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The Impact of Social Support and Attachment Style on Quality of Life and Readiness to Change in a Sample of Individuals Receiving Medication-Assisted Treatment for Opioid Dependence

Alan A. Cavaiola, PhD, Barbara A. Fulmer, BA, and David Stout, PhD

ABSTRACT. *Background*: A basic principle within the addictions treatment field is that social support is a vital ingredient in the recovery process. This study examines the nature of social support in a sample of opioid-dependent men and women who are currently being treated in a medication-assisted treatment program (methadone). This research examines the types of social support behaviors that the opioid-dependent individuals consider helpful and explores whether attachment style (i.e., secure, ambivalent, or anxious attachment) was a determining factor in whether social support was perceived as helpful. The dependent variables included readiness to change addictive behaviors and abstinence from other mood-altering drugs. *Methods*: Participants ($N = 159$) completed a demographic questionnaire, the Significant Others Scale, the Experiences in Close Relationships Scale, the Multidimensional Scale of Perceived Social Support Assessment, the Readiness to Change Scale, and an Attachment Style Questionnaire. The demographic questionnaire included subjective ratings of self-improvement. *Results*: Social support predicted perceived improvement in all of the areas examined (e.g., health, family/social relationships) and abstinence; however, attachment style did not predict improvement or with readiness to change. *Conclusions*: Social support is an important factor in one's recovery from substance use disorders. Yet attachment style (i.e., anxious, avoidant, or secure) did not predict abstinence or overall improvement in functioning.

Keywords: Attachment style, medication-assisted therapy, methadone, recovery, social support

INTRODUCTION

Substance use disorders have a profound impact on those who experience the disorder, as well as family members and friends. Early research often stereotyped substance users as being isolated from their families; however, more recent research has found high occurrences of family involvement.[1,2] For example, an estimated 60–80% of individuals 35 and younger who experience a substance use disorder have daily contact with or lives with at least one parent. Approximately 80–95% have at least weekly contact.[3–5] Therefore, it is not surprising that contemporary practice guidelines for substance use disorders recommends an assessment of family/social supports and encouragement of family members and significant others to become involved in treatment.[6] Medication-assisted therapies, e.g., methadone maintenance, provide an opportunity to improve family relationships and increase positive social support. Additionally, some evidence suggests that involving family and significant others decreases dropout rates for individuals receiving medication-assisted therapy.[7]

Prior research suggests that medication-assisted treatment provides opportunities for health and lifestyle stabilization that often includes more beneficial social support from families and significant others. For example, improvements in overall quality of life were found within 6 months of entering a methadone maintenance program, including improvements in work functioning, physical health status, social functioning, and overall mental health.[8] Other studies point to improvements in overall quality of life for heroin

Department of Psychological Counseling, Monmouth University, West Long Branch, New Jersey, USA

Correspondence should be addressed to Alan A. Cavaiola, PhD, Department of Psychological Counseling, Monmouth University, 400 Cedar Avenue, West Long Branch, NJ 07764-1898, USA. E-mail: acavaiol@monmouth.edu

and opioid-dependent individuals who enter methadone maintenance programs.[9–15] In general, social support has also found to have beneficial impact on those in recovery for alcohol and drug dependence. For example, structural support (defined as having fewer drug users in one's social network) and functional support (defined as having support functions available) predicted cocaine abstinence but not opiate abstinence in a group of individuals receiving opioid maintenance therapy.[16] One study examined social support among a group of women convicted of drug offenses who were mandated to treatment and found that these women reported having 9 individuals in their support network.[17] Parents and partners were identified as providing practical help and advice, and two thirds of the women reported their mothers were their major supporters and would do whatever possible to help their daughters refrain from using drugs.[17] In a subsequent study using the same population, researchers found that half of the partners of these women did not provide constructive support and had even enabled their drug use, whereas parents, siblings, extended family, and friends were more supportive of their recovery.[18] Social support has been helpful in promoting abstinence from alcohol and other substances, as well as progressing from pre- to posttreatment.[19–25]

Attachment style has also been explored in the alcohol and drug treatment literature in terms of whether attachment style (secure, insecure, anxious/ambivalent attachment) predicts response to treatment and one's ability to form a therapeutic bond. Attachment style is associated with both the recognition and expression of emotion as well as emotional regulation. The ability to effectively regulate moods (especially negative mood states) is found to be vital in resisting relapse triggers.[26,27] Substance use disorders have been hypothesized as being correlated to emotional regulation difficulties and attachment difficulties.[28,29,30] The current study also examines whether attachment style predicts abstinence.

The current research investigated the following study questions:

1. Are supportive relationships more likely to predict abstinence and/or readiness to change?
2. Does attachment style predict abstinence and/or readiness to change?
3. Does attachment style help to predict whether the social support is perceived as helpful vs. detrimental to one's recovery?

This study adds to the existing research literature by examining whether social support from family members is perceived as helpful by the client and by examining whether social support is more readily accepted by those who are more securely attached. This would then suggest that social support may be a "two-way street" in which those who are insecure or anxious/ambivalent may be reticent to accept support or help from significant others.

METHODS

Participants

All participants in this study were in a methadone treatment program in the Northeast United States. See descriptive statistics in Tables 1 and 2 for participant characteristics. The participants ranged in age from 21 to 66, with a mean age of 46.37 (SD = 9.89). The majority of participants were male (51.0%), Caucasian (40.1%), single (45.9%), high school graduates or holders of a GED (General Educational Development; 64.9%), whose drug of choice was heroin (54.7%).

Procedure

Permission to gain access to individuals participating in medication-assisted treatment was granted from the program director of the clinic, at which point flyers were placed in the reception area of the methadone clinic alerting the clients to this study. Counselors also passed out flyers to the clients. Prospective participants were advised to inform his or her therapist of their willingness to volunteer. The flyer indicated that participants could expect to spend approximately 30 minutes filling out several questionnaires and would be compensated for his or her time with a $5 food gift card.

Following the informed consent, participants were asked to complete each questionnaire to the best of their ability. A counselor was available to assist those who experienced difficulty with reading or understanding the questions. After completion of the questionnaires, participants were debriefed as a group and thanked for their participation.

Measures

All measures and procedures for data collection were approved by the Institutional Review Board of Monmouth University.

Readiness to Change Questionnaire (RTCQ).[31] The RTCQ is a 12-item questionnaire based on Prochaska and DiClemente's Stages of Change or Transtheoretical Model.[32] The scale consists of statements such as "My drinking is a problem," "I don't think I drink too much," and "I am actually changing my drinking habits right now." Participants were asked to "circle the response that best fits each statement for you" using a 5-point Likert scale (1 = *strongly agree*; 5 = *strongly disagree*). The items are grouped into 3 subscales, Precontemplation, Contemplation, and Action, which correspond to the Stages of Change Model.[32] This measure has a reported alpha of .73 for Precontemplation, .80 for Contemplation, and .85 for Action. In the present study, alpha was .57 for Precontemplation, .70 for Contemplation, and .61 for Action. It should be noted that this measure was modified to include drug use as well. For example, "I enjoy my drinking/drugs, but sometimes I drink/take drugs too much."

Adult Attachment Questionnaire.[33] This questionnaire examines one's attachment style in terms of secure attachments characterized by trusting, close friendships, and love relationships that are perceived as positive and fulfilling; avoidant attachments characterized by anxieties and fears of intimacy in close relationships; and anxious/ambivalent attachments characterized by preoccupations with love and a desire for overinvolvement. This measure consists of 3 statements, such as "I am somewhat uncomfortable being close to others"; "I find it difficult to trust completely, difficult to allow myself to depend on them"; "I am nervous when anyone gets too close, and love partners often want me to be more intimate than I feel comfortable being." Each of the 3 statements, numbered 1–3, reflects an attachment style (e.g., secure, avoidant, anxious/ambivalent). Participants were asked to "choose the one

TABLE 1
Descriptive Statistics of Categorical Variables

Categorical variable (Instrument)	n	Valid percent
Gender (Demographic)	151	
Female	71	47.0
Male	77	51.0
Other	3	2.0
Race (Demographic)	147	
Asian	1	0.7
African American	45	30.6
Hispanic/Latino/Spanish ancestry	38	25.9
Caucasian	59	40.1
Other	4	2.7
Relationship status (Demographic)	148	
Married	31	20.9
Single	68	45.9
Divorced	13	8.8
Separated	8	5.4
Widowed	12	8.1
Domestic partnership	16	10.8
Education (Demographic)	148	
Elementary school	11	7.4
High school/GED	96	64.9
Some college	30	20.3
College degree	11	7.4
Drug of choice (Demographic)	128	
Heroin	70	54.7
Cocaine	2	1.6
Painkillers	5	3.9
Polydrug	51	39.8
Stage of change (RTCQ)	153	
Precontemplation	97	63.4
Contemplation	40	26.1
Action	16	10.5
Relationship style (AAQ)	122	
Avoidant	61	50.0
Secure	43	35.2
Anxious/ambivalent	18	14.8
Perceived social support (MSPSS)	143	
Low acuity	40	25.5
Moderate acuity	58	36.9
High acuity	45	28.7

that most closely describes your style in close relationships." Participants were given the opportunity to explain his or her choice. Finally, utilizing the same statements, participants were asked to select the statement that "best describes your partner in close relationships."

Significant Others Scale (SOS).[34] The SOS was developed to assess emotional and practical social support in 7 significant relationships (e.g., spouse/partner, mother, father, closest brother/sister, closest son or daughter, and best friend). The scale consists of questions such as "Can you trust, talk to frankly, and share your feelings with your spouse/partner?" "Can you lean on and turn to your spouse/partner in times of difficulty?" and "Does he/she give you practical help?" Participants were asked to rate each relationship using a 7-point Likert scale (1 = *never*; 7 = *always*), which indicates the participant's perception of actual support received. Additionally, after each question, participants were asked to

indicate what their ideal rating would be: "What rating would your ideal be?" utilizing the same scale. For each significant other, the response questions are paired in order to measure actual and ideal levels of support. Cronbach's alpha for the present study was .96.

Multi-Dimensional Scale of Perceived Social Support.[35] This a 12-item measure that assesses the participant's perceived social support from family, friends, and significant other. Participants were asked to respond to statements such as "There is a special person who is around when I am in need," "My family really tries to help me," and "I can count on my friends when things go wrong" utilizing a 7-point scale (1 = *very strongly disagree*; 7 = very strongly agree). High scores (range: 69–84) are said to have a "high acuity" for perceived social support, scores ranging from 49 to 68 reflect "moderate acuity," and scores of 12–48 are said to have "low acuity." This measure has a reported alpha of .88.

Experiences in Close Relationships—Revised Questionnaire (ECR-R).[36] The ECR-R is a 36-item questionnaire, which examines one's perception of close relationships in terms of how secure or anxious the individual feels about that close relationship. There are 2 subscales derived from the ECR-R; the first is the Attachment-Related Anxiety subscale, which measures anxieties and insecurities the individual experiences about the relationship. The second is the Attachment-Related Avoidance subscale, which measures one's avoidance of close relationships. Participants were asked to read each statement and respond using a 7-point Likert scale (1 = *strongly disagree*; 7 = *strongly agree*). Statements included "I'm afraid that I will lose my partner's love," "I rarely worry about my partner leaving me," and "I get uncomfortable when a romantic partner wants to be very close." This measure has a reported alpha of .90 or higher for the total scale and approximately .90 for Anxious and Avoidant subscales. In the present study, alpha was .92 for the total scale and .91 and .89 for the Anxious and Avoidant subscales, respectively.

Demographics. A demographic questionnaire was developed for the purpose of this particular study. Participants were asked to provide information related to gender, age, ethnicity, relationship status, level of education, drug of choice, drug he or she was being treated for, the frequency in which they used the drug prior to entering treatment, and the longest period of abstinence from their drug of choice. Further, participants were asked to indicate improvement in areas such as health, coping skills, and relationships with family, friends, and significant others utilizing a 5-point scale (1 = *no improvement*; 5 = *greatly improved*). See Table 3 for improvement ratings.

Finally, participants were also asked to identify from a list of significant others (e.g., mother, father sister, brother, friends) who were supportive and not supportive of their recovery and to identify behaviors that reflected support, "they believe in me," "they are confident I can get better," "they tell me they love me," or lack of support, "they criticize me," "they reject me," "they put me down." These results are presented in Table 4.

Data Analysis

The current study utilized multiple linear regression to examine the ability of predictors of social support variables and attachment

TABLE 2
Descriptive Statistics of Scale Variables

Variable (Instrument)	Valid n	M (SD)
Demographics (DQ)		
Age	144	46.37 (9.89)
Days of abstinence	104	289.86 (366.00)
Total number of supportive people	157	3.05 (2.06)
Readiness to change (RTCQ)		
Precontemplation	154	13.00 (4.11)
Contemplation	150	9.86 (4.11)
Action	155	7.55 (3.16)
Perceived social support (SOS)		
Perceived actual emotional support	151	3.60 (1.49)
Perceived ideal emotional support	147	3.75 (1.65)
Perceived actual-ideal emotional support discrepancy	147	−0.15 (1.17)
Perceived actual practical support	151	3.52 (1.53)
Perceived ideal practical support	147	3.73 (1.68)
Perceived actual-ideal practical support discrepancy	147	−0.20 (1.06)
Perceived social support (MSPSS)		
Perceived social support	143	57.74 (17.51)
Attachment (ECR-R)		
Attachment-related anxiety	142	2.86 (1.48)
Attachment-related avoidance	141	2.89 (1.33)

styles to predict abstinence and readiness to change. In addition, analysis of variance (ANOVA) was employed to examine group differences in length of abstinence, stage of change, and perceived social support.

RESULTS

Descriptive Statistics

Descriptive statistics for scale variables are presented in Table 2. Unexpectedly, participants in this study scored highest on the Precontemplation subscale ($M = 13.00$ [SD = 4.11]) of the RTCQ. Perceived actual-ideal emotional ($M = −0.15$ [SD = 1.17]) and practical ($M = −0.20$ [SD = 1.06]) support discrepancy values on the SOS were both negative, indicating that participants tended to perceive lower levels of actual social support than what they would consider to be ideal. Tables 1 and 2 also include the descriptive statistics for additional measures of social support, attachment, and abstinence. The majority of participants fell within the Precontemplation stage (63.4%), with an avoidant attachment style (50.0%), and having moderate acuity for perceived social support (36.9%). These results and other descriptive statistics for categorical variables are also presented in Table 1.

Predicting Abstinence and Readiness to Change

Multiple regression analysis was performed to determine if supportive relationships are significant predictors of abstinence. See Table 5 for a summary of regression results. Mean level of perceived actual emotional support (SOS), mean level of perceived ideal emotional support (SOS), mean level of perceived actual practical support (SOS), mean level of perceived ideal practical support (SOS), actual-ideal emotional support discrepancy (SOS), actual-ideal practical support discrepancy (SOS), and social support acuity category (MSPSS) were entered as predictors of abstinence in days. The backward selection method was used. After 3 steps in which all predictors were entered based upon the probability of $F = .05$ and then removed based on the probability of $F = .10$, social support acuity category, mean level of perceived actual practical support, and mean level of perceived actual emotional support remained as the only significant predictors of abstinence, $R^2 = .095$, adjusted $R^2 = .065$, $F(3, 90) = 3.16$, $P = .028$.

TABLE 3
Self-reported Overall Improvement Since Entering Treatment

Area of improvement	Somewhat worse	No improvement	Improved	Missing	Mean (SD)
Health improvement	5.1%	17.8%	58.0%	19.1%	3.81 (1.04)
Relationships with family	1.9%	18.5%	61.2%	18.4%	3.98 (1.10)
Social relationships with friends	1.3%	33.1%	44.6%	21.0%	3.66 (1.10)
Able to cope emotionally	3.2%	24.2%	56.7%	15.9%	3.78 (1.04)
Able to cope with stress	7.0%	22.9%	52.2%	17.9%	3.69 (1.07)
Able to function at home, work, school	2.5%	20.4%	60.5%	16.6%	4.04 (0.97)

1 = no improvement; 5 = greatly improved.

TABLE 4
Significant Others Who Are Most Supportive of Recovery

Most supportive	n	Percentage
Mother	70	44.6
Counselor	65	41.4
Sister	60	38.2
Brother	43	27.4
Girlfriend	36	22.9
Boyfriend	34	21.7
Case worker	30	19.1
Father	27	17.2
Aunt	20	12.7
Wife	18	11.5
Husband	18	11.5
Uncle	15	9.6
Boss	10	6.4
Grandmother	9	5.7
Daughter	8	5.1
Son	7	4.5
Co-worker	6	3.8
Grandfather	3	1.9
Encouraging behaviors		
They believe in me	107	68.2
Tell me they love me	106	67.5
Are honest with me	106	67.5
Will help me	106	67.5
There when I need them	101	64.3
Confident I can get better	98	62.4
Express concern for me	97	61.8
Not critical of me	73	46.5
Discouraging statements		
Won't acknowledge when I'm doing things to improve myself	68	43.3
Do not believe I can get better	66	42.0
Criticize me	64	40.8
Not there when I need them	57	36.3
Do not believe in me	52	33.1
Put me down	50	31.8
Angry with me	44	28.0
Reject me	43	27.4
When I need a favor, they refuse	39	24.8
Accuse me of being lazy	28	17.8

However, examination of collinearity revealed low tolerance and high variance inflation factor (VIF) values for mean level of perceived actual practical support and mean level of perceived actual emotional support. This was likely caused by the fact that these are strongly correlated measures ($r = .95$) from the SOS, which has very strong internal consistency (Cronbach's alpha $= .96$). On the other hand, collinearity tolerance and VIF values were acceptable for social support acuity. Furthermore, hierarchical linear

TABLE 5
Results of Multiple Regression Analyses

Variable	Predictor(s)	R^2	Adjusted R^2	F (df)	P	Tolerance	VIF
Days of abstinence	Social support acuity category	.095	.065	3.16 (3,90)	.028	.672	1.49
	Perceived actual practical support					.072	13.91
	Perceived actual emotional support					.071	14.16
Precontemplation	None	.000	.000	—	—	—	—
Contemplation	Social support acuity category	.042	.035	5.61 (1,128)	.019	1.00	1.00
Action	None	.000	.000	—	—	—	—

regression, controlling for all demographic variables (gender, age, relationship status, education level, and drug of choice), revealed that only age was a stronger predictor of abstinence than the social support predictor variables ($R^2 = .197$, adjusted $R^2 = .188$, $F(1, 89) = 21.56$, $P < .001$). See "Influence of Demographic Variables" below for additional information regarding this influence of age on abstinence. According to these results, supportive relationships predicted abstinence but these relationships lost their predictive power when accounting for participant age.

The ability of these same social support predictors to predict readiness to change was then tested using multiple regression analysis. Again using the backward method, after 11 steps, social support acuity (MSPSS) remained as the only significant predictor of Contemplation score (RTCQ), $R^2 = .042$, adjusted $R^2 = .035$, $F(1, 128) = 5.61$, $P = .019$. Accounting for all demographic variables using hierarchical linear regression had no effect on the ability of social support acuity to predict Contemplation score. Collinearity tolerance and VIF levels were acceptable. On the other hand, all predictors were removed when attempting to predict Precontemplation and Action scores ($R^2 = .000$). Therefore, social support acuity was the only significant social support predictor of readiness to change, and specifically the Contemplation stage.

In order test to ability of attachment style to predict abstinence, multiple regression analysis with backward selection was again employed. Levels of attachment-related anxiety (ECR-R) and attachment-related avoidance (ECR-R), as well as relationship styles (RSQ), were entered as predictors, but none of these variables emerged as significant predictors of abstinence ($R^2 = .000$). Likewise, none of these variables were significant predictors of Precontemplation score ($R^2 = .000$). However, attachment-related anxiety emerged as a significant predictor of Contemplation ($R^2 = .062$, adjusted $R^2 = .053$, $F(1, 109) = 7.17$, $P = .009$) and attachment-related avoidance was a significant predictor of Action ($R^2 = .029$, adjusted $R^2 = .021$, $F(1, 113) = 3.39$, $P = .068$). In both cases, the significant predictors had acceptable levels of collinearity (1.00) and VIF (1.00). Furthermore, accounting for all demographic variables using hierarchical linear regression had no effect on the ability of attachment-related anxiety to predict contemplation and attachment-related avoidance to predict action. Therefore, attachment styles did not predict abstinence; however, attachment style did predict whether the participant was in the Contemplation and Action stages of change.

Perception of the Influence of Social Support on Recovery

The ability of attachment styles to predict the perception of social support as helpful or detrimental to one's recovery was then tested. Utilizing separate multiple regression analyses with backward selection, levels of attachment-related anxiety (ECR-R) and attachment-related avoidance (ECR-R), as well as relationship styles (RSQ), were entered as predictors of SOS scores. The results of these analyses are presented in Table 6. As noted, attachment-related avoidance was a significant predictor of mean level of perceived actual emotional support, discrepancy between perceived actual and ideal emotional support, and mean level of perceived actual practical support. Hierarchical linear regression revealed that race was the only significant demographic predictor of perceived actual emotional support, discrepancy between perceived actual and ideal emotional support, and mean level of perceived actual practical support, but this did not reduce the predictive power of attachment-related avoidance. Additionally, anxious/ambivalent attachment anxiety was retained as the only significant predictor of discrepancy between perceived actual and ideal practical support, as it was the only predictor that did not exceed the $P = .10$ criteria for removal. In this case, controlling for all demographic variables using hierarchical linear regression revealed that only anxious/ambivalent attachment anxiety predicted this discrepancy between perceived actual and ideal practical support. Accordingly, attachment styles predicted perception of social support.

Influence of Demographic Variables

Analysis of variance (ANOVA) was employed to explore differences between groups based on gender, age, and relationship status. See Table 7 for a summary of ANOVA results. Results suggested a significant gender difference in Action scores, with men scoring 1.74 points higher than women on average according to Scheffe's post hoc test. Age groups were found to differ in span of abstinence. Specifically, older participants (aged 51–66) experienced significantly more days of abstinence than participants aged 21–35 ($M_{\text{diff.}} = 2542.31$, $P = .003$) and those aged 36–50 ($M_{\text{diff.}} = 1881.23$, $P = .003$). Relationship statuses also significantly differed in duration of abstinence, with those who are widowed experiencing far more days of abstinence than those who are single ($M_{\text{diff.}} = 3380.95$, $P = .027$), although this could possibly have been an artifact of sample size ($n_{\text{widowed}} = 8$; $n_{\text{single}} = 50$).

ANOVA also exposed ethnic group differences in social support. Levels of perceived actual emotional support differed based on ethnic group, with African Americans perceiving more actual emotional support than European Americans ($M_{\text{diff.}} = 18.46$, $P < .001$) and Latinos ($M_{\text{diff.}} = 9.55$, $P = .029$). Ethnic group differences were also found in perceived actual practical support, in which African Americans perceived more actual practical support than European Americans ($M_{\text{diff.}} = 18.46$, $P < .001$) and Latinos

TABLE 6
Results of Multiple Regression Analysis

Variable	Predictor	R^2	Adjusted R^2	F (df)	P	Tolerance	VIF
Perceived actual emotional support	Avoidance	.060	.053	8.56 (1,135)	.004	1.00	1.00
Perceived ideal emotional support	None	.000	.000	—	—	—	—
Actual-ideal emotional support discrepancy	Avoidance	.029	.022	3.91 (1,131)	.050	1.00	1.00
Perceived actual practical support	Avoidance	.050	.043	7.13 (1,135)	.009	1.00	1.00
Perceived ideal practical support	None	.000	.000	—	—	—	—
Actual-ideal practical support discrepancy	Anxiety	.022	.014	4.28 (1,131)	.041	1.00	1.00

TABLE 7
ANOVA Results for Demographic Variables

Variable	Factor	df	F	P	Partial η^2
Action stage of change	Gender	(2,148)	6.69	.002	.08
Length of abstinence	Age	(2,101)	8.47	<.001	.14
Length of abstinence	Relationship status	(5,101)	2.89	.018	.13
Perceived actual emotional support (SOS)	Ethnicity	(4,139)	5.71	.002	.14
Perceived actual practical support (SOS)	Ethnicity	(4,139)	5.28	.001	.13
Perceived social support (MSPSS)	Ethnicity	(4,132)	2.51	.045	.07
Total number of supportive people	Ethnicity	(4,142)	2.65	.036	.07
Attachment avoidance	Relationship status	(5,130)	3.16	.010	.11

($M_{\text{diff.}}$ = 10.02, P = .027). Likewise, ethnic differences in perceived social support (MSPSS) were also detected, again suggesting that African Americans perceived more social support than European Americans ($M_{\text{diff.}}$ = 10.60, P = .002) and Latinos ($M_{\text{diff.}}$ = 7.83, P = .044). Lastly, a significant difference in total number of support people was also found, with African Americans reporting more supportive people in their lives than European Americans ($M_{\text{diff.}}$ = .87, P = .026) and Latinos ($M_{\text{diff.}}$ = .93, P = .031).

Finally, ANOVA revealed that levels of avoidance (ECR) differed between relationship statuses. Participants who were married experienced less avoidant attachment styles than those who were single ($M_{\text{diff.}}$ = −.75, P = .010) or separated ($M_{\text{diff.}}$ = −1.19, P = .042). In addition, those who were in a domestic partnership experienced less avoidant attachment than those who were single ($M_{\text{diff.}}$ = −1.10, P = .003) or separated ($M_{\text{diff.}}$ = −1.55, P = .014).

Prediction of Perceived Improvement

Multiple regression analyses were conducted to predict perceptions of improvement since beginning treatment. Using the backward selected method, mean levels of perceived actual emotional support (SOS), mean level of perceived ideal emotional support (SOS), mean level of perceived actual practical support (SOS), mean level of perceived ideal practical support (SOS), actual-ideal emotional support discrepancy (SOS), actual-ideal practical support discrepancy (SOS), attachment-related anxiety (ECR-R), attachment-related avoidance (ECR-R), self-efficacy (SE), and total number of supportive people were entered as predictors. The results indicated that mean levels of perceived ideal emotional support and discrepancy between perceived actual and ideal emotional support were significant predictors of health improvement (R^2 = .112, adjusted R^2 = .096, $F(2, 109)$ = 6.86, P = .002). In the prediction of improvement in relationships with family, mean levels of perceived ideal emotional support, discrepancy between perceived actual and ideal emotional support, attachment-related anxiety, and total number of supportive people (R^2 = .229, adjusted R^2 = .200, $F(4, 107)$ = 7.96, P < .001). Similarly, total number of supportive people, mean levels of perceived ideal emotional support, discrepancy between perceived actual and ideal emotional support, and mean levels of perceived actual practical support were significant predictors of improvement in social relationship with friends (R^2 = .131, adjusted R^2 = .097, $F(4, 104)$ = 3.90, P = .005). In the prediction of improved ability to cope with stress, total number of supportive people and mean level of perceived ideal

emotional support were significant predictors (R^2 = .105, adjusted R^2 = .088, $F(2, 110)$ = 6.43, P = .002). Finally, attachment-related anxiety was determined to be the sole significant predictor of improvement in ability to function at home, work, or school (R^2 = .072, adjusted R^2 = .064, $F(1, 114)$ = 8.91, P = .003).

DISCUSSION

The majority of participants indicated that social support was a powerful influence in their decision to enter treatment, and the main hypothesis (i.e., social support would predict longer periods of abstinence and readiness to change) was supported by the data analysis. This suggests that social support is influential in both the initiation and maintenance of treatment. In addition, it was noted that social support (both number of supports and perceived support) had a positive impact on self-reported improvements in quality of life areas (e.g., health, emotional ability to cope with stress, and family and social functioning). This is similar to prior research that found several areas of life functioning improvement often within months of entering a medication-assisted program.[3–12]

With regards to readiness to change, unexpectedly the majority of participants identified themselves as being in the Precontemplation stage. It is difficult to explain this finding, given that all the participants included in the study were receiving opioid-assisted medication treatment at the time of their participation. However, if we view medication-assisted treatment as a waypoint between active substance dependence and recovery, it's possible that while having made a commitment to abstaining from opioids, the participants were still uncertain whether to take steps towards detoxification from methadone and becoming totally drug-free. It should also be noted that not all participants indicated that heroin or other opioids substances was his or her drug of choice; 39.8% indicated more than one drug of choice and 70.6% of those participants indicated that cocaine was their drug of choice. Therefore, perhaps those receiving medication-assisted treatment for opioids had not yet made a commitment to abstain from other drugs of choice.

The other main hypothesis (i.e., that those manifesting secure attachment style would be more likely to predict abstinence and readiness to change and perceive social support more favorably) was not supported. Instead, it appears that those who manifest anxious/ambivalent attachment style tend

to have a greater appreciation of actual social support, and avoidant attachment styles tend to note greater discrepancies between actual and ideal social support. This appears to be consistent with the research literature that suggests that avoidant and anxious/ambivalent attachment styles have more difficulty with emotional regulation and negative mood states and are also less likely to reach out to others for support.[26,27] These characteristics tends to be common in many individuals with substance use disorders and attachment disorders.[29,30] Interestingly, 38.9% of the participants manifested an avoidant attachment style, whereas 11.5% manifested an anxious/ambivalent style. Only 27.4% of the participants manifested a secure attachment style (22.3% had not committed to a particular attachment style).

Finally, we sought to examine those individuals who were considered most supportive and the various types of behaviors that participants found to be helpful vs. unhelpful. In identifying social supports, most of the sample indicated that immediate family (i.e., mothers, sisters, brothers) were part of their support network. However, an interesting yet significant finding was that 41.4% of the participants indicated that their counselors in the medication-assisted treatment program were key supports in their recovery. Extended family (aunts, uncles, grandparents) and fathers, friends, and boyfriends/girlfriends were found to be less actively involved as supports when compared with the immediate family members noted. This is similar to Falkin and Strauss[18,19] who found that immediate family members, mothers especially, were important sources of recovery support. Also, it appears that particular supportive behaviors were perceived as significantly more helpful, e.g., refraining from being critical, being honest with the participant, expressing love, helping behaviors, expressing concern, as well as expressing confidence and belief in their ability to recover. This is similar to the type of support that was found useful with other recovering populations.[20–26]

There were several interesting findings that were derived from the main study questions. We were fortunate to have a demographically diverse sample. Concerning gender, we found that men were more likely to be in the Action phase, perhaps reflecting a more active approach to their treatment. Marital status revealed that widows were more likely to have more abstinence, whereas individuals who were married and currently in domestic partner relationships were less likely to have an avoidant attachment style. It seems likely that those who are less avoidant would be more likely to be in committed relationships, although these partners were not usually considered to be a main source of addiction recovery support. Also, with regards to race, African Americans were more likely to perceive both actual and perceived support from significant others as being more helpful.

This study was limited by sample size, and it was noted that some of the participants did not complete all of the questionnaires, which resulted in missing data. A more careful review of the questionnaires as participants were turning them in could have prevented this difficulty. Also, given the limited sample size and the number of questionnaires administered, this may have resulted in multiple comparison problems. Future research might also divide the sample into 2 groups, participants who had 90 days or less in medication-assisted treatment vs. those with greater than 90 days in order to see if those with more time in treatment would have developed more satisfying support systems. Another limitation was that all participants were derived from the same treatment program. Future research could focus on recruiting participants from other programs.

In conclusion, there were several noteworthy findings that have important clinical implications. First, social support is helpful to one's decision to initiate treatment and to maintain abstinence. Counselors along with first-degree family members were identified as main supports. This suggests that counselors may increase positive outcomes by emphasizing the development of a positive, supportive therapeutic relationship and by involving first-degree family members as soon as possible in the treatment process. Kidorf et al.[12] recommends that medication-assisted treatment programs offer specific behavioral interventions to encourage and enhance supportive, non–drug-using social networks. These family members and socials supports can then be mobilized to assist in improving recovery. The second main finding was that most clients were in the Precontemplation stage. The goal of medication-assisted treatment is to establish abstinence from opioids by emphasizing changing "people, places, and things." It is also important to keep in mind that Attachment style did not predict abstinence. Therefore, counselors who make an effort to engage clients in the treatment process are as likely to help their clients achieve success regardless of their attachment style.

AUTHOR CONTRIBUTIONS

Dr. Cavaiola and Barbara Fulmer were involved in designing the study and in drafting the manuscript. Ms. Fulmer was also responsible for data collection, data coding, and data entry. Dr. Stout was involved in statistical analysis and writing the Results and Discussion sections.

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