also highly related to addiction disorders. Although studies differ in terms of the exact degree to which addictions elevate suicide risk, ranging from two to over 100 times the risk, depending on the comparison group, the strong relationship between addiction and suicide holds nationally and internationally for alcohol as well as for other drugs. In the review article by Wilcox, Conner, and Caine it is estimated that the risk of suicide is on average 10 times higher among people with substance use disorders. Rather than being associated with any one particular drug, research suggests that it is the number of substances, the amount of substances, and the severity of substance dependence that are the most predictive of suicide completions (e.g., A history of addiction treatment has also been shown to increase the

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chances of a suicide attempt in current drinkers; the authors suggest this is a marker of higher addiction severity.

The relationship between addiction and suicide has major public health impacts. In 2007, for instance, 200,000 adults were seen in U.S. emergency departments as the result of drug-related suicide attempts, 31% of which involved alcohol and 18% involved illicit drugs. Compared with data from the National Comorbidity Survey where only 4.6% of a representative general population sample reported ever making a lifetime suicide attempt, Wojnar and colleagues found a lifetime suicide attempt in 43% of 154 patients admitted for alcohol treatment. The authors found that 4.4% of female and 3.4% of male substance disorder patients reported a suicide attempt just in the 30-day period before their initial intake for treatment.

Studies such as those by Kessler and Tiet indicate that addiction treatment providers, whether aware of it or not, frequently treat people who are, have been, or will become suicidal. Fortunately, numerous suicide prevention strategies have been developed, implemented, and tested in other populations. Suicide Prevention programs such as the Question Persuade Refer (QPR) suicide prevention program have shown increases in counselor knowledge and awareness of suicide. Despite the consistent relationship between addiction and suicide and the existence of promising suicide prevention programs, to our knowledge, no secondary suicide prevention programs have been developed and tested in addiction treatment populations.

By developing material specifically for addiction treatment settings, and adapting concepts and material from existing consensus- and evidence-based suicide prevention programs (e.g., our goal was to develop and test a secondary suicide prevention program called the Preventing Addiction Related Suicide (PARS) in standard, group-based Intensive Outpatient Program (IOP) addiction treatment. Secondary or “indicated” prevention strategies are characterized as providing illness prevention to high risk populations and are most effective in conditions where high risk individuals are concentrated and accessible to the intervention. Because there is a well-developed literature suggesting that individuals with substance use problems have a significantly greater likelihood of having a social network (i.e., family and friends) comprised of individuals also abusing substances (Andrews, Hops, Tildesley & Harris, 1993; Andrews. Tildesley, Hops, & Li, 2002) and therefore at increased risk for suicide, we believed that delivering secondary prevention to at-risk individuals may also impact a larger group of at-risk individuals who may not presently receive IOP services. Thus we chose to develop and test the feasibility, acceptability, and utility of a single 3 hour module to be utilized in group based IOP addiction treatment, the most common form of addiction treatment in the US.

It is important to emphasize that PARS was not designed as acute suicide treatment (which would be tertiary prevention) in actively suicidal individuals. Rather it is a strategy to prevent potential suicidal attempts or completions in the future. This is consistent with other general healthcare “secondary” prevention strategies in which a prevention intervention is given to high risk individuals found to be in an accessible and concentrated situation before they experience the problem: HIV prevention education and strategies given to needle exchange clients would be an example.

Utilizing a pre-test/post-test research design, we compared patients’ baseline scores immediately before PARS was implemented with post-test scores immediately after PARS was administered as well as one month later. Our hypotheses were as follows: Hypothesis 1: Compared to pre-test scores, we predicted that the PARS would significantly increase IOP patient knowledge about suicide and its close relationship with addiction at both subsequent

time points; Hypothesis 2: Compared to pre-test scores, exposure to the PARS would significantly increase patients' adaptive attitudes toward suicide (e.g., (People who try to kill themselves are weak) at the both subsequent time points; and Hypothesis 3: Compared to pre-test scores, we predicted that exposure to the PARS module would significantly increase patients' adaptive behaviors toward suicide prevention issues during the 1 month follow-up period. Lastly, to evaluate the acceptability and utility of the PARS, we recruited and collected survey data from the group of IOP counselors who we trained in using the PARS.

2. Materials and Method

2.1 Participants and Clinical Sites

Seventy-nine patients attending group-based IOP addiction treatment at one of three publically funded addiction treatment agencies in Washington State were approached, of which seventy-eight (N=78) agreed to participate and signed human subjects consent. All agencies were members of the NIDA Clinical Trials Network (CTN) and were in urban areas. None of the agencies included a suicide module in their IOP program. Inclusion criterion was current participation in IOP treatment. Exclusion from participation was based on the following criteria: 1) imminently suicidal patients as well as those who had planned or attempted suicide within the past three months, 2) patients with cognitive or language barriers judged severe enough to impede participation. The mean age of the total patient sample was 35 years old (SD= 1.20), 64% of which were male. While the modal level of education was a high school diploma (58%), an additional 17% did not complete high school education or the equivalent. Almost half (44%) of the sample was Caucasian, 26% were African American, 8% were Asian, 5% were American Indian/Alaskan Native, 6% were more than one race, and 8% did not report race.

Thirteen IOP counselors (N=13) from the three agencies described above were recruited and trained to administer the PARS. After completing informed consent and receiving training, counselors answered a survey about PARS acceptability and utility in the standard working conditions at their sites. The average age of the participating counselors was 46 years old and the average length of time working in the addiction field was 5.6 years with a range of half of a year to over 20 years. Eight of the 13 counselors were female (62%) and 12 were Caucasian (92%). The modal level of education was a Bachelor's degree, and all had state certified chemical dependency counseling degrees as required by their agencies and Washington State.

2.2 Measures

Patients were administered a brief survey at all assessment time points that included items measuring: (1) knowledge about suicide; (2) attitudes toward suicide, and (3) help-seeking behavior such as seeking help for oneself, a friend, or a family member. The pre-test also included a section on demographics. The surveys were brief and took approximately 15–20 minutes to complete. Items from the surveys are described below.

2.2.1 Demographics—The pre-test survey included items measuring the following demographic characteristics: 1) Age; 2) Gender; 3) Ethnicity; and 4) Education.

2.2.2 Knowledge—The Staff Suicide Prevention Survey, from Wyman et al. was adapted to be more appropriate and applicable to addictions patients and addiction settings (versus teachers and high school settings). All of the items were discussed by a core group of project researchers and addictions administrators to assess item relevancy and applicability. The Knowledge scale consisted of 14 items that were scored as incorrect/correct and reliability

for the scale ranged from Kuder-Richardson 20 (KR20) = .52 to KR20 = .68 across the study.

2.2.3 Attitude—Items evaluating stigma and bias toward suicidal acts or persons were abstracted from the Staff Suicide Prevention Survey to create a 9-item attitude scale. Likert-type items asked respondents to rate a series of statements from 1 ‘strongly disagree’ to 5 ‘strongly agree’, with higher values indicating more maladaptive attitudes toward suicide. Reliability for the adapted scale ranged from α = .47 to α = 76 across the study.

2.2.4 Behavior—Behavior toward issues involving suicide (including help-seeking behavior) that were used in the suicide prevention evaluation by Aseltine were adapted for this study. These included the following: “In the past month, have you: (1) …asked a friend to get help because you were worried they were feeling depressed or suicidal; (2)…asked a family member or relative to get help because you were worried that they were feeling depressed or suicidal; (3)…sought help for yourself from a health care professional because you were feeling depressed or suicidal? and (4)…called a crisis line/suicide hotline?” Questions regarding adaptive behavior toward suicide were only asked on the pre-test survey and at the one-month follow-up assessment and reliability ranged from α = .82 to α = .87.

2.2.5 Counselor Acceptability Ratings—We constructed a 13-item survey to measure counselor ratings of acceptability of PARS to be incorporated in their day to day IOP group therapy work. Since no appropriate scale existed we created a survey utilizing a 5-point rating scale (strongly agree, agree, neutral, disagree, and strongly disagree) aimed to evaluate both how effective the counselors thought the session would be and its relative ease and feasibility in being incorporated into their IOP group therapy practice (the full scale is available on request). Upon inspection, we determined that half of the items were redundant in both content and counselor ratings and therefore, we report on 6 individual items from the acceptability rating scale below.

2.3 Intervention: Preventing Addiction Related Suicide (PARS)

PARS was developed to be a group based, secondary suicide prevention module, built to fit into standard IOP group addiction treatment structures. To increase the acceptability and feasibility of the PARS, multiple Beta versions of the PARS manual and materials were developed iteratively based on the input from multiple stakeholders including: addiction agency administrators, suicide prevention and addiction researchers and clinicians, as well as IOP counselors and patients. PARS uses a 2–3 hour, workbook-based method to train addictions counselors. These counselors then use a variant of this same workbook to lead a single 2–3 hour IOP didactic and discussion session that is incorporated into the flow of topics typical of IOP treatment.

Content areas included in the PARS were adapted from a number of empirically-supported and best practice sources on suicide prevention and included the following: 1) Addiction and Suicide, 2) Suicide Myths and Facts, 3) Suicide Risk Factors, 4) Suicide Protective Factors, 5) Common Triggers of Suicidal Thoughts and Behaviors, 6) Warning Signs of Suicide, 7) Guidelines for Preventing Addiction Related Suicide, 8) Action Steps to Take if Warning Signs of Suicide are Observed, and 9) Local Crisis Resources. Thus, the PARS provides participants with an overview of factors related to suicide risk, as well as steps one can take to address current suicide risk in oneself or others. Additionally, each module has both a short didactic presentation, as well as built-in discussions and exercises to boost attainment of new knowledge and encourage peer-to-peer discussions about coping with suicidal ideation. Although none of our participants reported imminent risk of suicide, several did

report previous suicide attempts and loss of family and friends who killed themselves, which led to meaningful exchanges between group members.

2.4 Procedures

Potential patient participants were first contacted by their primary counselor and told briefly about the study. If the potential participant was interested, a member of the research team met individually with him or her to explain the study and answer any questions. If the potential participant was still interested after hearing about the study, they were screened for inclusion and given an informed consent form which was described to them. To minimize the response burden on study participants, only measures that are directly related to the specific aims of the study were included. Therefore, brief surveys (10–20 minutes) were completed by the patient participants at three separate time points (i.e., pre-test, post-test, and 1-month follow-up). Patients were given a $25 gift card to a grocery store for completing each survey.

Potential IOP counselor participants were first contacted by their agency administrator and told briefly about the study. If a potential counselor was interested, a member of the research teammet with the counselor, went over the study, and obtained written informed consent. Counselors filled out feasibility ratings after their group training sessions at each agency and were given a $25 gift card for participation. All study procedures were approved by the University of Washington Institutional Review Board and were in accord with the Helsinki Declaration of 1975.

2.5 Data Analysis

Knowledge scores were calculated by summing the number of correct responses and comparing mean score totals using paired t-tests. Attitudes totals were derived by summing ratings on all items and comparing means using paired t-tests. Self-reported behaviors were collapsed into dichotomous variables (i.e., yes/no) and compared using fisher exact tests due to fewer than 5 subjects in several observations. All hypotheses testing was two-tailed, with $p \leq 0.05$ considered to be statistically significant. Items and scales with a p-value of ≤ 0.10 are discussed as trends as they are approaching significance. Statistical tests were performed using Stata version 11.

3. Results

Of the 79 potentially eligible patients at the three treatment agencies, 78 consented to participate. Of these, follow-up data were collected from 64 patients at the 1-month time point, for an 82% follow-up rate. 13IOP counselors at the three treatment agencies consented and participated in the PARS administration and survey.

3.1 Knowledge

Compared to pre-test knowledge scores, exposure to the PARS significantly increased patient knowledge about suicide, suicidal behavior, and addiction at post-test. Post-test scores ($M = 9.39$; Standard error (SE) = 0.36; t (66) = 12.07, $p = .000$) and 1-month follow-up scores ($M = 8.05$; SE = 0.35; t (55) = 8.63, $p = .000$) were both significantly higher than pretest scores ($M = 5.34$; SE = 0.29).

3.2 Attitude

Patient-subjects reported significantly greater attitude ratings following exposure to the PARS. Overall attitude ratings were significantly higher at both the post-test ($M = 15.57$, SE = .57; t (75) = 6.82, $p = .000$) and 1-month ($M = 17.26$, SE = 0.60; t (61) = 3.37, $p = .000$) follow-up assessments as compared to the pretest assessment ($M = 19.29$, SE = 0.44).

3.3 Behavior

Compared to 1-month prior to exposure to the PARS, we predicted that the PARS would significantly increase adaptive behaviors toward dealing with suicidal issues during the 1-month follow-up period. The results show significant increases in helping seeking behavior for the patients (χ^2 (1) = 19.62, p= .008), for patients toward their family members (χ^2 (1) = 9.81, p = . 015), and their friends(χ^2 (1) = 10.49, p = .007; Table 1). No significant changes in frequency of utilizing the crisis line services were observed (χ^2 (2) = 0.05, p =1.00).

3.4 Counselor Ratings

After the 2–3 hour training in the PARS, counselors provided the following evaluation of PARS on 5-point scales (strongly agree, agree, neutral, disagree, and strongly disagree): *This would be an acceptable suicide prevention program*(62 % strongly agree, 31 % agree, 8% missing); *Most addiction counselors would find this suicide prevention program appropriate* (62 % strongly agree, 31 % agree, 8% missing); *I would suggest the use of this program to other addiction counselors* (69 % strongly agree, 23 % agree, 8% missing); *In general, the prevention program described was an intrusive procedure* (46 % strongly disagree, 38 % disagree, 8% agree, 8% missing); *This program would be overly intrusive the staff member's time*(54% strongly disagree, 31% disagree, 8% missing); *Overall, this program would be beneficial to patients* (62% strongly agree, 31% Agree, 7% missing).

4. Discussion

The results of this pilot study suggest that the PARS module is feasible and may benefit addiction patients, and the agencies that serve them, in a number of ways. First, and perhaps most important, we found that help-seeking behaviors were significantly more likely to occur after the PARS compared to before the PARS (i.e., the pre-test survey). More specifically, during the one-month follow up period, significantly more patients sought help for themselves, their family, and their friends when issues of suicide arose compared to one month before the PARS. While these findings are promising, future research is needed to better understand the mechanisms underlying the relationships between PARS and possible changes in behavior, as the intervention includes multiple modules that may contribute in varying ways.

Second, receiving the PARS was associated with significant increases in knowledge and attitudes about suicide as well as the strong relationship between addiction and suicide. Compared to the pre-test survey, participants scored an average of 4 points higher on the knowledge scale for the post-test survey and 2.7 points higher for 1-month follow-up. These results are similar to those reported by Wyman et al. who conducted a study in which middle and high school staff were trained in a gatekeeper suicide prevention program. Because counselor training in administering the PARS was designed as a single 3 hour session, and to be given to patients into a single 2–3 hour session of IOP addiction treatment, it has built in feasibility for busy community addiction treatment centers. Finally, the PARS also has the potential to continually re-engage and re-educate addictions staff around suicide issues each time they run through an IOP PARS session. Research has shown addictions treatment personnel feel uncomfortable and unprepared to deal with issues related to suicide. The "built in" nature of the PARS ensures continuing education and preparation in this important area.

4.2 Limitations

There are several limitations of this pilot study worth discussing. First, the pre-test/post-test research design utilized in this study is a relatively weak test of internal validity, because it fails to provide any measure of addiction patients who did not participate in the PARS

program (i.e. no control group). Our next step with the PARS will include this important control, on the way to a much larger randomized controlled study. Second, the psychometric properties of the attitude assessment were inadequate. We plan to improve the psychometric qualities of this scale during future research endeavors. Thirdly, clinical data on individuals receiving the PARS should be gathered to validate both outcomes and responsiveness to the PARS, but was not possible in this pilot study. Fourth, although participants were more likely to seek help for family and friends after the PARS intervention, it is unknown how many people in each participant's were actually suicidal before and after the intervention was provided. One may hypothesize that the greater the number of suicidal individuals in one's social network, the greater the likelihood that a participant would encourage a person to seek help. This was not measured in the current study and may have contributed to the findings. Fifth, participants' mental health functioning was not assessed in the current study, which would have provided useful information regarding the clinical characteristics of our study sample, given the increased risk of suicide in patients with comorbid mental health and substance use diagnoses. And lastly, in addition to self-report data, other more objective measures of suicidal behavior, as outlined by Linehan et al. should be gathered at baseline and follow-up.

4.3 Conclusions

In conclusion, our pilot study of the PARS strongly suggests that broad based suicide prevention in IOP addiction treatment groups is not only possible but appears feasible, acceptable, and possibly effective. The pilot data presented here are promising and suggest that further development and testing of the PARS program or other suicide prevention strategies in addiction treatment settings is indicated.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Fisher's Exact Test Results for Differences in Positive Help-Seeking Behavior Related to Suicidal Thoughts/ Feelings.

Item	Survey	No (%)	Yes (%)	χ^2
Asked a Friend to Get Help	Pretest	91	9	10.49**
	1-Month Follow-up	78	22	
Asked a Family Member to Get Help	Pretest	91	9	9.81*
	1-Month Follow-up	83	17	
Asked for Help for Yourself	Pretest	96	4	19.62**
	1-Month Follow-up	91	9	
Call Crisis Line	Pretest	97	3	0.05
	1-Month Follow-up	95	5	

Note. Help-seeking behavior was assessed prior to PARS and 1-month after receiving the PARS module in intensive outpatient treatment for addictions.

* $p \leq .05$

** $p \leq .01$

*** $p \leq .001$