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Impact of Dual Disorders, Trauma, and Social Support on Quality of Life Among Women in Treatment for Substance Dependence

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Abstract

Objective Women with dual disorders report lower levels of social support than women with substance dependence alone, and lower levels of social support have been associated with lower quality of life among individuals with substance use disorders. However, little is known about the impact of trauma symptoms and violence exposure on quality of life for women with dual disorders. The purpose of this study was to examine the impact of dual disorders, trauma, and social support related to recovery on various domains of quality of life among women in substance abuse treatment.

Methods This study utilized multiple standardized measures and hierarchical ordinary least squares regression to examine quality of life, trauma, and social support in women with dual disorders. Four domains of quality of life were measured (Physical, Psychological, Social, and Environmental Domains). Participants (N=369) were recruited from three inner city women only addiction treatment programs. IRB approval was obtained prior to sample recruitment.

Results Presence of a dual disorder was significantly associated with lower quality of life in the Physical and Psychological domains. However, this difference was no longer significant when trauma symptoms were added to the model. Trauma symptoms and Support for Recovery significantly predicted quality of life across all four domains and Friends Support for Abstinence across three domains.

Conclusions Findings suggest that the presence of a dual disorder in women may indicate a history of trauma. They also support the importance of both friend's support for abstinence and recovery support as predictors of quality of life in women with dual disorders. Interventions that focus on social support and quality of life in treatment with women with substance use disorders may potentially enhance treatment outcomes.

Keywords women, substance abuse, dual disorder, trauma, social support, quality of life

According to SAMHSA (2005), nearly 2 million women have both a substance use disorder and a serious mental illness, and Blume (1990) reported that 65% of women with alcoholism also had a mental disorder. Previous literature has identified myriad difficulties in treatment retention and prognosis for individuals with dual disorders including negative treatment outcomes, premature treatment termination, treatment non-compliance, and difficulty accessing services (Compton, Cottler, Ben-Abdullah, Cunningham-Williams, & Spitznagel, 2000; Haywood et al., 1995; Kessler, 2004, Swofford, Kasckow, Scheller-Gilkey, & Inderitzin, 1996). Specific to women with substance dependence, the presence of a mental illness has been linked to shorter substance abuse treatment retention, and poor treatment outcomes (Conners, Grant, Crone, & Whiteside-Mansell, 2006).

Using the four quadrant model (NASMHPD, 1998), individuals with co-occurring disorders may be categorized according to the severity of both their substance use disorder and their mental disorder. Individuals may have a less severe mental disorder and more severe substance abuse (Quadrant III), more severe mental disorder and more severe substance abuse (Quadrant IV), less severe mental disorder and less severe substance abuse (Quadrant I), and more severe mental disorder and less severe substance abuse (Quadrant II) (Burnam & Watkins, 2006). The majority of research has focused on individuals with more severe mental illness and more severe substance abuse (Quadrant IV) and individuals with more severe mental illness and less severe substance abuse (Quadrant II). Individuals with less severe mental disorder and substance dependence are the focus of this paper (Quadrant III), those

who experience psychological difficulties spanning a range of DSM diagnostic categories including post traumatic stress disorder, anxiety, depression, dysthymia, and less severe bipolar disorder (Singer, Kennedy, & Kola, 1998).

Many individuals categorized within quadrant III have been exposed to physical or sexual abuse during childhood (Hussey & Singer, 1993), with women who abused substances reporting higher rates of childhood abuse and adult interpersonal violence than men who abused substances (Westreich, Guedj, Galanter, & Baird, 1997). Baird (1997) found that women with substance use disorders and women with dual disorders were more likely to report having been victims of interpersonal violence compared to their male counterparts. Reported rates of lifetime trauma among women with substance use disorders ranged from 55–99% (Najavits, Weiss, & Shaw, 1997), and correlations have been found between childhood sexual abuse and severity of women's drug addiction (Marcenko, Kemp, & Larson, 2000). Min et al. (2007) found that childhood trauma was a common etiological factor in co-occurring substance abuse and mental health problems among women, and suggested that the presence of a dual disorder in women with substance dependence may be an indicator of childhood trauma.

Social Support and Dual Disorder

Both general social support and support specific to recovery have been found to positively influence recovery and post treatment functioning for individuals with dual disorders. Higher levels of social support predicted better mental health and less heroin and cocaine use in men and women with dual disorders (Warren, Stein & Grella, 2007). Length of involvement and frequency of attendance in Double Trouble recovery support groups were associated with decreased mental health and substance abuse symptoms (Laudet, Magura, Vogel, & Knight, 2004), and sobriety support and amount of substance use among social network members significantly predicted psychiatric distress and poor treatment outcomes (Ribsl & Luke, 1993). While social support may be crucial to positive treatment outcomes, acquiring and utilizing these types of support are more difficult for individuals with dual disorders compared to individuals with substance dependence alone (Tracy & Biegel, 2006).

Women with dual disorders have reported lower levels of social support than women with substance dependence alone, and low social support has been associated with greater depression and severity of substance abuse in women with dual disorders (Dobkin, Civita, Paraherakis, & Gill, 2002; Dodge & Potocky, 2000). Less reciprocity within their network relationships has also been reported by women with dual disorders, compared to women with substance dependence alone (Tracy & Johnson, 2007). The high occurrence of trauma related symptomatology in women with dual disorders (Najavits, Weiss, & Shaw, 1997) may impact their ability to identify and utilize social

support. Bollerud (1990) identified some specific social network vulnerabilities for women with co-occurring substance dependence and sexual abuse histories including difficulties in forming interpersonal attachments and lack of relationship reciprocity.

Quality of Life and Dual Disorder

Quality of life includes both perceived and objective aspects of life quality across multiple dimensions, including physical, environmental, social, occupational, and psychological domains (Donovan et al., 2005). Comparing quality of life in individuals without substance use disorders, individuals with substance use disorders only, and individuals with a dual disorder of substance use and less severe mental disorders, Bizzarri et al. (2005) found impairment in all four quality of life domains for individuals with substance use disorders alone and dual disorders, compared to healthy samples; and lower Physical and Psychological quality of life for individuals with dual disorders. Similarly, Rudolf and Priebe (2002) found that women with depression in detox for alcoholism reported significantly lower quality of life than women in detox for alcoholism without depression. Quality of life, social support, and recovery appear to be linked for individuals with dual disorders; individuals with greater social support for recovery were less likely to report having used alcohol or drugs over the previous year, and to report greater life satisfaction (Laudet, Magura, Vogel, & Knight, 2000). Social support and support specific to recovery may actually buffer stress for individuals with dual disorders, leading to better quality of life satisfaction and more successful recovery efforts (Laudet, Morgan, & White, 2006).

While research has identified that individuals with dual disorders may experience lower quality of life and lower social support than those with a single disorder, little is known about the effects of trauma symptoms and violence exposure on social support and quality of life. In a study of women following the Virginia Tech campus shooting, greater family social support predicted better overall quality of life, while friend's support predicted better Environment quality of life following the shooting (Grills-Taquechel, Littleton, and Axsom, 2011). Ventegodt (1999), in a prospective longitudinal study found significant relationships between single traumatic events during development and adult quality of life. In two recent studies of quality of life for women with histories of interpersonal violence, severity of abuse, and having experienced three or more types of interpersonal violence were related to lower quality of life (Alsaker, Moen, & Kristoffersen, 2008; Rees et al., 2012).

Given the high incidence of posttraumatic stress disorder among women with substance use disorders, it is important to understand the potential associations between trauma symptoms, social support, and life quality for women with dual disorders. It is also important to control for demographic variables when examining quality of life

because age (older), race (African American), income (lower), and education (lower) have been found to negatively impact quality of life in both men and women (Apter et al., 1999; Apter et al., 1999; Cherepanov, Palta, Fryback & Robert, 2010; Carreon & Noymer, 2011; Bonnar and McCarthy, 2012).

Research Questions and Hypotheses

The purpose of this study was to examine the impact of having or not having a dual disorder, trauma symptoms, lifetime traumatic events, and social support for recovery on the four life quality domains (Physical, Psychological, Social, and Environment) among women in treatment for substance use disorders. It was hypothesized that having a dual disorder, higher trauma symptoms, higher number of traumatic events, and lower support for recovery would all be associated with lower quality of life in each of the four domains.

METHODS

Research Design

Data for this study were collected from October 2009 through July 2011 as part of a three-year study funded by the National Institute on Drug Abuse (NIDA) on the personal social networks of women in substance abuse treatment (Tracy et al., 2012). Participants were recruited from three inner city women only treatment programs, two intensive outpatient and one residential treatment program. Interviews were conducted by trained interviewers who discussed all aspects of the study with participants and received written consent from all participants. Participants were provided with a \$35 gift card to an area store as compensation for participation. This study was conducted in accordance with the Declaration of Helsinki and approved and monitored by the Case Western Reserve University IRB.

Sample Recruitment

Eligibility criteria required that women were 18 years of age or older, diagnosed with current substance dependence, in treatment for at least one week following intake, and not diagnosed with a major thought disorder. Women with a diagnosis of a major psychotic disorder or those on medication used to treat major thought disorders were excluded from the study.

Measures

The World Health Organization Quality of Life Scale (WHOQOL) is a 26-item scale abbreviated from the WHOQOL-100 (Berwick et al., 1991). The WHOQOL assesses individual domains in an individual's life reflective of their quality of life as a whole. These domains include physical health, psychological health, social, and

environment quality of life. Questions are asked such as "How would you rate your quality of life?" and "How available to you is the information that you need in your day to day life?" Reported Cronbach's alphas on the four domains ranged from .66-.84 (World Health Organization, 1998). The Physical domain assesses the pain and discomfort, fatigue, and sleep problems experienced by an individual and the degree to which these interfere with an individual's life. The Psychological domain assesses an individual's experiences of positive and negative emotions, self-esteem, body image, and cognitive functions related to life quality. The domain of Social Relationships assesses the areas of social support, personal relationships, and sexual activity related to quality of life. The Environment domain examines the physical safety, home environment and financial resources as part of an individual's quality of life. Higher scores indicate higher quality of life.

Demographic information (education level, race, and age) was gathered using the Computerized Diagnostic Interview Schedule (CDIS-IV), a computerized structured diagnostic program that assesses for the current presence of the DSM-IV defined psychiatric disorders (Helzer & Robins, 1988), which was also utilized as a screening tool to assess for major depression, dysthymia, anxiety, manic episode, and posttraumatic stress disorder. A new variable was then created where respondents determined by the CDIS-IV to have any of the previous mental disorders were coded as "DD" while those without a CDIS identified mental disorder were coded as "no DD".

Three measures were used to assess women's trauma symptoms, recent exposure to violence, and number of lifetime traumatic events experienced. Lifetime exposure to traumatic events was measured using the CDIS-IV. Participants were asked whether or not they have ever experienced 15 different types of traumatic events at any time in their lives. Participants answered "yes" or "no" to each item and all "yes" responses were combined into one continuous variable. Trauma symptoms were measured using the Trauma Symptom Checklist (Briere & Runtz, 1989), a 40-item self-report measure ($\alpha=.93$) that assesses trauma related symptomatology in adults resulting from trauma in childhood or adulthood (Elliott & Briere, 1992). Recent exposure to violence was assessed using the Exposure to Violence Scale (Singer & Song, 1995), a 22-item self-report questionnaire assessing the frequency of respondents' experiencing and witnessing violence such as threats, slapping/hitting/punching, beatings, knife attacks, and shootings over the prior year.

Social Support was measured using two instruments, the Friends Support for Abstinence Scale (Humphreys et al., 1999) and the Social Support for Recovery Scale (Laudet, Magura, Vogel, & Knight, 2000). The Friends Support for Abstinence Scale is an 8-item scale ($\alpha = .74$) designed to measure friends' support of recovery efforts with statements such as "My friends offer advice about quitting drugs or alcohol, without nagging." The Social Support for Recovery Scale is a 7-item scale designed to assess the

degree to which people in the participant’s life support them in their recovery through items such as, “The people in my life understand that I am working on myself.”

Data Analysis

Frequencies and distributions were examined for all variables and bivariate correlations were examined to identify significant relationships among variables and to assess for multicollinearity. Demographic variables included age, presence/absence of a dual disorder, treatment site, race, education, and history of homelessness. Due to a lack of variability, race and education were dichotomous variables. Race was coded as white/ non-white, and education was coded as those with less than high school education and those who completed high school or more than high school. Treatment site was also a dichotomous variable coded as residential or outpatient; and history of homelessness was a dichotomous variable coded as yes or no.

Independent samples t-tests were used to compare women with dual disorders and women with substance dependence only. One sample t test was also used to compare the study sample with the normed sample (Hawthorne, Herrman, & Murphy, 2006). Hierarchical ordinary least squares regression was used. Dual disorder status and demographic covariates were entered into the regression in the first block. Trauma symptoms, lifetime traumatic events, and exposure to violence were entered in the second block of the regression model. Finally, recovery support and friends support for abstinence were entered into the regression model in the third block. Given the many comparisons in the regression models, a significance of $p < .01$ was used rather than $p < .05$ to reduce the likelihood of type-1 error.

RESULTS

Sample Description

A total of 377 women were enrolled in the study and completed time 1 interviews. Listwise deletion was used to remove subjects from the sample who were missing information on the Quality of Life measure variables, leaving a final sample of 369 women. Sample characteristics are illustrated in Table 1. The average age of the women in this sample was 36.4 ($SD=10.3$). The majority of women identified as Black-African American (59.6%), and had less than a high school education (41.55%). Nearly 73% had a dual disorder, and 56.7% were dependent on more than one substance. Sixty eight percent of the women were enrolled in the study while in outpatient treatment and 32% were enrolled during their stay in residential treatment. Only 10 percent of the sample were currently employed, 43% had experienced homelessness at some time in their lives, and 45% reported current legal involvement including being on parole, probation, or awaiting sentencing. Women’s addic-

tion histories averaged 6.41 years ($SD= 7.76$) and ranged from 0–38 years.

Table 1. Demographic Characteristics ($N = 369$)

Characteristic	Total Sample	Dual Disorder ($n=270$)	Non Dual Disorder ($n=99$)	$\chi^2 / t (p\text{-level})$
	$n (%)$	$n (%)$	$n (%)$	
Age – $M(SD)$	36.4(10.3)	37.3(10.4)	34.1(9.9)	-2.566
Range	18–63	18–63	19–56	(0.011)
Treatment Program				
RT	32%	87(32.2%)	31(31.3%)	.028 (.868)
OP	68%	183(67.8%)	68(68.7%)	
Education				
Less than high school	41.50%	105(38.9%)	48(48.5%)	2.748 (.097)
High school or above	58.50%	165(61.1%)	51(51.5%)	
Race-Dichotomous				
Black	59.60%	149(55.2%)	71(71.7%)	8.224 (.004)
Non-Black	40.40%	121(44.8%)	28(28.3%)	
Current Employment				
Employed	10%	28(10.4%)	9 (9.1%)	.131 (.717)
Not Employed	90%	242(89.6%)	90 (90.9%)	
History of Homelessness				
Yes	43%	129(47.8%)	29 (29.3%)	10.109
No	57%	141(52.2%)	70 (70.7%)	(0.001)
Current Legal Involvement				
Involved	45%	124(49.5%)	42 (42.4%)	.359 (.549)
Not involved	55%	146(54.1%)	57 (57.6%)	
Addiction History - Years	6.4(7.8)	7.3(8.2)	3.9(5.9)	-4.3(<.0001)
Diagnosis				
Cocaine Dependence	209(56.6%)	160(60.2%)	49(49.5%)	3.347(.067)
Opiate Dependence	86(23.3%)	66(24.8%)	20(20.2%)	.851(.356)
Marijuana Dependence	145(39.3%)	94(35.3%)	51(51.5%)	7.885(.005)
Alcohol Dependence	173(46.9%)	128(48.1%)	45(45.5%)	.206(.650)
Generalized Anxiety	-	87(32.2%)	-	
PTSD	-	147(54.4%)	-	
Major Depressive Disorder	-	213(78.9%)	-	
Dysthymia	-	12(4.4%)	-	
Manic Episode	-	117(43.3%)	-	
Hypomanic Episode	-	40(14.8%)	-	

Note. χ^2 =chi-square statistic; t =t-test statistic; OP=outpatient program; RT=residential treatment; PTSD=posttraumatic stress disorder.

Women with a dual disorder reported significantly lower scores than women with substance dependence only on both the Physical ($p < .001$) and Psychological domains ($p < .001$) of the Quality of Life scale (see Table 2). Additionally, women with substance dependence alone were not significantly different than normed samples on Quality of Life scores in the Physical, Psychological, and Social domains, but reported significantly lower quality of life in the Environment domain ($p < .001$) than non-clinical samples (Hawthorne, Herrman, & Murphy, 2006). Table 3 reports descriptive statistics and correlations among variables.

As shown in Table 1, women with dual disorders were significantly older ($p < .05$), and had longer addiction histories ($p < .001$) than women without a mental health disorder. Chi-square tests of association revealed significant relationships between the categories of race and dual disorder; 71% of those without a dual disorder identified as “Black”. History of homelessness and dual disorder were signifi-

cantly associated ($p=.001$); more than 70% of those without a dual disorder had never been homeless. Additionally, a significantly larger percentage of women without a dual disorder were addicted to marijuana (51.5%) than those with a dual disorder (35.3%). Women with a dual disorder reported significantly higher trauma symptoms ($p<.001$), greater exposure to violence ($p<.05$), and a greater number of lifetime traumatic events ($p<.001$) than women without a dual disorder (Table 2).

Table 2. Means and Standard Deviations on Trauma, Support, and Quality of Life ($N = 369$)

Variables	Dual Disorder (n=270)		Non Dual Disorder (n=99)		Sample Range	Scale Range	t	p
	M	SD	M	SD				
	Trauma Symptom Checklist	49.72	19.30	30.53				
Exposure to Violence	6.23	8.33	4.25	6.79	0–52	0–90	-2.328	0.021
Recovery Support	28.07	4.60	28.15	4.95	10–36	9–36	0.149	0.882
Friends Support	29.45	5.75	30.21	5.63	10–40	8–40	1.127	0.261
PHYS	61.26	18.53	71.41	17.90	11–100		4.702	<.0001
PSYCH	57.69	19.76	69.96	19.64	0–100	0–100	4.845	<.0001
ENVIR	58.59	16.75	62.44	18.87	7–100		1.886	0.06
SOCIAL	62.85	21.67	67.00	23.58	0–100		1.591	0.112
Number of Traumatic Events	5.55	2.71	3.61	2.61	0–13	0–18	-6.198	<.0001

Note. PHYS = Quality of Life Physical Domain; PSYCH = Quality of Life Psychological Domain; ENVIR = Quality of Life Environment Domain; SOCIAL = Quality of Life Social Domain; t=t-test statistic.

Table 3. Means, Standard Deviations, Internal Reliability (a), and Correlations for Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Age	—	.233**	.219**	.135**	.003	.090	.009	-.090	.176**	.023	-.147**	-.010	-.006	.090	.002
2. Race-(Non-Black)		—	.151**	.146**	-.041	-.049	-.055	.003	.058	.160**	-.123**	-.237**	-.039	-.104*	.005
3. Education-(≥HS)			—	.079	-.060	.052	.076	-.194**	-.102*	-.042	-.002	-.089	-.038	.108*	-.100
4. Dual Disorder-(Yes)				—	-.020	-.006	-.058	.108*	.302**	.398**	-.249**	-.245**	-.080	-.102	.165**
5. Treat. Ctr.-(OP)					—	.020	.160**	-.077	-.046	-.140**	.101	.168**	.100	.050	.016
6. Recovery Support						—	.460**	-.097	-.079	-.194**	.226**	.353**	.325**	.326**	-.173**
7. Friend Support							—	-.121*	-.085	-.248**	.254**	.369**	.355**	.297**	-.070
8. Exp to Violence								—	.407**	.372**	-.142**	-.118*	-.135**	-.223**	.251**
9. Traumatic Events									—	.427**	-.237**	-.151**	-.120*	-.171**	.360**
10. Trauma Symptoms										—	.481**	-.554**	-.392**	-.394**	.266**
11. QoL-Physical											—	.562**	.349**	.496**	-.196**
12. QoL-Psychological												—	.546**	.578**	-.131*
13. QoL-Social													—	.499**	-.085
14. QoL-Environment														—	-.190**
15. Homelessness (Yes)															—

Note. ≥HS = completed high school or more than high school; Treat. Ctr. = Treatment Center-outpatient versus residential; OP = Outpatient; Exp to Violence = Exposure to Violence; QoL = Quality of Life; * $p < .05$; ** $p < .01$

Regression Results

The hierarchical regression model, including presence of a dual disorder, age, treatment center, education, race, trauma symptoms, number of traumatic events, Exposure to Violence, Social Support for Recovery, and Friends Support for Abstinence, was significantly associated with life quality in all four Quality of Life domains. Additionally, results from all four of the regression analyses indicated

that social support significantly contributed to life quality in all of the four domains-Physical, Psychological, Social, and Environment (see Tables 4–7). The final hierarchical regression models accounted for 30.6% of the variance in the Physical Domain of quality of life, 44.8% of the variance in the Psychological Domain, 27.8% in the Social Domain, and 25.5% in the Environment Domain.

Table 4. Ordinary Least Squares Regression with Quality of Life Physical Domain

	Model 1			Model 2			Model 3		
	B	SE(B)	β	B	SE(B)	β	B	SE(B)	β
Dual Diagnosis-(Yes)	-7.838	2.174	-.185***	-1.381	2.148	-.033	-1.895	2.122	-.045
Age	-.288	.097	-.158**	-.273	.091	-.150	-.284	.090	-.156**
Treatment Center-(OP)	3.918	1.985	.097	1.480	1.835	.037	1.004	1.827	.025
Education-(≥HS)	1.891	1.991	.050	.561	1.859	.015	.270	1.836	.007
Race-(Non-Black)	-5.229	2.008	-.137**	-3.173	1.857	-.083	-2.978	1.830	-.078
Homelessness (Yes)	-6.169	1.909	-.163**	-3.295	1.855	-.087	-2.645	1.846	-.070
Trauma Symptoms				-.405	.048	-.459***	-.366	.490	-.415***
Traumatic Events				.239	.376	.036	.192	.371	.029
Exp to violence				.022	.122	.009	.032	.120	.013
Recovery Support							.424	.204	.106
Friend's Support							.295	.169	.090
ΔR ²						.152***			.026**
Total R ²		.128***			.281***			.306**	

Note. ≥HS = completed high school or more than high school; OP = Outpatient (versus residential); Exp to Violence = Exposure to Violence; B = Unstandardized coefficients; SE = Standard error; β = standardized Beta coefficients; ΔR² = R-Square change; R² = R-square; ** $p < .01$; *** $p < .001$

Table 5. Ordinary Least Squares Regression with Quality of Life Psychological Domain

	Model 1			Model 2			Model 3		
	B	SE(B)	β	B	SE(B)	β	B	SE(B)	β
Dual Diagnosis-(Yes)	-9.131	2.341	-.199***	-9.66	2.196	-.021	-2.008	2.062	-.044
Age	-.039	.104	-.020	-.035	.093	-.018	-.059	.087	-.030
Treatment Center-(OP)	7.308	2.137	.168**	4.140	1.871	.095	3.323	1.771	.076
Education-(≥HS)	-1.581	2.145	-.038	-2.952	1.901	-.072	-3.444	1.784	-.084
Race-(Non-Black)	-7.996	2.157	-.194***	-5.394	1.889	-.131**	-5.003	1.769	-.121**
Homelessness (Yes)	-4.360	2.051	-.106	-1.323	1.889	-.032	-.002	1.786	.000
Trauma Symptoms				-.544	.049	-.571***	-.470	.047	-.494***
Traumatic Events				.693	.383	.096	.605	.358	.084
Exp to violence				.092	.124	.036	.110	.116	.043
Recovery Support							.855	.197	.198***
Friend's Support							.537	.163	.151**
ΔR ²						.224***			.081***
Total R ²		.143***			.366***			.448***	

Note. ≥HS = completed high school or more than high school; OP = Outpatient (versus residential); Exp to Violence = Exposure to Violence; B = Unstandardized coefficients; SE = Standard error; β = standardized Beta coefficients; ΔR² = R-Square change; R² = R-square; ** $p < .01$; *** $p < .001$

When first entered into the regression model, presence of a dual disorder was significantly associated with lower life quality in the Physical ($\beta = -.19, p < .001$) and Psychological Domains ($\beta = -.20, p < .001$), supporting the first hypothesis. However, presence of a dual disorder lost significance in these models when trauma symptoms, exposure to violence, and number of traumatic events were added to the model in the second step, confirming the second

hypothesis. Higher levels of trauma symptoms were significantly associated with lower life quality in all four Quality of Life domains, with beta coefficients ranging from $-.38$ ($p < .001$) in the Environment Domain to $-.57$ ($p < .001$) in the Psychological Domain. When added to the regression analysis in Model 2, trauma and violence accounted for a change in the multiple correlation squared ($R^2\Delta$) of $.152$ ($p < .001$) in the Physical Domain, $.224$ ($p < .001$) in the Psychological Domain, $.160$ ($p < .001$) in the Social Domain, and $.124$ ($p < .001$) in the Environment Domain.

Table 6. Ordinary Least Squares Regression with Quality of Life Social Domain

	Model 1			Model 2			Model 3		
	B	SE(B)	β	B	SE(B)	β	B	SE(B)	β
Dual Diagnosis-(Yes)	-3.368	2.721	-.067	4.365	2.705	.087	3.266	2.564	.065
Age	.041	.121	.019	.050	.115	.023	.029	.109	.014
Treatment Center-(OP)	5.129	2.484	.107	2.094	2.310	.044	.895	2.208	.019
Education-(\geq HHS)	-.397	2.513	-.009	-3.979	2.341	-.088	-4.690	2.219	-.104
Race-(Non-Black)	-2.131	2.492	-.047	1.999	2.338	.044	2.453	2.211	.054
Homelessness (Yes)	-3.857	2.389	-.086	-1.190	2.336	-.004	1.148	2.230	.026
Trauma Symptoms				-.480	.061	-.459***	-.394	.059	-.376***
Traumatic Events				.363	.474	.046	.253	.448	.032
Exp to violence				-.088	.154	-.032	-.066	.145	-.024
Recovery Support							.850	.246	.179**
Friend's Support							.743	.204	.191***
ΔR^2						.160***			.091***
Total R^2		.028			.188***				.278***

Note. \geq HHS = completed high school or more than high school; OP = Outpatient (versus residential); Exp to Violence = Exposure to Violence; B = Unstandardized coefficients; SE = Standard error; β = standardized Beta coefficients; ΔR^2 = R-Square change; R^2 = R-square; ** $p < .01$; *** $p < .001$

Table 7. Ordinary Least Squares Regression with Quality of Life Environmental Domain

	Model 1			Model 2			Model 3		
	B	SE(B)	β	B	SE(B)	β	B	SE(B)	β
Dual Diagnosis-(Yes)	-3.020	2.082	-.077	2.243	2.109	.057	1.464	2.037	.037
Age	.097	.093	.058	.102	.090	.061	.083	.087	.049
Treatment Center-(OP)	2.193	1.901	.059	.059	1.801	.002	-.533	1.754	-.014
Education-(\geq HHS)	3.591	1.907	.102	2.008	1.825	.057	1.631	1.762	.046
Race-(Non-Black)	-3.120	1.923	-.088	-1.535	1.823	-.043	-1.264	1.756	-.036
Homelessness (Yes)	-5.885	1.828	-.168**	-3.031	1.821	-.086	-2.010	1.772	-.057
Trauma Symptoms				-.310	.048	-.379***	-.255	.047	-.312***
Traumatic Events				.174	.369	.028	.108	.356	.018
Exp to violence				-.169	.120	-.078	-.157	.115	-.072
Recovery Support							.684	.196	.185**
Friend's Support							.368	.162	.121
ΔR^2						.124***			.063***
Total R^2		.068***			.192***				.255***

Note. \geq HHS = completed high school or more than high school; OP = Outpatient (versus residential); Exp to Violence = Exposure to Violence; B = Unstandardized coefficients; SE = Standard error; β = standardized Beta coefficients; ΔR^2 = R-Square change; R^2 = R-square; ** $p < .01$; *** $p < .001$

In the final model, greater levels of support for recovery were associated with greater quality of life in three of the four domains, with beta coefficients of $.19$ in the Environment Domain, $.20$ in the Psychological Domain, and $.18$

in the Social Domain. Greater levels of friends support for abstinence were associated with greater quality of life within the Psychological and Social Domains, but not the Physical or Environment Domains, with beta coefficients of $.15$ in the Psychological Domain and $.19$ in the Social Domain. Additionally, when entered into the final regression model, social support accounted for a significant change in the multiple correlation squared in all four Quality of Life domains. Among the demographic variables in the final model, older age was associated with lower Physical quality of life ($\beta = -.15, p < .01$), and race (non-Black) was significantly associated with lower Psychological life quality ($\beta = -.12, p < .01$). No other demographic variables were significantly associated at $p < .01$ with any of the quality of life domains.

DISCUSSION

In this study, women with dual disorders experienced significantly greater trauma symptoms and trauma/violence exposure than women with substance dependence alone. Similar to the findings of Bizzarri et al. (2005), presence of a dual disorder was significantly associated with lower quality of life in the Physical and Psychological domains. However, the effect of having a dual disorder on quality of life was no longer significant when trauma symptoms were added to the regression model, and greater trauma symptoms were associated with lower quality of life across all four domains. These findings are similar to those of Min et al. (2007), who identified trauma history as a common etiological factor in dual disorders for women. Findings from this study suggest that for women with dual disorders, the relationship between having a dual disorder and lower quality of life may be due specifically to trauma related symptomatology rather than the co-occurrence of a general mental health disorder along with substance dependence. Although women with dual disorders reported a greater number of discreet violent or traumatic events they were not related to quality of life when trauma symptoms were added to the model.

Although previous studies (Dobkin, Civita, Paraherakis, & Gill, 2002; Dodge & Potocky, 2000) have identified that individuals with dual disorders experience greater difficulty in finding and utilizing social support than those with substance use disorders alone, in this study no significant differences in recovery support were found between women with dual disorders and those with substance dependence alone. This may be due to differences in sample demographics, as well as differences in the methods for measuring social support as the current study measured support specific to recovery. Support for Recovery was significantly associated with quality of life across all four domains, and Friends Support for Abstinence across all but the physical domain. This is especially important given the high incidence of trauma in this population, and the negative effects of trauma on quality of life.

Strengths and Limitations

This study utilized multiple standardized measures to examine quality of life, trauma, and social support in an understudied group of poor, primarily African American women. Rather than focusing on one addiction type, this sample included women addicted to multiple substances and a range of substances. The cross-sectional design of this study limits our ability to predict the directionality of relationships between social support and life quality. Previous research (Mechanic, McAlpine, Rosenfield, & Davis, 1994) found a relationship between depressed mood and perception of quality of life; while dual disorder was included in the regression model the unique contribution of depressed mood on perceived quality of life was not assessed in this study.

Practice Implications

Interventions that help women identify recovery support within their current social networks and develop new social contacts with individuals who support their recovery are important to both life quality and recovery maintenance. Interventions that target social support for women with dual disorders are especially important given the high incidence of trauma symptoms and the association of trauma symptoms to life quality across multiple domains. Since previous literature (Bollerud, 1990; Najavits, Weiss, & Shaw, 1997) has identified difficulties that women with trauma histories have in maintaining positive social support in their lives, interventions to enhance recovery support in this population should be specifically targeted to reduce trauma related barriers to creating and utilizing support, such as difficulties with boundary maintenance and reciprocity in relationships (Tracy & Johnson, 2007). Given that women with dual disorders and greater trauma symptoms reported lower life quality than women with substance dependence alone, attention to quality of life in practice is warranted. Social support, specifically support related to recovery, may be a promising focus for intervention given its positive association with both quality of life and recovery maintenance. Further, the World Health Organization Quality of Life Scale appears to be an effective tool in understanding the social/environmental contexts of women with dual disorders and trauma histories, allowing practitioners to target their interventions toward problematic life domains that may increase women's vulnerability to relapse.

Research Implications

Given the association of trauma symptoms with social support and life quality, future research should examine the impact of trauma-focused treatment interventions on social support and life quality for women with dual disorders and a history of traumatic events. The findings suggest that trauma-focused interventions may be more effective than diagnosis-based interventions for this population. Addi-

tionally, as suggested by Tracy et al. (2012), more longitudinal studies are needed to examine life quality and social support as predictors of post treatment functioning for women with dual disorders. We need a better understanding of the relationship between perceived life quality and recovery. Is this a reciprocal relationship or does one drive the other? While treatment programs may presume that maintaining recovery will improve life quality automatically, few empirical studies have examined this relationship. Improving quality of life may also enhance or support recovery, and decreasing trauma related symptomatology may increase life quality above and beyond recovery maintenance.

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