An interdisciplinary evidence-based review of interventions among persons with substance-use disorders was completed in 2001 as part of American Occupational Therapy Association’s (AOTA’s) Evidence-Based Literature Review Project (Lieberman & Scheer, 2002). Four effective interventions for adults and adolescents with substance use were identified, including brief interventions, cognitive behavioral therapy, motivational strategies, and 12-step programs. The research studies reviewed reported outcomes primarily related to reduction in alcohol and drug use. Occupational therapy interventions grounded in current evidence-based literature are suggested. Interventions are modified to include an occupational perspective leading to outcomes consistent with the Occupational Therapy Practice Framework (American Occupational Therapy Association [AOTA], 2002). Study findings propose research questions to encourage further investigation of the effectiveness of these best practice interventions.

program to help improve occupational performance. Additionally, persons who are habitual users of alcohol and drugs are more likely to experience unintentional injuries (Smith, Branas, & Miller, 1999), motor vehicle crashes (Zador, Krawchuk, & Voas, 2000), and violent aggressive behavior (Reiss & Roth, 1993–1994), resulting in the combined need for physical and alcohol and drug rehabilitation.

The functional and occupational consequences of primary or secondary substance-use disorders are varied. Regardless, the body does not function properly, body structures may be destroyed, and engagement in personal activities and participation in life situations are restricted (World Health Organization [WHO], 2001), and ultimately affect the individual’s quality of life. Collectively, the occupational patterns of many individuals with substance-use disorders affect “the health of towns, nations, cities, neighborhoods, and communities” (Clark, Wood, & Larson, 1998, p. 18). For example, the rate of driving under the influence of alcohol is estimated at 14.2% representing nearly 33.5 million persons (OAS, 2003). The impact drunk driving has on communities is complex; possible lives lost and resultant disability, unsafe mobility for citizens, and costs associated with incarceration, treatment, and public health initiatives can all be societal consequences impacting communities.

In 1997, AOTA published practice guidelines for occupational therapy interventions targeting persons with substance-use disorders (Stoffel & Moyers). Because these guidelines were primarily based on expert opinion, interventions targeting substance-use disorders need to be infused with evidence-based literature. One of the primary goals of this evidence-based literature review was to shift the discipline insularity that sometimes characterizes occupational therapy to the strategic examination of relevant research from other disciplines, such as medicine, psychology, or nursing. This reorientation was thought necessary to position the field to appropriately use findings from other disciplines. Consequently, the interdisciplinary research was appraised as to the utility of the research for occupational therapy practice. This appraisal mediated the problem of the lack of research within occupational therapy regarding effective interventions for persons with substance-use disorders. Interventions were defined as useful to occupational therapy practice when they had the potential for incorporating the view of humans as occupational beings. The intention was to select interventions shown to positively influence the person’s participation in the community and the person’s engagement in the occupations and activities necessary for role functioning, health, and quality of life (AOTA, 2002).

In addition to examining research from other disciplines, we suggested that occupational therapy researchers consider studying more explicitly how substance-use impacts a person’s occupational performance and how the therapeutic use of occupations and activities contributes to the prevention of and recovery from problem drinking and substance-use disorders. This research emphasis would broaden the narrow focus on abstinence, which is characteristic of most of the interdisciplinary research on substance-use disorders. Thus, the purpose of this article is to: (a) describe effective interventions from other disciplines as applied to adults and adolescents with substance-use disorders that improve outcomes consistent with the domain of occupational therapy, (b) use an occupational perspective to modify the interventions shown to be effective in order to facilitate engagement in activity and participation within the community, and (c) use findings from (a) and (b) to suggest research questions that would examine the effectiveness of the modified.

Methodology

Conceptually, the evidence-based literature review defined alcohol and drug use as occurring along a continuum of daily habit patterns and routines, ranging from absence of a habit pattern to a fully ingrained set of habitual behaviors (Stoffel & Moyers, 2001). Some substance-use habit patterns were defined as health promoting, such as when an individual takes prescribed or over-the-counter medications and herbal remedies according to direction, or uses alcohol or caffeine in a responsible way. Health-compromising habit patterns occur when an individual engages in heavy, problematic use of substances (which could include illicit as well as prescribed drugs), which may or may not lead to abuse or dependence. The literature review was intended to address only the health compromising substance-use habit patterns. Studies of interventions for children who had prenatal exposure to substances were excluded from the review. In summary, this evidence-based literature review consisted of studies describing effective interventions for adolescents and adults with substance-use disorders, problem drinking, and serious mental illness with a substance-use disorder (co-occurring diagnoses).

Searching the Literature

The interdisciplinary health literature was searched for articles published between 1990 through 2000, including psychology, medicine, nursing, social work, sociology, public health, and occupational therapy. The databases used were OT Search, MEDLINE, PsycINFO, CINAHL, and the Cochrane Library, a database of systematic evidence-based reviews (used to help us locate other primary sources). Key
search terms used to search the databases were substance-use disorders, substance abuse, substance dependence, alcoholism, and addictions. Advanced search terms used were alcohol AND dependence, addictions AND therapy, drug rehabilitation AND drug abuse, experimentation AND drug abuse, addiction AND substance abuse, and treatment AND substance abuse.

**Ranking the Literature**

As the result of the search of the selected databases, over 1,000 articles were identified. Articles were eliminated if the title indicated they were not research studies and were not studies of interventions. Abstracts of the remaining articles were reviewed, again eliminating any articles that upon further examination were not research studies, were not studies of interventions, or were studies of interventions that could not be modified with the occupational perspective, such as interventions involving medications to prevent relapse or to control withdrawal. Most of the occupational therapy articles found in the search were theoretical or descriptive of individual programs and could not be used to determine intervention efficacy or effectiveness so they were eliminated as well. Twenty of the remaining 32 research studies were primarily about four interventions including brief intervention, cognitive-behavioral therapy, motivational strategies, and 12-step programs (see Table 1). These 20 studies were selected for this evidence-based literature review as the other studies consisted of an array of several methods of which there was only one study per intervention method (e.g., case management, cognitive retraining, residential work therapy, family intervention, etc.).

The 20 studies were analyzed in terms of their quality using the schema developed for the AOTA Evidence-Based Practice Project (Trombly, Tickle-Degnen, Baker, Murphy, & Ma, 1999). As a part of that quality review process, each of the 20 studies was initially categorized into a specific level of evidence (I–IV) according to the type of research design. Another level of evidence including case studies, qualitative studies, and other descriptive studies was developed using the hierarchy proposed by Moore, McQuay, and Gray (1995) and was added to the original hierarchy as Level V (see Table 2). At present, the question of using qualitative and descriptive studies suggesting patterns and possibility as potential evidence is widely debated (Law & Philp, 2002; Patton, 2002; Tickle-Degnen & Bedell, 2003). Consequently in this evidence-based literature review, Level V studies were used only to inform us of useful areas for further investigation. The majority of the studies from

<table>
<thead>
<tr>
<th>Intervention Methods</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief interventions</td>
<td>A 5-minute to 1-hour session (sometimes several short sessions over time) where the focus is to investigate a potential problem and motivate the person to do something about their substance abuse. May include giving feedback about alcohol/drug intake, explanations of risks associated with excessive alcohol/drug use, benefits of drinking/using less, and advice on reducing substance use. The outcome of a brief intervention may be a natural, client-directed change, or the person seeks additional substance abuse treatment (Barry, 1999). Brief interventions may occur during a face-to-face visit, via phone calls, and/or may be facilitated through a workbook. Workbooks typically include worksheets on identification of drinking/drug cues, a drinking/drug use agreement, and a drinking/drug use diary.</td>
</tr>
<tr>
<td>Cognitive-behavioral therapy</td>
<td>Involves a combination of principles derived from behavioral and cognitive theories with emphasis on the interaction among the cognitive aspects of behavior involving attributions, appraisals, self-efficacy expectancies, and substance-related effect expectancies (Barry, 1999). Cognitive-behavioral therapy emphasizes the development of successful coping behaviors particularly needed for reducing the risk for relapse, with the goal being to change what a person thinks and does during a high-risk situation for substance abuse.</td>
</tr>
<tr>
<td>Motivational strategies</td>
<td>Includes motivational interviewing, decisional balancing, FRAMES and motivational enhancement therapy (MET). The emphasis for all motivational strategies is to identify the person’s readiness to change and enhance motivation to change, thereby influencing movement to the next stage of change. Based on the transtheoretical model of behavior change, the stages include precontemplation, contemplation, preparation, action, maintenance, and relapse (DiClemente &amp; Prochaska, 1985, 1998). Motivational interviewing is a way of being with a client that is client-centered and uses specific methods of communication to enhance the person’s intrinsic motivation to change, emphasizing highly empathic and nonconfrontational therapist style. Exploring and resolving ambivalence towards a key aspect of the intervention, where the client voices the arguments for change (Miller &amp; Rollnick, 2002). Decisional balance exercises are used to explore the pros and cons of drinking/using drugs in order to, when appropriate, tip the balance to arrive at the conclusion that it is in the individual’s best interest to abstain or cut down (Carey et al., 1998). FRAMES is an acronym for: feedback, responsibility, advice, menu, empathy and self-efficacy and has been used as a motivational strategy in brief interventions (Miller &amp; Sanchez, 1994). Motivational enhancement therapy (MET) is a stand-alone protocol aimed not only at getting the client to consider change, but strengthening the change process once the client has started to change (Project MATCH Research Group, 1998a).</td>
</tr>
<tr>
<td>12-Step treatment programs</td>
<td>Is consistent with the principles of 12-step self-help programs, such as Alcoholics Anonymous (AA) and Narcotics Anonymous (NA), to promote and sustain recovery. Identification as a recovering alcoholic/addict, peer support and fellowship, spirituality, and taking life “one day at a time” are all significant aspects of 12-step programs. Attendance at 12-step groups and developing a connection to a person who can serve as a sponsor are key recovery-oriented behaviors.</td>
</tr>
</tbody>
</table>
occupational therapy, remaining after the selection process, were ranked at Level V.

The ranking scheme (Trombly et al., 1999) was also modified to include meta-analytical studies as Level I studies if the meta-analysis consisted of only randomized controlled trials (RCTs). If the meta-analysis included nonrandomized trials, the study was ranked as a Level II study. A meta-analysis of studies from both levels was categorized at the lowest design level analyzed, or as a Level II meta-analysis.

Once the level of evidence was determined, the studies were additionally classified according to sample size (A or B), internal validity (1–3), and external validity (a–c). To illustrate, a Level IIA2a study was a nonrandomized controlled trial (non-RCT) or a meta-analysis of several non-RCTs; had a sample size of 20 or greater; possessed moderate internal validity because of some attempt to control for lack of randomization; and had high external validity because of the likelihood of the participants representing the population, as well as the likelihood of the intervention representing current practice.

Grade for Design

<table>
<thead>
<tr>
<th>Grade</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Randomized controlled trials (RCTs) using experimental designs with randomization to groups and repeated measure designs with randomization to sequence of treatments. Also includes meta-analyses that analyze only RCTs.</td>
</tr>
</tbody>
</table>
| II    | Non–RCT-2 group  
Two-group (treatments) comparisons;  
Repeated measures but with two conditions.  
Also includes meta-analyses that analyze non-RCT studies. |
| III   | Non-RCT-1 group  
One group pre & post  
Cohort, case control, cross-sectional designs |
| IV    | Single-subject design |
| V     | Narratives, case studies, qualitative designs, and expert opinion |

Grade for Sample Size

<table>
<thead>
<tr>
<th>Grade</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>n ≥ 20 per condition</td>
</tr>
<tr>
<td>B</td>
<td>n &lt; 20 per condition</td>
</tr>
</tbody>
</table>

Grade for Internal Validity

<table>
<thead>
<tr>
<th>Grade</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>High internal validity: no alternate explanation for outcomes.</td>
</tr>
<tr>
<td>2</td>
<td>Moderate internal validity: attempt to control for lack of randomization.</td>
</tr>
<tr>
<td>3</td>
<td>Low internal validity: two or more serious alternative explanations for outcome.</td>
</tr>
</tbody>
</table>

Grade for External Validity

<table>
<thead>
<tr>
<th>Grade</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>High external validity: S’s represent population–AND–treatments represent current practice.</td>
</tr>
<tr>
<td>b</td>
<td>Moderate external validity: between high &amp; low.</td>
</tr>
<tr>
<td>c</td>
<td>Low external validity: heterogeneous sample without being able to understand whether effects were similar for all diagnoses–OR–treatment does not represent current practice.</td>
</tr>
</tbody>
</table>

Adapted from the original table developed by Trombly, Tickle-Degnen, Baker, Murphy, and Ma (1999).

Results

Refer to Table 1 to review how the intervention methods are described in the literature. The findings are organized according to outcomes of interest to occupational therapists, including cognitive performance; health maintenance; work, play, and leisure; psychosocial skills; relationships and family participation; and self-help group skills. An attempt was made to accurately report the statistical results including the test statistic and the probability value; however, in some cases only the probability values are reported due to incomplete information in the research article.

Cognitive Performance Outcomes

In this literature review, cognitive performance outcomes involved changes in the content of thought or involved development of new cognitions. For instance, expectancies are defined as beliefs about the negative consequences related to substance use and as beliefs about the benefits of abstinence or reduced substance use (Barry, 1999). Also, self-efficacy is defined as believing in one’s ability to refrain from substance use in high-risk situations (Barry). Cognitive performance outcomes also included changes in the thinking process (e.g., decisional balancing or the weighing of the pros and cons of substance use) (Velicer, DiClemente,
Prochaska, & Brandenburg, 1985). The researchers in these studies were examining the effectiveness of interventions in increasing the cognitions and improving the cognitive processes supportive of abstinence.

Saunders, Wilkinson, and Phillips (1995—Level IA2a) demonstrated the effectiveness of using motivational intervention strategies to enhance positive expectancy, or the perception of the consequences associated with abstinence or reduced substance use as being desirable. Persons attending a methadone clinic were randomly assigned to either a motivational (n = 57) or an educational group (n = 65). Positive expectations for abstinence and contemplation of making changes in habitual patterns of use were compared at 6 months’ follow-up. The motivational group demonstrated more of these cognitions found to be supportive of abstinence. Persons in the motivational group reported fewer opiate related problems (F = 4.3, p = .04), a longer compliance with the methadone program (F = 7.9, p = .03), and a lengthier time before relapse (Wilcoxon X² = 7.55, p = .006), thus demonstrating the importance of these cognitions for abstinence.

Finney, Noyes, Coutts, and Moos (1998—Level IIA2a) examined what might be considered the cognitive mediators of abstinence, or the way in which 12-step treatment programs and cognitive-behavioral interventions influenced the outcome of abstinence. In a large study (n = 3,228 men), investigators found when using paired t tests in comparing pretest scores with posttest scores that 12-step treatment programs and cognitive-behavioral intervention significantly (p < .001) affected positive expectancy, sense of self-efficacy, and general coping skills; whereas, the participants in the 12-step programs had better outcomes related to substance-specific coping (F = 67.98, p < .001).

A descriptive relapse prevention study (n = 60) (Allsop, Saunders, & Phillips, 2000—Level VA2a) examined self-efficacy as the mediating variable for decreasing substance use. In other words, relapse prevention involving motivational interviewing and cognitive-behavioral strategies, which included problem-solving techniques, applied role play, and homework activities, was associated with self-efficacy. Self-efficacy was predictive of decreased alcohol use at various follow-up time periods (for every 10-point increase in self-efficacy scores there was an 8% increase in length of time to initial lapse).

Another descriptive study analyzed narrative data collected from five focus groups of persons with schizophrenia (n = 21) (Carey, Punnine, Maisto, Carey, & Barnes, 1999—Level VA3a) and found that participants who also have a substance-use disorder could engage in decisional balancing, a type of cognitive process. This study suggests that persons who are often limited in capacity for abstract thinking, commonly viewed as a necessary precursor for decisional balancing activities, can produce a variety of pros and cons for using substances. The study also suggests that persons with co-occurring diagnoses of schizophrenia and substance-use disorders can benefit from decisional balancing strategies to develop pros and cons supportive of abstinence.

According to these studies, occupational therapists could consider using a combination of motivational strategies, cognitive-behavioral approaches, and 12-step principles in helping clients develop the kinds of cognitive performance outcomes needed to achieve and maintain abstinence. Occupational therapists and occupational therapy assistants commonly employ techniques consistent with these theories, such as applying coping skills during engagement in occupations (Stoffel, 1992), or designing activity experiences that are consistent with the 12-step principles (Moyers, 1997). Occupational therapists use such strategies to change a client’s attitudes and beliefs that one can successfully engage in activities while using substances to one of associating expectations of successful occupational performance only with abstinence.

**Health Maintenance Outcomes**

Studies that examined reduction in alcohol or drug use were classified as interventions targeting health maintenance. The interventions included in this review were effective in decreasing substance use as measured by quantity and frequency questions, days abstinent, number of days drinking or bingeing, blood alcohol concentrations, organ function studies, or toxicology screens.

**Brief Interventions**

The brief intervention studies selected were ranked at Levels I, II, and V. Together these studies generally indicated brief interventions to be effective in reducing alcohol use. The meta-analysis of 12 RCTs that measured outcomes at 6- and 12-month follow-up (Wilk, Jensen, & Havighurst, 1997—Level IA1a) determined that heavy drinkers (categorized as persons diagnosed with alcohol abuse, alcohol dependence, or heavy drinking) who received brief intervention were twice (Odds Ratio = 1.95; 95% CI = 1.66 to 2.30) as likely to moderate or reduce their drinking when compared to heavy drinkers who received no intervention. The meta-analysis of seven RCTs (Poikolainen, 1999—Level IA1b) compared the outcomes of very brief intervention (5 to 20 minutes) to extended brief interventions, which Poikolainen defined simply as several visits. The results of the meta-analysis indicated that extended brief interventions were most effective among women (pooled effect estimate of change in alcohol intake was –51 grams of
alcohol per week [95% CI = –74 to –29]). The gender-related findings of the meta-analysis occurred because data for men combined from the seven studies did not meet the criteria for statistical homogeneity, whereas data for women did. Lack of homogeneity in the data indicated that among the studies in the meta-analysis, there were large differences in the way extended brief interventions were designed. Very brief interventions were determined to be ineffective for both men and women.

Fleming, Barry, Manwell, Johnson, and London (1997—Level IA1a) examined the efficacy of brief physician advice in reducing alcohol use and health care utilization of problem drinkers, defined in the study as men who drank more than 14 drinks a week and women who drank more than 11 drinks per week (n = 482 men and 292 women). The sample was randomized into a control group (n = 382), where study participants received a health booklet on general health issues, and an intervention group (brief intervention) (n = 392), where study participants received a workbook, two 15-minute visits with the physician, and a telephone call from the nurse 2 weeks after each physician visit. The workbook contained feedback exercises where study participants determined whether their quantity and frequency of drinking was more or less than those considered to have nonproblematic drinking. In addition to feedback, the workbook also included a review of the prevalence of problem drinking in the United States, a list of the adverse effects of alcohol, a worksheet on drinking cues, a drinking agreement in the form of a prescription, and drinking diary cards. At 12-month follow-up, there were significant differences between the intervention group and the control group in terms of reductions in alcohol use (t = 4.33, p < .001), episodes of binge drinking (t = 2.81, p < .001), and frequency of excessive drinking (t = 4.53, p < .001). Additionally, there was a significant relationship between study group assignment and length of hospitalizations that in the intervention group had decreased hospitalizations (X² = 89.53, p < .001).

The Level I evidence suggests that the use of brief interventions is an effective strategy for improving health maintenance. Because the exact methods of the brief intervention approach varied among studies, further research is needed to determine “which elements and methods of interventions are effective and under which conditions” (Poikolainen, 1999, p. 508).

Using an exploratory hierarchical regression analysis methodology, Davila, Sanchez-Craig, and Wilkinson (2000—Level VA3a) examined assignment of persons with alcohol abuse (n = 155) to two brief interventions as predictors of decreased alcohol consumption. One study assignment involved participants receiving a mailed self-help manual to use independently. The second study assignment involved participants receiving face-to-face contact with a therapist in the form of a 30-minute assessment interview and then receiving a self-help manual in the mail. Phone interviews determined alcohol use of study participants at 3-month follow-up and at 12-month follow-up. Results indicated that only the group assignment of receiving the mailed self-help manual entered into the regression as a predictor of decreased alcohol consumption at 12-month follow-up. Conversely at 3-month follow-up, only the group who received brief intervention involving therapist contact and a self-help manual was predictive. The role of therapist contact as a component of brief intervention thus requires further investigation especially as that role changes over time.

Watson (1999—Level IIA3a) studied hospitalized persons (n = 150) who were being treated for a variety of health conditions and who were identified as problem drinkers (females = 38 and men = 112). One group (n = 37) received health education literature, another group (n = 34) received brief advice from a health professional, another group (n = 32) received both the literature and the brief advice, and a final group (n = 47) received no intervention. All groups improved (p = .001) and there were no differences in alcohol use for each type of brief intervention as well as for the no intervention group. Watson's findings were inconclusive about the effectiveness of brief interventions in reducing alcohol consumption; however, this study does not strongly challenge the conclusions of the three IA studies. The screening used in Watson's study to determine problem drinking may have acted like a brief intervention for the no-intervention group. The screening occurred when the participants were hospitalized. Thus, the participants may have recognized the need to change based on awareness created by the screening about the relationship between drinking and declining health status. Additionally, the attrition rate of 33% could have created a selection bias for retaining in the study those who were successful in reducing drinking.

It is important to note that Poikolainen (1999—Level IA1b) focused on excessive drinking and Wilk et al. (1997—Level IA1a) defined a general category of heavy drinking that may or may not have included persons with dependence. Therefore, deriving understanding of the impact of brief intervention on those with severe and chronic dependence from these two meta-analyses is limited.

Welte, Perry, Longabaugh, and Clifford (1998—Level IIA2a) compared brief intervention (providing factual information on risk from alcohol use and suggesting strategies for avoiding excessive drinking), with full intervention (persuading the person to accept formal treatment, clarifying the difference between the client’s current condition...
with his or her preferred condition in order to set improvement goals, making a referral for treatment, and following up. The findings suggested that persons with dependence might have fewer heavy drinking days after receipt of brief intervention \( (n = 377) \), but participants with dependence who received full intervention \( (n = 296) \) had more successful outcomes in terms of maintaining abstinence \( (p = .02) \).

Most of the studies in support of brief intervention tended to primarily include populations who were general hospital patients, who were general patients of physicians or of medical outpatient clinics, or who were recruited from the general population. This is important for occupational therapists and occupational therapy assistants to consider as these studies supported the effectiveness of brief interventions that are provided by a range of health care practitioners within many types of health care settings. Moyers and Stoffel (1999—Level VB2a) analyzed data from a case study and found that occupational therapists and occupational therapy assistants in many practice areas could provide brief interventions to address the substance abuse that may be interfering with the physical rehabilitation goals of their clients.

**Cognitive Behavioral Therapy Interventions**

Two IA studies (Graham, Annis, Brett, & Venesoen, 1996—Level IA1a; Project MATCH Research Group, 1998a—Level IA1a) and the meta-analysis of 26 studies (Irvin, Bowers, Dunn, & Wang, 1999—IIA2a) support the effectiveness of cognitive-behavioral strategies in decreasing use of alcohol and drugs. Graham et al. and Irvin et al. focused specifically on relapse prevention in reducing substance use.

Allsop et al. (2000—Level VA2a), as was described earlier, found that higher posttreatment self-efficacy in participants receiving relapse prevention was associated with a reduced risk of relapse at 12-month follow-up. Graham et al. (1996—Level IA1a) provided stronger support to the efficacy of cognitive behavioral interventions when comparing a structured relapse prevention approach as a part of an aftercare program following a month-long 12-step residential program (at site A, \( n = 91 \)) with relapse prevention as a part of an evening group counseling program (at site B, \( n = 101 \)). At both sites, clients with low to severe alcohol and drug problems were randomly assigned to either a group or individual method of delivering the relapse prevention. Outcomes were reduction in number of drinks per day and reduction in number of using days. There was no difference between individual and group methods of intervention delivery in terms of reduction of substance use. Outcomes were better for clients who received relapse prevention after completion of the 12-step program compared to clients who received relapse prevention in the evening group program that incorporated health recovery strategies (goal setting, anger management, and medical aspects of addictions) \( (F = 4.4, p < .05) \). The study found that group versus individual treatment can be weighed with the particular needs of the person seeking treatment, and that relapse prevention as an aftercare approach works best following a 12-step intervention program.

Using 26 studies, Irvin et al. (1999—Level IIA2a meta-analysis) also examined relapse prevention cognitive-behavioral strategies for persons using alcohol, cocaine, amphetamines, polysubstances, and tobacco \( (r = .14, 95\% CI = .10 to .17) \). Results indicated the general effectiveness of relapse prevention, particularly for persons with alcohol problems \( (r = .27, 95\% CI = .17 to .37, n = 5) \). There were no differences in effectiveness between inpatient and outpatient modes of intervention delivery. The treatment effect for relapse prevention decreased gradually at the 3-month \( (r = .19, 95\% CI = .02 to .35, n = 3) \), 6-month \( (r = .19, 95\% CI = .11 to .26, n = 13) \), and 12-month follow-up \( (r = .09, 95\% CI = .05 to .13, n = 11) \) points in comparison to immediately after intervention \( (r = .27, 95\% CI = .23 to .32, n = 10) \). This finding suggests a need for implementing and testing the effectiveness of periodic booster sessions.

The results from Project MATCH, a groundbreaking study (Level IA1a) \( (n = 1,726) \), have been analyzed in multiple articles (Project MATCH Research Group, 1997, 1998a, 1998b). The Project MATCH Research Group originally reported in 1997 their results regarding 10 different matching hypotheses based on client characteristics that predict differential responses of persons with substance-use disorders to three different interventions. Surprisingly, the results challenged the concept of patient–treatment matching, as only psychiatric severity out of the 10 matching attributes consistently interacted with treatment type. We choose to focus, however, on their results reported in 1998a as this report compared the outcomes of the three interventions, which became the more significant findings.

Project MATCH consisted of two parallel but independent trials, where each trial involved randomization of participants with alcohol abuse and dependence to one of three types of interventions applied over 12 weeks. One trial \( (n = 952) \) occurred in five different aftercare sites in various geographic locations, and the other trial \( (n = 774) \) occurred in five different outpatient settings also in various geographic locations. Participants in each trial were randomized to one of three types of interventions, including cognitive-behavioral coping skills therapy (CBT) given weekly for a total of 12 sessions, motivational enhancement therapy (MET) involving sessions during the 1st, 2nd, 6th, and 12th weeks of intervention for a total of four sessions, and
Twelve-step facilitation therapy (TSF) also given weekly for a total of 12 sessions. After completing a training protocol and monitoring using videotape, occupational therapists, along with other professionals, for a total of 80 therapists were certified to administer one of the three manual-guided interventions.

Treatment effects were found in the outpatient trial where CBT ($p < .001$) and TSF ($p < .006$) interventions resulted in a higher frequency of abstinence days across the 12-week treatment phase compared to the MET intervention (Project MATCH Research Group, 1998a). However, these treatment effects were not maintained during the 1-year follow-up as all three interventions had similar effects on increasing the percent of days abstinent. Thus, for cases where reduction of alcohol consumption needs to occur rapidly, TSF and CBT may be the best choice of intervention compared to the MET intervention. Lack of effects in the aftercare trial of Project MATCH for any of the three interventions was possibly related to the fact that these clients started in the study after having attained abstinence. Because the goal for this client group was to demonstrate maintenance of abstinence, no change could be interpreted as a positive result.

Project MATCH is an important study because the researchers addressed critical methodological and design issues that often threaten the internal validity of randomized clinical trials. Increasing the strength of the internal validity typically decreases generalizability to clinical settings. For example, the amount of assessment (6 hours) in the study is not typical of the intake evaluation procedures for most clinical programs. Also, clients with comorbid drug dependencies (other than marijuana) were not accepted into the study, which precludes these MATCH findings from being applied to clients with abuse of multiple substances.

The findings of a study of a cognitive-behavioral intervention to prevent drug use in pregnant adolescent girls or those at risk for pregnancy ($n = 296$), (Palinkas, Atkins, Miller, & Ferreira, 1996—Level IA3a) did not support the use of cognitive-behavioral intervention. In fact, the study found increased drug use among the pregnant adolescent girls. At 3 months’ postintervention, girls in the intervention group were 2.9 times as likely to use marijuana compared to the control group. However, this study did not have participants from homogenous populations assigned to either the treatment or the control groups. Also because the social skills training combined participants who currently used substances with those who did not, it is possible that the participants who were not using substances viewed the other participants as role models, and learned to imitate their drug use. It is critical that prevention programs be designed to address the possibility that adolescent participants will intentionally learn how to use drugs or alcohol instead of incorporating the values related to not using substances.

The impact of coping skills training, a common cognitive-behavioral intervention, on decreasing alcohol use was investigated in two Level V studies (Davila et al., 2000—Level VA3a; Stoffel, 1992—Level VB3a). Davila et al. used a brief intervention that provided a workbook for clients to record cognitive-behavioral strategies, such as setting goals for drinking, keeping track of and pacing drinking, planning ahead to avoid heavy drinking, developing free time activities, and coping with problems without drinking. Given the research supporting the effectiveness of cognitive behavioral methods and the potential value and health benefits of developing free-time activities, Stoffel’s case study demonstrates how occupational therapists may use a cognitive-behavioral coping skills approach in helping clients with alcohol dependence decrease their alcohol use.

**Motivational Interventions**

Motivational strategies can be applied during two phases of the intervention process (Miller & Rollnick, 1991). In the early phase, motivational interventions are used as part of a brief intervention. In the later phase, motivational interventions are a component in longer therapeutic interventions where the goal is to sustain the client’s efforts toward achieving and maintaining recovery once the client decides to seek intervention.

The goal of the early phase of intervention is to build motivation for change through the use of motivational interviewing techniques. Two of the studies examining motivational strategies used motivational interviewing during this first phase of intervention. (See Table 1 for the description of the motivational interviewing process.) Handmaker, Miller, and Manicke (1999—Level IB2a) found that initial motivational interviewing was more effective in facilitating the decision of pregnant women participants ($n = 20$) to lower blood alcohol concentrations (Effect size, $\theta = .77$) than providing participants ($n = 22$) with a written handout that explained the risks to the unborn child when a pregnant woman uses alcohol (Effect size, $\theta = .46$). Moyers and Stoffel (1999—Level VB2a), in a case study, described the outcome of an occupational therapist in an orthopedic outpatient setting using motivational interviewing to help a client reduce alcohol use during a rehabilitation program designed to increase her function after hand surgery. Both studies suggest that motivational interviewing successfully encourages clients to change alcohol use behavior during situations where substance use poses specific threats to a person’s capacity for health maintenance, such as during pregnancy or during rehabilitation after surgery.
The goal of the later phase of intervention is to use motivational techniques to strengthen the client’s commitment to change once the client has begun the change process (Miller & Rollnick, 1991). Project MATCH (Project MATCH Research Group, 1998a—Level IA1a), which was described earlier, supported the use of motivational enhancement therapy (MET) in increasing the number of days abstinent, but qualified the use of MET as only appropriate for those who can tolerate more time in reaching this drinking reduction goal. This is in contrast to the two previous studies suggesting use of motivational interviewing during high-risk situations.

Saunders et al. (1995—Level IA2a) as described earlier, examined the efficacy of brief motivational intervention in helping clients of a methadone clinic stay in treatment. The intervention involved a combination of motivational intervention strategies including comparing positive and negative aspects of substance use, describing in detail the negative consequences of using substances and rating concern for these consequences, examining the future in terms of the impact of continued substance use or of the impact of abstinence, and completing a workbook. These motivational intervention strategies in comparison to an education control procedure facilitated the client’s compliance with the methadone maintenance program.

Motivational strategies have been found effective for reducing both alcohol and drug use, unlike brief intervention, where most of the studies have examined only alcohol use. These motivational strategies are not only effective in facilitating a client’s decision to seek treatment for the substance-used disorder, but are also an important adjunct to other intervention methods when client motivation to continue treatment may be waning.

Twelve-Step Interventions. Twelve-step interventions designed to promote recovery from alcohol abuse and dependence include participation in both Alcoholics Anonymous (AA) and associated AA-related activities as well as include participation in other interventions that use a 12-step treatment approach, such as, 12-step facilitation (see Table 1). Occupational therapists who have studied the effectiveness of occupational therapy interventions that incorporate the philosophy and techniques of AA as a path to reinforce and sustain the recovery process (Lindsay, 1983; Moyers, 1997) will be interested in the results of the Project MATCH study (Project MATCH Research Group, 1998a—Level IA1a) on this topic. The Project MATCH study found that a 12-step facilitation approach is effective in producing health maintenance that can be sustained over a 2-year period.

Ouimette, Moos, and Finney (1998—Level IIIA3a) examined the outcomes of male patients in 15 Veterans Administration inpatient substance abuse programs: 51% with both alcohol and drug dependence, 35% with alcohol dependence, and 14% with drug dependence. In addition, 36% of the participants described above had a co-occurring psychiatric diagnosis. The purpose of the study was to examine the effectiveness of aftercare among those patients self-selecting aftercare from one of several methods versus selecting no aftercare. Aftercare methods were: outpatient mental health treatment (n = 533); 12-step group attendance at AA, NA (narcotics anonymous), or CA (cocaine anonymous) meetings (n = 284); outpatient mental health treatment combined with 12-step group attendance (n = 714); and no aftercare (n = 374). Researchers determined that there was a significant difference in abstinence among the four aftercare groups (χ² = 248.05, p < .006), where participants received the best benefit when attending outpatient mental health treatment combined with 12-step group attendance (p < .006). Patients who attended only self-help groups did better than the patients who attended only outpatient mental health treatment (p < .006). Patients who did not attend any aftercare programming had the poorest outcomes in terms of abstinence. The question remains whether exclusion of persons with co-occurring diagnoses from the study would still result in better outcomes associated with both self-help group attendance and outpatient mental health treatment.

The studies that examined 12-step treatment and 12-step self-help group attendance support the rationale for occupational therapy practitioners to include 12-step principles as a component of their interventions that target improved occupational performance. Additionally, it is important for occupational therapists and occupational therapy assistants to promote self-help group involvement as a follow-up strategy not only for persons with alcohol and drug dependence, but also for those persons who have a co-occurring psychiatric diagnosis.

Work, Play, and Leisure Outcomes

Although of prime interest to occupational therapists and occupational therapy assistants, little evidence was found that substantiates effectiveness of interventions in improving the performance areas of work, play, and leisure. Not only were few studies found that directly measured outcomes of work, play, and leisure, but when they did, the studies only found weak trends showing that interventions may have an influence on engagement in daily activities. Also, the studies measuring these outcomes were mostly at Level V, making it difficult to come to a clear conclusion or recommendation. Ouimette et al. (1998—Level IIIA3a), a study described previously, compared several aftercare interventions and found that there were no significant differences...
in their impact on employment status. However, clients who were not participants in any aftercare group were more likely than those who received aftercare to be unemployed.

Stoffel (1992—Level VB3a) as previously indicated, described an occupational therapist using a coping skills cognitive-behavioral approach to help a client with alcohol dependence return to work and find leisure pursuits to replace time spent in past drinking. In another occupational therapy case report (Moyers & Stoffel, 1999—Level VB3a), researchers used a motivational interviewing and FRAMES approach (see Table 1 for a description) to help a client decide to seek treatment for alcohol dependence. As a result of seeking and receiving intervention, this client was able to actively participate in her upper-extremity rehabilitation program and return to work in a job that was consistent with her remaining physical abilities and values.

Similarly, O’Rourke (1990—Level VB3a) presented an occupational therapy case study of an individual with human immunodeficiency virus (HIV) infection and intravenous drug abuse who had greater leisure activity participation during receipt of intervention, and who developed a plan for implementing a balanced schedule of activities postdischarge that included AA and NA meeting attendance. Because this study described only the outcomes achieved at the time of discharge, there was a lack of information about whether the client actually followed the activity schedule on his own postdischarge from treatment.

Understanding the linkages between reductions in alcohol or substance use with improvements in occupational performance, such as work and recreational pursuits of choice, is important for occupational therapists as they collaboratively plan interventions with their clients. Future research could examine more specifically the ways in which occupational performance is affected as drinking or using behaviors decrease. Also, the way in which improvements in occupational performance in work or in leisure help the individual achieve and maintain recovery is not well-understood. Investigations of this relationship will develop our understanding of the occupational perspective in influencing recovery, health, and quality of life.

Psychosocial Skill Outcomes. Psychosocial skills, such as anger management, coping, relapse prevention, and other skills needed for daily living in the community, were addressed by several studies at several levels of evidence. Graham et al. (1996—Level IA1a), as described previously, found that both types of relapse prevention intervention, group and individual, resulted in similar outcomes of decreased depression, aggressiveness, passiveness, and negative affect, and increased self-esteem, life satisfaction, assertiveness, and positive affect. A meta-analysis of 26 studies (Irvin et al., 1999—Level IIA2a), also as discussed previously, found that relapse prevention programs had greater effect on improving psychosocial adjustment than on reducing substance use ($r = .48$, 95% CI = .42 to .53).

Similarly, 91 clients with cocaine dependence who had problems with anger control were able to improve their ability to control anger between weeks 8 and 12 ($F = 18.11$, $p < .0001$) and to reduce associated negative affect during the same time period ($F = 21.9$, $p < .0001$) following participation in a 12-week anger management group involving cognitive-behavioral strategies (Reilly & Shopshire, 2000—Level IIIA3b). The clients sustained these skills for 3 months posttreatment intervention.

The two occupational therapy case studies discussed earlier involving a person who was HIV-positive and who abused drugs (O’Rourke, 1990—Level VB3a) and a person with alcohol dependence (Stoffel, 1992—VB3a) both suggest that receiving training in coping skills, such as challenging old drinking thoughts and replacing old thoughts with nondrinking thoughts or avoiding high-risk drinking environments, resulted in the client successfully learning these psychosocial skills, which could be important for maintaining recovery.

Findings from these studies can assist occupational therapy practitioners in designing interventions to target the development of psychosocial skills. Both group and individual relapse-prevention programs are equally effective in developing psychosocial skills (Graham et al., 1996—Level IA1a) and cognitive behavioral approaches seem to enhance psychosocial abilities (Irvin et al., 1999—Level IIA2a). Because occupational therapy practitioners are concerned with the occupational performance of persons in their respective environments, research could target the way in which psychosocial skill training can be generalized to multiple situations in a variety of contexts. The ability to sustain psychosocial skills over time also needs to be studied, exploring the efficacy of timely follow-up interventions to strengthen or modify developing skills.

Relationships and Family Participation Outcomes

Three studies had outcomes related to improving interpersonal relationships. Graham et al. (1996—Level IA1a), which was described previously, found that the clients who participated in relapse prevention groups versus clients who participated in individual relapse prevention sessions experienced greater social support from friends at 12-month follow-up ($F(1, 131) = 4.1$, $p < .05$). Persons with substance abuse and co-occurring diagnoses who attended both outpatient aftercare and self-help groups, and who were more involved in 12-step activities, had better 1-year outcomes related to establishing family and friends as resources for recovery ($p = .05$) (Ouimette et al., 1998—Level VA3a). A
Applying and Synthesizing the Evidence to the Practice of Occupational Therapy

The first section of this review concentrated on the specific results reported in the literature. After our careful analysis and review of the 20 studies, we attempted to distill clinical considerations that might serve as a guide to best practices for occupational therapy practitioners who work with people whose lives have been negatively impacted by substance use. These clinical considerations reflect both what is known and what remains unknown about these interventions. Understanding the limitations in what is known about an intervention should guide the occupational therapist’s discussions with clients in order for clients to collaborate in the selection of interventions most likely to meet their needs. We arrived at the clinical considerations based on the strongest evidence available for specific populations.

Law (2002) suggested that evidence-based practice occurs when a balance of the clinical expertise of the therapist and external clinical evidence results in a better way to practice. Tables 3–6 reflect both our expertise as occupational therapists who have worked in substance abuse settings as clinicians and researchers, and our synthesis of this evidence-based review. By highlighting the clinical considerations and exemplars of how the four approaches (brief interventions, cognitive behavioral therapy, motivational strategies, and 12-step programs) might be incorporated into an occupational perspective, we hope to stimulate “a better way to practice” occupational therapy.

Although the clinical considerations in Table 3 point out that very brief interventions do not produce change in alcohol consumption, these very brief interventions do appear to impact the person’s awareness of the possible need to change, and may move the person from precontemplation to contemplation, indicating a greater readiness to change. As the exemplars for brief intervention suggest, a part of gathering information from the client related to understanding their occupational routines should involve asking questions about alcohol or drug use and the impact on occupational performance and occupational choices. Such occupational profiles (AOTA, 2002) can raise awareness of both the client and the therapist as to whether there may be a need for a referral to an alcohol and drug professional. Providing brief interventions to address substance abuse that may be interfering with the physical rehabilitation goals has been suggested earlier (Moyers & Stoffel, 1999), which supports comprehensive care that occupational therapists can provide. For clients who have been active in pursuing alcohol or drug rehabilitation, the occupational therapist providing support and encouragement for the kind of lifestyle changes that help the person become a more active participant in full community life may also fit with a brief intervention approach.

Because of the strength of the evidence for the efficacy of brief intervention, ethical problems are created when the occupational therapist or the occupational therapy assistant do not develop skills in brief intervention. The issue is that harm is caused to the person when not using brief intervention. Thus, the occupational therapist or occupational therapy assistant has ignored the problem. Failing to address apparent or possible substance-use problems actually reinforces precontemplation and maintains the status quo of the client’s alcohol or drug using lifestyle, which could lead to disastrous consequences if left untreated.

Related to Table 4, cognitive-behavioral therapy is a useful tool when the client is ready to make a change and is coping-skills intervention was used successfully in occupational therapy that helped a client develop social contact with other individuals in recovery and improved communication with the client’s wife and children (Stoffel, 1992—Level VB3a).

Self-Help Group Skill Outcomes

This section of the review describes interventions used to improve the outcome of improved participation in self-help groups, contrasted to a previous section where 12-step group participation was the intervention used to improve the outcome of maintaining abstinence. The Project MATCH Research Group (1998a—Level IIA1a), previously, determined that treatment programs based on 12-step principles had greater impact than did cognitive-behavioral treatment on clients attending AA meetings (p < .001) and working the 12 steps of recovery (p < .001) according to the AA philosophy. However, in the occupational therapy case study (Moyers & Stoffel, 1999—Level VB3a), motivational interviewing facilitated the AA attendance of a client receiving occupational therapy services for upper-extremity rehabilitation after multiple hand surgeries.

It may seem obvious that interventions supporting the principles of 12-step self-help groups and requiring meeting attendance would lead to greater involvement postintervention in these self-help groups. However, treatment professionals often do not facilitate self-help group involvement other than occasionally encouraging attendance. Professionals, including occupational therapists, often view self-help groups as adjunctive to other therapeutic interventions rather than as an important primary intervention.

Applying and Synthesizing the Evidence to the Practice of Occupational Therapy

The first section of this review concentrated on the specific results reported in the literature. After our careful analysis and review of the 20 studies, we attempted to distill clinical considerations that might serve as a guide to best practices for occupational therapy practitioners who work with people whose lives have been negatively impacted by substance use. These clinical considerations reflect both what is known and what remains unknown about these interventions. Understanding the limitations in what is known about an intervention should guide the occupational therapist’s discussions with clients in order for clients to collaborate in the selection of interventions most likely to meet their needs. We arrived at the clinical considerations based on the strongest evidence available for specific populations.

Law (2002) suggested that evidence-based practice occurs when a balance of the clinical expertise of the therapist and external clinical evidence results in a better way to practice. Tables 3–6 reflect both our expertise as occupational therapists who have worked in substance abuse settings as clinicians and researchers, and our synthesis of this evidence-based review. By highlighting the clinical considerations and exemplars of how the four approaches (brief interventions, cognitive behavioral therapy, motivational strategies, and 12-step programs) might be incorporated into an occupational perspective, we hope to stimulate “a better way to practice” occupational therapy.

Although the clinical considerations in Table 3 point out that very brief interventions do not produce change in alcohol consumption, these very brief interventions do appear to impact the person’s awareness of the possible need to change, and may move the person from precontemplation to contemplation, indicating a greater readiness to change. As the exemplars for brief intervention suggest, a part of gathering information from the client related to understanding their occupational routines should involve asking questions about alcohol or drug use and the impact on occupational performance and occupational choices. Such occupational profiles (AOTA, 2002) can raise awareness of both the client and the therapist as to whether there may be a need for a referral to an alcohol and drug professional. Providing brief interventions to address substance abuse that may be interfering with the physical rehabilitation goals has been suggested earlier (Moyers & Stoffel, 1999), which supports comprehensive care that occupational therapists can provide. For clients who have been active in pursuing alcohol or drug rehabilitation, the occupational therapist providing support and encouragement for the kind of lifestyle changes that help the person become a more active participant in full community life may also fit with a brief intervention approach.

Because of the strength of the evidence for the efficacy of brief intervention, ethical problems are created when the occupational therapist or the occupational therapy assistant do not develop skills in brief intervention. The issue is that harm is caused to the person when not using brief intervention. Thus, the occupational therapist or occupational therapy assistant has ignored the problem. Failing to address apparent or possible substance-use problems actually reinforces precontemplation and maintains the status quo of the client’s alcohol or drug using lifestyle, which could lead to disastrous consequences if left untreated.

Related to Table 4, cognitive-behavioral therapy is a useful tool when the client is ready to make a change and is coping-skills intervention was used successfully in occupational therapy that helped a client develop social contact with other individuals in recovery and improved communication with the client’s wife and children (Stoffel, 1992—Level VB3a).
motivated to build the skills that will support the change process. Cognitive capacity and the person’s typical occupational environments can impact skill acquisition. The client identifies thoughts, feelings, actions, and antecedents to high-risk drinking or drug-using situations so that the therapist can help the client figure out choices and think through the possible consequences of these choices. Building self-efficacy for successfully cutting down or eliminating unhealthy use of substances is an outcome that supports a return to healthy occupational engagement in valued occupational roles.

Motivational strategies (see Table 5) have a place both in initiating a change process, and in helping to maintain needed changes in occupational routines. Occupational therapists select particular motivational strategies based on the client’s readiness to change. These strategies promote the client’s self-reflection, planning, and action and support the natural change process of a person taking responsibility for his or her own state of health. For many persons who work to change their alcohol and drug using lifestyle, issues of relapse are commonly experienced. Helping to raise the self-motivational attitudes needed to maintain the changes and avoid the negative impact of a return to drinking or drug use are important ways that an occupational therapist can impact the longer term recovery issues for a person with a substance-use disorder.

Twelve-step self-help groups are readily accessible in most communities. The client can participate in these groups and use principles of these groups to both practically and spiritually support lifestyle change (see Table 6). Occupational therapists and occupational therapy assistants who work with clients who are in need of new social networks and relationships that support the client’s goal of abstinence and spiritual recovery ought to help the person make connections with self-help groups. For many, “shopping around” to find a variety of meeting types (12-step meetings, open or closed meetings, or workshops) so as to find the “just right challenge” given the aspect of recovery on which the person is working or seeking, is an important but daunting process. The occupational therapist and occupational therapy assistant can serve as a coach and facilitator for helping clients and their families seek the potential benefits that self-help groups have to offer. In addition, the occupational therapist, as outlined in the exemplars found

Table 3. Brief Intervention Clinical Considerations, Occupational Therapy Application Exemplars, and Research Questions

<table>
<thead>
<tr>
<th>Brief Intervention Clinical Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Very brief interventions (one session less than 20 minutes) were not found to be effective in producing change in alcohol consumption in comparison to extended brief interventions of 1 hour in length over several sessions, which were found effective (Poikolainen, 1999).</td>
</tr>
<tr>
<td>• Brief interventions seem to have a more consistent benefit for women than for men (Poikolainen, 1999).</td>
</tr>
<tr>
<td>• Research does not clearly identify the way in which brief interventions are best administered, that is the type of contact with the client (e.g., face-to-face, telephone, workbooks, mail). Research thus far is also unclear about whether outcomes are enhanced when multiple types of contacts are used or in discerning the combination of types of contacts that are most effective (Poikolainen, 1999).</td>
</tr>
<tr>
<td>• Brief intervention studies have primarily focused on reducing alcohol use and have not clearly discerned effectiveness in reducing use of other substances.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Brief Intervention Occupational Therapy Exemplars</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Occupational therapists should consider incorporating alcohol and drug-use quantity and frequency questions and other alcohol and drug screening questionnaires as a routine part of their occupational profiles. Occupational profiles are necessary for screening to determine the need for occupational therapy services to address key occupational performance problems that the client indicates need changing or need improvement (Moyers &amp; Stoffel, 1999, 2001).</td>
</tr>
<tr>
<td>• Occupational therapists must incorporate alcohol and drug-use screening questions as a part of their evaluation when working with clients who are at high risk for developing abuse or dependence because of symptoms of problem drinking or use. These risk factors in addition to including the physiological signs, also include incidences of Driving Under the Influence (DUIs); high worker absenteeism; physical violence; inability to get along with others; loss of memory behaviors reported by others; multiple fractures, falls, and other accidents; and tendency to exaggerate pain symptoms along with refusal to incorporate pain reduction strategies other than pain medication long past normal use of pain medications (Moyers &amp; Stoffel, 1999).</td>
</tr>
<tr>
<td>• When screening questions indicate possibility of the client having alcohol and drug-use problems, the occupational therapist should assess readiness for change and then should incorporate motivational interviewing targeted to that stage of change in order to motivate the client to seek further evaluation of the possible problem and to obtain necessary treatment when indicated (Moyers &amp; Stoffel, 1999, 2001).</td>
</tr>
<tr>
<td>• Occupational therapists and occupational therapy assistants should incorporate alcohol and drug related information within health and wellness brochures, manuals, and client workbooks that describe the impact of alcohol and misuse on occupational performance, should assist the client in self-evaluating his or her problem use and its impact on occupational performance, should motivate the desire to change the drug and alcohol using habits, should teach some basic coping skills with daily occupational performance hassles, and should provide a menu of evaluation and intervention alternatives (Moyers &amp; Stoffel, 1999, 2001).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Brief Intervention Occupational Therapy Research Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• In the situation where clients seek occupational therapy services for problems secondary to their substance use problem (e.g., physical rehabilitation), does use of brief interventions (feedback, information about risk, and brief advice) lead to an improved readiness for changing their substance using behavior? Will these clients who address their underlying substance use be more likely to achieve their occupational therapy goals?</td>
</tr>
<tr>
<td>• Do brief interventions lead to improved occupational performance as the result of increases in the number of days abstinent, or is there an additional need for occupational therapy interventions to target improved engagement in activities and occupations and increased participation in relevant contexts?</td>
</tr>
</tbody>
</table>
Cognitive behavioral therapy (CBT) is best used when the individual is ready for change and is open to development of new coping skills. Research suggests that CBT may be more effective in combination with motivational and 12-step strategies for those persons who have not made the decision to change (Project MATCH Research Group, 1998a).

Research has not clarified whether a specific cognitive capacity is a necessary precursor for successful implementation of CBT given that the functional analysis is dependent upon certain levels of insight and memory, and that the differential use of coping skills requires cognitive flexibility and problem solving.

CBT appears to be equally effective when delivered either in group or in individual formats (Graham et al., 1996).

CBT might be more effective for persons with alcohol and polysubstance use than for persons who smoke tobacco or use cocaine (Irvin, 1999; Barry, 1999).

CBT may not be the best method for primary prevention in high-risk adolescents (Palinkas et al., 1996).

Table 4. Cognitive Behavioral Therapy Clinical Considerations, Occupational Therapy Application Exemplars, and Research Questions

<table>
<thead>
<tr>
<th>Clinical Considerations</th>
<th>Occupational Therapy Exemplars</th>
<th>Research Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cognitive behavioral therapy (CBT) is best used when the individual is ready for change and is open to development of new coping skills. Research suggests that CBT may be more effective in combination with motivational and 12-step strategies for those persons who have not made the decision to change (Project MATCH Research Group, 1998a).</td>
<td>Occupational therapists should evaluate whether the client has the basic cognitive skills needed for cognitive-behavioral approaches (thinking and processing information, ability to communicate through words, attention span/concentration, memory, problem solving and judgment, and learning style) (Duncombe, 1998).</td>
<td>For clients who have long-term, chronic substance use resulting in possible cognitive impairments, what level of cognitive capacity is minimally required for successful implementation of CBT? How can occupational therapists modify CBT strategies to match the remaining cognitive capacity of persons who are long-time users of alcohol and drugs? Given that CBT is an effective strategy for relapse prevention, how can the focus be expanded to include improving occupational performance and role functioning? What is the relationship between role functioning supported by effective coping skills and maintenance of recovery?</td>
</tr>
<tr>
<td>Research has not clarified whether a specific cognitive capacity is a necessary precursor for successful implementation of CBT given that the functional analysis is dependent upon certain levels of insight and memory, and that the differential use of coping skills requires cognitive flexibility and problem solving.</td>
<td>Involvement of the client in daily activities provides the occupational therapist with the context to evaluate occupational performance ability and to examine the cognitive, affective, and behavioral problems associated with occupational performance dysfunction. Ways to reinforce and motivate change are determined. The occupational therapist varies the environments in which occupational performance is evaluated to determine issues related to the ability to generalize skills to multiple situations (Duncombe, 1998).</td>
<td></td>
</tr>
<tr>
<td>CBT appears to be equally effective when delivered either in group or in individual formats (Graham et al., 1996).</td>
<td>Occupational therapists help clients change their distorted thinking about alcohol and drug use, develop self-efficacy for remaining sober, contrast interpretation of daily life experiences as a sober individual with those interpretations that occur when using drugs and alcohol, and establish use of alternatives to substances for coping with daily occupational performance hassles (Stoffel, 1992).</td>
<td></td>
</tr>
<tr>
<td>CBT might be more effective for persons with alcohol and polysubstance use than for persons who smoke tobacco or use cocaine (Irvin, 1999; Barry, 1999).</td>
<td>Occupational therapists and occupational therapy assistants facilitate coping and relapse prevention skill development through role modeling, structured opportunities to rehearse skills, feedback on skill development, and application of skills to occupational performance. Problem solving while working through an activity is facilitated along with incorporating methods to generalize newly developed problem solving and coping skills to a range of occupational performance activities and contexts (Stoffel, 1992; Duncombe, 1998). Occupational therapists and occupational therapy assistants help the client develop support systems that will provide role models for effective coping, reinforce the client’s effective coping, provide feedback for changing ineffective coping, and support learning of new skills when in novel occupational performance situations. Occupational therapists and occupational therapy assistants help the client recognize and reinforce their own improved occupational behavior as a method of decreasing reliance on external support systems for maintenance of improved coping.</td>
<td></td>
</tr>
<tr>
<td>CBT may not be the best method for primary prevention in high-risk adolescents (Palinkas et al., 1996).</td>
<td>Occupational therapists help the client recognize and reinforce their own improved occupational behavior as a method of decreasing reliance on external support systems for maintenance of improved coping.</td>
<td></td>
</tr>
</tbody>
</table>

in Table 6, helps the client incorporate 12-step principles into his or her daily habits and routines.

Evidence-based practitioners who test out these clinical considerations and exemplars may contribute to future research that will make a difference in the lives of those coping with their substance-use disorder. Based on this review, we have developed some research questions that might stimulate further refinement of occupational therapy best practices.

Research Questions

From an occupational perspective, recovery is more than abstaining from the drug of choice. The literature of other disciplines overemphasizes abstinence as an outcome measure of treatment effectiveness. Recovery does not occur without reengagement in meaningful and satisfying occupations to support development of an identity disassociated from using drugs or alcohol. The modifications of the interventions discussed in this article are proposed as a way to stimulate research that measures long-term recovery in terms of participation in full community life.

Some possible research questions linked to each of the four approaches (brief intervention, cognitive-behavioral, motivational strategies, and 12-step programs) are suggested in each of the respective tables (see Tables 3–6). In addition, the following research questions reflect occupational therapy specific interventions:

- Does involvement in meaningful and therapeutic occupations support recovery in terms of improved occupational performance and increased number of days abstinent?
- Do new substance-free related activities and patterns of performance disrupt old substance using activities and patterns?
- Does a healthy pattern of performance in activities and occupations prevent substance use?
Table 5. Motivational Strategies Clinical Considerations, Occupational Therapy Application Exemplars and Research Questions

<table>
<thead>
<tr>
<th>Motivational Strategies Clinical Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Motivational strategies are timed to correspond with the stages of change where these strategies may be the primary intervention at the earlier stages and then may be more effective in later stages when combined with other interventions, such as CBT or 12-step programs (Project MATCH Research Group, 1998a).</td>
</tr>
<tr>
<td>• Motivational strategies may also be more effective for those individuals who can tolerate more time in reaching a drinking reduction goal (Project MATCH Research Group, 1998a).</td>
</tr>
<tr>
<td>• Motivational strategies have been shown to be effective both for persons with alcohol and drug abuse (Saunders et al, 1995; Project MATCH Research Group, 1998a).</td>
</tr>
<tr>
<td>• Motivational strategies may be offered as a brief intervention (2–4 sessions) or as a brief therapy (approximately 4 sessions over 3 months with telephone boosters) (Barry, 1999; Poikolainen, 1999).</td>
</tr>
<tr>
<td>• Persons with schizophrenia are able to engage in decisional balancing type intervention activities, an important component of motivational interventions (Carey et al., 1999).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Motivational Strategies Occupational Therapy Exemplars</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Occupational therapists evaluate the client's readiness for change in order to select motivational change strategies that match the client's stage.</td>
</tr>
<tr>
<td>• Precontemplation: little or no awareness of the relationship between alcohol and drug use and occupational performance problems.</td>
</tr>
<tr>
<td>• Contemplation: some awareness of this relationship but no attempts made to address the problem.</td>
</tr>
<tr>
<td>• Preparation: considering some possible ways of changing alcohol and drug use and for improving occupational performance, but has not implemented these strategies.</td>
</tr>
<tr>
<td>• Action: implementing some change strategies for reducing alcohol and drug use and for improving occupational performance.</td>
</tr>
<tr>
<td>• Maintenance: addressing how to maintain changes in alcohol and drug use patterns and how to maintain improved occupational performance.</td>
</tr>
<tr>
<td>• Relapse: returning to drug or alcohol use after a period of maintenance and occupational performance declines.</td>
</tr>
<tr>
<td>• Occupational therapists select and implement motivational interventions that match readiness for change at each stage.</td>
</tr>
<tr>
<td>• Precontemplation: strategies that help increase awareness of the drug and alcohol problem and its impact on occupational performance, such as self-assessment questionnaires, evaluation of occupational habits and dysfunctions, and giving feedback on this evaluation data using motivational interviewing techniques.</td>
</tr>
<tr>
<td>• Contemplation: decisional balance exercises help explore the pros and cons of using alcohol and drugs and the pros and cons of choosing not to use, with the ultimate goal of tipping the balance toward making changes in occupational performance and in drug and alcohol use.</td>
</tr>
<tr>
<td>• Preparation: exploration of a range of alternatives and community resources in order to obtain help in making changes in drug and alcohol use and in problem occupational performance areas.</td>
</tr>
<tr>
<td>• Action: CBT approaches and community support networks to learn new coping and relapse prevention skills and to support such skills needed for improved occupational performance.</td>
</tr>
<tr>
<td>• Maintenance: community support networks to augment newly learned coping and relapse prevention skills and to support improved occupational performance.</td>
</tr>
<tr>
<td>• Occupational therapists time motivational interventions periodically to prevent moving into relapse.</td>
</tr>
<tr>
<td>• Offer “booster” motivational sessions that facilitate reflection on the current situation even though the client reports no problems with alcohol or drug use or reports that occupational performance continues to improve.</td>
</tr>
<tr>
<td>• Offer “booster” motivational sessions that address major, unplanned life changes to support the application of previously learned coping strategies or the development of new strategies for these new problems that could disrupt occupational performance and recovery from abuse and dependence.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Motivational Strategies Occupational Therapy Research Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• For clients who are abusing substances, in what way do motivational strategies modify how a person makes changes in daily occupational routines and the way in which one participates in occupations? How can motivational strategies be used to “tip the balance” towards those occupational choices consistent with health and quality of life?</td>
</tr>
<tr>
<td>• Because effective use of motivational strategies depends upon a particular therapeutic style and way of interacting, what is the best way to train and supervise occupational therapists that are a part of an interdisciplinary intervention program for persons with substance-use disorders?</td>
</tr>
</tbody>
</table>

Summary

Limitations for this evidence-based review and commentary include the “hidden file drawer” problem where it is possible that significant studies might not have been accessed during the initial key word search of selected electronic databases. We recommend that future literature reviews specifically search for RCT studies that use interventions highlighted in this article. Search terms need to also be broadened to include the outcomes of interest to occupational therapy. Occupational therapists and occupational therapy assistants should place greater emphasis upon helping the person using alcohol or drugs engage, without the use of substances, in meaningful and healthy occupations and activities within a variety of contexts and practice settings. Occupational therapists will need to determine the ways in which the dynamic interaction among skills, performance patterns, contexts, body structure and body function characteristics, and demands of activity (AOTA, 2002) facilitate substance use, as well as how making changes in this interaction will lead to recovery and the prevention of substance-use disorders.

This review determined that there is a lack of occupational therapy studies that examine the efficacy and effectiveness of interventions for persons with substance-use disorders. Also, the interdisciplinary literature is addiction-
• Success in 12-step programs may be dependent upon the client having a history of using external supports to solve problems. However, people who lack a support system often benefit from the network of support offered by AA (Project MATCH Research Group, 1998a).
• Persons with less severe forms of alcohol and drug abuse may not accept abstinence as the only goal of intervention or may not accept the disease concept of substance abuse (Project MATCH Research Group, 1998b).
• Persons who are open to spirituality (meaning-seeking) and its importance for understanding the meaning of one’s life may respond better to a spiritual-based program (Project MATCH Research Group, 1997).
• There may be a minimal number of AA meetings one must initially attend in order to receive benefit (e.g., “90 meetings in 90 days”) (Quimette et al., 1998).
• There is lack of agreement about whether lay counselors with a personal history of substance use versus professionals who facilitate 12-step programming produce different outcomes (Project MATCH Research Group, 1998a).
• Persons in a 12-step program are more likely to attend more 12-step meetings beyond treatment (Finney et al., 1998).

12-Step Program Clinical Considerations

- Occupational therapists evaluate the ability of the client and family to incorporate the 12 steps of AA within a variety of occupations and occupational performance contexts.
- Occupational therapists plan interventions in conjunction with their clients and implement strategies that incorporate the identification of and development of an external support structure to decrease access to alcohol and alcohol-related activities.
- Occupational therapists, in conjunction with their clients, design interventions that illustrate the concepts inherent within the 12 steps and the tools of AA, provide a context for application of these concepts, and facilitate the development of the life-time personal and family habit patterns associated with recovery.
- Occupational therapists in conjunction with their clients select occupations as a part of the intervention plan to develop spirituality, or build meaning that leads to understanding of one’s place in the world (Moyers, 1997).
- Occupational therapists and occupational therapy assistants expect attendance in AA (Cocaine Anonymous or Narcotics Anonymous) and ALANON self-help groups as an integral aspect of the lifetime occupational habits necessary for recovery and as a method of developing a support system for recovery.
- Occupational therapists and occupational therapy assistants expect engagement in AA/ALANON-sponsored activities (alcohol and drug-free social and family events, workshops, conventions, etc.) as a part of the set of habits associated with recovery.

12-Step Program Occupational Therapy Exemplars

- Occupational therapists in conjunction with clients select occupations as a part of the intervention plan to develop spirituality, or build meaning that leads to understanding of one’s place in the world (Moyers, 1997).
- Occupational therapists and occupational therapy assistants expect attendance in AA (Cocaine Anonymous or Narcotics Anonymous) and ALANON self-help groups as an integral aspect of the lifetime occupational habits necessary for recovery and as a method of developing a support system for recovery.
- Occupational therapists and occupational therapy assistants expect engagement in AA/ALANON-sponsored activities (alcohol and drug-free social and family events, workshops, conventions, etc.) as a part of the set of habits associated with recovery.

12-Step Program Occupational Therapy Research Questions

- What methods can occupational therapists use to help the newly recovering person and his or her family members integrate a 12-step philosophy into their daily occupational routines?
- Does adding the social expectation that clients and their families attend 12-step meetings to other intervention approaches in occupational therapy enhance occupational performance?

Acknowledgments

This article was based on a project commissioned and funded by the American Occupational Therapy Association as an Evidence-Based Literature Review Project. Deborah Lieberman, Jessica Scheer, and Marian Scheinholtz, AOTA staff members and consultant, provided invaluable feedback to strengthen the applicability of the review findings to occupational therapy practice. Portions of this article were presented at the 13th International Congress of the World Federation of Occupational Therapy in Stockholm, Sweden (June 2002) and at the 2001 American Occupational Therapy Association Annual Conference, Mental Health Special Interest Section Program in Philadelphia, Pennsylvania.

References


**Evidence-Based References**


