Social Support, Spiritual Program, and Addiction Recovery

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Abstract: This study compared personal and emotional modifications of inmates who were recovering addicts and who participated in one of two year-long therapeutic intervention programs, one including social support and experiential spiritual program components (Narcotics Anonymous, NA, meetings and the 12-step course), the other including primarily social support (NA meetings only, without the 12-step program). The hypothesis was that supplementing social support programs with a concrete spiritual program would result in more positive personal and emotional changes. The results seem to support the hypothesis: Inmates participating in the 12-step program demonstrated a higher sense of coherence and meaning in life and a gradual reduction in the intensity of negative emotions (anxiety, depression, and hostility) than those participating in NA meetings without the 12-step program. The research findings demonstrate the importance of the 12-step program as part of a rehabilitation process for drug addicts.

Keywords: *Narcotics Anonymous; social support; spiritual program; inmates*

The present study compared personal and emotional modification of inmates who are recovering addicts in two separate 1-year therapeutic intervention programs, one including social support and a spiritual program (12 steps), the other including primarily social support (without the 12 steps).

Drug addicts typically demonstrate a lack of personal coping resources that are manifested in a low sense of coherence (Lundqvist, 1995), a sense of social isolation (Mackenzie, 1997), and a low sense of meaning in life (DuPont, 1998).

Sense of coherence was defined by Antonovsky (1979) as "a global orientation that expresses the extent to which one has a pervasive enduring though dynamic feeling of confidence that one's internal and external environments are predictable" (p. 19). Sense of coherence is a major concept in the salutogenic approach—an approach that looks for the health-promoting factors within individuals and societies. Research demonstrated that sense of coherence is negatively associated with depression (Frenz, 1991), anxiety (Bernstein & Carmel, 1987), and a tendency toward alcoholism (Antonovsky, Hankin, & Stone, 1987) and is positively associated with well-being, the perception of receiving assistance from others (Kalimo & Vuori, 1991), and social support (Dana, 1985).

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SOCIAL SUPPORT AND DRUG ADDICTION

Stress models have identified social support as an important coping resource for reducing the negative effects of stressors (Thomas & Ganster, 1995). Social support is an interpersonal transaction that involves emotional concern, instrumental aid, information, and appraisal (House, 1981). It has gained widespread recognition because of its contribution to an individual's well-being and its effect on the drug addiction recovery process (Fernandez & Mutran, 1998). Social support has been found to lead to a decrease in the need for substance abuse and to strengthen drug abstinence (Bishop, Rumpt, Hapke, Meyer, & John, 2000).

Perceived rather than received social support has primary significance for health outcomes (Dolbier & Steinhardt, 2000). Perceived social support is a person's generalized cognitive appraisal of being supported rather than a reflection of enacted behaviors per se (Lakey & Cassady, 1990). Research findings reveal that individuals with high perceived support see behaviors as more supportive than those with low perceived support (Lakey & Cassady, 1990). Evidence from various studies shows that drug addicts exhibit lower levels of perceived social support than do non-drug users (Dodge & Potocky, 2001; Schmitz et al., 2000). Low perceived social support is related to suspicion in one's social environment, which prevents the individual from extracting maximum benefit from such social support (Addad, 2002).

In this study, perceived social support was not one of the specific study variables and therefore was not measured directly. However, it may explain the limited beneficial effects of received social support because perceived social support is related to suspicion levels. Suspicion levels in this study were not measured directly but as part of inmates' hostility levels (Buss-Durkee Inventory, BDHI) because hostility is a construct of which suspicion is a component.

SPIRITUAL PROGRAM AND DRUG ADDICTION

Some theorists argue that drug addiction is a disorder with spiritual dimensions that is manifested by a lack of meaning in life (Chapman, 1996; Kurtz & Ketcham, 1992). Although conceptualizations of spirituality vary among theorists, some common conceptualizations do exist. These include a sense of meaning and purpose in life (Diarmuid, 1994) and connectedness to oneself, to the environment, or to a higher power (Adams & Bezner, 2000).

The spiritual dimension therefore is associated with meaning in life. Meaning in life has been defined as "coherence and purpose in one's existence, the pursuit and attainment of worthwhile goals" (Recker & Wong, 1988, p. 221). Meaning in life is a primary force in Frankl's (1981) existentialist philosophy. Frankl claimed that a lack of meaning in life causes a so-called existential vacuum. The emotional reaction to the state of existential vacuum is existential frustration that can lead to drug addiction. Lack of meaning in life has been found to relate to a sense of poor well-being (Adams & Bezner, 2000), neuroticism (Pearson & Sheffield, 1974),

substance abuse, and suicidal ideation (Harlow, Newcomb, & Bentler, 1986). Carroll (1993) found that the expressed degree of purpose in life was also seen as a reflection of spirituality as reported by 100 Alcoholics Anonymous (AA) members. Former hard-core drug addicts in a state of successful withdrawal from drug abuse have demonstrated higher existential meaning and a lower existential vacuum than have drug addicts (Wolf, Katz, & Nachson, 1995).

Narcotics Anonymous (NA) views drug addiction as both a spiritual and physical disease manifested by self-centeredness, a lack of understanding of spiritual needs, and a lack of meaning in life (Prezioso, 1987). As such, spirituality is an important focus for treatment (Smith, Buxton, Bilal, & Seymour, 1993). The principles of NA's philosophy include frequent meetings with others in recovery and making behavioral changes. The goal is to bring about personal changes in thinking and feelings that are referred to as spiritual experiences, which occur as a result of daily maintenance of the 12-step program.

NA is both a fellowship and a rehabilitation program (Christo & Franey, 1995). The fellowship in NA meetings provides a safe and supportive environment that allows for the development of trust necessary for the program. Characteristics of NA include social support and spiritual components (Peyrot, 1985). Social support, particularly through the group process, leads to a sense of brotherhood and mutuality and creates group coherence that is the mechanism that fosters changes in beliefs and behaviors (Emrick, 1987).

The 12-step program views addiction rehabilitation through spiritual principles as a process of spiritual renewal (Nowinsky & Baker, 1992). These principles include believing in and submitting oneself to a higher power, seeking to improve conscious contact with this higher power through prayer and meditation, and using one's spiritual awakening to carry this message to others still suffering from addiction (Miller, 1998a). Although attendance in NA was found to be related to positive outcomes, participation in working 12-step programs yielded better outcomes (Miller, 1998b).

It is the thesis of this study that active participation in a 12-step program will correlate more significantly to personal changes than only participation in NA meetings without practicing spirituality (i.e., 12-step program). Based on substance rehabilitation literature, we suggest supplementing the traditional social support programs (like NA meetings) with spiritual programs such as the 12-step approach. By supplementing social support programs with spiritual components (i.e., meaning in life and belief in a higher power; Peteet, 1993), we assumed that positive personal and emotional changes would be more likely to occur.

The hypothesis of this study was that inmates participating in a year-long program with both social support and spiritual programs would display a higher sense of coherence (Antonovsky's, 1983, scale of coherence) and a gradual reduction in the intensity of anxiety, depression, and hostility than would those who receive primarily social support. These negative emotions were measured using the Spielberger State-Trait Anxiety Inventory (STAI) for anxiety (Spielberger, 1975), the Beck Depression Inventory (BDI) for depression (Beck, Ward,

Mendelson, & Erbaugh, 1961), and the BDHI for hostility (Buss & Durkee, 1957). This hypothesis was based on substance abuse literature that claims that drug addicts typically demonstrate a lack of personal coping resources (i.e., low sense of coherence), negative emotions (anxiety, depression, and hostility), and a sense of social isolation.

METHOD

PARTICIPANTS

The participants were inmates from three prisons (two of which are maximum security and one of which is minimum security and allows inmates to engage in community service and work release programs). The sample consisted of 93 inmate volunteers (only approximately 2% of those invited declined participation). The high motivation for volunteering may be because of the guarantee of anonymity and confidentiality, which is strictly kept by jail administration. Participants were told that their answers would be kept completely confidential and their anonymity would be protected at all times. Assured anonymity is an important determinant of accuracy in reporting and a means to decrease social desirability response bias (Thornton & Gupta, 2004). Guaranteeing anonymity may yield more accurate estimates of sensitive behaviors and even attitudes. The percentage of inmates agreeing to participate is consistent with other research conducted among prisons (Calzavara et al., 2003). These 93 inmates belonged to one of two groups. Group 1 included 43 inmates from the same prison who participated in both NA meetings and a 12-step program. The attrition rate in Group 1 was 28% (3 had drug relapses and were transferred to another facility, and 9 were released from prison before the final measurement). Group 2 included 50 inmates from two different prisons who participated in NA meetings only. The attrition rate in Group 2 was 26% (7 had drug relapses and were transferred to another facility, and 11 were released). Specific details for those who were either released or transferred were not recorded.

It should be noted that because this was a field study, groups were not randomly assigned. The 12-step program and the NA meetings are uniformly structured across all settings (i.e., all inmates participated in exactly the same NA program with the same treatment providers).

All participants were incarcerated and abstained fully from drug use for the duration of the study. All were kept in drug-free wards in which only abstinent inmates, proven by routine urine tests, reside. The majority of Israeli inmates are kept in wards where drug and alcohol abuse, as well as active trading of illicit drugs, are prevalent. The separation of drug-free and non-drug-free wards is an attempt to control drug abuse inside Israel's prisons. There is a strict policy that both visitors and returning inmates are thoroughly checked for possession of drugs, but unfortunately drugs still manage to infiltrate the system. Inmates

caught using drugs are severely punished, and this separation between wards is one way of curtailing any influence drug users might have on nonusers. Inmates caught using drugs in drug-free wards are removed and placed in wards not known to be drug or alcohol free. Transference to a drug-free ward is contingent on several months of abstinence (confirmed through routine urinalyses).

All participants were literate males. The majority (71%) were Israeli Jews, and the remaining 29% were Israeli Arabs. The mean age was 36 years (SD = 6.35). More than 80% of all participants began their substance abuse with hashish and continued with substances such as heroin, cocaine, LSD, alcohol, barbiturates, and stimulants. The only difference between the two groups was the length of abstinence prior to participation in the study: 87% of Group 1 had been abstinent for more than 6 months prior to the study, as compared to 40% for Group 2.

In Group 1 (NA meetings with the 12-step program), the mean age of drug addiction was 15 (SD = 6.56) In Group 2 (those participating only in the NA meetings), the mean age of drug addiction was 18 (SD = 6.92).

All participants abused both drugs and alcohol, and 14% were involved in drug abuse or dealing. Also, 36% were involved in both property offenses and drug abuse or dealing, and 50% were involved in personal and property offenses and drug abuse or dealing. Inmates were serving sentences primarily for drug abuse, drug dealing, and personal and property crimes. The mean duration of current incarceration was 47.09 months (SD = 30.01). All participants were recidivists (repeat offenders), defined by having been arrested, convicted, or incarcerated more than once (Langan & Levin, 2002). In both groups, the mean for incarceration incidents was 2.78 (SD = 2.09). In general, the demographic characteristics of the participants in the two groups were not statistically different, as indicated using t tests, chi-square tests, and z tests.

MEASURES

A sociodemographic questionnaire was used to obtain data concerning age, family history, drug abuse, criminal history, and educational background.

Antonovsky's Sense of Coherence Scale

The Sense of Coherence Scale (Antonovsky, 1983) consists of 39 items divided into three subscales. The comprehensibility subscale of 11 items assesses the extent to which the world is perceived as sensible, ordered, and predictable. For example, one item reads, "When you talk to people, do you have the feeling that they don't understand you?" The manageability subscale of 10 items assesses the degree to which personal resources are perceived as adequate to meet demands. An example of such a question is, "When you have a difficult problem, the choice of a solution is . . . . " Responses range from, "Always confusing and hard to find," to "Always completely clear." The meaningfulness subscale consists of 8 items measuring the degree to which the world is perceived as making

sense, problems are worthy of commitment, and challenges are accepted. For example, one item reads, "You anticipate that your personal life in the future will be . . . . " Responses range from, "Totally without meaning," to "Full of meaning and purpose." The meaningfulness subscale is congruent with other measures assessing meaning in life (Zika & Chamberlain, 1992). Most research has assessed meaning in life using the Purpose in Life (PIL; Crumbaugh & Maholick, 1964). Because the PIL met with criticism regarding its validity (Yalom, 1980), Antonovsky's (1983) sense of coherence was selected for this study. Internal consistency reliability coefficients (Cronbach's α) have been reported to be between .86 and .95 in other studies (Zika & Chamberlain, 1992). Internal consistency for the full scale ranged from .81 to .86 for the 12-step group (Group 1) and from .76 to .79 for the NA group (Group 2). For all scales, test-retest reliability was examined by repeated measurements.

The STAI

The STAI (Spielberger, 1975) is a self-evaluation test for anxiety symptomatology that includes 40 items, 20 of which report trait anxiety (STAI-T) and 20 of which report state anxiety (STAI-S). The STAI has been found to be both reliable and valid (Spielberger, 1983) and has been used in both clinical and research settings. The questionnaire was translated into Hebrew and was validated by Teichman and Melinick (1979). For this study, internal consistency for the full scale ranged from .87 to .93 for Group 1 (12-step group) and from .87 to .89 for Group 2 (the NA group).

The BDI

The BDI (Beck et al., 1961), a 21-item self-report scale, was used to measure the presence of depressive symptoms in participants. The BDI is a widely used research tool whose reliability and validity have been repeatedly confirmed (Beck et al., 1961; Gotlib & Hammen, 1992; this BDI-2 has not yet been validated in Hebrew). For this study, internal consistency ranged from .72 to .83 for the 12-step group (Group 1) and from .79 to .81 for the NA group (Group 2) for the full scale.

The BDHI

The BDHI (Buss & Durkee, 1957) groups various aspects of aggression and hostility into subscales that classify seven types of reported feelings of aggressiveness. In many studies (including the present study), the guilt scale is omitted, leaving 66 items classified into the following subscales: (a) assault (physical violence against others), (b) indirect hostility and undirected aggression, (c) irritability (the tendency to explode in a negative manner at the slightest provocation), (d) negativism (oppositional behavior, usually directed against authority), (e) resent-

ment (jealousy and hatred of others), (f) suspicion (projection of hostility onto others), and (g) verbal hostility (negative affect expressed in speech style and content). The questionnaire was validated in Israel by Rabinovich (1972). In this study, internal consistency for the full scale ranged from .90 to .94 for the 12-step group and from .88 to .92 for the NA group.

PROCEDURE

Participants in Group 1 attended NA meetings in addition to the 12-step course. The 12-step course lasted for 6 months (4 hours per day, 20 hours per week, for a total of 480 hours) and was conducted by two recovering inmates who were veterans of a previous in-prison 12-step course. The instructors gave comprehensive explanations for each of the 12 steps. During the sessions, participants took notes and subsequently answered specific questions on paper regarding the step covered in the session. Questions and answers were discussed during the following session.

Those participating in the NA meetings without the 12-step program (Group 2) met for 2 hours per night for 1 year (for a total of 480 hours, the same length of time as those participating in the 12-step program). The meetings focused on a specific topic or a member's annual sobriety birthday, and at times a group member was elected to address the full group. The primary focus of these NA meetings was to share experiences.

Throughout the 1-year study period, research assistants distributed questionnaires to participants in Group 1 at four different intervals: (a) prior to program participation, (b) 3 months into the program (but prior to the 12-step program's step 4, confession), (c) after 6 months (6 months marks the completion of the 12-step program for Group 1 only), and (d) at the end of the study period. Group 2 was evaluated concurrently with Group 1, except for the third measurement. Questionnaires took approximately 90 minutes to complete. Inmates participated on a voluntary basis and were guaranteed anonymity. Each signed a consent form prior to participation. The format of the consent form was established by the Israeli Prison Authority and provides written consent by the inmate for participation. Only after this consent form, which was verified by the prison clinical staff, was signed was the research allowed to continue.

RESULTS

CRIMINAL ACTIVITIES

Approximately half of the participants (52%) had been involved in criminal activities prior to substance abuse. Also, 28% were involved simultaneously in both criminal activities and substance abuse, and 20% were involved in substance

TABLE 1
PARTICIPANTS' CRIMINAL CAREERS

	Group 1[a]		*Group 2*[b]		
Variable	n	%	n	%	*Difference*
Offenses					
Drug abuse	42	98	49	98	—
Drug dealing	21	49	30	60	1.07
Pick pocketing	2	5	5	10	0.97
Robbery	12	28	24	48	1.97*
Burglary	25	58	34	68	0.98
Theft	34	79	25	50	2.89**
Forgery	11	26	12	24	—
Assault	23	54	23	46	0.72
Murder or manslaughter	2	5	2	4	—
Offenses category					
Drug abuse or dealing	5	12	8	16	
Property offenses and drug abuse or dealing	15	35	19	38	0.79
Personal offenses, property offenses, and drug abuse or dealing	23	53	23	46	
Crime-drug relation					
Crime prior to drug abuse	23	55	24	49	
Crime and drug abuse simultaneously	11	26	14	29	0.56
Drug abuse prior to crime	8	19	11	22	

NOTE: The groups under the offenses category are not mutually exclusive; therefore the total exceeds the sample sizes of 43 or 50 (i.e., participants may have committed multiple offenses). Under the crime-drug relation category, there is one missing data case in both groups.
a. $N = 43$.
b. $N = 50$.
*$p < .05$. **$p < .01$.

abuse prior to any involvement in criminal acts. Table 1 describes participants' criminal careers.

Table 1 shows that in general differences between the two groups, examined via chi-square and *z* tests, are insignificant. A total of 87% of Group 1 had been drug abstinent for more than 6 months prior to the study, as compared to 40% of Group 2. Drug abstinence was statistically controlled in all comparative analyses that included both groups because of the difference in the length of time each group had been drug free.

The personal and emotional characteristics (sense of coherence, anxiety, depression, and hostility) were examined in both groups at the beginning of the study. Table 2 presents the means and standard deviations by group for sense of

TABLE 2
MEAN AND STANDARD DEVIATIONS BY GROUP FOR SENSE OF COHERENCE (SOC), NEGATIVE EMOTIONS, AND MEANING IN LIFE AT VARIOUS TIME INTERVALS

	Time intervals							
	1		*2*		*3*		*4*	
Variable	M	SD	M	SD	M	SD	M	SD
Group 1[a]								
SOC	3.12	0.48	3.30	0.54	3.47	0.48	3.62	0.41
State of anxiety	2.35	0.56	2.06	0.61	1.79	0.58	1.74	0.60
Depression	0.91	0.42	0.73	0.46	0.60	0.45	0.43	0.40
Hostility	0.61	0.15	0.51	0.16	0.44	0.18	0.45	0.19
Meaning in life	3.75	0.54	3.94	0.63	4.03	0.65	4.17	0.53
Group 2								
SOC	3.18	0.41	3.19	0.41	—	—	3.31	0.41
State of anxiety	2.24	0.53	2.33	0.54	—	—	2.16	0.55
Depression	0.94	0.46	0.95	0.46	—	—	0.78	0.43
Hostility	0.64	0.15	0.63	0.16	—	—	0.56	0.17
Meaning in life[c]	—	—	—	—	—	—	—	—

a. $N = 43$. For the fourth measurement, Group 1 had 34 participants.
b. $N = 50$. Group 2 was measured only for measurements 1, 2, and 4.
c. Meaning in life was measured differently for Group 2. Please see Table 5.

coherence, negative emotions, and meaning in life at four different time intervals. Differences between the groups were examined with MANCOVA.

Table 2 reveals no difference between the two groups for the first measurement ($F = .82$, 4/87 *df*) controlling for length of drug abstinence, which was examined with MANCOVA.

GROUP 1

Changes in Group 1 participants' sense of coherence, anxiety, depression, and hostility were evaluated across the four time intervals. MANOVA was adequate with the current sample sizes ($n = 50$, $n = 43$) because they fall within the minimum acceptable rate of approximately 10 participants per each independent variable. Repeated measures of multivariate analysis in measurements 1 to 3 was significant ($F = 7.89$, 8/160 *df*, $p < .001$, $n = 43$). Repeated measures of MANOVA of sense of coherence, anxiety, depression, and hostility in measurements 3 and 4 was also significant ($F = 2.70$, 4/30 *df*, $p < .05$, $n = 34$). Two analyses were conducted in Group 1 because of sample size differences. Table 3 presents Group 1's MANOVA results for sense of coherence and negative emotions among various measurements.

TABLE 3
GROUP 1: MULTIVARIATE ANALYSIS OF VARIANCE SENSE OF COHERENCE (SOC) AND NEGATIVE EMOTIONS BETWEEN VARIOUS MEASUREMENTS

	Changes Between Measurements			
	1st and 2nd[a] F*(1, 42)*	*2nd and 3rd*[a] F*(1, 42)*	*1st and 3rd*[a] F*(1, 42)*	*3rd and 4th*[b] F*(1, 33)*
Variable				
SOC	7.70**	5.23*	20.74***	5.36*
State of anxiety	12.74**	5.37*	30.17***	0.25
Depression	6.25*	9.11**	24.50***	3.45
Hostility	19.49***	11.68**	43.84***	0.46

a. $N = 43$.
b. $N = 34$.
*$p < .05$. **$p < .01$. ***$p < .001$.

As indicated in Table 3, the changes that occurred in Group 1 among the four measurements generally denote a gradual significant improvement in sense of coherence, anxiety, depression, hostility, and suspicion. Evaluation of *F* values reveals that the primary changes in sense of coherence, anxiety, and hostility occurred between the first and second measurements, whereas the main changes in depression occurred between the second and third measurements. The primary improvement between the first and third measurements was in the hostility measurement. Sense of coherence continued to increase between the third and fourth measurements, whereas the other variables (anxiety, depression, and hostility) remained stable. A comparison between the first and fourth measurements revealed significant differences in sense of coherence ($F = 26.48$, 1/32 *df*, $p < .001$), state of anxiety ($F = 20.74$, 1/32 *df*, $p < .001$), depression ($F = 35.22$, 1/32 *df*, $p < .001$), and hostility ($F = 18.28$, 1/32 *df*, $p < .001$). Because of multicollinearity with sense of coherence, meaning of life was evaluated separately. Multicollinearity represents high correlation between two variables (i.e., exceeds $r = .75$).

Throughout the 12-step course and throughout the year, the meaning in life measurement in Group 1 exhibited an increase ($F = 4.60$, 3/99 *df*, $p < .05$). Evaluation of the differences between the measurements indicated a gradual increase in meaning in life (see Table 2). However, significant differences in meaning in life were found between the first and third measurements ($F = 5.22$, 1/33 *df*, $p < .05$) and between the first and fourth measurements ($F = 16.50$, 1/33 *df*, $p < .001$).

GROUP 2

Changes in Group 2 were evaluated concurrently with those of Group 1, except for the third measurement. Repeated measures of ANOVA were significant ($F = 2.60$, 8/180 *df*, $p < .01$).

TABLE 4
GROUP 2: MULTIVARIATE ANALYSIS OF VARIANCE SENSE OF COHERENCE (SOC) AND NEGATIVE EMOTIONS BETWEEN VARIOUS MEASUREMENTS

	Changes Between Measurements	
	1st and 2nd[a] F*(1, 47)*	*2nd and 4th*[a] F*(1, 47)*
Variable		
SOC	1.18	3.96
State of anxiety	0.75	1.42
Depression	0.73	6.55*
Hostility	0.99	10.41**

NOTE: Group 2 was measured only for measurements 1, 2, and 4.
a. $N = 49$.
*$p < .05$. **$p < .01$.

TABLE 5
GROUP 2: MEANING IN LIFE (RECORDED AS A PERCENTAGE)

	Measurements		
	1st[a]	*2nd*[a]	*4th*[a]
Meaning in life			
Very low	14	10	6
↑ 14	10	12	
	40	36	36
↓ 22	26	18	
Very high	10	18	28

NOTE: Group 2 was measured only for measurements 1, 2, and 4.
a. $N = 50$.

Table 4 presents Group 2's MANOVA for sense of coherence and negative emotions among the various measurements. As indicated in Table 4, there were no gradual changes in Group 2. A significant decrease was observed in the depression and hostility measurements (not suspicion) between the second and third measurements. No significant differences were found in sense of coherence or in anxiety levels.

Table 5 displays meaning in life for Group 2. In Table 5, meaning in life for Group 2 was not measured by Antonovsky's (1983) meaningfulness subscale because of a low internal consistency measure ($\alpha = .30$ and $\alpha = .57$, by repeated measurements). Therefore, we used item 28 in Antonovsky's meaningfulness subscale ("Do you feel that there is no meaning in your daily life?"). Responses were ranked on a scale of 1 to 5, with 1 indicating a low meaning in one's daily life and 5 indicating a very high meaning.

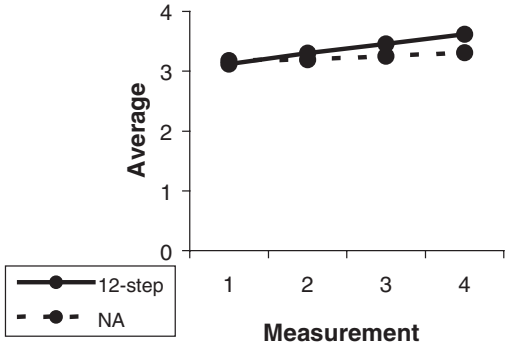

Figure 1 Sense of Coherence in 12-Step Group and Narcotics Anonymous Group

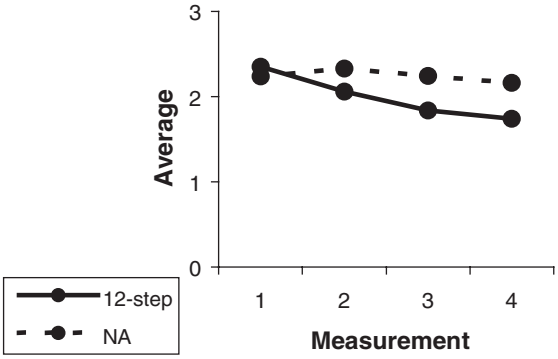

Figure 2 State of Anxiety in 12-Step Group and Narcotics Anonymous Group

Meaning in life for Group 2 was concentrated in the middle range of the scale. Over time, the change was significant (Friedman's $\chi^2 = 6.92$, 2 *df*, $p < .05$). The difference between the first and last measurements also proved significant (Mann-Witney's $z = 2.84$, $p < .01$), showing an increase in meaning in life for Group 2 during a period of 1 year. In the final measurement, nearly 30% of Group 2 ranked meaning in life in the highest category, compared to 10% in the first measurement.

COMPARISON OF THE GROUPS

Figures 1 to 4 reveal differences in the second measurement between the groups. After 1 year, significant statistical differences were observed in all variables: Sense of coherence and meaning in life were higher in Group 1 than in Group 2, and negative emotions were lower in Group 1 than in Group 2. Significant time by group interactions were found between the first and fourth measurements: for sense of coherence ($F = 4.16$, 1/78 *df*, $p < .05$), anxiety ($F = 5.52$, 1/78

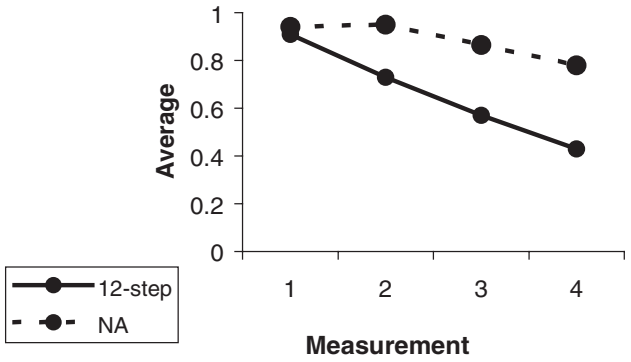

Figure 3 Level of Depression in 12-Step Group and Narcotics Anonymous Group

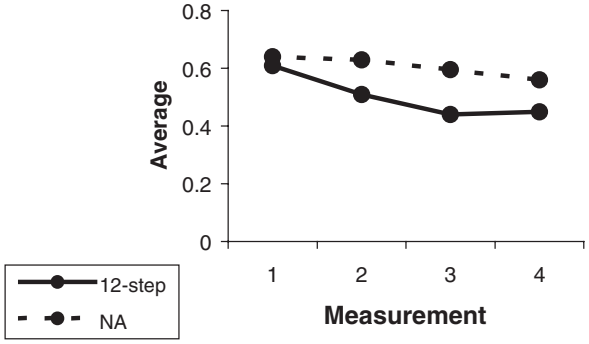

Figure 4 Level of Hostility in 12-Step Group and Narcotics Anonymous Group

df, $p < .05$), depression ($F = 4.32$, 1/78 *df*, $p < .05$), and hostility ($F = 5.08$, 1/78 *df*, $p < .05$).

DISCUSSION

This study compared personal and emotional modifications of inmates who were recovering addicts and who participated in one of two year-long therapeutic intervention programs, one including social support and experiential spiritual program components and the other including primarily social support.

A comparison between the two groups showed that both the process and areas of change differed between them. Group 1 (NA meetings and the 12-step program) demonstrated gradual changes in all variables including a higher sense of coherence and meaning in life and a greater gradual reduction in the intensity of the negative emotions (anxiety, depression, and hostility). The changes in Group 2 (the NA meeting only group) did not occur gradually; rather they occurred only

between the second and last measurement and only with regard to depression and hostility. For this group, there was no change in suspicion level.

The present findings are open to alternative explanations. One possibility is that the personal changes in Group 1 were gradual and because of spiritual practicing (e.g., following a 12-step program). Spiritual experience was found to be vital for a successful addiction recovery and was also associated with the completion of the 12-step program (Sandoz, 1999). In addition, it was found that behavioral changes in recovery from chemical addiction are a product of participation in a 12-step program (O'Connell, 1999).

In Group 1, significant gradual increases concerning meaning in life were found between the first and third measurements and between the first and fourth measurements, whereas in Group 2, a significant increase in meaning in life was observed only after the last measurement. One can assume that the change in meaning in life for Group 2 is because of the decrease in depression level. According to literature, depression is related to lack of meaning (DuPont, 1998; Harlow et al., 1986).

Some theorists argue that drug addiction is a disorder with spiritual dimensions that is manifested by a lack of meaning in life (Kurtz & Ketcham, 1992). Spiritual intervention such as a 12-step program that views addiction rehabilitation through spiritual principles as a process of spiritual renewal (Nowinsky & Baker, 1992; O'Connell, 1999) may help foster a positive meaning in life. Research findings show a relationship between meaning in life and the 12-step therapy program (Majer, 1992). Furthermore, research has reported a positive correlation among practicing Step 11 (prayer and meditation), attaining a purpose in life, and maintaining sobriety by AA members (Carroll, 1993).

The second explanation of the present findings regarding the limited beneficial affects of social support on personal changes in Group 2 may perhaps be explained by one's tendency to perceive a low level of social support. Perceived social support is a stable personal trait that emanates from the individual's trust in the social environment (Adams & Bezner, 2000). This variable was not measured directly in this study but may help explain the findings and is also supported by evidence from various studies indicating that drug addicts exhibit lower levels of perceived social support (Dodge & Potocky, 2001; Schmitz et al., 2000). The effect of social support is dependent on the individual's subjective perception of his or her relationships with others and the degree of confidence in his or her own ability (Commerford & Reznikoff, 1996). Thus, there may be some personal characteristics that influence an individual's perception of social support. Research findings show that those perceiving high support interpret the same behaviors as more supportive than those who perceive low support (Lakey & Cassady, 1990). The study results reveal that Group 2 participants demonstrated no change in their level of suspicion over time, in contrast to Group 1.

Low perceived social support is related to suspicion in the social environment. Suspicion is associated with the degree of trust and openness of the individuals toward the community and their confidence in receiving assistance. It prevents

individuals from developing openness to social support, inhibits their ability to trust the world, and hinders them from extracting maximum benefit from receiving social support (Addad, 2002). The NA program emphasizes the importance of individuals' openness and considers it part of the treatment process in improving interpersonal relationships. In NA meetings, much emphasis is placed on honesty, openness, and willingness (HOW). The virtues of HOW are practiced in the 12-step program and in fact are the keys to step 5 (honesty), step 2 (openness), and step 1 (willingness). Therefore, working through the 12-step program helps to increase trust and openness to social support, which explains the reduction in suspicion in Group 1 (12-step program) relative to Group 2 (NA meetings).

The findings revealed that approximately half of the participants were involved in criminal activities prior to substance abuse. The data seem to indicate that substance abuse was a contributory factor in participants' criminal activities that led to conviction.

There is a clear link between crime and drug abuse, although the strength of that relationship has varied between studies. Although no one factor can explain criminal behavior, it is undeniable that drug addiction is an important factor. Similar to the present findings, Inciardi, McBride, and Rivers (1996) argued that the majority of drug abusers involved in crime had well-established criminal careers prior to the onset of substance abuse but that prolonged substance abuse may intensify or prolong criminal involvement. Literature on drug treatment outcomes provides consistent support that there will be a consequent reduction in criminal activity (40%-70%) by reducing illicit drug abuse through effective treatment (Gossop et al., 1998).

The results of this study show that recovery from drug addiction is possible in Israeli prisons despite the fact that it is an extremely unfavorable place for recovery because of the high substance abuse rate (70%-80%; Schmidt & Hamram, 1996).

To the best of our knowledge, this is the first study to analyze the different influences of NA meetings (an external framework primarily for social support) versus the 12-step program (an internal framework for spiritual growth) on personal changes in recovering addicts. The uniqueness of this longitudinal study is its multidimensional, psychosocial, and spiritual evaluation of the treatment process. Few studies have assessed the entire treatment process in such a comprehensive manner. Most retrospective studies have been cross-sectional.

This study has limited applicability because of its unique population. Also, although the study should continue beyond incarceration, it was not possible in this case because the participants have not yet been released from prison. Further research should be directed to (a) the implementation of a spiritual program to other populations such as female inmates, gamblers, and individuals without a criminal record; and (b) the examination of the therapeutic factors inherent in 12-step programs that may increase the acceptance of 12-step programs among addiction professionals. Nevertheless, we believe that the current research provides some evidence that spirituality could be a significant factor in addiction recovery.

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