

REGULAR ARTICLES**The relevance and treatment of cue-induced cravings in tobacco dependence***Stuart G. Ferguson and Saul Shiffman*

Craving to smoke is often conceptualized and measured as a tonic, slowly changing state induced by abstinence. In this article, we review the literature on the existence, causes, and treatment of cue-induced cravings: intense, episodic cravings typically provoked by situational cues associated with drug use. In laboratory research, smokers exposed to smoking-related cues demonstrate increased craving as well as distinct patterns of brain activation. Observational field studies indicate that such cue-induced cravings are substantially responsible for relapse to smoking but that smoking can often be averted by coping responses. The effects of pharmacological interventions are mixed. Steady-state medications (bupropion, varenicline, nicotine patch) do not appear to protect smokers from cue-induced cravings. However, acutely administered nicotine medications (such as nicotine gum and lozenge), used after cue exposure as “rescue medications,” can help a smoker's recovery from cue-induced cravings. Cue-induced craving plays an important role in smoking and relapse and likely in other addictions as well. Treatments to mitigate the effect of cue-induced craving are both important and needed.

Factors affecting willingness to provide buprenorphine treatment*Julie Netherland, Michael Botsko, James E. Egan, Andrew J. Saxon, Chinazo O. Cunningham, Ruth Finkelstein, Mark N. Gourevitch, John A. Renner, Nancy Sohler, Lynn E. Sullivan, Linda Weiss, David A. Fiellin, and the BHIVES Collaborative*

Buprenorphine is an effective long-term opioid agonist treatment. As the only pharmacological treatment for opioid dependence readily available in office-based settings, buprenorphine may facilitate a historic shift in addiction treatment from treatment facilities to general medical practices. Although many patients have benefited from the availability of buprenorphine in the United States, almost half of current prescribers are addiction specialists suggesting that buprenorphine treatment has not yet fully penetrated general practice settings. We examined factors affecting willingness to offer buprenorphine treatment among physicians with different levels of prescribing experience. Based on their prescribing practices, physicians were classified as experienced, novice, or as a nonprescriber and asked to assess the extent to which a list of factors impacted their prescription of buprenorphine. Several factors affected willingness to prescribe buprenorphine for all physicians: staff training; access to counseling and alternate treatment; visit time; buprenorphine availability; and pain medications concerns. Compared with other physicians, experienced prescribers were less concerned about induction logistics and access to expert consultation, clinical guidelines, and mental health services. They were more concerned with reimbursement. These data provide important insight into physician concerns about buprenorphine and have implications for practice, education, and policy change that may effectively support widespread adoption of buprenorphine.

Exposure to Adolescent Community Reinforcement Approach treatment procedures as a mediator of the relationship between adolescent substance abuse treatment retention and outcome*Bryan R. Garner, Susan H. Godley, Rodney R. Funk, Michael L. Dennis, Jane Ellen Smith, and Mark D. Godley*

Data from 399 adolescents, who participated in one of four randomly controlled trials of the Adolescent Community Reinforcement Approach (A-CRA) intervention, were used to examine the extent to which exposure to A-CRA procedures mediated the relationship between treatment retention and outcomes. Although zero-order correlations indicated that retention in treatment was a significant predictor of alcohol and other drug (AOD) use ($r = -0.18, p < .001$), this relationship was reduced to nonsignificance ($p = .39$) when exposure to A-CRA procedures was included in the model. Overall, the final model evidenced a very good fit (root mean square error of approximation = .00; comparative fit

index = 1.00) and explained 29% and 43% of the variance in adolescents' posttreatment AOD use and AOD-related problems, respectively. In addition, Chi-Squared Automatic Interaction Detection analysis was used to derive a target level of A-CRA exposure, which was found to be significantly related to being in recovery at follow-up. The current findings are useful, as little research to date has identified significant mediators of the relationship between retention and treatment outcomes or identified target thresholds of treatment exposure.

Adapting Washington Circle performance measures for public sector substance abuse treatment systems

Deborah W. Garnick, Margaret T. Lee, Constance M. Horgan, Andrea Acevedo, and Washington Circle Public Sector Workgroup

The Washington Circle, a group focused on developing and disseminating performance measures for substance abuse services, developed three such measures for private health plans. In this article, we explore whether these measures are appropriate for meeting measurement goals in the public sector and feasible to calculate in the public sector using data collected for administrative purposes by state and local substance abuse and/or mental health agencies. Working collaboratively, 12 states specified revised measures and 6 states pilot tested them. Two measures were retained from the original specifications: initiation of treatment and treatment engagement. Additional measures were focused on continuity of care after assessment, detoxification, residential or inpatient care. These data demonstrate that state agencies can calculate performance measures from routinely available information and that there is wide variability in these indicators. Ongoing research is needed to examine the reasons for these results, which might include lack of patient interest or commitment, need for quality improvement efforts, or financial issues.

Do drug treatment services predict reunification outcomes of mothers and their children in child welfare?

Christine E. Grella, Barbara Needell, Yifei Shi, and Yih-Ing Hser

The effect of mothers' participation in substance abuse treatment on reunification with their children who are in out-of-home care is an important policy issue. This article examines the predictors of child reunification among mothers who participated in a statewide treatment outcome study. Data were integrated from multiple sources to determine the contributions of characteristics of mothers ($n = 1,115$), their children ($n = 2,299$), and treatment programs ($n = 43$) on reunification outcomes. Hierarchical linear modeling was used to determine the fixed and random effects of mother, child, and program characteristics. Mothers with more employment and psychiatric problems were less likely to be reunified with their children; completion of 90 or more days in treatment approximately doubled their likelihood of reunification. Mothers who were treated in programs providing a "high" level of family-related or education/employment services were approximately twice as likely to reunify with their children as those who were treated in programs with "low" levels of these services.

Measuring the quality of substance use disorder treatment: Evaluating the validity of the Department of Veterans Affairs continuity of care performance measure

Alex H.S. Harris, Keith Humphreys, Thomas Bowe, Daniel R. Kivlahan, and John W. Finney

This study examined the patient- and facility-level associations between the continuity of care performance measure adopted by the Department of Veterans Affairs (VA) and improvements in self-administered Addiction Severity Index (ASI) composites and other indicators of problematic substance use. Up to 50 patients from each of a nationally representative sample of 109 VA substance use disorder (SUD) treatment programs at 73 VA facilities were assessed at intake and posttreatment. The continuity of care performance measure specifies that patients should receive at least two SUD outpatient visits in each of the three consecutive 30-day periods after they qualify as new SUD patients. In analyses adjusting for baseline characteristics, meeting the continuity of care performance measure was not associated with patient-level improvements in the ASI alcohol or drug composites, days of alcohol intoxication, or days of substance-related problems. Facility-level rates of continuity of care were negatively associated with improvements in ASI alcohol and drug composites. The

continuity of care performance measure derived from prior patient-level evidence did not discriminate facility-level performance as predicted. Translating research into process-of-care quality measures requires postconstruction validation.

Predictors of opiate agonist treatment retention among injection drug users referred from a needle exchange program

Jennifer R. Havens, Carl A. Latkin, Minya Pu, Llewellyn J. Cornelius, David Bishai, Steve Huettner, Charles Rapp, Erin P. Ricketts, Jacqueline J. Lloyd, and Steffanie A. Strathdee

The aim of this study was to examine the effect of a case management intervention on retention in opiate agonist therapy among injection drug users (IDUs) referred from a needle exchange program (NEP). A randomized trial of a strengths-based case management intervention versus passive referral (control) was conducted among NEP attendees requesting and receiving referrals to subsidized, publicly funded opiate agonist treatment programs in Baltimore, MD. Multivariable Cox regression models were used to identify predictors of treatment retention using an ecological model approach, taking into account factors at the individual, social, and environmental level. Of 245 IDUs, 127 (51.8%) entered opiate agonist treatment, for whom median retention was 7.9 months. The intervention was not associated with longer retention ($p = .91$). Individual-level factors predictive of shorter retention included being employed and greater levels of psychiatric distress. Participants who had prior treatment experience and multiple treatment requests were retained significantly longer. Social factors adversely affecting treatment retention included unstable housing and buying drugs for others. Living further away from the treatment site was an environmental barrier that negatively affected treatment retention. **Conclusions:** Multilevel interventions that address individual, social, and environmental factors are necessary to improve substance abuse treatment retention and treatment outcomes among IDUs referred from NEP.

Relating counselor attributes to client engagement in England

Dwayne Simpson, Grace A. Rowan-Szal, George W. Joe, David Best, Ed Day, and Angela Campbell

Client functioning and treatment engagement were examined in relation to staff attributes and organizational climate across a diverse sample of drug treatment and outreach programs in England. Self-rating assessments were obtained from 1,539 clients and 439 counselors representing 44 programs, and results were interpreted using comparable data from studies of treatment programs in the United States. Client scores on treatment participation and counseling rapport in England were directly related to their higher levels of motivation and psychosocial functioning, as well as to staff ratings of professional attributes and program atmosphere. By linking records from English clients with their counselors in each program, findings also indicate these relationships are rooted in the personal interactions between clients and their counselor. Standardized assessments of treatment structure, process, and performance used across therapeutic settings and national boundaries show there is generalizability in the pattern of clinical dynamics, including the relationships between organizational functioning and quality of services.

The important people drug and alcohol interview: Psychometric properties, predictive validity, and implications for treatment

William H. Zywiak, Charles J. Neighbors, Rosemarie A. Martin, Jennifer E. Johnson, Cheryl A. Eaton, and Damaris J. Rohsenow

Research with the Important People instrument has shown that social support for abstinence is related to alcohol treatment outcomes, but less work has been done on the role of network support in drug treatment outcomes. A drug and alcohol version of the Important People instrument (IPDA) was developed and administered to 141 patients in residential treatment for cocaine dependence. Three components were found, all with acceptable internal consistency: (a) substance involvement of the network, (b) general/treatment support, and (c) support for abstinence. These components and three fundamental network characteristics (size of daily network, size of network, and importance of the most important people) were investigated as correlates of pretreatment and posttreatment alcohol and drug use. The general/treatment support component and network size were inversely related to pretreatment days using drugs, whereas network substance involvement positively correlated with pretreatment drinking frequency. Size of the daily network predicted less drinking, less drug use, and less problem severity during the 6 months after treatment, whereas general/treatment support and support for abstinence did not predict outcome. Network substance involvement decreased for patients who stayed abstinent but not for those who later relapsed. Results suggest that increasing the number of people the patient sees daily while replacing substance-involved with abstinent-supportive people may improve treatment outcomes. Treatment programs may use the IPDA to identify clients most likely to benefit from changes in their social networks.

BRIEF ARTICLES

Assessing the effectiveness of an Internet-based videoconferencing platform for delivering intensified substance abuse counseling

Van L. King, Kenneth B. Stoller, Michael Kidorf, Kori Kindbom, Steven Hursh, Thomas Brady, and Robert K. Brooner

Enhanced schedules of counseling can improve response to routine opioid-agonist treatment, although it is associated with increased time demands that enhance patient resistance and nonadherence. Internet-based counseling can reduce these concerns by allowing patients to participate from home. This study assesses treatment satisfaction and response to Internet-based (CRC Health Group's e-Getgoing) group counseling for partial responders to methadone maintenance treatment. Patients testing positive for an illicit substance ($n = 37$) were randomly assigned to e-Getgoing or onsite group counseling and followed for 6 weeks. Patients in both conditions responded favorably to intensified treatment by achieving at least 2 consecutive weeks of abstinence and 100% attendance to return to less-intensive care (e-Getgoing: 70% vs. routine: 71%, *ns*). Treatment satisfaction was good and comparable across conditions. E-Getgoing patients expressed a preference for the Internet-based service, reporting convenience and increased confidentiality as major reasons. Integrating Internet-based group counseling with on-site treatment services could help expand the continuum of care in methadone maintenance clinics.

Are cannabis users who participate in a randomized clinical trial different from other treatment seekers?

Amie R. Frewen, Andrew J. Baillie, and Mark E. Montebello

Randomized controlled trials (RCTs) provide the most convincing evidence for clinical questions concerning the efficacy of interventions. When participants in RCTs are characteristically different to those in usual clinical practice, it may be difficult to generalize findings. This study compares profiles taken from a centralized intake process for those presenting with cannabis as their main drug, which were then separated into three categories, (a) those who were offered a specialist assessment for cannabis dependence over the phone but did not attend their appointment, (b) those who presented for their initial appointment, and c) those attending and subsequently recruited into an RCT. To explore whether issues such as severity of cannabis use and co-occurring disorders acted as a barrier to

attending treatment or to inclusion in an RCT, we examined basic triage information. Results indicated that there were no statistically significant differences on selected characteristics between groups, suggesting that RCT participants were representative of treatment seekers, and that the filtering that occurs between those who make phone contact with professional services and those who present to treatment are not necessarily due to presence of patient characteristics such as coexisting medical, psychological issues, or severity of their cannabis use.

Auricular acupuncture as an adjunct to opiate detoxification treatment: Effects on withdrawal symptoms

Jennifer Bearn, Anshul Swami, Duncan Stewart, Catherine Atnas, Lisa Giotto, and Michael Gossop

It was hypothesized that auricular acupuncture would lead to reduced severity of opiate withdrawal symptoms and craving when provided as an adjunct to methadone detoxification. The study used a randomized, placebo-controlled study design. The sample consisted of 83 drug misusers who met *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* criteria for opiate dependence. Daily measures of withdrawal severity and craving were taken using the Short Opiate Withdrawal Scale and an eight-item craving questionnaire. Urine screening was used as an objective assessment of treatment adherence. The study hypothesis was not confirmed. Auricular acupuncture had no effect upon withdrawal severity or craving when provided as an adjunct to a standard methadone detoxification treatment. The results are consistent with the findings of other studies that failed to find any effect of acupuncture in the treatment of drug dependence. The failure to find any clinical gains from the adjunctive use of auricular acupuncture during detoxification from opiates raises concerns about the widespread acceptance of this intervention.