

Comparison of Brief and Standard Interventions for Drug and Alcohol Dependence: Considerations for Primary Care Service Delivery

Gail Gauthier

McGill University Health Centre

Jorge Palacios-Boix

McGill University, and McGill University Health Centre

Dara A. Charney

McGill University, and McGill University Health Centre

Juan C. Negrete

McGill University, and McGill University Health Centre

Helen Pentney

McGill University Health Centre

Kathryn J. Gill

McGill University, and McGill University Health Centre

Gail Gauthier, Addictions Unit, Griffith Edwards Centre, McGill University Health Centre, Montreal; Jorge Palacios-Boix, MD, Addictions Unit, Griffith Edwards Centre, McGill University Health Centre, and Psychiatry Department, McGill University, Montreal; Dara A. Charney, MD, Addictions Unit, Griffith Edwards Centre, McGill University Health Centre, and Psychiatry Department, McGill University, Montreal; Juan C. Negrete, MD, Addictions Unit, Griffith Edwards Centre, McGill University Health Centre, and Psychiatry Department, McGill University, Montreal; Helen Pentney, Addictions Unit, Griffith Edwards Centre, McGill University Health Centre, Montreal; Kathryn J. Gill, Addictions Unit, Griffith Edwards Centre, McGill University Health Centre, and Psychiatry Department, McGill University, Montreal.

Correspondence concerning this article should be addressed to Dr. G. Gauthier, Addictions Unit, Griffith Edwards Centre, McGill University Health Centre, 1547 Pine Ave West, Montreal QC H3G 1B3. Email: gail.gauthier@muhc.mcgill.ca

ABSTRACT

Although brief intervention (BI) is an empirically validated treatment modality for alcohol dependence, it has generally failed to gain wide acceptance in practice. Most studies have focused exclusively on individuals with alcohol problems, and little is known about the effectiveness for patients with other drug problems. The objective of this study was to examine the effectiveness of BI compared to standard therapy for drug and alcohol dependence in an outpatient treatment program. The study was conducted at the Addictions Unit of the McGill University Health Centre in Montreal. The trial compared 72 patients randomly assigned at intake to an individual 5-session brief intervention (BI) or a 6-month conventional treatment (CT) consisting of individual and group therapy. At 6 months' follow-up, the BI ($N = 19$) and CT ($N = 20$) groups were compared in terms of substance use, psychological, health, and occupational outcomes. There were approximately equivalent changes in both treatment groups compared to intake. Under the conditions of the present trial, CT did not show superiority over BI, providing additional support for the notion that BI can be an effective first step in the treatment of alcohol and drug dependence in a variety of health care settings.

Keywords: treatment comparison, drug and alcohol dependence, outpatients

Untreated substance abusers are one of highest cost users of the health care system in North America. The total economic costs of substance dependence in Canada have been estimated at ~\$40 billion annually (Rehm et al., 2007). Research has shown that screening and brief intervention (BI) for alcohol dependence in both primary and specialized care settings provide substantial benefit at relatively low cost (Babor, 1994; Bien, Miller, & Tonigan, 1993; Heather, 2001; Langenbucher, 1994). Brief interventions generally range from one to five sessions, and include assessment of alcohol intake, feedback on negative consequences, clear advice to reduce or abstain, motivational techniques to enhance self-efficacy, and information on self-help groups within the community (Heather, 1995, 1996; Kaner et al., 2009).

Several studies conducted in specialty settings have demonstrated that BI performs as well as extended treatment in terms of reduced alcohol consumption (Edwards et al., 1977; Harris & Miller, 1990; Bien et al., 1993; Moyer, Finney, Swearington, & Vergun, 2002). Encouraging reports related to the effectiveness of BI for drug abuse are also beginning to emerge. For example, cannabis abusers treated with a BI showed improved health and social functioning (Lang, Englander, & Brooke, 2000; Marijuana Treatment Project Research Group, 2004) as well as reduced intake at follow-up (Jungerman, Andreoni, & Laranjeira, 2007). A study of screening, brief intervention, and referral to treatment (SBIRT) among alcohol and illicit drug users was conducted in a wide variety of medical settings in the United States. The results suggested that SBIRT was feasible to implement, and there were significant reductions in illicit drug use and heavy alcohol use across a range of health care settings and a range of patients (Madras et al., 2009).

Despite the positive results to date, BI has generally failed to gain wide acceptance in clinical practice (Miller et al., 2006; Miller & Wilbourne, 2002; Nilsen, 2010; Saitz, 2007; Saitz, Svikis, D'Onofrio, Kraemer, & Perl, 2006). Some reasons for the gap between research and practice may be related to methodological issues inherent in controlled trials including stringent exclusion criteria and the failure to include the types of clients encountered in real-world clinical settings (Guth et al., 2008; Humphreys, Weingardt, Horst, Joshi, & Finney, 2005). In this context it should be noted that over 50% of treatment-seeking patients abuse more than one substance, over 30% are dependent on illegal or prescription drugs, and up to two thirds have

co-existing DSM-IV Axis I or Axis II disorders (Charney, Paraherakis, & Gill, 2001; Verheul et al., 2000; Zikos, Gill, & Charney, 2010).

Emphasis on effectiveness research conducted in a relatively unrestricted patient population has been proposed as a strategy to bridge the gap between research and practice (Tucker & Roth, 2006). With this research orientation, interventions can be evaluated by a range of general outcomes including health, psychological, and employment status, in addition to drug and alcohol use (Booth, Staton, & Leukefeld, 2001). The current study addressed several key questions about treatment effectiveness among patients with mixed primary and secondary substance dependence disorders:

1. Is BI comparable to conventional treatment (CT) in terms of substance use outcomes at 6 months?
2. Are there differences between BI and CT groups at 6 months in terms of outcomes such as psychological distress, medical and employment problems?
3. How do the findings relate to service delivery?

We hypothesized that BI would produce similar outcomes for alcohol and drug dependent patients undergoing outpatient treatment. We also hypothesized that there would be no differences between groups in terms of medical and employment problems at 6 months. We did, however, expect that patients in CT would show greater reductions in psychological distress at 6 months, given that they had been receiving more therapy and support.

METHODS

Participants

The study was conducted at the Addictions Unit of the McGill University Health Centre (MUHC) in Montreal, and all procedures were approved by the MUHC Research Ethics Board. The Addictions Unit is the only hospital-based substance abuse treatment program for adult English-speaking residents of Quebec, and all treatment is covered by the Quebec health insurance plan. A multidisciplinary addiction and mental health care team composed of psychiatrists, psychologists, psychoeducators, nurses, and occupational therapists staff the unit.

Patients meeting DSM-IV criteria for substance dependence were eligible to participate. Exclusion criteria were applied to patients who were legally mandated to treatment, abstinent from substances at intake, and treated in the previous 6 months, as well as those requiring inpatient admission for medical or psychiatric disorders. Moreover, patients requiring additional sessions from a psychiatrist were excluded for study purposes in order to standardize the number of individual sessions received. A total of 142 patients were assessed; 46 (32%) were ineligible due to the need for additional psychiatric intervention and 19 (11%) were excluded due to the need for hospitalization. A small number of patients refused participation in the study (4%). A total of 72 patients were randomized to treatment, with 38 in the CT group and 34 in the BI group.

The initial interview consisted of the standard clinical assessment of approximately 2 hours' duration. All baseline assessments were reviewed by a psychiatrist, who conducted a brief clinical interview using DSM-IV guidelines (American Psychiatric Association, 1994) in order to confirm diagnosis of substance dependence disorder and apply inclusion/exclusion criteria. Upon completion of the standard clinical assessment,

a research assistant explained the study, invited eligible patients to participate, obtained informed consent, and carried out randomization according to the study protocol. Informed consent involved permission to re-contact all patients for a confidential follow-up interview at 6 months. Patients were compensated with a \$20 gift certificate for attending the follow-up interview, or for responding to questionnaires in the case of telephone contact.

Materials and Procedures

Data collected included sociodemographic information, treatment history, and severity of substance-related problems in a variety of areas using the Addiction Severity Index (ASI; McLellan, Parikh, & Braff, 1990). The ASI measures lifetime and recent (past 30 days) problem severity in seven categories: alcohol use, drug use, family/social functioning, and medical, employment, legal, and psychological status. Within each of these categories, items measure the severity of the problem in the last 30 days and are combined into a composite score. The composite scores are computed on a range from 0 (*no significant problem*) to 1 (*extreme problem*) to reflect problem severity for each category.

Psychological distress was assessed using the Symptom Checklist-90 (SCL-90-R; Derogatis, 1983). The SCL-90-R is a 90-item self-report symptom inventory covering the past 7 days that measures obsessive-compulsiveness, depression, anxiety, hostility, paranoid ideation, and psychoticism. The Global Severity Index (GSI) indicates the overall intensity of subjective distress. Depression was assessed using the 21-item self-report Beck Depression Inventory (BDI; Beck & Steer, 1987). For each item there is a series of four statements on a 4-point scale to reflect the range of severity of depressive symptoms experienced over the past 7 days. A score of over 20 has been used to define moderate to severe depression (Kendall, Hollon, Beck, Hammen, & Ingram, 1987).

Total therapy contact in both the BI and CT conditions was carefully monitored throughout treatment, and the results of urine toxicology screens (number of drug tests, drug class of positive results) were obtained from the clinic charts on a monthly basis.

Treatment Conditions

In the BI condition each patient was treated by a single therapist for a total of five individual sessions delivered on a weekly basis. The BI program was designed by senior Addictions Unit staff using a combination of motivational interviewing (Miller & Rollnick, 2002) and concepts and materials from the Project Match (1995) treatment manuals. The sessions addressed motivation for change, cravings, coping strategies, activity scheduling, drink/drug refusal skills, enhancing social support, and the relapse process. In general the sessions were aimed at promoting self-efficacy and personal responsibility for change, and utilized an empathetic (non-judgmental) counselling style. The entire BI program was placed in a treatment manual, along with descriptions of each session's goals and methods, client handouts, and homework assignments.

The CT condition was 6 months in duration and very similar in design to the standard Addictions Unit treatment program. At the start of treatment (Phase I), each patient attended one individual therapy session plus one group psychotherapy session per week. The five weekly individual sessions were of the same format,

content, and duration as the BI condition. This procedure was instituted in order to produce two conditions that differed in terms of treatment intensity and duration, while controlling for content and therapeutic style in so far as possible. At the end of the Phase I period individual sessions were discontinued, and patients in the CT condition received primarily group therapy once or twice weekly. The 90-minute group sessions were open, and comprised six to eight members with mixed primary substances of dependence. The groups were aimed at helping to develop new coping skills, identify high-risk situations, develop or maintain an appropriate social support system, and identify factors that could interfere with ongoing sobriety.

Data Analyses

Treatment outcome was measured in terms of the percentage of patients achieving total abstinence, and the number days of continuous abstinence from the primary drug of abuse over 6 months of follow-up. In addition, the mean ASI combined alcohol and drug composite severity scores were compared between baseline and follow-up. Secondary outcomes were measured in terms of the GSI, BDI, and the ASI composite psychological severity scores. T-tests and chi-square analyses were used to compare groups on substance dependence outcomes and rates of treatment attendance. Analyses were corrected for multiple comparisons using the Bonferroni method. MANOVA and two-way ANOVA with repeated measures were utilized to compare groups on baseline and follow-up measures of substance use and psychological distress. Primary outcome variables were assessed using an intention-to-treat analysis, with data analyzed according to randomly assigned treatment condition.

RESULTS

Characteristics of the Sample at Intake

There were no significant differences between groups on any of the sociodemographic, substance use, or psychological variables at intake. The sample was almost two-thirds male, the mean (\pm SEM) age was 38.5 ± 1.7 years, and most had completed high school (13.6 ± 0.44 years of education). At intake 25% were unemployed, and the majority were experiencing employment problems (mean ASI composite severity score 0.43 ± 0.055). Table 1 provides the pertinent substance use and psychological variables of the sample at intake, stratified by treatment condition. Approximately one third of each group had received previous treatment for drug and/or alcohol problems, and about half also reported intake of another drug in addition to the primary drug of abuse. Approximately 40% were assessed as having another DSM-IV Axis I psychiatric disorder in addition to substance dependence, and the most frequent were mood and anxiety disorders.

Treatment Attendance

Table 2 shows adherence to the assigned treatment and attendance for each treatment group. In terms of adherence to treatment condition, chi-square tests determined that patients randomized to the BI group were somewhat more likely to complete the five individual therapy sessions compared to patients randomized to the CT 6-month treatment group, $\chi^2(1) = 3.68, p = 0.055$.

Table 1
Substance Use and Psychological Variables at Intake Stratified by Treatment Group

	CT N = 38	BI N = 34
# years of problem drug/alcohol use	8.6 (1.14)	9.8 (1.53)
# days of primary drug use (past 30 days)	17.0 (1.75)	14.4 (1.80)
ASI drug + alcohol composite severity score	0.52 (0.05)	0.48 (0.04)
ASI medical composite severity score	0.27 (0.05)	0.23 (0.06)
GSI SCL-90	0.98 (0.11)	0.84 (0.12)
BDI score	15.5 (1.76)	14.3 (1.90)
ASI psychological composite severity score	0.22 (0.035)	0.22 (0.032)

Note. No significant differences between groups as determined by t-tests and chi-square analysis. Values are percentages or means (\pm SEM). CT = conventional treatment. BI = brief intervention. ASI = Addiction Severity Index, composite scores range from 0 to 1.0, with higher scores indicating greater problem severity. GSI = Global Severity Index. BDI = Beck Depression Inventory.

Table 2
Adherence to Assigned Treatment and Therapy Attendance

	CT N = 38	BI N = 34
# individual sessions completed at:		
6 weeks	3.16 (0.73)	3.91 (0.31)
3 months ^a	4.47 (0.44)	4.06 (0.30)
Completed assigned treatment (% completing BI vs % completing 6 months CT)	42.1%	64.7%
# sessions attended over study period (Note that CT included individual + group sessions)	18.50 (2.96)	3.91 (0.31)

Note. Values are percentages or means (\pm SEM). CT = conventional treatment. BI = brief intervention.

^aTo accommodate patients' schedules, patients could complete the five individual sessions over a flexible time period, within a maximum of 3 months.

Comparison of Outcomes at 6 Months

Follow-up data at 6 months were provided by 55.3% of the CT group and 55.9% of the BI group, and there was no differential loss to follow-up by treatment condition [$\chi^2(1) = 0.003, p = 0.959$]. Comparisons using MANOVA determined that there were no significant differences at intake between those lost to follow-up on sociodemographic variables [$F(9,60) = 0.260, p = 0.983$], substance use [$F(8,48) = 0.862, p = 0.554$], or psychological variables [$F(5,45) = 0.550, p = 0.737$] compared to those who were retained at follow-up.

Table 3 lists the overall rates of primary and secondary drug consumption at 6-month follow-up. Two-way ANOVA with repeated measures with the factors of group (CT versus BI) and time (intake versus 6 months) was used to compare ASI alcohol and drug composite severity scores yielding a significant effect for time [$F(1,38) = 28.952, p = 0.0001$], but no significant main effect for group [$F(1,38) = 0.402, p = 0.53$] or group by time interaction [$F(1,38) = 2.62, p = 0.11$]. Similarly, comparison of the mean number of days of alcohol and drug problems at intake versus follow-up yielded a significant effect for time [$F(1,38) = 11.72, p = 0.001$], but no significant main effect for group [$F(1,38) = 2.07, p = 0.16$] or group by time interaction [$F(1,38) = 0.64, p = 0.43$]. Overall, there were no significant differences between groups, and an approximately equivalent decrease in the intensity and amount of drug/alcohol consumption as well as psychological distress over the 6-month follow-up period.

Table 3
Substance Use and Psychological Outcomes at 6-Months' Follow-up

Substance use	CT <i>N</i> = 21	BI <i>N</i> = 19
Past 6 months		
% of sample with sustained abstinence from primary drug	26.9%	26.3%
# days of continuous abstinence from primary drug	90.0 (13.95)	89.21 (16.7)
Past 30 days		
Abstinent from primary drug	57.7%	47.4%
# days of primary drug use	4.1 (2.11)	5.5 (1.79)
ASI drug + alcohol composite severity score	0.20 (0.06)	0.25 (0.05)
Psychological outcomes		
GSI SCL-90	0.51 (0.14)	0.61 (0.12)
BDI score	10.72 (2.08)	11.07 (2.07)
ASI psychological composite severity score	0.14 (0.04)	0.2 (0.04)

Note. No significant differences between groups as determined by t-tests and chi-square analyses. Values are percentages or means (\pm SEM). CT = conventional treatment. BI = brief intervention. ASI = Addiction Severity Index, composite scores range from 0 to 1.0, with higher scores indicating greater problem severity. GSI = Global Severity Index. BDI = Beck Depression Inventory.

DISCUSSION

This study examined the effectiveness of a five-session brief intervention in comparison to 6-month conventional treatment in a sample of treatment-seeking substance abusers. Outcomes were determined in relation to alcohol and drug consumption, psychological distress, as well as health and employment problems. Both groups showed equivalent outcomes in terms of the number of days of primary drug use, the percentage abstinent, as well as the severity of problems associated with substance dependence, indicating that patients

who were randomly assigned to either BI or CT fared equally well at 6 months. The GSI, BDI, and the ASI composite psychological severity scores indicated that there were no differences between groups at follow-up. This was contrary to our expectation that the CT group might experience less psychological distress at 6 months due to the additional support and intervention received.

There are several limitations of the study that deserve comment. In this study, follow-up data at 6 months were provided by approximately 56% of the starting sample ($N = 21$ in CT group, $N = 19$ in BI group). However, there was no differential loss to follow-up by treatment condition. Analysis also determined that there were no significant differences at intake between those lost to follow-up on sociodemographic, substance use, or psychological variables compared to those who were retained at follow-up. Attrition from treatment and loss to follow-up is a common problem in the evaluation of substance-dependent treatment (Brown, Seraganian, Tremblay, & Annis, 2002; Desmond, Maddux, Johnson, & Confer, 1995; Edwards & Rollnick, 1997). Those who had completed randomized assignment to either CT or BI treatment conditions were more likely to attend 6-month follow-up. The small size of the two groups as a result of attrition does mean that a relatively large effect is required for significant differences to be found between the two groups.

Although patients enrolled in the study and attending the Addictions Unit were mainly Caucasian, relatively well educated, and primarily male, the sample was representative of other studies of community-based substance dependence treatment centres in the greater Montreal area (Brown et al., 2006).

Considerations for Service Delivery

It is of note that 11% of the starting sample was excluded from the trial due to the need for inpatient admission for detoxification or the treatment of medical conditions. An additional 32% were excluded from the study because they needed additional psychiatric intervention (typically for the adjustment of medications, initiation of outpatient detoxification, or diagnosis of dual disorders). It should be noted that patients with anxiety and mood disorders who were receiving appropriate treatment medication were not excluded from the study. The percentage of the starting sample that were excluded may appear to be high (total of 34%); however, it should be noted that this was partially due to the nature of the trial—to ensure that the BI group received only a total of five individual therapy sessions. In primary health care settings where screening and brief intervention would be the first step in a stepped-care approach, the percentages of patients excluded from BI would likely be lower since medication management could proceed in parallel with a brief intervention. BI models such as BRENDA (Biopsychosocial evaluation, Report of findings, Empathy, Needs evaluation, Direct advice, and reaction to Advice) indicate how medication can be incorporated into brief interventions tailored to primary care settings (Starosta, Leeman, & Volpicelli, 2006).

Patients in both the CT and BI groups completed approximately the same number of individual therapy sessions, whereas only 42% of CT patients remained in treatment for the recommended 6-month period. This indicates that although the CT program was based on a 6-month design, the majority of patients did not adhere to this plan. Retention is a long-standing issue in addictions treatment (Paraherakis, Charney, Palacios-Boix, & Gill, 2000), and there are few consistent positive predictors of treatment adherence (Ball, Carroll, Canning-Ball, & Rounsaville, 2006). Self-selection for treatment may be an important component influencing addiction treatment retention and outcomes (Tucker & Roth, 2006). Treatment approaches that

are consistent with patients' values and beliefs as well as their level of motivation for change may enhance compliance and thereby affect outcomes (Clark, 2009; Miller & Rollnick, 2002). Moreover, improvement is not attributable to treatment alone, and a shift away from thinking about "treatment effects" is necessary in order to appreciate the reality that many other factors including psychological health, informal help, social resources, significant others, and life events play a longer lasting role in behaviour change than treatment (Tucker & Roth, 2006; Willenbring, 2007).

The traditional approaches to alcohol and drug dependence treatment have focused on labour-intensive medical and social rehabilitation versus early identification and brief interventions (WHO, 1996). As a result, most treatment is formatted to fit a small percentage of people with more severe substance use disorders (Humphreys & Tucker, 2002). Since it is more likely that people will initially invest in a short-term approach, it may be more efficient to start treatment with a less costly and demanding BI, not only for alcohol but also for illicit drug use (Baker et al., 2005; Stotts, Potts, Ingersoll, George, & Martin, 2006).

Primary health care settings are an optimal entry point for patients to be screened, educated, and provided with short-term BI approaches that are effective in managing substance dependence. Brief interventions can be delivered by general practitioners, nurses, physician assistants, social workers, and psychologists, and they can be adapted to a wide variety of settings (National Institute of Alcohol Abuse and Alcoholism, 2005). However, there is often a lack of any systematic approach for screening or intervention for substance dependence in primary care (Miller et al., 2006; Neushotz & Fitzpatrick, 2008). Obstacles to providing screening and brief interventions in primary health care include practitioners' attitudes toward patients with substance dependence, absence of resources, lack of training, and low self-efficacy (Aalto, Pekuri, & Seppa, 2003; Clay, Allen, & Parran, 2008; Oakley Browne, Lee, & Prabhu, 2007; Saitz et al., 2002). There may also be some skepticism about the effectiveness of BI for the treatment of both drug and alcohol dependence. In order to facilitate the adoption of new approaches by primary health care providers, evidence of the effectiveness and transferability of methods from specialized treatment services into primary care must be readily available to practitioners. The findings of this study not only corroborate previous research indicating that brief alcohol intervention is effective for alcohol disorders, but also add to the literature by demonstrating that brief intervention may be as effective as standard addiction treatment for selected treatment-seeking outpatients with a diagnosis of alcohol and drug dependence.

The federal government acknowledged the significance of the health and social problems related to substance dependence by announcing the National Anti-Drug Strategy (www.nationalantidrugstrategy.gc.ca), aimed at enhanced prevention and treatment. Thus, new initiatives to facilitate the transfer of empirical knowledge into practice may be on the horizon. Wider availability of brief interventions within primary care has the potential to improve overall efficiency of service delivery, and reduce the burden of illness. The current study was conducted in a "real world" clinical setting, with a typical treatment-seeking population with mixed alcohol and drug dependence. The design of the BI, production of the treatment manual, and implementation of the study were conducted in close collaboration with the treating team, which may reduce barriers for the transfer of knowledge from research into clinical practice.

RÉSUMÉ

Bien que l'intervention brève (IB) soit une modalité de traitement de la dépendance à l'alcool qui ait été validée empiriquement, elle n'a cependant pas réussi, d'une façon générale, à faire l'unanimité dans la pratique. La plupart des études sur l'IB se sont concentrées exclusivement sur des individus ayant des problèmes d'alcool et on sait très peu de choses quant à l'efficacité de l'IB pour les patients présentant d'autres problèmes de toxicomanie. Par conséquent, l'objectif de cette étude était d'examiner l'efficacité d'une intervention brève par rapport à une thérapie standard pour le traitement de la dépendance aux drogues et à l'alcool dans le cadre d'un programme externe. L'étude a été conduite à l'Unité d'alcoologie et de toxicomanies du Centre universitaire de santé McGill à Montréal. L'essai comprenait 72 patients assignés aléatoirement lors de l'évaluation à une intervention brève (IB) de 5 séances de thérapie individuelle (TI) ou un traitement conventionnel de 6 mois (TC) composé de séances de thérapie individuelle et de groupe. Après un suivi de six mois, les groupes IB (N = 19) et TC (N = 20) ont été comparés en terme d'usage de substances, de résultats sur les plans psychologique, professionnel et de la santé. Les changements observés dans les deux groupes traités par rapport au moment de l'évaluation étaient pratiquement similaires. Ces résultats indiquent que dans les conditions de cet essai, la thérapie conventionnelle ne s'est pas avérée supérieure à l'IB, ce qui vient à nouveau appuyer la notion que l'IB peut constituer une première mesure efficace dans le traitement des patients aux prises avec une dépendance à l'alcool et aux drogues dans différents milieux de soins de santé.

Mots clés: comparaison de traitements, dépendance aux drogues et à l'alcool, traitement externe

REFERENCES

- Aalto, M., Pekuri, P., & Seppa, K. (2003). Obstacles to carrying out brief intervention for heavy drinkers in primary health care: A focus group study. *Drug and Alcohol Review, 22*(2), 169-173.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Babor, T.F. (1994). Avoiding the horrid and beastly sin of drunkenness: Does dissuasion make a difference? *Journal of Consulting and Clinical Psychology, 62*, 1127-1140.
- Baker, A., Lee, N.K., Claire, M., Lewin, T.J., Grant, T., Pohlman, S., ... Carr V.J. (2005). Brief cognitive behavioural interventions for regular amphetamine users: A step in the right direction. *Addiction, 100*, 367-378.
- Ball, S.A., Carroll, K.M., Canning-Ball, M., & Rounsaville, B.J. (2006). Reasons for dropout from drug abuse treatment: Symptoms, personality, and motivation. *Addictive Behavior, 31*, 320-330.
- Beck, A.T., & Steer, R.A. (1987). *Beck Depression Inventory*. New York: Harcourt Brace.
- Bien, T.H., Miller, W.R., & Tonigan, J.S. (1993). Brief interventions for alcohol problems: A review. *Addiction, 88*, 315-336.
- Booth, B.M., Staton, M., & Leukefeld, C. (2001). Substance use health services research. *Substance Use and Misuse, 36*(6-7), 673-685.
- Brown, T.G., Dongier, M., Latimer, E., Legault, L., Seraganian, P., Kokin, M., & Ross, D. (2006). Group-delivered brief intervention versus standard care for mixed alcohol/other drug problems: A preliminary study. *Alcoholism Treatment Quarterly, 24*(4), 23-39.
- Brown, T.G., Seraganian, P., Tremblay, J., & Annis, A. (2002). Matching substance abuse aftercare treatments to client characteristics. *Addictive Behaviors, 27*, 585-604.
- Charney, D.A., Paraherakis, A.M., & Gill, K.J. (2001). Integrated treatment of comorbid depression and substance use disorders. *Journal of Clinical Psychiatry, 62*, 672-677.
- Clark, J.J. (2009). Contemporary psychotherapy research: Implications for substance misuse treatment and research. *Substance Use and Misuse, 44*, 42-61.
- Clay, S.W., Allen, J., & Parran, T. (2008). A review of addiction. *Postgraduate Medicine, 120*, 1-7.
- Derogatis, L.R. (1983). *The SCL-90-R: Administration, scoring, and procedures. Manual II*. Towson, MD: Clinical Psychometric Research.

- Desmond, D.P., Maddux, J.F., Johnson, T.H., & Confer, B.A. (1995). Obtaining follow-up interviews for treatment evaluation. *Journal of Substance Abuse Treatment, 12*(2), 95-102.
- Edwards, G., Orford, J., Egert, A., Hensman, C., Mitcheson, M., Oppenheimer, E., & Taylor, C. (1977). Alcoholism: A controlled trial of the matching hypotheses. *Journal of Studies on Alcohol, 38*, 1004-1031.
- Edwards, G., & Rollnick, S. (1997). Outcome studies of brief alcohol intervention in general practice: The problem of lost subjects. *Addiction, 12*, 1699-1704.
- Guth, S., Lindberg, S.A., Badger, G.J., Thomas, C.S., Rose, G.L., & Helzer, J.E. (2008). Brief intervention in alcohol-dependent versus nondependent individuals. *Journal of Studies on Alcohol and Drugs, 69*, 243-250.
- Harris, K.B., & Miller, W.R. (1990). Behavioural self-control training for problem drinkers: Components of efficacy. *Psychology of Addictive Behavior, 4*, 82-90.
- Heather, N. (1995). Interpreting the evidence on brief interventions for excessive drinkers: The need for caution. *Alcohol and Alcoholism, 30*, 287-296.
- Heather, N. (1996). The public health and brief interventions for excessive alcohol consumption: The British experience. *Addictive Behaviors, 21*, 857-868.
- Heather, N. (2001). Brief interventions. In N. Heather, T.J. Peters, & T. Stockwell (Eds.), *International handbook of alcohol dependence and problems* (pp. 605-626). Newcastle, England: Centre for Drug and Alcohol Studies.
- Humphreys, K., & Tucker, J.A. (2002). Introduction: Toward more responsive and effective intervention systems for alcohol-related problems. *Addiction, 97*, 126-132.
- Humphreys, K., Weingardt, K.R., Horst, D., Joshi, A., & Finney, J.W. (2005). Prevalence and predictors of research participants' eligibility criteria in alcohol treatment outcome studies. *Addiction, 100*, 1249-1257.
- Jungerman, F.S., Andreoni, S., & Laranjeira, R. (2007). Short-term impact of same intensity but different duration interventions for cannabis users. *Drug and Alcohol Dependence, 90*, 120-127.
- Kaner, E.F., Dickson, H.O., Beyer, F.R., Campbell, F., Schlesinger, C., Heather, N., & Pienar, E.D. (2009). Effectiveness of brief alcohol intervention in primary care populations. *The Cochrane Collaboration* (Cochrane Library), 4, 1-93.
- Kendall, P.C., Hollon, S.D., Beck, A.T., Hammen, C.L., & Ingram, R.E. (1987). Issues and recommendations regarding use of the Beck Depression Inventory. *Cognitive Therapy and Research, 11*, 289-299.
- Lang, E., Engeland, M., & Brooke, T. (2000). Report of an integrated brief intervention with self-defined problem cannabis users. *Journal of Substance Abuse Treatment, 19*, 111-116.
- Langenbucher, J. (1994). Prescription for health care costs: Resolving addictions in the general medical setting. *Alcoholism: Clinical and Experimental Research, 18*, 1033-1036.
- Madras, B.K., Compton, W.M., Avula, D., Stegbauer, T., Stein, J.B., & Clark, H.W. (2009). Screening, brief interventions, referral to treatment (SBIRT) for illicit drug and alcohol use at multiple healthcare sites: Comparison at intake and 6 months later. *Drug and Alcohol Dependence, 99*, 280-295.
- Marijuana Treatment Project Research Group. (2004). Brief treatments for cannabis dependence: Findings from a randomized multisite trial. *Journal of Consulting and Clinical Psychology, 72*, 455-466.
- McLellan, A.T., Parikh, G., & Braff, A. (1990). *Addiction severity index administration manual* (5th ed.). Philadelphia: Pennsylvania Veterans Administration Center for Studies on Alcohol.
- Miller, W.R., Baca, C., Compton, W.M., Ernst, D., Manuel, J.K., Pringle, B., ... Zweben, A. (2006). Addressing substance use in health care settings. *Alcoholism: Clinical and Experimental Research, 30*(2), 292-302.
- Miller, W.R., & Rollnick, S. (2002). *Motivational interviewing: Preparing people to change addictive behavior* (2nd ed.). New York: Guilford Press.
- Miller, W.R., & Wilbourne, P. (2002). Mesa Grande: A methodological analysis of clinical trials of treatments for alcohol use disorders. *Addiction, 97*, 265-277.
- Moyer, A., & Finney, J.W. (2005). Brief interventions for alcohol problems: Factors that facilitate implementation. *Alcohol Research Health, 28*, 44-50.
- Moyer, A., Finney, J.W., Swearington, C.E., & Vergun, P. (2002). Brief interventions for alcohol problems: A meta-analytic review of controlled investigations in treatment-seeking and non-treatment-seeking populations. *Addiction, 97*, 279-292.
- National Institute of Alcohol Abuse and Alcoholism. (2005). Helping patients who drink too much. A clinician's guide. Retrieved from http://pubs.niaaa.nih.gov/publications/Practitioner/Clinicians_Guide2005/clinicians_guide.htm

- Neushotz, L.A., & Fitzpatrick, J.J. (2008). Improving substance abuse screening and intervention in a primary care clinic. *Psychiatric Nursing, 22*, 78-86.
- Nilsen, P. (2010). Brief alcohol intervention – Where to from here? Challenges remain for research and practice. *Addiction, 105*, 954-959.
- Oakley Browne, M., Lee, A., & Prabhu, R. (2007). Self-reported confidence and skills of general practitioners in management of mental health disorders. *Australian Journal of Rural Health, 15*(5), 321-326.
- Paraherakis, A., Charney, D.A., Palacios-Boix, J., & Gill, K. (2000). An abstinence-oriented program for substance use disorders: Poorer outcome associated with opiate dependence. *Canadian Journal of Psychiatry, 45*, 927-931.
- Project MATCH. (1995). *Motivational enhancement therapy manual* (Vol. 2), *Cognitive behavioral coping skills manual* (Vol. 3). Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, National Institute of Health.
- Rehm, J., Gnam, W., Popova, S., Balinuas, D., Brochu, S., Fischer, B., ... Taylor, B. (2007). The costs of alcohol, illegal drugs, and tobacco in Canada 2002. *Journal of Studies on Alcohol and Drugs, 68*, 886-895.
- Saitz, R. (2007). Screening and brief intervention enter their fifth decade. *Substance Abuse, 28*(3), 3-6.
- Saitz, R., Friedman, P., Sullivan, L., Winter, M., Lloyd-Travaglini, L., Moskowitz, M., & Samet, J. (2002). Professional satisfaction experienced when caring for substance-abusing patients: Faculty and resident physician perspectives. *Journal of General Internal Medicine, 17*, 373-376.
- Saitz, R., Svikis, D., D'Onofrio, G., Kraemer, K.L., & Perl, H. (2006). Challenges applying brief intervention in diverse practice settings: Populations, outcomes, and costs. *Alcoholism: Clinical and Experimental Research, 30*, 332-338.
- Starosa, A.N., Leeman, R.F., & Volpicelli, J.R. (2006). The BRENDA model: Integrating psychosocial treatment and pharmacotherapy for the treatment of alcohol use disorders. *Journal of Psychiatric Practice, 12*(2), 80-89.
- Stotts, A.L., Potts, G.F., Ingersoll, G., George, M.R., & Martin, L.E. (2006). Preliminary feasibility and efficacy of a brief motivational intervention with psychophysiological feedback for cocaine abuse. *Substance Abuse, 27*, 9-20.
- Tucker, J.A., & Roth, D.L. (2006). Extending the evidence hierarchy to enhance evidence-based practice for substance use disorders. *Addiction, Horizon Review Series, 101*, 918-932.
- Verheul, R., Kranzler, H.R., Poling, J., Tenne, H., Ball, S., & Rounsaville, B.J. (2000). Co-occurrence of Axis I and Axis II disorders in substance abusers. *Acta Psychiatrica Scandinavica, 101*, 110-118.
- Willenbring, M.L. (2007). A broader view of change in drinking behaviour. *Alcohol: Clinical and Experimental Research, 10*(Suppl.), S84-S86.
- World Health Organization (WHO). (1996). Brief intervention study group: A cross-national trial of brief interventions with heavy drinkers. *American Journal of Public Health, 86*, 948-955.
- Zikos, E., Gill, K.J., & Charney, D. (2010). Personality disorders among alcoholic outpatients: Prevalence and course in treatment. *Canadian Journal of Psychiatry, 55*, 65-73.