Published in final edited form as:

Int J Ment Health Addict. 2016 August ; 14(4): 400–409. doi:10.1007/s11469-015-9625-3.

Factors Associated with Money Mismanagement Among Adults with Severe Mental Illness and Substance Abuse

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Abstract

People with severe mental illness often have substantial problems with money mismanagement such as losing or lending money to other people and making impulsive or unnecessary purchases, including drugs and alcohol. Money mismanagement in turn affects patients' health and social functioning, and can lead to homelessness and other harm. This cross-sectional study evaluated demographic and clinical predictors of money mismanagement among SSI/SSDI recipients. SSI/SSDI beneficiaries ($N = 95$) with recent cocaine use initiating a clinical trial were assessed at intake with demographic, cognitive, psychiatric, social/family, substance abuse, and financial measures. In multivariate regression analyses, psychiatric functioning and drug dependence diagnosis were independent predictors of self-reported money mismanagement. Even within individuals whom all had recently used cocaine, those with drug dependence and those with more psychiatric symptomatology had more difficulty managing their funds. Future studies might determine whether people who reduce their drug use and psychiatric symptomatology go on to better manage their funds.

Keywords

Money mismanagement; Severe mental illness; Drug dependence; Cocaine; Money management; Financial management; Social security disability

Money mismanagement is a substantial problem for people with severe mental illness (SMI; Elbogen et al. 2011; Rosen 2012) as manifested by spending money on drugs and impulsive purchases, buying things not needed, losing money, and giving or lending money to other people (Black et al. 2008). Because people with SMI are often poor, with no financial cushion, the consequences of money mismanagement can be severe, and include increased probability of homelessness (Conrad et al. 1998; Elbogen et al. 2013), depression (Weiser et al. 2006), higher psychiatric symptom severity (Conrad et al. 2006b), more missed medical appointments (Weiser et al. 2006), reduced overall functioning (Black et al. 2008; Conrad et al. 2006b), and family conflict (Angell et al. 2007; Elbogen et al. 2007). Despite the

Compliance of Ethic of Standards

Conflict of Interest Brent A. Moore, Anne C. Black, and Marc I. Rosen report no conflicts of interest. The authors alone are responsible for the content and writing of this paper.

importance of money mismanagement in people with SMI, little is known about characteristics of people most prone to mismanage their funds.

Many of the extant studies of the correlates of poor financial decision making have been conducted with people who were assigned payees (i.e. surrogate decision makers) because they had been judged incapable of managing their Supplemental Security Income (SSI) or Social Security Disability Insurance (SSDI) payments. Such studies generally reflect what differentiates people with SMI who were assigned representative payees from those who were not (Black et al. 2008; Rosen et al. 2007; Rosenheck et al. 1997). Clinicians report referring people to representative payee programs because of substance abuse or psychiatric and housing problems (Dixon et al. 1999; Luchins et al. 1998), although other less financial reasons were given, such as need to motivate the person to participate in treatment. A few studies have suggested that cognitive abilities, including the ability to make financial calculations (Barrett et al. 2009; Gaudette and Anderson 2002; Harvey et al. 2013), are important predictors of money mismanagement. For example, Barrett et al. (2009) found that people with representative payees, compared to those without, had lower scores on the Financial Skills subscale of the Direct Assessment of Functional Status (DAFS; Loewenstein et al. 1989), which measures skills such as writing a check, balancing a checkbook, and making change.

Factors that might be related to money mismanagement among people with SMI (Black and Rosen 2011; Conrad et al. 2006a; Hamilton and Potenza 2012) but have not been rigorously evaluated for their relationship to clinical evidence of money mismanagement, include overall intellectual ability, impulsivity, health functioning, and interpersonal factors such as social support and community resources. To broaden understanding of relevant factors that may be associated with money mismanagement in individuals with SMI, the current study evaluated demographic, cognitive, and clinical predictors among SSI/SSDI beneficiaries with recent cocaine use.

Methods

Study Design

We conducted a secondary analysis of baseline data from a randomized trial conducted between March 2010 and January 2013 of a money management-focused treatment for cocaine-using individuals in mental health treatment who were receiving SSI and/or SSDI payments. The parent study was registered with clinicaltrials.gov (NCT01327586).

Participants

Adults ($n = 107$) were recruited from five state-operated outpatient mental health programs in Connecticut. Participants were included who received SSI or SSDI payments, and had used cocaine in the preceding 60 days as evidenced by self-report or a positive urine screen. Participants were excluded if they had a conservator of person, had a history of violence toward clinic providers, were suicidal or homicidal, were likely to move or be incarcerated in the next 12 months, had been previously enrolled in a similar study, were unable to

understand English, or had alcohol, opiate, or sedative dependence. All individuals provided written informed consent prior to participation.

Measures

Measures of Money Mismanagement (Dependent Measures)—The Problems Managing Money scale from the Money Mismanagement Questionnaire (M3-PMM), adapted to reflect the preceding 28 days, was the main dependent variable. It assesses difficulties protecting funds, paying bills, keeping track of funds, budgeting, and meeting basic needs; it does not include the M3 items that reflect financial victimization, a different construct. The M3-PMM is a self-report questionnaire based on 15 items scored from 0 to 2 (Conrad et al. 2010). Higher scores are indicative of greater problems. This scale focuses on financial behaviors rather than factors assumed to be associated with such behavior (i.e. diagnoses or substance abuse). The M3-PMM is internally consistent, and scores on this instrument improved more after a financial intervention than after a control intervention (Conrad et al. 2006a).

A brief observer-rated measure of money mismanagement was included (Rosen et al. 2003). Although not validated, it was included as a pilot measure to provide a non-subjective assessment of client budgeting and spending over the past 4 weeks. Four items measuring misspending were rated by a trained research assistant on a 6-point Likert scale from “completely disagree” to “completely agree” (internal consistency reliability $\alpha = .79$). The items were “The client misspent some of his/her money”, “The client spent money on things he/she couldn’t afford”, “The client spent money for alcohol and/or drugs that he/she needed for other purposes”, and “The client did not have enough money because he/she spent it on drugs and/or alcohol.”

Potential Predictors of Money Mismanagement

Demographic: Basic demographic information (age, sex, race/ethnicity) was collected at initial screening.

Cognitive: The Kaufman Brief Intelligence Test-Second Edition (KBIT-2; Kaufman and Kaufman 2004) which provides a Composite IQ score, and the Immediate and Delayed Memory Tasks (IMT/DMT 2.0; Dougherty et al. 2002) were included as measures of cognitive functioning. The IMT/DMT 2.0 is a continuous performance task (Dougherty et al. 2002). Trials involve identification of whether a visually presented five-digit number is identical to a previously presented number. An attention measure (IMT) is based on correct detection in trials in which the target and task are presented in immediate succession, and a memory measure (DMT) is based on correct detection when filler number sequences are presented between the initial number and the possibly identical one. An accuracy score was calculated separately for identifications on the IMT and DMT using standard procedures (Dougherty et al. 2002). Years of education was self-reported.

Psychiatric: The Structured Clinical Interview for DSM-IV (SCID; First and Tasman 2004) was used to determine Axis-I psychiatric diagnoses. Ratings of difficulty in psychiatric, family, drug and alcohol domains were generated from the Addiction Severity Index 5th

Edition (ASI). The ASI is a structured clinical interview (McLellan et al. 1992) that provides composite scores that range from 0 to 1 and provides reliable and valid measures of problem severity during the 30 days prior to the assessment (Alterman et al. 1994). The number of psychiatric hospitalizations and the psychiatric composite score from the ASI were also included.

Two additional assessments focused on psychiatric functioning. The Brief Psychiatric Rating Scale (BPRS; Faustman and Overall 1999; Overall and Gorham 1988) is a rating of observed behavior and patient responses to questions that yields an overall measure of psychopathology (Mueser et al. 1997). The Brief Symptom Inventory (BSI; Derogatis 1992) is a 53-item self-report questionnaire that provides an overall psychiatric distress score, the Global Severity Index.

Social/Family: Marital status and the family composite score from the ASI were included. An additional set of questions assessed whether patients reported financial or emotional support from each of 6 different relations (e.g., parents, spouse, and friends). Social support was calculated as the proportion of the six classes of relationships from which the participants reported support.

Substance Abuse: Current SCID diagnoses of dependence on either alcohol or an illicit drug were included, as were the drug and alcohol composite scores from the ASI. We also included the reported amount of money spent on drugs and alcohol from the ASI. Finally, self-reported substance use was evaluated using a 90-day Timeline Follow-Back calendar-based interview of self-reported use of cocaine, alcohol, marijuana, and opiates (Fals-Stewart et al. 2000; Sobell 1988; Tonigan et al. 1997).

Financial: The Timeline Historical Review of Income and Financial Transactions (THRIFT) was used to assess self-reported income, expenses, and debt for the previous 30 days (Black et al. 2013). The THRIFT has shown moderate to very high (.77 to .99) test-retest reliability for income, expenses and debt.

Data Analyses

Data Set Compilation—The M3-PMM subscale includes “not applicable” and “not answered” response options. Although “not applicable” responses were common (57 %, $n = 60$), “not answered” responses were not (4 %, $n = 5$). In order to retain all cases for analysis, the mean of all answered items was used.

The mean number of “not applicable” items was 1.1 (range 0 to 15). To determine whether participants with “not applicable” items ($n = 60$) differed systematically from those with complete data (including not applicable response; $n = 47$), we compared groups on mean M3 scores using a t -test. Participants with 1 or more “not applicable” items ($M = .49$) did not differ from those without ($p = .10$; $M = .39$).

Data Analysis Plan—The analyses involved first reducing the number of potential predictors included in the sequential regression analyses to those with a significant ($p < .05$) bivariate relationship with money mismanagement. Pearson’s r quantified the bivariate

relationship between M3-PMM and continuous and dichotomous predictors and Spearman's rho was used to estimate the relationship for non-normally distributed predictors.

Sequential step-wise multiple regression analyses were then conducted to evaluate the additive predictive value of measures within the cognitive, psychiatric, family/social, substance abuse, and financial domains. After including demographic factors, all significant factors were sequentially added in the order of cognitive, psychiatric, family/social, substance abuse, and financial domains. We specified this order to consider first what person-level variables accounted for self- and observer-rated money mismanagement in this population before considering the impact of income and expenses. Within each domain, measures were entered step-wise, entering the variable with the highest bivariate correlation with money mismanagement first. Any variables not significant after controlling for other factors were trimmed. Multicollinearity and model assumptions were assessed at each stage.

Secondary analyses examined whether having a representative payee moderated any bivariate relationships, or the effect of any predictor in the multiple regression models. All analyses used 2-tailed tests of significance ($p < .05$) and were performed using SPSS 19.0 (IBM Inc., Armonk, NY).

Results

Complete assessment battery data were available from 95 participants, with descriptive statistics presented in Table 1. Participants were predominately male, over 40, and African American. Most (60 %) were diagnosed with a psychotic spectrum disorder, half with drug dependence, 18 % with alcohol dependence, and 30 % with both a comorbid psychotic spectrum disorder and substance dependence. Most patients (54 %) reported alcohol use, 41 % reported marijuana use and 71 % reported cocaine use in the past 30 days. More than half (57 %) had a representative payee at baseline. The item mean M3-PMM score was 0.43 ($SD = 0.28$).

Money Mismanagement

Table 1 also presents bivariate correlations of the M3-PMM scale with each predictor. The BSI Global Symptom Index, current DSM-IV diagnosis of drug dependence, the ASI Drug Composite score, and discretionary funds available were significantly correlated with money mismanagement.

Table 2 presents the results from the sequential step-wise multiple regression predicting problems managing money. Controlling for demographic variables, only one psychiatric measure, the Brief Symptom Inventory Global Severity Index, and one substance use measure, drug dependence as measured by the SCID, were significant independent predictors of self-rated money mismanagement. None of the financial measures significantly added to the model and they are not included in Table 2. The final model was significant, $F(6, 88) = 4.16$, $p = .001$, $R^2 = .22$, Adjusted $R^2 = .17$. Evaluation of multicollinearity showed no correlation between any pair of predictors above .58 (GSI and BPRS scores), no VIF values above 1.6, and no condition index values above 6 at any regression step.

Payee status did not significantly moderate any of the bivariate or multivariate relationships.

Observer-Rated Money Mismanagement

The mean observer-rated MM total score was 2.80 ($SD = 1.36$), and this pilot measure was significantly, though modestly, positively correlated with self-rated Problems Managing Money, $r = .23$, $p = .02$. Similar to the M3-PMM outcome, observer-rated money mismanagement was associated with psychiatric severity and substance use. It was positively correlated with the BPRS overall score ($r = .20$), SCID diagnoses of alcohol ($\rho = .27$) and drug ($r = .36$) dependence, ASI alcohol ($\rho = .27$) and drug composite scores ($\rho = .34$), days of marijuana use in the past 30 days ($\rho = .23$), and amount spent on drugs and alcohol ($\rho = .60$). Contrary to M3-PMM associations, observer-rated money mismanagement was associated with discretionary spending ($\rho = .55$), but not with discretionary funds available. Observer-rated money mismanagement was negatively correlated with social support ($r = -.33$). For the sequential stepwise multiple regression, the final model accounted for approximately 38 % of variability, $F(7,88) = 7.76$, $p < .001$, $R = .62$, Adjusted $R^2 = .33$. In addition to demographic variables, two variables were independent predictors in the final model, social support ($\beta = -.34$, $p < .001$), and money spent on alcohol and drugs ($\beta = .40$, $p < .001$). Payee status did not significantly moderate any of the bivariate or multivariate relationships.

Discussion

The current study evaluated a wide array of predictors of money mismanagement among patients with SMI receiving SSI/SSDI with recent cocaine use. Bivariate factors that significantly predicted money mismanagement in this population included a measure of psychiatric functioning (the BSI Global Symptom Inventory), substance use and dependence (DSM-IV diagnosis of drug dependence, the ASI drug composite score, and money spent on drug or alcohol), and financial status (discretionary spending available). When controlling for demographic factors, both psychiatric functioning and drug dependence diagnosis remained independent predictors in the multiple regression analyses.

The predictors of *observer-rated* money mismanagement, in exploratory analyses, were consistent with those found for self-reported money mismanagement, in that substance use was associated with money mismanagement measured by either clients or third party raters. Psychiatric severity was associated with both raters' judgment of money mismanagement in bivariate analyses.

It is noteworthy that substance use predicted both self- and observer-rated measures of money mismanagement, even though all participants had qualified for the study because of recent cocaine use. It is possible that reducing substance abuse may improve financial functioning. Although assignment of a payee by itself does not significantly impact substance use (Rosen et al. 2007; Rosenheck et al. 1997), combined treatment for substance abuse and money mismanagement in this population has been shown to be efficacious.

Surprisingly for a population in whom the mean KBIT-estimated IQ was 79.6, none of the measures of cognitive functioning was associated with money mismanagement. This

suggests that functional money management is not dependent on intellectual ability, but is rather a multi-faceted behavior.

Several limitations of the current study should be noted. First, the primary outcome measure of money mismanagement was based on self-report. We included a pilot observer-based measure which correlated modestly with the self-reported measures, but development of objective measures is needed to reconcile this previously-described discrepancy between self-report and observed financial abilities (Harvey et al. 2013). Second, the population was restricted to patients with recent cocaine use and SSI/SSDI in a single state, and the findings may not generalize to other populations. Third, the social support measure used was limited to measuring the breadth of social support and did not evaluate depth or quality, which may be more directly related to money mismanagement. Finally, the correlational nature of the cross-sectional design precludes causal attribution. Money mismanagement, substance abuse, and psychiatric functioning may be directional, mutually causal, or cyclical. Evaluation of these factors over time is needed to differentiate these competing hypotheses, and clinical trials are needed to determine if addressing the risk factors for money mismanagement result in improved financial health.

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Table 1

Descriptive Statistics for Patient Baseline Characteristics and Correlations with Self-Rated Money Mismanagement ($N = 95$)

Descriptive Statistics		
Demographics		
Age, M (SD)	42.9 (9.3)	$r = -.11$
Sex, % Male (n)	62 % (59)	$r = .23$
Race/Ethnicity, %, (n)		Cox and Snell $r^2 = .26$
AA	58 % (55)	$r^2 = -.25$
Hispanic	16 % (15)	$r^2 = .001$
White	22 % (21)	
Cognitive Functioning		
Years of Education, M (SD)	11.4 (1.9)	$r = .16$
KBIT-2 Composite IQ, M (SD)	79.6 (15.0)	$r = .08$
Immediate Memory Task, M (SD)	.72 (.10)	$r = -.18$
Delayed Memory Task, M (SD)	.71 (.09)	$r = -.01$
Psychiatric Functioning		
SCID psychotic spectrum, % yes (n)	61 % (58)	$r = -.04$
BPRS overall score, M (SD)	32.1 (8.2)	$r = .18$
BSI – Global Symptom Inventory ² , M (SD)	48.2 (32.0)	$\rho = .28^{**}$
ASI Psychiatric Composite, M (SD)	.37 (.22)	$r = .07$
Family/Social Status		
Marital Status, % Never Married (n)	70 % (67)	$r = .06$
ASI Family Composite, M (SD)	.26 (.17)	$r = .11$
Social Support, M (SD)	.49 (.32)	$r = -.09$
Substance Use and Dependence		
SCID Alcohol Dependence, % yes (n)	19 % (18)	$r = .11$
SCID Drug Dependence, % yes (n)	52 % (49)	$r = .28^{**}$
ASI Alcohol Composite, M (SD)	.17 (.21)	$\rho = .06$
ASI Drug Composite, M (SD)	.12 (.10)	$\rho = .19^*$
Days of marijuana use in the past 30, M (SD)	5.1 (10.0)	$\rho = .02$
Days of alcohol use in the past 30, M (SD)	4.5 (7.2)	$\rho = -.04$
Days of cocaine Use in the past 30, M (SD)	6.2 (8.5)	$\rho = .09$
Money spent on drugs or alcohol, M (SD)	\$226 (\$267)	$\rho = .22^*$
Financial Status		
Representative Payee, % (n)	57 % (54)	$r = .08$
Income, M (SD)	\$1095 (\$452)	$r = .13$
Discretionary funds available, M (SD)	\$443 (\$350)	$r = .22^*$
Discretionary spending reported, M (SD)	\$546 (\$339)	$r = .06$

M Mean

¹Based on the pseudo R² estimate derived from multinomial logistic regression

²Pearson's r for normally distributed outcomes and Spearman's rho for non-normal outcomes

*
< .05,

**
< .01

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Predictors of problems managing money in a sequential multiple regression analyses by step (N = 95)

Table 2

Variable	R ² Change	F change	Step 1		Step 2		Step 3	
			B	p	B	p	B	p
Step 1 - Demographics	.10	F(4,90) = 2.24, <i>p</i> = .07						
Black vs. other			-.149	.04	-.13	.06	-.12	.09
Hispanic vs. other			-.131	.16	-.13	.15	-.07	.46
Age			-.003	.41	-.001	.85	-.001	.77
Gender (Female vs. Male)			.10	.12	.14	.03	.12	.05
Step 2 – Psychiatric Functioning	.08	F(1,89) = 8.23, <i>p</i> = .005						
Global Symptom Inventory					.003	.005	.002	.02
Step 3 – Substance Use	.04	F(2,88) = 4.75, <i>p</i> = .03						
SCID Current Drug Dependence							.13	.03