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The relationship between social desirability bias and self-reports of health, substance use, and social network factors among urban substance users in Baltimore, Maryland

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Abstract

Background—Social desirability response bias may lead to inaccurate self-reports and erroneous study conclusions. The present study examined the relationship between social desirability response bias and self-reports of mental health, substance use, and social network factors among a community sample of inner-city substance users.

Methods—The study was conducted in a sample of 591 opiate and cocaine users in Baltimore, Maryland from 2009–2013. Modified items from the Marlowe-Crowne Social Desirability Scale were included in the survey, which was conducted face-to-face and using Audio Computer Self Administering Interview (ACASI) methods.

Results—There were highly statistically significant differences in levels of social desirability response bias by levels of depressive symptoms, drug use stigma, physical health status, recent opiate and cocaine use, Alcohol Use Disorders Identification Test (AUDIT) scores, and size of social networks. There were no associations between health service utilization measures and social desirability bias. In multiple logistic regression models, even after including the Center for Epidemiologic Studies Depression Scale (CES-D) as a measure of depressive symptomology, social desirability bias was associated with recent drug use and drug user stigma. Social desirability bias was not associated with enrollment in prior research studies.

Conclusions—These findings suggest that social desirability bias is associated with key health measures and that the associations are not primarily due to depressive symptoms. Methods are needed to reduce social desirability bias. Such methods may include the wording and prefacing of questions, clearly defining the role of “study participant,” and assessing and addressing motivations for socially desirable responses.

Keywords

opiates; cocaine; heroin; social desirability bias; mental health; self-reports

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Conflict of Interest

None of the authors have financial conflicts of interests.

1. Introduction

Social desirability bias is the tendency to underreport socially undesirable attitudes and behaviors and to over report more desirable attributes. One major theory of social desirability bias by Paulhus (1984) suggests two components. One is impression management, which is the purposeful presentation of self to fit into a situation or please an audience. A second component is self-deception, which may be unconscious, and is a based on the motivation to maintain a positive self-concept. Tourangeau and Yan (2007), based on an extensive literature review, conclude that socially desirable response bias is often motivated by the desire to avoid embarrassment and repercussions from disclosing sensitive information, which is impression management.

In a systematic review of social desirability Perinelli and Gremigni, (2016) noted that most studies had been conducted with college students. In one drug treatment sample, Zemore (2012) found that social desirability bias was associated with the alcohol and drug severity subscales of the Addiction Severity Index. In another non-student sample, Davis and colleagues (2014) reported that among male offenders in Canada who completed substance use treatment, there was an increase in social desirability among those who reported the greatest change in drug and alcohol attitudes.

Stephens (1991) suggested that the role of “street addict” was a central attribute of substance users’ relationships. In the role of street addict, providing misinformation and hustling are viewed as appropriate. Consequently, the role of street addict may lead to problematic self-reports if research is seen as a hustle. In the fields of health, role theory has been primarily applied to the patient-provider relationship, with an emphasis on improving the traditional patient or “sick” role as passively following providers’ requests to active patient roles in which patients become partners in their health care (Parsons, 1975; Armstrong, 2014). The traditional patient role can be viewed as similar to the role of research subject who passively complies with the instruction of the researcher. Few studies have examined how social roles may influence the accuracy of self-report data; however, when developing social desirability scales, participants are asked to play the role of “faking good” or “bad” to develop items that can differentiate when individuals are not giving accurate responses.

In the current study, we were interested in examining the relationships between social desirability and mental and physical health and health care utilization among out of treatment inner-city heroin and cocaine users. We were also interested in how social desirability bias may be linked to reports of drug user stigma, drug use, and social networks.

It has been documented that people who are not depressed tend to rate themselves better than others rate them (Lewinsohn et al., 1980). This phenomenon, which has been called an “illusory glow,” may lead individuals who do not exhibit depression to have an overly positive, as compared to the perceptions of others, view of themselves. Consequently, we also examined whether including a measure of depression in the analytic models would diminish associations between social desirability response bias and health and drug measures.

2. Methods

2.1. Participants

The study was conducted from July 2009 to July 2013 in Baltimore, Maryland. Recruitment was conducted by street-based outreach, word-of-mouth, flyers, advertisements in local papers, and referrals. Inclusion criteria for enrollment into the study were: aged 18–55, willingness to attend intervention sessions, at least one drug-related HIV risk behavior, and at least one sexual risk behavior. Study details have been reported elsewhere (Latkin et al., 2013). The survey was conducted face-to-face and using Audio Computer Self Administering Interview. For the current analyses, which were from the first follow-up visit 6-months post-enrollment, 596 out of 657 participants reported a history of heroin and/or cocaine use. Five participants were excluded due to missed data for a total of 591 participants.

2.2. Measures

The social desirability (SD) scale was 10 items (1 for “yes” and 0 for “no”) based on the Marlowe-Crowne Social Desirability Scale (Andrews and Meyer, 2003). Using the median as a cut point the SD scale was dichotomized to high and low.

The 10-item Alcohol Use Disorders Identification Test (AUDIT) was included (Babor et al., 2001). A 10 point scale assessed the last time a participant reported using 7 types of drugs, which included snorting heroin and cocaine; injecting heroin, cocaine, and speedball; smoking crack, and prescription opiate use. The drug user stigma scale was comprised of 17-items (Latkin et al., 2013), which were asked of participants who reported using heroin, cocaine, or crack in the past 6 months (N=410). The Cronbach’s alpha for scale was .91.

The 20-item Centers for Epidemiological Studies Depression Scale (CES-D) assessed level of depressive symptoms (Radloff, 1977). The size of the social network was assessed with a modified version of the Personal Network Inventory (Latkin et al., 1996). Measures of health care utilization were assessed by reporting any use of a hospital or emergency room in the past 6 months. Participants were asked if they had participated in research studies in the past 6 months. Age, gender, homelessness, educational, subjective health, and employment status were also assessed.

2.3 Statistical analyses

T-tests and chi-square models examined the association between levels of social desirability and continuous and dichotomous variables. Adjusted logistic regression models were then used to examine the associations between the variables of drug use stigma, depression, AUDIT score, substance use, network size, and subjective health status with levels of social desirability. The scales for each of these variables were converted to z-scores in order to standardize the distribution and facilitate interpretation of odds ratios.

3. Results

3.1 Sample characteristics

Among 591 participants with complete data on the SD scale, 331 were male (56%), and the median age was 45 years. On the SD scale, the range was 0–10, 5.42 (mean), and 5 (median).

3.2 Statistical analysis

As seen in Table 1, there was a significant difference in reports of having a main sexual partner and subject reports of health status. Marginal differences were found in reports of any heroin or cocaine use in the prior 6 months ($\chi^2 = 3.11$, $p<0.10$). For the t-test models, there were highly significant differences in levels of depressive symptoms, drug user stigma, recent drug use frequency, and size of social networks. Multivariate logistic models indicated highly significant associations between levels of SD and depressive symptoms, drug user stigma, recent drug use frequency, and subjective health status. Level of SD was also associated with participants' AUDIT score and social network size (Table 2).

One plausible explanation for these findings is that they are artifacts of depressive cognitions. To test this interpretation, we added the CES-D measure to the logistic models. These models indicated that the association between SD and participants' recent drug use (OR=0.773, 95%CI:0.649–0.921, $p<0.01$) and drug user stigma (OR=0.772, 95%CI:0.610–0.977, $p<0.05$) remained significant after controlling for depressive symptoms. However, the associations between SD and participants' AUDIT score, social network size, and subjective health status were attenuated after controlling for depression.

4. Discussion

Social desirability response bias was not found to be associated with enrollment in prior research studies, indicating that "professional subjects" do not appear to provide more socially desirable responses. However, we did find that those who have high levels of socially desirable responding report significantly fewer symptoms of depression, lower frequency of recent drug use, smaller social networks, lower drug user stigma, and lower AUDIT scores. It was also associated with subject health status and reports of having a main partner. We did not find that adjusting for levels of depressive symptoms eliminated the association between social desirability response bias and several of the key outcomes.

The results from the current study suggest that individuals who tend to give more socially desirable responses may underreport depressive symptoms as mental health issues are stigmatized in similar populations (Rusch et al., 2008). This interpretation is cause for concern as self-reports are the primary method of assessing depressive symptoms. We also found that more objective measures of health, such as hospitalization and emergency room use, did not correlate with socially desirable responding. These behaviors may be seen as normative and less influenced by social desirability bias. The magnitude of the association between SD and subjective health, depression, recent drug use frequency, and drug user stigma suggest that this bias may have a significant impact on self-reports of certain health attributes and behaviors.

These findings beg the question of how investigators can reduce socially desirable responding. The role of research participant is often ambiguous, and it is incumbent on investigators to shape this role so that participants perceive that it is socially acceptable to provide accurate information about their mental health and substance use. In order not to promote the role of "drug user," it may be useful to begin an interview with items that are counter to the sick or drug user role, such as asking what the participant enjoys about drug use as well as the problems caused by drug use.

Providing accurate information on one's health behaviors, especially mental health, may threaten the self-concept of participants and reveal behaviors, such as drug use, which are contrary to common medical and public health advice. One way to address this dilemma is to make reporting the behavior appear to be normative. A pitfall of this approach is that participants may over report behaviors.

Another potential approach to obtaining more accurate mental health data is to present the assessment as potentially useful to participants by stating that some participants find it helpful to talk about the interview topics since the interview provides an opportunity to "get things off their chest." Framing the interview in this vein is not without its pitfalls as it is important to not portray the interview as a therapeutic encounter. However, for populations that have few opportunities to talk about mental and physical health issues such interviews have potential benefits.

It may also behoove investigators to ask the question of why participants should provide accurate data and what motivations participants have to provide accurate information. There is a pressing need to research this issue, especially among populations that may have been treated poorly by social services or experienced discrimination due to their economic status, race, and substance use.

The focus of this study was on substance users, specifically opioids and cocaine users. We do not have evidence that substance users are more likely than non-users to provide socially desirable responses. There may be some settings, such as drug treatment and paid research, where there are strong pressures to provide socially desirable responses to meet perceived or actual enrollment criteria. In such settings, it is incumbent on investigators to structure interviews to reduce under or over-reporting of certain behaviors as well as motivate participants to provide accurate information.

Although biological assays may augment self-reports, another strategy is to mask the enrollment criteria by asking questions on a screener that are not actually related to the criteria. Alternatively, one could expand enrollment criteria for a baseline to include participants who may not be eligible for a full trial. This approach may reduce incentives to report behaviors that may increase eligibility. Tourangeau et al., (1997) found that the bogus pipeline procedure increased self-reports of drinking and illicit substance use in a community sample. Although this approach may be useful for assessing substance use, it is less likely to be effective for measures of mental health and stigma.

There are several limitations to this study. The sample was not random and design cross-sectional. The study findings suggest several lines of research to increase the validity of self-

report data. This includes studies that modify participants' role to encourage more accurate self-reports, systematically test whether providing information that may indicate that the behavior is more socially acceptable improves self-reports, and explore whether enhancing motivations to provide accurate information results in greater reports of socially undesirable behaviors. Research should also examine whether it is possible to construct research experiences that lead to participants scoring lower on measures of social desirability.

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Highlights

Among substance users, social desirability response bias was associated with self-reports of physical and mental health, substance use, and social network factors.

Even after adjusting for depression social desirability was associated with self-reported health and substance use.

Social desirability was not, however, associated with more objective health measures nor was it related to being a “professional study subject”.

Table 1

Results of chi-square and t-tests examining the association between levels of social desirability bias and participant characteristics

	Low social desirability		High social desirability			
	n	%	n	%	χ^2	p
Gender						
Male	161	53.3	170	58.8	1.82	0.18
Female	141	46.7	119	41.2		
Education						
< 12 years	160	53.0	160	55.4	0.34	0.56
≥ 12 years	142	47.0	129	44.6		
Homeless (past 6 months)						
Yes	72	23.8	67	23.2	0.04	0.85
No	230	76.2	222	76.8		
Unemployment (past 6 months)						
Yes	270	93.4	271	89.7	2.60	0.11
No	19	6.6	31	10.3		
Main sexual partner						
Yes	203	67.2	162	56.1	7.79	0.005
No	99	32.8	127	43.9		
Heroin or cocaine use (past 6 months)						
Yes	229	70.9	210	64.4	3.11	0.08
No	94	29.1	116	35.6		
Subjective health status						
Excellent or very good	231	76.5	193	66.8	6.87	0.009
Good, fair, or poor	71	23.5	96	33.2		
Emergency room (past 6 months)						
Yes	109	36.1	108	37.4	0.10	0.75
No	193	63.9	181	62.6		
Hospitalization (past 6 months)						
Yes	47	15.6	51	17.6	0.46	0.50
No	255	84.4	238	82.4		

	Low social desirability		High social desirability			
	n	%	n	%	χ^2	p
Participated in research studies (past 6 months)						
Yes	35	11.6	35	12.1		
No	267	88.4	254	87.9	0.04	0.85

	n	Mean	SD	Mean	SD	t	p
Sum of CES-D scores [a]	591	20.75	12.97	17.29	11.53	3.42	0.001
Drug user stigma	410	48.38	11.72	44.67	11.51	3.23	0.001
Recent drug use (range 0–70)	590	23.19	11.90	19.83	11.29	3.51	< 0.001
AUDIT score	591	6.83	8.63	5.62	7.66	1.81	0.07
Number of social networks	591	6.45	3.42	5.89	3.06	2.11	0.04

[a] Adjusted for missing values

Table 2

Logistic regression models of the association between social desirability bias (dichotomous) and participant characteristics [b]

	n	Odds Ratio	95% CI	p-value
Sum of CES-D scores [a]	591	0.741	(0.623, 0.880)	0.001
Drug user stigma	410	0.714	(0.580, 0.878)	0.001
Recent drug use (range 0–70)	590	0.732	(0.618, 0.868)	< 0.001
AUDIT Score	591	0.834	(0.705, 0.985)	0.033
Social network size	591	0.842	(0.713, 0.996)	0.044
Subjective health status	591	0.594	(0.410, 0.860)	0.006

[a] Adjusted for missing values

[b] Values adjusted for participant age, gender, education, and employment status