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David E. Biegel

Mandel School of Applied Social Sciences, Case Western Reserve University

Shari Katz-Saltzman

Mandel School of Applied Social Sciences, Case Western Reserve University

David Meeks

Mandel School of Applied Social Sciences, Case Western Reserve University

Suzanne Brown

Mandel School of Applied Social Sciences, Case Western Reserve University, suzanne.brown@wayne.edu

Elizabeth M. Tracy

Mandel School of Applied Social Sciences, Case Western Reserve University, elizabeth.tracy@case.edu

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Predictors of Depressive Symptomatology in Family Caregivers of Women With Substance Use Disorders or Co-Occurring Substance Use and Mental Disorders

DAVID E. BIEGEL, SHIRI KATZ-SALTZMAN, DAVID MEEKS, SUZANNE BROWN, ELIZABETH M. TRACY

All authors: Mndel School of Applied Social Sciences, Case Western Reserve University | Corresponding author: david.biegel@case.edu

Abstract This study utilized a stress-process model to examine the impact of having a female family member with substance use or co-occurring substance use and mental disorders on family caregivers' depressive symptomatology. Participants were 82 women receiving substance abuse treatment and the family member providing the most social support for each woman. Greater caregiver depressive symptomatology was predicted by greater care recipient emotional problems, less care recipient social support, and poor caregiver health. Implications of findings for treatment and future research are discussed.

Keywords co-occurring disorders, depressive symptomatology, family caregiving, mental illness, substance abuse, women

Families play a significant role in the well-being of their relatives with co-occurring substance use and mental disorders through the provision of direct care, management of illness symptoms, engagement and retention in treatment, financial assistance, and emotional support (Clark, 2001; Clark & Drake, 1994; Franks, 1990; Mueser, Noordsy, Drake, & Fox, 2003; Provencher, Perreault, St-Onge, & Rousseau, 2003; Tracy & Biegel, 2006). Comorbidity of psychiatric and substance abuse disorders is common among women, with an estimated 50–60% of women entering substance abuse treatment having a co-occurring mental disorder (Newmann & Sallmann, 2004). Despite the high prevalence of women with substance use or dual disorders and the significant demands on families to assist their relative with the disorder (Clark, 1996; Drake & Wallach, 2000), little research has examined the impact of having a female family member with substance use or dual disorders on family members' well-being (Biegel, Ishler, Katz, & Johnson, 2007). This issue is of significant importance as a number of the issues faced by women with co-occurring disorders are different than those of men with co-occurring disorders.

Women With Co-Occurring Disorders

Women with co-occurring disorders report higher levels of physical, sexual, and emotional victimization than women in general and than men with dual disorders (DiNitto, Webb, & Rubin, 2002; Newmann & Sallmann, 2004). Women with co-occurring disorders have more severe family and social problems and have a greater likelihood of adverse health and social outcomes (Brady & Randall, 1999; Chander & McCaul, 2003; DiNitto et al., 2002; Reed & Mowbray, 1999; Weiss, Martinez-Raga, Griffin, Greenfield, & Hufford, 1997). Nonetheless, in clinical research on comorbidity, little attention has been paid to the effects of comorbidity between substance abuse and psychopathology among women

(Merikangas & Stevens, 1998). Women with dual disorders are more likely than men to be diagnosed with mood disorders, generalized phobias, and post-traumatic stress disorder (PTSD) (Chander & McCaul, 2003; DiNitto et al., 2002; King, Bernardy, & Hauner, 2003; Sannibale & Hall, 2001); however, there is a significant gap in the literature as to the impact of comorbid substance use disorders and nonsevere mental disorders.

Social Support and Substance Abuse Treatment

Research and clinical evidence document that chemically dependent women have limited social support systems, are socially isolated, tend to be surrounded by a substance-using network, and lack support to get into treatment (Davis & DiNitto, 1998; Finkelstein, Duncan, Derman, & Smeltz, 1990). Social network studies of women with substance use disorders show that women have small social networks, largely composed of family members, and may lack support for sobriety within their networks (Majer, Jason, Ferrari, Venable, & Olson, 2002; O'Dell, Turner, & Weaver, 1998; Savage & Russell, 2005).

Social network members can either support or undermine participation in treatment and recovery from drug use. Peer support within the treatment setting and social support outside of treatment appear to be significant factors in treatment progress and outcome (Joe, Broome, Rowan-Szal, & Simpson, 2002). MacDonald (1987) followed 93 women completing alcohol treatment and found that the number of supportive relationships was the best predictor of favorable outcome. Similarly, Havassy, Hall, and Tschann (1987) found a relationship between social support and length of time abstinent following detoxification; in this study, women experienced less support than men.

There is some evidence that interventions to build or mobilize supportive relationships in treatment and recovery

are best matched to the specific support needs of clients, that is, the nature and composition of their pretreatment networks. Tate, Brown, Unrod, and Ramo (2004) found that interpersonal situations preceded relapse for those with substance use disorders, whereas negative affective states preceded posttreatment use episodes more frequently among those with a co-occurring psychiatric disorder. There may be a relationship between care recipients' social functioning and caregiver well-being. For example, caregivers of persons with severe mental illness who perceived that the care recipient's social functioning had improved reported lower levels of burden (perceived stress) (Magliano et al., 2000). In other words, it is suggested that building stronger support networks for care recipients may indirectly help caregivers cope with their family member's illness. However, the relationship between care recipient networks and caregiver outcomes has not been fully examined for women with co-occurring mental and substance use disorders.

Family Caregivers of Women With Co-Occurring Disorders

The role of families of persons with substance abuse and/or mental illness (denoted as "family caregivers" in the mental health literature) has been examined from different perspectives in the substance abuse and mental illness fields over the past decade. The substance abuse literature on family involvement with substance-using family members has placed more emphasis on the impact of family involvement on client outcomes. This literature has not paid significant attention to the mental health impacts of family involvement on family members themselves, nor has it focused on the predictors of the mental health impacts of substance disorders on family members. In fact, the concept of "burden" or "perceived stress" of family members does not appear in the substance abuse literature. On the other hand, the mental health literature has placed significantly more emphasis on the impact of the client's illness on the family caregiver with a large literature about family caregiver burden and less research, as is seen below, on depression of family caregivers. Research findings from the mental health literature indicate that stressors and resources are important in explaining caregiver well-being (Biegel, Sales, & Schulz, 1991).

Families are an important source of social support to persons with a co-occurring substance abuse and mental disorder (Biegel et al., 2007). Due to the significantly worse symptomatology with which individuals with a co-occurring substance abuse and mental disorder present and to the nature of these symptoms (Cuffel, 1996; Drake, Rosenberg, & Mueser, 1996), the impact on their families can be expected to be greater than that on families with a member with a single disorder.

A number of sources of stress for families who provide care for an adult family member with a substance and/or mental disorder have been identified. Those cited most often include isolation, coping with behavioral problems, relationship problems between family members, not having enough help in providing care for their relative, and insufficient help

from treatment professionals. Documented effects of these stresses include worry, anger, guilt, and shame; financial and emotional strain; marital dissatisfaction and discord; diminution in the quality of life and hopefulness of family members; negative impacts on the normal growth and development of children in the family; and physical effects of the stress of living with a substance abuser (Biegel, Song, & Milligan, 1995; Cavaiola, 2000; Fals-Stewart, O'Farrell, Birchler, Cordova, & Kelley, 2005; Freeman, 1993; Heath & Stanton, 1998; Koffinke, 1991; Lefley, 1996; Velleman, 1996).

Overall, the extent of depression related to caregiving is believed to be quite significant across a wide range of populations and environments. Although there has been an extensive amount of research studies of caregivers of persons with Alzheimer's disease indicating significant levels of depression among these caregivers (Neundorfer et al., 2001; Ory, Yee, Tennstedt, & Schulz, 2000; Shua-Haim, Haim, Shi, Kuo, & Smith, 2001), there has been less research examining caregiver depression in the mental health and substance abuse fields.

Studies of caregivers of persons with dementia have reported greater proportions of depressed caregivers than would be expected in the general population. For example, Covinsky et al., (2003) found 32% of their caregivers were at risk for major depression, whereas Waite, Bebbington, Skelton-Robinson, and Orrell, (2004) found 43% of their caregivers to be qualifiedly depressed.

There have been only a few studies examining depression in caregivers of adults with severe and persistent mental illness such as schizophrenia (Saunders, 2003; Song, Biegel, & Milligan, 1997; Yen & Lundeen, 2006) or bipolar disorder (Goossens, Van Wijngaarden, Knoppert-Van Der Klein, & Van Achterberg, 2008). Findings reported by these studies indicated that these caregivers are at high risk for developing depression and depression-related problems associated with their caregiving role. For example, Goossens et al. (2008) found that more than 30% of their respondent caregivers reported being in "psychological distress," whereas Song et al. (1997) found that, depending on race, their participants were between 25% to just more than 40% at risk for developing clinical depression. With regard to family caregivers' of persons with dual disorders, Silver (1999) found that family caregivers of individuals with severe and persistent mental illness and co-occurring substance disorders experienced higher levels of depressive symptomatology, as compared to family members of individuals who were diagnosed with mental illness alone.

Several mental health studies examined the association between family members' stressors and family members' levels of depressive symptomatology. Higher levels of caregiver depressive symptomatology were predicted by more frequent care recipient behavioral problems and insufficient caregiver social support (Moos, Finney, & Cronkite, 1990; Moos, Finney, & Gamble, 1982; Saunders, 2003; Silver, 1999; Song et al., 1997).

In summary, research in mental illness and dual disorders provides evidence that family members' stressors can negatively affect family members' well-being. However, little attention has been given to the effect of women's co-occurring mental and substance disorders and women's personal social networks on family caregiver depressive symptomatology. Family caregivers who are stressed by the caregiving experience and who subsequently develop physical and/or mental health problems of their own may not be able to provide adequate support and assistance to their ill family member. Unmet family caregiver needs can therefore negatively affect the caregiver and the care recipient.

METHOD

Conceptual Framework & Research Questions

A stress-process framework was utilized to identify stressors and resources hypothesized to affect caregivers' depressive symptomatology (Biegel & Schulz, 1999; George, 1980; Pearlin, Mullan, Semple, & Skaff, 1990). Stress-process theory (Pearlin et al., 1990), developed to explicate the process whereby caring for an impaired older adult affects the well-being of family caregivers and since applied to a variety of caregiving populations, outlines the pathways through which older persons' impairment can create stress and affect family caregivers' physical and mental health. In this theory, stressors, defined as "conditions, experiences and activities that are problematic for people" (Pearlin et al., 1990, p. 586), were disaggregated from their effects on their caregiver. Resources represent health protective factors, whereas contextual variables represent care recipient and caregiver characteristics. Thus, stressors, resources and contextual variables are seen as predicting caregiver depressive symptomatology. Two research questions guided this study: (1) What is the extent of depressive symptomatology of family caregivers of women (care recipients) with substance use or co-occurring substance use and dual disorders and (2) What are the predictors of caregiver depressive symptomatology?

Participants

Study participants selected through purposive sampling consisted of women participating in either an outpatient or residential substance abuse treatment program and a family member/significant other nominated by each of the women. To be eligible for the study, the women had to be at least 18 years old, have no diagnosis of schizophrenia and no current use of any medication typically prescribed for a major thought disorder, and to have been in substance abuse treatment for 3 weeks or more. In addition, women included in the study were those willing to nominate the family member or significant other who provided them with the most social support. *Social support* was defined as emotional support (e.g., listening to my problems), instrumental support (e.g., financial aid), and/or informational support (e.g., employment advice). The initial screening to identify the family member/significant other was via a single-item question

asked of women who agreed to participate in the study. The status of the nominated individual as a "caregiver" was later confirmed through family member interviews that asked a series of questions concerning the family members' amount and types of involvement with the care recipient.

A total of 109 women from outpatient and residential treatment programs, care recipients, were eligible for the study, and 101 (92.7%) were successfully contacted by study investigators. Ninety seven (96%) of those contacted agreed to participate. Ten women who gave consent to participate were unable to be interviewed before the end of the study period. One woman was removed as an outlier from the treatment group resulting in a final sample of 86 cases. All 86 women in the study agreed to provide the name of a family member. Nominated family members were contacted subsequent to the woman's interview, and 95.3% ($N = 82$) of the family members agreed to be interviewed. The final study sample comprised 82 women and 82 family members/significant others (one for each woman).

Care recipients ranged in age from 21 to 55, with a mean age of 34.12 years ($SD = 8.50$). One half of care recipients (50%) had a high school education or greater. More than four fifths (81.7%) of the care recipients were African American, the remaining were Latino (11.0%) or of other origin (7.3%). Slightly more than one half (51.2%) of the care recipients were currently residing at an inpatient treatment program, one third (32.9%) lived in their own home, with the remainder residing in the family caregiver's home (12%) or with a relative or friend (3.6%). More than one half (56.1%) of the care recipients met the criteria for a current dual disorder (substance use and anxiety, depression, dysthymia, PTSD, or mania/hypomania), whereas 43.9% had only a current substance use disorder.

Care recipients' network size ranged from 1–38 network members with an average network size of 11.26 members. On average, the care recipients' networks were composed of 3.65 family members (32.42%), 2.24 professionals (19.9%), 2.11 friends (18.74%), 0.9 individuals from school/work (8%), 0.74 neighbors (6.57%), 0.52 household members (4.62%), and 1.09 people from other organizations (9.68%). For 81 of the 82 care recipients, their family caregiver was also a member of their social network. However, given that the average network size was 11.26 members, family caregivers accounted for less than 10% of the care recipients' social networks.

Caregivers ranged in age from 18 to 77 years, with a mean age of 40.04 years ($SD = 13.59$). Two fifths (40.2%) of the caregivers were male. Almost one third (31.7%) of the caregivers were the significant other of the care recipients, whereas the remaining caregivers were either a sibling (23.2%), parent (19.5%), child (11.0%), or other relative (14.6%). Half of the caregivers (50.0%) were never married, 24.4% were divorced/separated, 22.0% were married, and the remaining 3.7% were widowed. Similar to the care recipients, 84.1% of the caregivers defined themselves as African American, 12.2% as Latino, and 3.6% as other. More than one third (37.8%) of the caregivers worked full-time,

22% worked part-time, and 29.0% were unemployed. The median income of caregivers was \$1,300 per month. Very few caregivers' (3.6%) had a current substance dependence disorder as measured by the Computerized Diagnostic Interview Schedule described below (C-DIS; Robins, Helzer, Croughan, & Ratcliff, 1981).

Study Design and Procedures

The current study utilized an exploratory, nonexperimental cross-sectional survey design. Data were collected by interviewers in face-to-face interviews lasting an average of 1 hour 45 minutes for the woman's interview and 1 hour and 20 minutes for the family member's interview. All interviews incorporated paper questionnaires and computer-based survey instruments. The study was approved by a university-based Institutional Review Board for the protection of human subjects and a Certificate of Confidentiality from the National Institute on Drug Abuse was obtained. Interviewers were trained in classroom sessions on the use of the C-DIS described below (Robins et al., 1981), and each interviewer practiced using computerized tutorials and live interviews. Interviewers also received classroom and role-playing sessions on other components of the women's and family members' survey instruments.

Women's interviews were conducted in private offices at the treatment centers. Interviews with family members were conducted at a research office located on the campus of an academic medical center. Family members were provided transportation assistance to facilitate their travel to the interview site. All respondents, the women and their family members, received a \$45 food store gift card for their participation. Data for the current study were drawn from the woman's interview and the interview with her family member. For ease in describing the measures used in the study and in relating study findings to the larger body of literature on caregiving, the women in the study will be referred to as "care recipients" and their family members will be referred to as "caregivers." It should be noted that though the term *family caregiver* is widely used in the mental health research literature, it has not been used in the substance abuse literature.

Measure: Caregiver Stressors

Care recipient dual diagnosis Care recipient substance use disorder was assessed at treatment intake by the structured Clinical Intake Assessment Interview–Cleveland (CIAI-C; University of Akron, 2001), a computerized assessment instrument yielding a DSM-compatible diagnosis. This scale is used by all the treatment agencies in the county in which the study was conducted (University of Akron, 2001). Mental disorders were assessed by use of the generalized anxiety disorder, depression, dysthymia, PTSD, and mania/hypomania sections of the C-DIS. The C-DIS has demonstrated reliability and validity (Helzer et al., 1985; Robins et al., 1981) and is based upon criteria from the *Di-*

agnostic and Statistical Manual (DSM-IV; American Psychiatric Association, 1994). It provides a DSM-compatible diagnosis and distinguishes current from lifetime disorders (Robins et al., 1999).

All of the care recipients in the current study met the criteria for at least one current (last 12 months) substance use disorder (either abuse or dependence). Care recipients were coded as having a dual disorder if the C-DIS indicated the current presence (last 12 months) of at least one of the targeted mental disorders (anxiety, depression, dysthymia, PTSD, or mania/hypomania).

Care recipient behavioral problems The Client Behaviors Scale developed by Biegel and colleagues (Biegel, Milligan, Putnam, & Song, 1994) for use with family caregivers of persons with mental illness was adapted for the current study. Modifications to the scale were based on a review of the literature on the behavioral problems displayed by the study population that may be perceived as stressful by family members. Using a 5-point scale ranging from 0 (*never*) to 4 (*constantly or almost constantly*), caregivers were asked to report the frequency with which the care recipient had displayed a wide range of behaviors in the last 12 months. The modified scale consisted of 58 items and included behavior problems such as problems managing money, irritability, caused trouble with the neighbors, did things to embarrass you. A summated score was computed, with higher scores indicating a greater degree of care recipient behavioral problems. The internal consistency of the scale was very high (Cronbach's $\alpha = .97$).

Care recipient's perceived emotional problems Caregivers were asked to assess the extent of the care recipient's emotional problems over the past 12 months on a 4-point scale ranging from 0 (*not at all*) to 3 (*severe*). A higher score indicated more problems.

Caregiver subjective burden Caregiver burden, or perceived stress, has multiple dimensions (Biegel et al., 1991). Subjective burden was measured by combining two related subscales of the Family Experiences Interview Schedule that have established construct validity and reliability (Tessler & Gamache, 1995). This 16-item scale focused on subjective worry and stigma on the part of the caregivers about the care recipient over the past 12 months. During the past 12 months, caregivers reported the frequency with which they experienced worries concerning the care recipient's situation and concern about the way they (the caregiver) would be perceived or treated by others in their social environment (e.g., care recipient's safety, social life or financial management, worry that people would find out about the care recipient's situation, keeping care recipient's alcohol or drug use a secret, worry that best friends will treat the caregiver differently).

The scale's items were rated on a 5-point scale from 0 (*never*) to 4 (*constantly or almost constantly*). A summated score was computed, with a higher score indicating a greater

degree of worry. Acceptable reliability was reached for the scale (Cronbach's $\alpha = .87$).

Measures: Caregiver Resources

Care recipient social support Social network composition and perceived social support were measured by the Social Network Map (Tracy & Whittaker, 1990). This instrument was used to gather information about social network structure (size and composition), and perceived social support (emotional and informational). Reliability of scoring as measured by test–retest of social network members and percent agreement of ratings was demonstrated in one study, although some relational aspects of social networks as measured by the instrument were less stable than others (Tracy, Catalano, Whittaker, & Fine, 1990).

In the current study, respondents were asked to identify “as many people as you can come up with” with whom they had any form of contact in the past month, positive and negative ties. Respondents were prompted to think of “people who made you feel good, people who made you feel badly, or otherwise played a part in your life.” Detailed questions were then asked about each specific network member. Respondents were asked to identify the network members who almost always provided emotional support and those who almost always provided advice or informational support. These two items were combined, and the average percent of network members who provided emotional and/or informational support was computed for the care recipient sample.

Caregiver overall social support The Interpersonal Support Evaluation List (ISEL) was used as a measure of overall social support. This 16-item scale has been well validated (Cohen, Mermelstein, Kamarck, & Hoberman, 1985). A summated score, from 0 to 48, was computed to represent the level of caregivers' perceived social support, with higher scores indicating more overall social support. The internal consistency of the scale in this sample was good (Cronbach's $\alpha = .81$).

Caregiver physical health Physical health was measured by a summated three-item scale developed and validated by the National Center for Health Services Research for the Health Insurance Study (Brook et al., 1979). Respondents were asked to rate their current overall health, to indicate the degree to which their daily activities were limited by their health or health-related problems, and to rate their satisfaction with their health. The scale range was 3–12, with higher scores indicating higher perceived physical health. These health measures have been used in a large national survey of American adults (House, 1986). In a prior study on adult daughters providing care to impaired parents, a scale based on these three measures showed good internal consistency ($\alpha = .78$; Christensen, Stephens, & Townsend, 1998).

Measures: Contextual Variables

Caregiver household finance Caregivers were asked to assess their general household financial situation at the end of the month via a single question on a 3-point scale ranging from 1 (*some money leftover*) to 3 (*not enough to make ends meet*). This question was adapted from the Americans' Changing Lives Survey and has also been used in a number of other studies (Lantz, House, Mero, & Williams, 2005). A higher score indicates more financial difficulties.

Caregiver depressive symptomatology Caregiver depressive symptomatology was measured by the Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977). The scale indicates the frequency with which the respondent has experienced each of 20 symptoms of depression during the past week. The items are scored on a scale ranging from *less than one day* to *5–7 days during the past week*. The scale's possible range is 0–60, where higher scores indicate more current depressive symptomatology. To keep consistency of the direction of scoring, so that high scores indicate higher levels of symptomatology, positively worded items have been reverse coded. Reliability in the current study was good (Cronbach's $\alpha = .85$).

RESULTS

Data Analyses

Bivariate analyses were conducted using variables from the theoretical model. Following the bivariate analyses, predictors that were statistically significant at the bivariate level were included at the ordinary least squares (OLS) regression analyses.

What is the Extent of Caregiver Depressive Symptomatology?

Overall, the levels of depressive symptomatology were high, with 39% of caregivers being at risk for clinical depression (≥ 16 on the CES-D scale). Caregivers of care recipients with dual disorders had significantly higher levels of depressive symptomatology as compared to caregivers of care recipients with substance disorders only ($t = 2.06, p < .05$). One fourth of caregivers of care recipients with substance-use-only disorders were at risk for clinical depression, whereas one half of caregivers of care recipients with dual disorders were at risk for clinical depression.

What Are the Predictors of Caregiver Depressive Symptomatology?

The means, standard deviations, and ranges of study variables in the regression analysis are presented in Table 1. The regression model was statistically significant ($p < .001$) and accounted for 41% of the total variance in caregivers' depressive symptomatology ($R^2 = .41, p < .001$) (see Table 2). Furthermore, caregivers' stressors contributed 22% to the

explained variability of the caregivers' depressive symptomatology ($\Delta R^2 = .22, p < .001$), whereas caregivers' and care recipients' resources contributed 12% to the explained variability in the outcome ($\Delta R^2 = .22, p < .001$). Higher levels of depressive symptomatology were predicted by higher levels of care recipient's emotional problems as perceived

by the caregiver (stressor) ($B = 2.91, p < .001$), as well as by lower levels of self-perceived caregiver physical health ($B = -.91, p < .05$) and lower levels of care recipient's social support (as reported by the care recipient) ($B = -.06, p < .001$) (resources).

Table 1. Measures

	<i>M</i>	<i>SD</i>	Range	Potential Range	α
<i>Predictors</i>					
CG stressors					
CR dual diagnosis	.56	.50	--	(1 = Dual disorders)	--
CR behavioral problems	89.77	47.09	2 to 194	0 to 232 (low to high)	.97
CR's perceived emotional problems	1.43	1.18	0 to 3	0 to 3 (<i>not at all to severe</i>)	--
CG subjective burden	27.27	12.44	3 to 54	0 to 64 (low to high)	.87
CG resources					
CR social support	53.26	21.03	0 to 100	0 to 100 (low to high)	--
CG overall social support	35.99		7 to 48	0 to 48 (low to high)	.81
CG physical health	9.39	2.22	3 to 12	3 to 12 (low to high)	.79
Contextual variables					
CG household finance	1.89	.78	1 to 3	1 to 3 (high to low)	--
<i>Outcome</i>					
CG depressive symptomatology	13.51	9.38	0 to 41	0 to 60 (low to high)	.85

Note. CR = Care recipient; CG = Caregiver.

Table 2. The Impact of Stressors and Resources on Caregiver's Depressive Symptomatology ($N = 77$)

	Depressive Symptomatology			
	<i>B</i>	<i>SE B</i>	β	<i>P</i>
Step 1 (Contextual Variable)				
CG household finance	1.09	1.24	.09	.38
$R^2_{\text{Step1}} = .07$				
Step 2 (Stressors)				
CR diagnosis (1 = DD)	1.92	1.95	.10	.33
CR behavioral Problems	-.01	.02	-.04	.76
CR's perceived emotional problems	2.91**	.95	.37	.00
CG subjective burden	.09	.08	.12	.29
$\Delta R^2_{\text{Step2}} = .22$				
Step 3 (Resources)				
CR social support	-.119**	.045	-.27	.01
CG overall social support	-.07	.14	-.06	.60
CG physical health	-.91*	.43	-.21	.04
$\Delta R^2_{\text{Step3}} = .12$				
$R^2_{\text{Total}} = .41$				
$F = 5.79^{**}$				

Note: CR = care recipient; CG = caregiver; DD = dual diagnosis; * $p < .05$; ** $p < .01$; *** $p < .001$.

IMPLICATIONS

Study findings indicate that family caregivers of women with substance use disorders or with co-occurring substance and mental disorders experience levels of depressive symptomatology that are almost 2 times higher than the general population. As noted in the findings, 39% of caregivers in the current study had scores on the CES-D scale ≥ 16 , whereas about 20% of adults in the general population would be expected to score in this range (Huba & Melchior, 1995; Radloff, 1977). These high levels of caregiver depressive symptomatology may undermine caregivers' abilities to provide support to their family member or to participate in their family member's treatment. This finding suggests the need for interventions in the substance abuse and mental health systems to assist caregivers in managing their caregiving role.

Substance abuse agencies have long recognized the importance of involving families in the treatment of clients. Empirical studies in the substance abuse field have demonstrated that family involvement can have a positive impact on client outcomes such as abstinence, reduced relapse, general functioning, psychiatric symptomatology, and client treatment engagement (Fals-Stewart, O'Farrell, & Birchler, 2003; Fals-Stewart et al., 2005; McCrady, Epstein, & Sell, 2003). Despite this research, however, the needs of family caregivers themselves have not been routinely addressed by substance abuse agencies. Although the concepts of caregiver distress have been examined in a number of studies in the mental health field, there has been little such empirical investigation in the substance abuse field. The substance abuse field has a rich history of family education, involvement, and support. It would therefore be philosophically consistent for substance abuse agency personnel in considering the needs of family members, to assess the presence of caregiver depression in family members and to develop mechanisms, perhaps in conjunction with the mental health system that has a range of modalities, such as support groups and psychoeducational interventions (Biegel, Robinson, & Kennedy, 2000), to address such needs.

Substance abuse and mental health agencies wishing to provide support to family caregivers similar to those examined in the current study need to also recognize and help address barriers to help seeking and receiving by family caregivers. For example, other findings from the current study indicate that though more than one half of family caregivers perceived their family members mental or substance use disorders to be moderate or severe, almost one half had no contact with their relative's treatment provider in the past 6 months, whereas more than one half of caregivers indicated that they were unlikely to ask for help in providing support for their relative in treatment (Biegel et al., 2007).

The finding that self-perceived physical health predicts depressive symptomatology is consistent with a number of previous research studies on caregiver depression (Song et al., 1997) and suggests the importance of evaluating and addressing this issue with family caregivers. Family caregiver

education and training approaches might address this issue by providing resource information and pointing out the need for caregivers to identify and attend to their own physical health needs so that they will remain physically and emotionally available to their family members needing support over the long term.

Previous research studies have found that caregivers who have higher levels of social support have lower levels of depression (Schulz & Williamson, 1991). In the current study, this was true at the bivariate but not multivariate level in which overall social support was not a predictor of caregiver depressive symptomatology. However, social support did play an important role in affecting caregivers' level of depressive symptomatology, with care recipients' availability of informational and emotional support in their personal social network predicting lower levels of caregiver depressive symptomatology. This finding makes intuitive sense because such social support makes care recipients less dependent upon their family caregivers.

This finding suggests that interventions aimed at improving the care recipient's social network, specifically building more supportive ties, may also help to improve the caregiver's well being. To the extent that the care recipients' social network members can become more skilled in providing support to meet emotional needs, they may be able to become less dependent on one primary caregiver who must carry the burden of being the sole support provider. Some interventions that may be appropriate and that need further development and testing include enhancing the quantity and quality of social support networks through adding network members, increasing peer support, implementing network meetings, and connecting care recipients to self-help groups (Biegel, Tracy, & Corvo, 1994; Morin & Seidman, 1986).

Multivariate analyses did not find any relationship between the care recipients having a dual disorder, as compared to a substance disorder alone, and caregiver depressive symptomatology as might have been expected. The small sample size of the current study restricted the ability to fully examine all potential elements of the stress-process model. Thus, the analyses were limited to examining main effects of substance disorder only versus dual disorders. The simplified conceptual model did not allow examination of potential mediators and moderators that may influence burden outcomes. In addition, the concept of dual disorders may be too generic. Most care recipients in the current study were dependent on more than one substance, and of the women with dual disorders, most had more than one current mental disorder. Given the limited sample size, we were unable to examine different combinations of substance use and mental disorders and the potential impact of these various combinations on caregiver depressive symptomatology.

In addition, it may be that having one of the diagnosable mental disorders examined in the current study is less relevant to caregiver depression than the caregiver's perception of the care recipient's emotional problems. In fact, care recipient's perceived emotional problems did predict caregiver

depressive symptomatology in the current study. This suggests the need for interventions to assist caregivers in understanding and addressing care recipients' emotional problems.

Study findings indicate that women with substance abuse and co-occurring disorders maintain social networks that include members that are helpful to these women's well-being and may be helpful to the well-being of their family caregivers as well. Social network interventions aimed at the networks of care recipients may promote caregiver well-being as well as the well-being of care recipients. Substance abuse and mental health practitioners might consider utilizing social network assessments as part of general assessment interventions with women with substance use and co-occurring disorders. Identifying network members who provide emotional and informational support and enhancing those connections may have beneficial outcomes for care recipients and caregivers.

Limitations of the current study include the fact that the study sample, comprising lower socioeconomic women, primarily African American, from the Midwest, limits its generalizability to similar populations. In addition, generalizability of study findings is also limited to the specific psychiatric disorders studied. Although the current study was theoretically based, its cross-sectional design limits causal inferences.

Future research studies are needed that utilize larger samples and longitudinal study designs. This would allow testing of a more comprehensive stress-process framework to address mediating and moderating as well as direct effects. It would also allow for further examination of various combinations of specific substance use and mental disorders, and also the role of caregiver relationship (e.g., parent, spouse/partner, and sibling) and caregiver gender. Further study of caregiver gender in the context of substance use and dual disorders is important because previous research in other caregiving situations has found that male caregivers experience lower levels of caregiver burden. Future studies should also control for length of time in treatment episode by interviewing women and caregivers early in the treatment process and perhaps by also including a sample of women with substance use disorders who are not currently in treatment.

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