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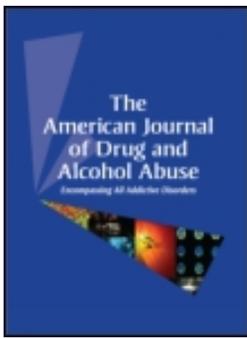
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The Utility of Mentoring Homeless Adolescents: A Pilot Study

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Background: Despite the intuitive appeal and popularity of mentoring programs, mentoring has shown only limited success for positively impacting children's psychosocial functioning. Furthermore, we were not able to identify a study that examined the potential utility of mentoring for homeless adolescents. **Objective:** The purpose of this pilot study was to examine the impact of mentoring among a group of homeless adolescents who were also receiving substance abuse treatment. **Methods:** This pilot study examined the impact of mentoring among homeless adolescents ($n = 90$) between the ages of 14 and 20 years who also received substance abuse treatment. A longitudinal design was used in which adolescents were assessed at baseline, 3 months, and following the completion of treatment at 6 months postbaseline. **Results:** Findings showed that adolescents with a history of physical or sexual abuse attended more mentoring sessions. Also, mentoring in addition to treatment was associated with a decrease in problem consequences associated with substance use. However, more mentoring with fewer treatment sessions was associated with an increase in internalizing behaviors. Only these two outcomes were associated with mentoring. **Conclusions and Scientific Significance:** While not providing resounding support for mentoring, this study suggests that examining the mentor/mentee relationship may be a fruitful line of future research given that significant variability among the mentor/mentee pairs was noted for some outcomes of interest.

Keywords: adolescent substance abuse, mentoring, multilevel models

INTRODUCTION

The focus on mentoring programs has increased in recent years. Mentoring is a method used to improve

positive adolescent development by pairing children or adolescents with an adult who provides ongoing guidance, encouragement, and instruction (1). While mentoring is appealing as a concept, few studies provide unequivocal support for mentoring as a strategy to prevent or to intervene in high risk or other problem behaviors. Also, the nature of the mentoring relationship is assumed to influence the behavior of the young person (2,3); however, the sociodemographic characteristics of the young person who would be willing to engage in a mentoring relationship have not been fully delineated. A methodological consideration is that many studies examine mentoring as a stand-alone intervention (4). However, when working with adolescents seeking substance abuse treatment, mentoring has become increasingly popular as an adjunct to enhance the impact of substance abuse treatment, especially for those with few adult supports (5). This study sought to identify predictors associated with mentoring session attendance and the impact of mentoring on problem behaviors among an especially vulnerable group, homeless adolescents seeking substance abuse treatment. The findings from this study can provide important information regarding the potential utility of mentorship programs for these adolescents.

Research indicates that a positive relationship with an adult is a protective factor for vulnerable and at-risk children (6). The lack of a supportive relationship with an adult is linked to substance use, poor academic achievement, and poor psychosocial adjustment (7). Homeless adolescents often report limited positive relationships with adults. In fact, for many of these adolescents, relationships with adults in their lives have been characterized by abuse, betrayal, and lack of trust (8). Furthermore, the range and severity of individual and social struggles among homeless adolescents (including high levels of substance abuse, HIV risk, delinquency, and mental and physical health problems) are significant issues for those who serve this population (9,10). At least intuitively, a positive relationship with an adult mentor might have the potential to interrupt the negative life trajectory of these adolescents.

Despite the intuitive appeal, evaluations of mentoring programs have shown only limited success. Two recent meta-analyses conclude that the positive impact of mentoring programs yield only small effect sizes (4,11). Rhodes and Dubois (12) note that there are many unanswered questions in regard to mentoring and that more research is needed to guide the development of effective mentoring programs before mentoring can be fully adopted as an evidence-based intervention. For example, research on adolescent's attendance in mentoring is scarce. One study suggests that older adolescents, those who were referred for services and those who sustained emotional, sexual, or physical abuse, were more likely to terminate their mentoring relationship early (7). Among other intervention programs, in particular substance abuse treatment, early drop out is found among older adolescents (13), males (14), more severe substance users (15), and those with more housing instability (16). Since some evidence suggests that the success of mentoring is associated with a close, consistent, and enduring relationship (7,12), evaluation of those variables associated with mentoring attendance among homeless adolescents is needed.

One obstacle in evaluating the impact of mentoring on adolescent behavior is that mentorship programs are often components of larger intervention programs, and the independent effects of mentoring are difficult to untangle (17). However, mentorship programs are often used to augment other treatments (11), and understanding the impact of mentoring above and beyond that of the treatment services for homeless youth was of interest in this study. In particular, using a sample of homeless adolescents who sought substance abuse treatment, this study had two goals. The first goal was to explore the sociodemographic predictors of mentoring attendance. The second goal was to evaluate the impact of mentoring, beyond that of substance abuse treatment, on substance use frequency, problem consequences of substance use, depressive symptoms, and internalizing and externalizing problem behaviors.

METHODS

Participants

All adolescents ($N = 90$) were engaged through a drop-in center and were part of a larger study examining treatment outcome for homeless adolescents. To be eligible for participation, adolescents were between the ages of 14 and 22 years, met DSM-IV criteria for Alcohol or other Psychoactive Substance Use Disorders, as assessed by the Computerized Diagnostic Interview Schedule for Children (CDISC (18)), and met criteria for homelessness as defined by the McKinney-Vento Act (19) as lacking a fixed, regular, stable, and adequate nighttime residence including living in a publicly or privately operated shelter designed to provide temporary living accommodations, or a public or private place not designed for, or ordinarily used as, regular sleeping accommodations for human beings.

Sample

Of the sample of participants who were randomly assigned to receive the substance abuse treatment as well as mentoring ($n = 48$), 25 were males and 23 were females. The average age of the sample was 17.46 ($SD = 2.16$). Of the sample, 54% was White, non-Hispanic, 29% was Hispanic, and 16.7% were Native American, African American, or reported some other ethnic background. Fifty-eight percent of the sample reported some form of abuse (physical, sexual, or both).

Materials

The research assistant interviewed adolescents using standard questions that assessed participants' age, gender, race/ethnicity, and homeless experiences. Child abuse history was assessed through a series of brief questions, a method that has been used successfully to capture child abuse history (20). Physical abuse was assessed using the question, "Has anyone ever hurt you physically – enough to leave marks or bruises or burns?" Sexual abuse was assessed using the question, "Has anyone ever touched you sexually in a way that made you feel uncomfortable OR hurt you OR that was against your will?" Adolescents who said they had experienced either type of abuse (physical or sexual) were asked to report the frequency and duration of the abuse, nature of abuse, perpetrator, and if the abuse was reported to the authorities. For the purposes of the study, responses were used to categorize adolescents into non-mutually exclusive child abuse exposure groups: no history of abuse; sexual abuse or physical abuse; or both physical and sexual abuse.

The Form 90, developed for National Institute on Alcohol Abuse and Alcoholism (NIAAA)-funded Project Match (21), was used to assess the severity of drug and alcohol use among adolescents in the prior 90 days. The Form 90 is a semi-structured interview assessing quantity and frequency of drug and alcohol use using the timeline follow-back method and grid averaging. This interview yields total number of days, in the last 90, of all alcohol and drug use, as well as school and work attendance, living situation, and medical care utilization.

The Beck Depression Inventory-Second Edition (BDI-II) (22) was used to assess depressive symptoms during the past 2 weeks. The BDI is a 21-item self-report scale that uses a 4-point Likert scale. Scores range from 0 to 63, with higher scores indicating more depressive symptoms. Cronbach alpha for the current sample was .92.

The Youth Self-Report of the parent-reported Child Behavior Checklist (23) is a 120-item scale that provides factor scores for internalizing and externalizing problem behaviors. The internal consistency reliabilities for this sample were .89 and .88 for the internalizing and externalizing subscales, respectively.

To address problem consequences associated with drug use, the Problem Oriented Screening Instrument for Teenagers (POSIT) (24) was utilized. Support for the psychometric properties of the POSIT, including convergent and discriminant validity, has been reported by McLaney

et al. (25). The internal consistency reliability (alpha) for this sample was .875.

Procedure

Potentially eligible adolescents were screened for participation in the larger study, and the baseline assessment battery was administered to those eligible who consented to participate. Adolescents ($N = 90$) were randomly assigned to either (i) the project intervention (community reinforcement approach (CRA+)) ($n = 48$) or (ii) treatment as usual (TAU) through the drop-in center ($n = 42$). Adolescents assigned to the 12-week project intervention received a total of 28 sessions: 16 sessions of a substance use/mental health intervention, the Community Reinforcement Approach (26), and 12 sessions with an adult mentor ($n = 27$). Intervention began following completion of the baseline assessment battery and randomization. The baseline assessment required approximately 2 hours to complete. For completing the assessment, adolescents received a care package with toiletries, food items, socks, and underwear. For the current project, it was not possible to compare the TAU group because data about the number of sessions the youth may have attended were not part of the data collected for TAU at the drop-in center.

Mentoring

Volunteer mentors received a 1-day training and orientation by the project coordinator in which information regarding homeless adolescents' needs, experiences, and struggles were summarized and project expectations including the format of the mentoring sessions were presented. All mentors received a criminal background check. Adolescents assigned to substance abuse treatment were also assigned to an adult mentor who met weekly with the adolescents during the treatment phase. Mentors were paired with adolescents based on gender, ethnicity, and sexual orientation. The mentor provided advice and encouragement and discussed strategies for solving problems related to the adolescent's living situation, finances, staying sober, job finding, obtaining bank accounts, and making new friends. The mentor encouraged and assisted the adolescents in developing hobbies and recreations of their choice. Mentoring was flexible, with meeting times varying from an hour to an afternoon. Also, variations in the goals set between the mentor and the adolescent could be integrated into an individualized mentoring plan. The following provides an outline of the mentoring intervention.

Phase 1 (Meeting 1–2): Rapport Building and Goal Setting. The goal of phase 1 was for the mentor to develop rapport with the adolescents and to begin establishing a relationship. The mentor described his or her role in the adolescent's treatment and explored with the adolescents his or her expectations for the mentoring experience. Compared to the adolescent's therapist, the mentor had more flexibility, fewer time constraints, and worked with the adolescents in many different contexts outside

the therapy setting (e.g., recreational activities). Phase 1 included goal setting in the following areas: job finding, establishing stable housing, staying sober, enrollment into alternative school programs, and engaging in prosocial recreational activities.

Phase 2 (Meetings 3–6): Social Stability. The adult mentor assisted adolescents in accessing resources in the community including Medicaid, housing, and food. Marshall and Bhugra (27) noted that outpatient therapy appointments are a low priority for the homeless person who needs shelter and food. Discrepancies between perceived needs by the homeless and by mental health professionals can create a dichotomy that leads to a rejection of the services (28). Thus, when working with the homeless, basic needs including food, shelter, medical care, and clothing should be addressed.

Phase 3 (Meetings 7–10): Competing Reinforcers. Adolescents were assisted in identifying rewarding recreational activities and alternative support systems. While the CRA therapist assisted adolescent in identifying such activities, the mentor's task included actively engaging in alternative recreational activities with adolescents and linking the adolescents with nonusing peer support systems, such as AA or NA, church organizations, and community centers. As noted in the literature, homeless adolescents are enmeshed in a substance-using culture, in which use of alcohol and drugs is the norm. This peer group serves as a powerful reinforcer to adolescents who have become alienated from most other members of society. Discontinuing the use of alcohol and/or drugs makes adolescents vulnerable to further alienation from their only support system (fellow using peers).

Hence, Phase 4 (Meeting 11–12): Termination. The goal of the termination phase was for the mentor–protégé relationship to be terminated and for the adolescent to access alternative supports. Throughout the mentoring process, adolescents were assisted in developing a support system of caring peers and adults in the community. The mentor reviewed the support systems available to the adolescents, encouraged their continued use, and prepared the adolescents for potential obstacles in accessing support.

Overview of Data Analyses

Researchers conducting randomized clinical trials frequently use an intent-to-treat analysis as a means to combat the statistical and methodological threats induced by attrition or noncompliance. Intent-to-treat analysis includes all cases in the statistical analyses, regardless of attrition or compliance (29). For example, in this study, some participants withdrew and did not attend any CRA ($n = 7$) or mentoring sessions ($n = 9$). Other participants attended CRA sessions but failed to attend any mentoring sessions ($n = 12$). Including all cases in our analyses improves the internal validity of the study since

the impact of mentoring and its outcomes are not positively inflated by including only those who agreed to attend the mentoring sessions.

To explore the impact of mentoring above and beyond CRA, we used hierarchical linear modeling (HLM) (30). In this case, there are measures of the dependent variables within adolescents. Although adolescents were grouped within mentor to some degree, the sample size was too small to test for mentor effects. That is, most mentors were assigned to only one adolescent, while others had more than one. The highest number of mentees for a particular mentor was four, four mentors had three mentees, and seven mentors had two mentees. The mentor/mentee relationship would have an impact on the number of sessions attended and more than likely on the effectiveness of the mentoring.

RESULTS

To determine whether sociodemographic variables were related to the number of mentoring sessions attended, we computed a series of *t*-tests to see if there were differences between males and females and between those who had not experienced any form of abuse and those who had. There were no significant differences in the number of mentoring sessions by gender ($t = -.863$; $p = .38$). There was a significant difference in the number of mentoring sessions attended for abuse. Those who reported no abuse (mean sessions = 2.53) attended fewer sessions than those who reported some form of abuse (mean sessions = 5.56; $t = -2.12$; $p < .05$). There were also no differences due to the race/ethnicity of the youth ($F(2, 37) = 1.89$; $p = .16$) nor any differences between the younger (<18 years of age) and older (18–24) youth in the treatment program ($t = .200$; $p = .842$).

We also examined the correlations between the outcome variables of interest and number of mentoring sessions attended to determine if the severity of the problems or symptoms was related to the number of mentoring sessions attended. These correlations can be found in Table 1. There were no significant relationships between baseline measures for substance use, depressive symptoms, problem behaviors, and internalizing and externalizing scores and the number of mentoring sessions attended.

TABLE 1. Correlations for the number of mentoring sessions with the initial scores on outcomes of interest ($n = 48$).

	Number of mentoring sessions	Mean of outcome score (SD)
Substance use	.12	66.32 (32.40)
BDI	-.09	17.58 (10.84)
POSIT	.03	6.61 (3.86)
Internalizing	.04	17.87 (9.67)
Externalizing	.06	24.79 (9.28)

Note: BDI, Beck Depression Inventory; POSIT, Problem Oriented Screening Instrument for Teenagers.

These preliminary analyses provide information about the central tendencies within the sample. Although this is useful for a quick “snapshot” of the data, there is variability around these central tendencies and it may be useful to examine this variability in order to understand the impact of mentoring in addition to substance abuse treatment. To examine this variability, we used the computer software program HLM6.6 (31). We selected multilevel modeling (MLM) for several reasons. First, MLM allows the analyst to examine nested data, in this case measures within the youth across time. Second, rather than using a list-wise deletion of missing data, the HLM program weights cases with data missing at different time points differently than cases with all data. Thus, we can maximize the sample size in order to increase the statistical power by including all cases (an intent-to-treat analysis). Finally, MLM provides the analyst with a way to examine variation in the slopes or variation in how these outcome variables change within the sample, rather than examining the central tendency in the data, which we would get if using a repeated measures ANOVA. It should be noted that the sample for these analyses was 40 participants at level 2 given the pattern of missing data, with 103 data points at level 1. The statistical power from an MLM analysis comes from the number of data points at each level. Power is increased by having more data points at a level lower than the estimates of interest. In this case, these were the estimates for the impact of mentoring sessions above and beyond the treatment sessions attended and their interaction.

We first calculated an unconditional model that included the outcome variable with time. We then added the demographic variables to the model (age by grouping, race/ethnicity, gender, and whether the youth had been sexually or physically abused in the past). Then we added the number of CRA sessions attended, then the number of mentoring sessions, and then the interaction of the two. At each step we calculated the amount of variance in the slopes accounted for to determine any additional value of mentoring to changes in the outcome variables. HLM, in essence, creates a one-stage least squares regression equation for each participant, then uses the estimates from those equations from level 1 as the dependent variables at level 2. All variables are treated as continuous variables, even though in this instance we have some categorical variables in the models. This is similar to dummy variable coding in simple regression.

Table 2 provides the means and standard deviations along with actual sample size at each of the three time points for the outcome variables of interest. This provides the reader with a way to evaluate the number of data points in use in the HLM analysis.

Table 3 provides the results of the unconditional and final models for all of the outcome variables along with variance components and the deviance statistics for each of the models.

For substance abuse, although the average intercept and average slope were significantly different than 0, only the intercepts had significant random variance, the

TABLE 2. Means and standard deviations of outcome variables at the three time points with sample size.

	Baseline (<i>n</i> = 48) Mean (SD)	3 months (<i>n</i> = 32) Mean (SD)	6 months (<i>n</i> = 39) Mean (SD)
BDI	17.27 (10.27)	11.90 (9.58)	11.25 (11.42)
POSIT	6.87 (3.74)	5.06 (4.35)	4.56 (4.61)
Internalizing	17.56 (9.40)	16.56 (11.27)	12.61 (10.65)
Externalizing	25.16 (10.15)	19.31 (11.96)	17.61 (11.73)
% days use	67.27 (30.40)	53.06 (44.04)	53.90 (40.61)

Note: BDI, Beck Depression Inventory; POSIT, Problem Oriented Screening Instrument for Teenagers.

slopes did not. This suggests that most youth showed the average slope, which was negative suggesting that use decreased over time. However, the reliability estimate for the time factor was .093, this more than likely suggests that change was not linear. Only youth reported physical abuse was predictive of the intercept in the full model. When the demographics were added at level 2, they explained about 34.7% of the variance in the intercepts. Neither the number of CRA sessions nor the number of mentoring sessions or their interactions were predictive of the variance of change in substance use over the course of the study.

For depressive symptoms, the unconditional model resulted in higher reliability estimates and both the intercepts and slopes had significant random effects. The demographics alone explained about 12% of the variance in the intercepts and 39% of the variance in the slopes. The youths' reports of sexual or physical abuse were predictive of variance in change in depressive symptoms over the course of the study. The sexual abuse coefficient was negative suggesting that depressive symptoms did not decrease as much when the youth reported sexual abuse. The coefficient for physical abuse was positive, suggesting that youths who reported physical abuse showed greater decreases in depressive symptoms. When CRA sessions were added to the equation, they explained another 14.5% of the variance in slopes, but the coefficient for CRA sessions was not significant. The addition of the number of mentoring sessions to the equation resulted in explaining another .5% of the variance in slopes and the coefficient was not significant. The interaction term did not add any additional explanatory power. In the final model, the youths' report of sexual abuse or physical abuse and the youth's gender were the best predictors of rate of change in depressive symptoms. These relationships are depicted in Figure 1. The figures are created within the HLM program. The "groups" (i.e., more or fewer sessions) are created by

TABLE 3. Hierarchical linear modeling results for the unconditional (UNC) and full models for the outcome variables.

	Substance use		BDI		Consequences		Externalizing		Internalizing	
	UNC	Full	UNC	Full	UNC	Full	UNC	Full	UNC	Full
Intercept	65.76*	41.53**	16.82*	28.34*	6.68*	1.36	24.71*	29.56*	17.96*	22.35*
Agegrp		15.5		-4.87		1.75		-3.23		-1.34
Gender		-4.10		-4.30		-.262		.330		.432
PhysAb		-24.27*		-5.64		-1.48		5.53		-4.36
SexAb		7.49		5.88		-.383		-4.80		.868
Ethnic		7.40		-1.51		2.39***		-.460		-.620
No. of CRA		.439		.332		.277**		.508		.549
No. of mentor		5.96		.192		.385		.372		-.827
Interaction		-.36		-.03		-.034		-.064		.052
Slope	-6.61**	-.002	-3.26***	-7.08**	-1.22*	-.291	-3.68*	-3.03	-2.53***	-2.13
Agegrp		2.06		2.33		.475		2.05		.528
Gender		1.62		-3.41**		-1.39**		-4.22***		-5.37*
PhysAb		-.148		8.20*		2.25***		1.71		6.99*
SexAb		-2.00		-3.76**		-.363		2.27		-1.09
Ethnic		-5.93		.215		-1.07***		-1.99***		-.601
No. of CRA		-.496		-.327		-.236*		-.376**		-.274
No. of mentor		.867		-.370		-.388***		-.258		.579
Interaction		-.105		.031		.029**		.0133		-.059**
Random effects										
Variance components										
Intercept	440.75***	262.05	65.65*	61.50*	10.08*	8.13*	77.36*	84.16*	50.31*	63.04*
Slope	37.48	42.48	24.27*	14.89*	1.86*	.436	7.58**	.459	3.94	.157
Level 1 R	705.40	746.94	29.91	30.81	4.04	3.94	5.31	27.19	44.50	36.79
No. of parameters	4	4	4	4	4	4	4	4	4	4
Deviance	1164.34	1080.45	852.91	806.94	618.83	591.40	843.18	794.30	854.86	804.34

Notes: BDI, Beck Depression Inventory; CRA, community reinforcement approach.

**p* < .001.

***p* < .05.

****p* < .01.

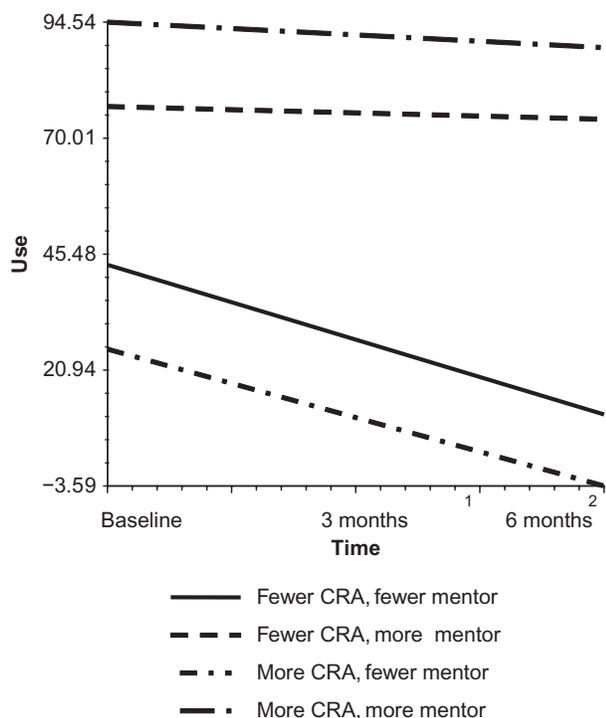


FIGURE 1. Substance use by the number of treatment and mentoring sessions. CRA, community reinforcement approach.

the program using percentile scores to create interactions.

In the unconditional model for the POSIT or consequences of substance use, both the intercept and slope and their random variances were significantly different than 0. The demographic variables accounted for about 14% of the variance in the intercepts and 28% of the variance in the slopes. Race/ethnicity had a significant coefficient for both the intercept and slope, suggesting that the White youth in the study had the lowest consequence scores and showed the smallest decrease in scores, while those of other ethnicities (other than Hispanic youth) had the highest consequence scores and showed the steepest decrease in scores over time. The addition of CRA sessions explained about 58% of the variance in slopes and the coefficient was significant along with the report of physical abuse, race/ethnicity, and gender. The addition of mentoring sessions did not explain additional amounts of variance, but the addition of the interaction term explained another 23% of the variance in slopes. When the interaction term was added to the model, CRA sessions and mentoring sessions had significant coefficients as did physical abuse, race/ethnicity, gender, and interaction term. The interaction effects of CRA sessions and mentoring sessions can be seen in Figure 2. In Figure 2, youths having more CRA sessions (based on higher and lower percentile scores) and more mentoring sessions show the steepest decline in POSIT scores. Youths who had fewer mentoring sessions, but more CRA sessions, show some decrease, while those who had fewer CRA sessions and more mentoring show a steeper decrease in scores over time. Those youths who

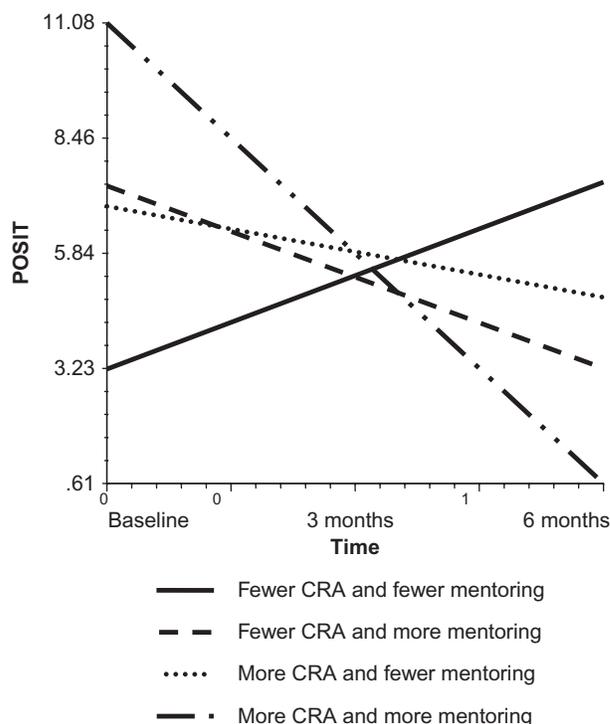


FIGURE 2. Problem Oriented Screening Instrument for Teenagers (POSIT) scores by the number of community reinforcement approach (CRA) sessions and number of mentoring sessions.

attended the fewest CRA and mentoring sessions showed an increase in POSIT scores.

In the unconditional model for externalizing behaviors, the intercept, slope, and random variances of the intercepts and slopes were all significantly different than 0. The demographic variables accounted for about 77% of the variance in the slopes, with race/ethnicity and gender having significant coefficients. The number of CRA sessions explained 75% of the remaining variance in the slopes and also had a significant coefficient when added to the equation. The number of mentoring sessions explained about 11% of the remaining variance in the slopes but the coefficient was not significant. The interaction term was not significant. In the final model, the number of CRA sessions attended, race/ethnicity, and gender were significant predictors of the variance in the slopes. Figure 3 shows the relationships between the number of CRA sessions and gender on externalizing scores over time. Males who attend fewer CRA sessions, regardless of the number of mentoring sessions, show no decrease in externalizing behaviors, while males who attend more CRA sessions show a decrease in externalizing scores. Females show a decrease regardless of the number of CRA sessions, but those who attend the most CRA sessions show the steepest decline.

In the unconditional model for internalizing behaviors, the intercept, slope, and random effect for the intercept were significantly different than 0. The addition of the demographic variables at level 2 explained about 96% of the variance in the slopes. Physical abuse and gender had significant coefficients. The number of CRA

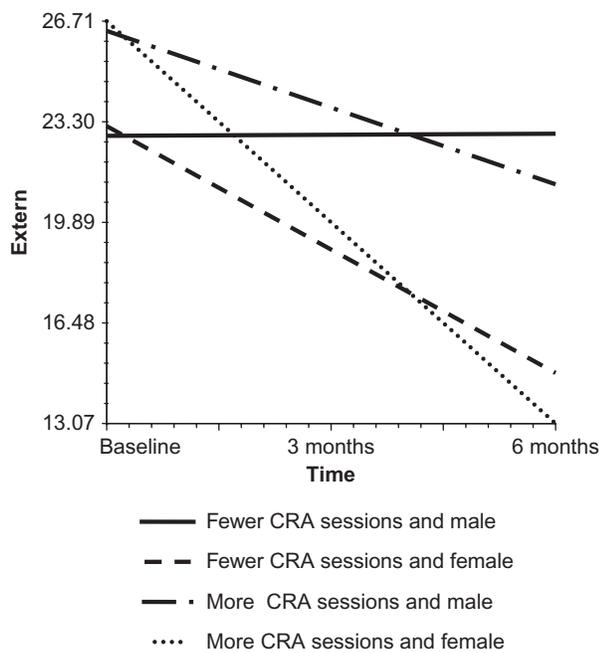


FIGURE 3. Externalizing behaviors by community reinforcement approach (CRA) sessions and gender.

sessions when added to the equation had a significant coefficient but did not explain any additional variance in the slopes. The number of mentoring sessions explained about 19% of the variance in the slopes that was left, but the coefficient was not significant. When the interaction term was added, it had a significant coefficient, and the coefficient for number of CRA sessions was no longer significant. In the final model, physical abuse, gender, and interaction of CRA and mentoring sessions were significant predictors of changes in internalizing behaviors. Figure 4 shows the interaction effect of CRA and mentoring sessions. It appears from Figure 4 that mentoring alone or attending fewer CRA sessions and more mentoring sessions did not help in decreasing internalizing behaviors, while more CRA sessions with more mentoring sessions resulted in the greatest decrease in internalizing behaviors.

DISCUSSION

To our knowledge, this is the first study to provide information regarding the potential utility of mentoring homeless adolescents. It should be noted, however, that these data come from a pilot study and thus the sample size is small, limiting statistical power. Although we have some sense of the effect sizes for attending mentoring sessions with these data, these effect sizes were relatively small depending on the outcome of interest. Some of the outcomes examined seemed to be impacted by mentoring session attendance more than other outcomes.

In general, the outcome variables of interest here appeared to decrease with some consistency. For some of the outcomes, the interaction of mentoring sessions

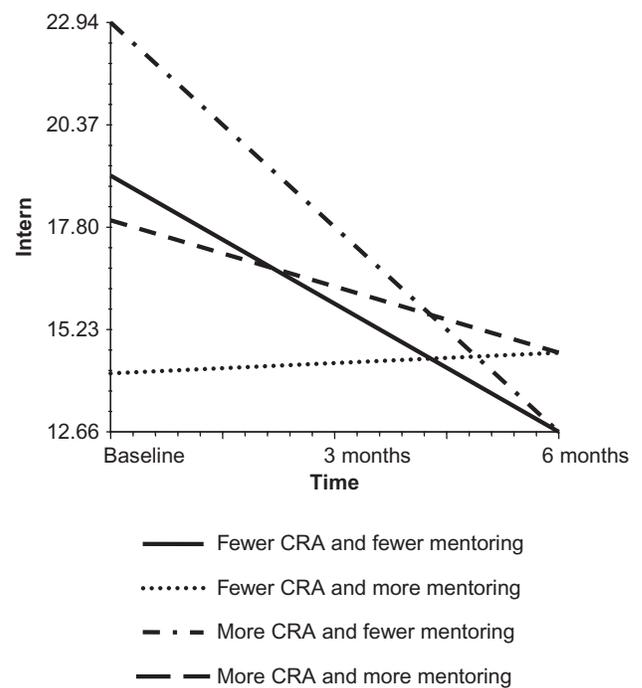


FIGURE 4. Internalizing behaviors over time with the interaction of mentoring and community reinforcement approach (CRA) sessions.

and treatment sessions appeared to make a difference in how much the outcome variable decreased. Preliminary analysis revealed that adolescents who attended more mentoring sessions reported a history of childhood abuse. However, results from this study provide mixed support for mentoring as an adjunct to substance abuse treatment for homeless youths.

The results of these analyses suggested that substance abuse frequency and depressive symptoms decreased regardless of the number of treatment and/or mentoring sessions attended. Externalizing behaviors decreased more depending on the number of treatment sessions attended, regardless of mentoring sessions attended. Decreases in the consequences of substance use and internalizing behaviors appeared to be more dependent on the interaction of treatment and mentoring sessions.

In support of mentoring, when considering the interaction of the number of treatment sessions attended and the number of mentoring sessions attended, problem behaviors around substance abuse changed the most when youths with the highest scores at the outset attended the most treatment and mentoring sessions. Youth scores on this assessment also decreased if they attended more treatment sessions or more mentoring sessions and decreased the least if they attended fewer treatment and fewer mentoring sessions.

In opposition to mentoring, when considering the interaction of the number of treatment and mentoring sessions attended, internalizing behaviors changed the most when the youths attended the most treatment sessions and the fewest mentoring sessions. Those youths whose scores remained fairly stable were those who

attended fewer treatment sessions and more mentoring sessions.

Thus, depending on the outcome of interest mentoring either increased the effectiveness of the treatment, had no impact, or decreased the effectiveness of the treatment (if there was any). The questions to be addressed are what is different about the outcomes examined and how mentoring might help or hinder decreases in these problem behaviors. It appeared that problem behaviors around substance abuse decreased more for those who attended more mentoring sessions, but internalizing and externalizing behaviors were less impacted by mentoring. Those with the highest scores on some of the outcomes were adolescents who reported physical and/or sexual abuse. These adolescents are typically difficult to engage in treatment because of trust issues. It may be that the mentoring relationship becomes an "all or nothing" sort of relationship because of the lack of structure in the relationship. That is, for some of these youth the mentor becomes the only trustworthy person and the child becomes disappointed in that relationship's limitations. For others, the mentoring relationship cannot be tolerated because of the lack of structure in that relationship, which may further degrade the youth's ability to trust in the mentor. Sale et al. (32) have demonstrated that in prevention programs that include mentoring, that those youths who perceived more trust, mutuality, and empathy in the mentoring relationship showed the highest improvement in social skills. Thus, the unique aspects of the mentor/mentee relationship are important. Unfortunately, given the small sample size and number of mentors, we could not partition the variance into what could be attributed to the youth and what could be attributed to the mentor/mentee relationship. These qualities of the mentee/mentor relationship may be even more important for homeless youth who have suffered physical abuse, sexual abuse, and other forms of rifts in trust in relationships with caregiving adults.

The findings of this study are in contrast to those of Grossman and Rhodes (7) who found higher mentoring drop-out rates among those who had experienced childhood abuse. The report of physical abuse in our study was related to less change in some outcomes and more change in others and was related to attending more sessions, both CRA and mentoring. The report of sexual abuse was also related to attendance at more CRA and mentoring sessions, but was not related to rates of change in outcome variables. Future research might indicate that homeless adolescents with a history of abuse have unique emotional and behavioral needs compared with other abused adolescents and non-abused homeless adolescents. Future studies might also determine that abused, homeless adolescents are more amenable to mentoring than other adolescents because they experience a higher degree of psychological distress and a greater need to repair past hurt and have few alternative support networks and positive adult contacts. A small body of research suggests that those with high levels of emotional pain are more open to assistance (33).

Similarly, previous research has found that mentoring had either very low or no impact (4) on decreasing adolescent problem behaviors. Possibly, mentoring requires more time for the mentor-protégé relationship to develop than was offered in this study (34). Given that trust is a frequently cited barrier to seeking services among homeless adolescents (10), more time with the mentor might be especially salient for these adolescents. Sale et al. (32) suggested that developmental mentoring relationships that allow a collaboration between mentor and mentee are more effective than prescriptive mentoring relationships in which behaviors that need to be changed are already targeted. Mentors in this study had a temporary relationship with the adolescent for about 6 months. Further research is needed to evaluate the ideal duration and frequency of mentoring sessions, as well as the mechanism of change associated with positive outcomes.

These results should be interpreted with caution due to several study limitations. Mentoring was integrated with individual therapy sessions and the independent effects of mentoring are better examined with the addition of a comparison condition of individual therapy alone. Also, given that this was a pilot study, the sample size was small and the power to detect significant relationships was relatively limited. Finally, homeless adolescents recruited in this sample were from the southwestern United States and all adolescents met criteria for substance abuse or dependence. These adolescents might not represent the individual, social, and economic struggles of homeless adolescents living in other parts of the country and without substance use problems.

However, given that no research evaluating mentoring among homeless adolescents was identified, this study is an important contribution to the literature. One of the strengths of the study was that mentoring was individualized, rather than structured, to meet the unique needs of the adolescent. Considering the variety of problems with which homeless adolescents struggle, this client-centered approach to mentoring has the potential to address the most urgent issues of the adolescents. Moreover, mentors were paired with adolescents in terms of gender, ethnicity, and sexual orientation. As Cameron and Karabanow (35) suggested, matching cultural and racial characteristics can enhance the connectedness and bonding between mentors and adolescents.

Obviously, more research is needed to examine the determinants of effective mentoring for homeless adolescents, a population with unique and varied needs. An important next step in this research area is to examine the mentor/mentee relationship. Although the number of sessions attended may be a good indicator of a satisfactory relationship, it does not provide assessments of the levels of trust engendered in the relationship and whether this level of trust is effective in decreasing problem behaviors and substance use for homeless youth. For mentoring as an adjunct to substance abuse treatment to be most efficient, it would be important to understand which behaviors the mentoring relationship can impact the most.

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Declaration of Interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

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