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REVIEW

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Combining medically assisted treatment and Twelve-Step programming: a perspective and review

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ABSTRACT

Background: People with severe substance use disorders require long-term rehabilitative care after the initial treatment. There is, however, a deficit in the availability of such care. This may be due both to inadequate medical coverage and insufficient use of community-based Twelve-Step programs in many treatment facilities. In order to address this deficit, rehabilitative care for severe substance use disorders could be promoted through collaboration between practitioners of medically assisted treatment, employing medications, and Twelve-Step-oriented practitioners. **Objective:** To describe the limitations and benefits in applying biomedical approaches and Twelve-Step resources in the rehabilitation of persons with severe substance use disorders; and to assess how the two approaches can be employed together to improve clinical outcome. **Method:** Empirical literature focusing on clinical and manpower issues is reviewed with regard (a) to limitations in available treatment options in ambulatory and residential addiction treatment facilities for persons with severe substance use disorders, (b) problems of long-term rehabilitation particular to opioid-dependent persons, associated with the limitations of pharmacologic approaches, (c) the relative effectiveness of biomedical and Twelve-Step approaches in the clinical context, and (d) the potential for enhanced use of these approaches, singly and in combination, to address perceived deficits. **Results:** The biomedical and Twelve-Step-oriented approaches are based on differing theoretical and empirically grounded models. Research-based opportunities are reviewed for improving addiction rehabilitation resources with enhanced collaboration between practitioners of these two potentially complementary practice models. This can involve medications for both acute and chronic treatment for substances for which such medications are available, and Twelve-Step-based support for abstinence and long-term rehabilitation. **Clinical and Scientific Significance:** Criteria for developing evidence-based approaches for combined treatment should be developed, and research for evidence-based treatment on this basis can be undertaken in order to develop improved clinical outcome.

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This paper presents a perspective and a review of findings related to the need for better communication between physicians practicing medically assisted, medication-based treatment and practitioners of Twelve-Step-oriented treatments. We will consider how both groups have much to offer, in terms of promoting recovery from substance dependence, and how collaboration between the two can improve opportunities for long-term abstinence. Broadly speaking, this is most relevant to the reported 82% of persons with substance use disorders who do not receive adequate treatment (1). More specifically, the need for improved collaboration is most evident among people with a lifetime prevalence of severe alcohol (5.4%) and illicit drug (3%) use disorders (2). It is this latter clinical population, compromised by a life-threatening medical disorder, who constitute the majority of persons who die

from substance dependence (3), and incur the largest portion of the estimated \$346 billion cost in the US for substance use problems (4).

Background

A deficit in integration across groups of Twelve-Step and medication-oriented clinicians arose historically because the Twelve-Step approach emerged in the 1930s, at a time when there were no medications available to support rehabilitation of persons with alcohol dependency. The Twelve-Step approach then became embedded in the treatment community as part of the culture of recovery from alcoholism. It was only over ensuing decades that medications for promoting abstinence from alcohol use disorders were developed, and that the Twelve-Step approach came to be applied to other dependency-producing drugs.

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Over time, this situation devolved into the emergence of attitudinal barriers to the integration of medication into the culture of Twelve-Step-based recovery. This was most often expressed by long-term members who attend meetings frequently, often on a daily basis; they typically constitute a large portion, if not a majority of those present at meetings. Few of them are acquainted with contemporary evidence-based medicine and, furthermore, may have had unproductive encounters with medical professionals. Because of this, they are often averse to a medically oriented approach to addictive disorders. Thus, new attendees, who may be on methadone or buprenorphine maintenance, and even ones prescribed naltrexone, may be sidelined in the fellowship's meetings or discouraged from speaking there.

Ironically, this runs counter to the fact that early members of the program were hospitable to integrating medical advances into options for recovery. This acceptance is well illustrated by the fact that Vincent Dole, the co-developer of methadone maintenance, was solicited to serve as a trustee in AA. Dole wrote that Bill W., AA's co-founder, had suggested to him to look for an analogue to methadone for refractory AA members that might relieve their craving for alcohol (5).

The deficit in medical coverage in residential treatment settings

The deficit in needed care is most evident among persons who require intensive treatment and rehabilitation in a residential setting. In this regard, we can consider limitations impinging on the residential facilities that are not hospital-affiliated. These ($N = 3,450$) programs (6) constitute a large portion of the facilities in the United States that provide treatment for more severe substance use disorders, and are often colloquially referred to as "rehab." Most, historically, have a Twelve-Step orientation. There is a need for medical expertise in these residential facilities, given the importance of medications approved by the federal Food and Drug Administration (FDA) that can be prescribed to stabilize abstinence in certain substance-dependent persons.

What is the availability of physicians to carry out this task in the aforesaid residential settings? Knudsen et al. (7) approached this issue by surveying administrators of 250 publicly funded addiction treatment programs, of which 82% were not hospital-affiliated. They found that the mean number of addiction counselors per program was 13, in contrast to the limited mean number of salaried staff physicians across these facilities, 0.4. Even with an additional 0.9 physician

available on contract, as many as half of these programs had no physicians to provide onsite treatment planning or prescribing. It is notable that this situation is not at variance with the existing norms for practice that came to be institutionalized over time. These norms then came to be integrated into the ASAM patient placement criteria (8), so that residential settings are now classified dichotomously into those which are "clinically" vs. "medically" managed. Residential facilities described as clinically (as opposed to medically) managed do not have to meet a requirement of having physician coverage.

This coverage deficit is evident in key medical services for opioid use disorders which cannot be provided onsite because of the lack of physician staffing: fully 97% of residential facilities reported have no affiliation with a methadone clinic, and 75% have reported that they do not offer buprenorphine-based treatment (6). In effect, the large portion of such facilities is compromised in terms of providing treatment with two of the most efficacious medications in the addiction rehabilitation field, ones that are key to addressing the prominent recent growth in prevalence of opioid use disorders.

Another aspect of inadequate medical care is the need for physicians to overcome the stigma of their own treatment of opioid use disorder. This problem is evident in the US, in contrast to France, where the widespread medical prescribing of buprenorphine has yielded a decline of more than 50% in opioid deaths due to overdose (9). In further illustration of this problem of limited medication availability, among the 810,000 physicians in clinical practice in the US, only approximately 5,000, less than 1%, are members of medical addiction societies (the American Society of Addiction Medicine and the American Academy of Addiction Psychiatrists), clearly not commensurate with the need for physician expertise in this area of major public health concern.

The deficit in Twelve-Step availability in medically operated treatment settings

There is also a need for better employment of Twelve-Step fellowships by physicians. Alcoholics Anonymous and Narcotics Anonymous meetings provide settings where rehabilitation can be promoted for many addicted people. AA reports having over 150,000 groups worldwide (10), and NA reports 67,000 weekly group meetings (11). These fellowships provide a ready resource for many among the substance-dependent population. For example, in a recent year, AA reported a membership of 1.3 million in the US (10). The norm

for expected behavior for members of the two fellowships is to make their resources available widely, as in their Twelfth Step, “to carry this message to alcoholics” (“addicts,” in NA) who are still compromised.

AA’s effectiveness in combination with professional treatment has been observed among diverse groups of patients and at different levels of participation (12), as well as for persons dependent on drugs other than alcohol (13). Moos and Moos (14) conducted what is apparently the longest follow-up (16 years) on persons treated for alcoholism. They found that following the six months of the initial treatment for alcoholism, AA participation was associated with a better outcome than additional professional care. Based on these findings, they concluded that although an initial episode of professional treatment for alcoholism may be beneficial, subsequent participation in a Twelve-Step program appears to be a more important determinant of long-term outcome (15). The medical community, however, is hardly influential as a source of referral to AA. Only 5% of AA members indicate that there were introduced to AA by a “medical professional,” (10) and only 33% of NA members were referred to NA by any professional at all (16).

Two cultures

The lack of intercourse between physicians in the addiction field and members of the Twelve-Step community derives in part from historical and methodological issues. Contemporary medical practice is best characterized as being framed based on the empirical research from which treatments are developed. AA emerged in quite a different manner. It was initiated by two lay people in 1935, following the spiritual experience of one of the founders. This took place at a time when the medical community had yet to develop effective means to support recovery from alcoholism.

AA can therefore be conceived as a spiritual recovery movement (17). Such movements claim to provide relief from disease, but operate outside the modalities of established empirical medicine, and ascribe their effectiveness to a metaphysical or transcendent power, rather than on the basis of empirical studies. They may arise among non-physicians when the need for effective treatment is perceived as not effectively addressed within the medical mainstream. Techniques derived from East Asian meditative and dietary practices fall within this category of movements, as well.

Spiritual recovery movements, however, are typically eschewed within academic medicine because they are not developed from a positivist approach. This latter requisite for validation was articulated in the 19th

century, positing, for example, that psychological constructs should be based on observable and measurable phenomena (18). AA, in contrast, derives from internal, subjective experiences, ones difficult to subject to empirical validation.

As they developed around the turn of the 20th century, each respective approach, the biomedical and the spiritual, effectively had nomenclatures of their own, reflecting what they posited as the basis of the maladies characterized. Medically grounded addiction has been defined in a nomenclature based on observable and/or measurable signs and symptoms, as originally derived from the model for definition of dementia praecox, by Emil Kraepelin (19). Twelve-Step programs are conceived as addressing a spiritual deficit, an approach elaborated by the psychologist William James (20). Furthermore, AA does not conform well to conventional requirements for evidence-based medicine, a contemporary criterion for clinical practice.

This conflict in perspective was defined in the clinical setting as early as forty years ago, following the emergence of the comprehensive alcoholism treatment programs authorized by federal legislation. Kalb and Propper (21) described it in relation to the practices they observed in these newly established programs. They pointed to the difficulty of physicians’ relating to counseling staff whose background was primarily based on their experiences in Twelve-Step-based recovery. They described the counseling in these clinics as a craft, a technique based on the identification with the techniques applied by their predecessors, without recourse to empirical validation.

This conflict between two cultures of healing results in part from AA practices codified in its Twelve Traditions: anonymity among its members, and non-affiliation with outside groups. This effectively precludes cooperative research with academic medical centers because of both the limitations in experimental design and exclusion of collaboration with clinical researchers. In effect, most studies on Twelve-Step programs have been carried out in the context of follow-up on treatment programs, where AA or NA were only one part of a panoply of interventions applied (22,23). One approach to circumventing this limitation has been the solicitation of retrospective observations from persons who have reported prior recovery experiences (24). This approach, however, does not necessarily address persons who have been relieved of substance problems with some Twelve-Step attendance but do not self-identify as “in recovery.”

The discrepancy between the craft and empiricist approaches devolved into limitations cited in the 2006 Cochrane Review of research on AA (25), which

reported on an absence of well-controlled studies providing empirical evidence for its effectiveness. This report has been cited in critiques of AA by members of the lay public (26), as well as by some academic physicians (27), all of whom have questioned the effectiveness of Twelve-Step-based residential rehabilitation. This discrepancy in orientation was heightened with the emergence of medications that have been effective for treating addictions, leading to a further consolidation of the gulf between academic physicians in the addiction field and the Twelve-Step community.

The AA traditions include maintaining the anonymity of members and not affiliating with other organizations or agendas other than promoting abstinence. Because of this, randomization in Twelve-Step outcome research has not been feasible. On the other hand, not all scientific advances have resulted from randomized trials. For example, the finding that lung cancer can be caused by smoking, well established in medical science, was never undertaken by a prospective randomization of smokers to abstinence or a smoking regimen.

Numerous studies without randomization have shown associations between Twelve-Step participation and better outcomes. For example, as early as 1995, Vaillant reported on the long-term course of both working class and college graduates with alcohol use disorders. He found that both groups were more likely to get sober through AA than with any professional treatment available at that time (28). Similarly, reduced symptoms, better work, and family history were found in examining long-term outcome of a sample of AA members (29). Of interest, both professional treatment and AA participation were each associated with an improved clinical outcome, but a better outcome was observed when patients experienced both treatment and AA participation (30).

Rehabilitation: medical issues

The recent development of medications available for the treatment of addiction has contributed greatly to the institutionalization of physicians' role in the rehabilitation of addicted people. Oral (31) and depot (32) naltrexone have come to be used for stabilizing rehabilitation of both alcohol- and opioid-dependent (33) patients. Buprenorphine's use has been established widely in office practice (34), without the need to rely on institutionally structured clinics for prescribing, and the need for greater utilization of such medications has been emphasized (35).

There are, however, substantial limitations in the applicability of medications for supporting rehabilitation of persons with substance use disorders. At present

there are no medications approved by the US FDA for the treatment of cocaine or marijuana use disorders. Disulfiram, one of the earliest medications introduced to treating alcohol dependence, was found to have little or no effect on enhancing the outcome of counseling when prescribed for use by alcohol-dependent persons on their own recognizance (36). This deficit in adequate support is notably evident in relation to opiate use disorders. Morbidity and mortality may be associated with discontinuation of both methadone and buprenorphine (37) maintenance.

Questions may also be raised regarding the availability of appropriate counseling commensurate with the one-third of buprenorphine prescribers (10,888 of 33,177) who were certified to treat as many as 100 patients (38). This will likely be more of an issue with the more recent option for expanding medication-assisted treatment with buprenorphine caseloads of up to 275 (39). Limitations in adopting medication-assisted treatment for opioid use disorders have been attributed to a variety of problems by treatment service directors, most of them to a lack of sufficient funding (40).

Rehabilitation: Twelve-Step issues

Given both the benefits and limitations of medical practice, can physicians turn to the Twelve-Step community for a supportive role in promoting recovery? The utility of Twelve-Step programs as an adjunct to medical treatment has been demonstrated in a number of ways. From a theoretical perspective, AA's effectiveness can be supported by recourse to epidemiologic modeling, as pointed to by Kaskutas in methodological analysis based on (41) research on AA that showed it conformed with five criteria of six that could validate its effectiveness: Magnitude of effect, dose response, consistency and temporal accuracy of effect, and plausibility. The sixth, specificity of effect, could not be ascertained because of limitations in available studies.

The relative effectiveness of promoting abstinence of a Twelve-Step-oriented approach in contrast to other therapeutic modalities is salient here. This is particularly relevant since achieving a stable abstinence is essential for patients with severe substance use disorders. This can be considered for most patients treated in outpatient care, and also for those in residential treatment. Comparisons with other modalities for outpatients were made by analyzing data from the Project Match study. Three different conditions were compared: Twelve-Step facilitation (TSF), cognitive behavioral therapy, and motivational enhancement. At three years following the treatment, those in the TSF condition were more likely to be abstinent (36%) than those

in the other two conditions (24% and 27%) (42). The outcome of patients treated in Twelve-Step-oriented residential programs has been considered as well. In a retrospective study, outcome in these programs was contrasted to that of patients treated in cognitive behavior-oriented ones. The former patients achieved higher abstinence rates (49.5% vs. 37%) at two years and relied less on mental health services, leading to their incurring lower costs over the follow-up period (43).

Twelve-Step experienced apart from treatment can also be beneficial. In one study (44), where persons who telephoned alcoholism information services and those attending detoxification units were followed up, respondents who voluntarily used AA were found to be associated with a cost savings of 45% relative to those seeking professional outpatient treatment, despite the fact that there were similar clinical outcomes for both groups.

Referral to Twelve-Step participation can provide needed support for rehabilitation from an economic perspective, as illustrated in findings on improved clinical outcome and reduction in the cost of continuing care services (45). A technique for introducing AA to patients in counseling groups was developed for both inpatient and outpatient settings, and shown to be effective. This, too, allows for lower cost application rather than relying solely on individual counseling to facilitate involvement (46).

Factors prior to treatment entry may be considered. There is concern that patients in treatment who do well in AA may be those who had a greater preference for it prior to referral, and were more motivated than others. Humphreys et al. (47) reviewed controlled studies of outcome of Twelve-Step Facilitation to address this possibility. By means of instrumental variable modeling, they found that AA participation was effective independent of prior preference for AA.

There are, however, clear limitations to the use of the Twelve-Step model, and patient objections to AA attendance can be limiting factors in the utility of the fellowship. Objections often revolve around the role of a Higher Power (God) in program literature, as mentioned in six of the Twelve Steps, leading to hesitation over referral by physicians. This issue is particularly relevant in the case in governmental facilities, such as Veterans hospitals, due to church/state issues, and alternatives there are considered essential. AA Agnostica groups may provide an alternative; they modify the Steps to avoid mention of God, but are available only in limited numbers. SMART Recovery is group-based, has no spiritual components, and is oriented around less demanding

social involvement; this may be preferred by physicians and patients alike.

Embedding the Twelve-Step model in inpatient care has been widely applied in a month-long residential regimen. Although studies have been done on relative effectiveness of this approach (48–50), well-controlled outcome assessment conducted with experimental controls is lacking, and even in these programs, the need for continuing care post-discharge has been emphasized (51). Some investigators have raised questions about the utility of month-long Twelve-Step-based residential care (52), and this format (often termed the “Minnesota Model”) is an area in which more systematic research is needed as to its clinical and cost-effectiveness.

There may be an opportunity for other means of integrating the Twelve-Step model into established treatment settings. Patients’ experience of increased spirituality in the context of AA has been found in prospective studies to be associated with better clinical outcomes (53). The acceptability of a spiritual orientation of AA to patients in diverse treatment settings is therefore relevant to this. We surveyed hospitalized mentally ill patients with substance use disorders and their medical caregivers on their view of the importance of spirituality in the recovery process (54). Patients evaluated it as more important than did their medical staff, reflecting an underestimation of interest in a spiritually oriented modality such as Twelve-Step Facilitation among such patients. Similarly, in a drug-free therapeutic community (55), patients regarded Twelve-Step programs and spiritually related issues as important to them, although they were absent in the available programming. The use of a Twelve-Step approach has also been successfully adapted for patients in methadone maintenance clinics (56). High rates of co-participation of methadone maintained patients in Twelve-Step programs have also been reported (57), and 37% of methadone maintenance programs surveyed reported that they used Twelve-Step Facilitation (58). Altogether, there appears to be a need for investigation into the clinical utility of establishing more active collaboration along these lines.

Such a combination of services represents an area that could include the piloting of related educational techniques for physicians, the development of innovative approaches to collaborative programming, and systematic research examining the feasibility and outcome of such efforts. Another way of looking at the utility of these combined services may be that they can overcome attitudinal issues by communicating that it is a health issue when supportive advice is offered patients along

with medications that are prescribed. In this way, participation in a Twelve-Step program can be likened to the advice offered by a nurse in addition to the physician's prescribing itself. Given the demonstrated gap in our capacity to provide effective treatment for severe substance use disorders, this is an area that merits attention.

Opioid dependence

There is clearly a need for further research on the applicability of the Twelve-Step approach for opioid treatment. This deficit was illustrated in a comprehensive review of research on the use of psychosocial interventions in conjunction with medications for opioid use, which revealed no controlled studies on employing Twelve-Step Facilitation in that domain. This deficit in research on TSF as a potentially useful aftercare resource is underlined by an acknowledged deficit in combined medication and follow-up services for persons discharged from privately operated opioid-related hospitalizations; only 11% of such facilities reported providing this needed complement to their treatment programs (59). The potential utility of such research for opioid dependence was illustrated in one study, which revealed that NA meeting attendance prior to initiation of buprenorphine treatment was found to be associated with a higher rate of retention in treatment (60). Clearly, there is a need for well-controlled research to ascertain whether this modality would improve outcomes on patients studied after buprenorphine maintenance is terminated, given high drop-out rates reported in buprenorphine studies on adults (61) and adolescents as well (62). One review on termination of buprenorphine maintenance found relapse rates in excess of 50% (63). A trial of combining medication and Twelve-Step follow-up, however, has only recently been initiated at Hazelden/Betty Ford. Significant morbidity and mortality took place when Twelve-Step programs alone, absent medications, were employed in treating opioid use disorders in the residential rehab setting (64,65). In that setting, a program, COR12, offering either buprenorphine or depot naltrexone along with the ongoing Twelve-Step model was offered upon admission to opioid-dependent patients. The clinical outcome of this option will be instructive about the viability of such combined therapies. Issues include the acceptability to staff and patients in a Twelve-Step setting of medications; the need for medical coverage for prescribing following discharge; and how long the

medications should be continued after discharge from the residential setting.

Scientific and clinical significance

The model of drug and alcohol dependence as a chronic disease is now well-established in the field of medicine, but as above, only a minority of those suffering from it is receiving treatment at any given time. Peer support by persons suffering from the same problem as those they help has long been recognized as practiced in relation to a large variety of problems (66) and, widely across the overall population, as well, as ascertained in one national probability sample (67). An expert consensus statement has been developed on the need for evidence-based practice and policy on the application of peer-based approaches in relation to alcohol and drug problems (68). Furthermore, the concept of addiction recovery has been operationalized by one consensus panel as characterized by a lifestyle that includes sobriety, personal health, and citizenship (working to the betterment of one's community) (69). The points enunciated in these panels represent goals to be met.

Any effort to improve integration of the medical and Twelve-Step approaches is contingent on the relative openness of practitioners of each respective approach to that of the other. To meet criteria acceptable to the medical community, a body of empirical research on AA's utility has been documented, some of which we have cited here. Furthermore, an extensive literature has emerged, characterizing the subjective experience of AA and NA members, and integrating it with published research on the fellowships (70).

The issue of whether the Twelve-Step approach meets the necessary stipulations of evidence-based medicine can be considered on the basis of one contemporary definition of this latter term considered by Eddy, its originator. He recently cited (71) a definition formulated by Sackett et al. (72) for individual physician decision-making, rather than that necessary for the design of practice guidelines. From that perspective, a modality can be employed along with the integration of "individual clinical expertise with the best available clinical evidence from systematic research." Given this latter definition of evidence-based care, and in light of the fact that clinicians, based on their experiences, regularly do turn to AA, this criterion would appear to be met for clinical practice, if not for formal practice guidelines.

From the perspectives of AA and NA, both, as spelled out in their literature (73,74), view the use of medication as a matter to be determined in the

relationship between a member and “a qualified physician.” Both fellowships, however, emphasize the importance of respecting the reservations about medication use experienced by other members in the setting of a fellowship meeting. The fellowships do, however, effectively delimit their domain authority in this regard, stipulating that the only criterion for membership (as in AA) is “a desire to stop drinking;” nonetheless, there is a diversity of experiences reported by patients on maintenance medication attending Twelve-Step meetings (75). As indicated above, however, there is considerable need for increased medical presence in Twelve-Step-oriented facilities, particularly residential treatment programs, and this will necessitate increased support for training for physician expertise in addiction treatment and promotion of medication options for staff in residential facilities.

To the extent that controversy may exist regarding the relative roles of Twelve-Step and MAT in treatment, there is need for a middle ground to be occupied by clinical staff. As attitudinal barriers are surmounted, a blend can be undertaken where MATs have been shown to be effective, as with opioids and alcohol, and they can be used for those disorders. On the other hand, the Twelve-Step approach can be emphasized (with or without professionally conducted psychosocial modalities) for dependencies on drugs such as stimulants, psychotomimetics, and marijuana where medications have yet to be shown effective in achieving long-term recovery.

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