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Paying Substance Abusers in Research Studies: Where Does the Money Go?

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Abstract

Research involving substance abusing participants is often hindered by low rates of recruitment and retention. Research suggests that monetary payment or remuneration can be an effective strategy to overcome these obstacles. This paper provides a brief overview of these issues and provides data reflecting how substance abusing participants in several of our studies used their baseline and follow-up payments. We also present research findings related to how the mode of payment (i.e., cash, check, gift card) may affect how payments are used. Overall, our findings suggest that participants use their research payments in a responsible and safe manner. Limitations and recommendations for future research are discussed.

Keywords

Remuneration; Participant payment; Substance abuse research; Monetary incentives

Research is often seriously hindered by the inability to recruit and retain adequate samples of study participants. Failure to recruit or retain a sufficient number of participants may substantially reduce the representativeness and generalizability of a study's findings. In some instances, it may even render the findings indefensible and unpublishable. Recruitment in grant-funded longitudinal outcome studies must typically be completed within a designated time frame to allow adequate time for follow-up and to remain within budget. Moreover, recruitment should ideally continue at a constant rate to ensure sufficient statistical power and avoid staffing and workload problems. In a systematic review of over 4000 clinical trials (1), it was found that most studies reported having to extend their recruitment periods or increase their efforts and costs in order to enroll an adequate number of participants and to ensure adequate statistical power and sample representativeness.

Fortunately, research has demonstrated that providing monetary payments can be effective in increasing study recruitment rates and reducing attrition (2, 3, 4). Despite the demonstrated effectiveness of using monetary incentives, many investigators and human subject review boards are reluctant to allow or promote the use of such incentives with drug or alcohol using populations (5, 6, 7, 8). One of the concerns most often cited is the fear that participants will use the monetary payments to purchase drugs or alcohol or to engage in other high-risk behaviors (e.g., gambling, solicitation of prostitutes). This paper discusses the benefits and perceived risks of using monetary incentives with this population. In addition, we examine data collected from a number of randomized controlled studies related

to how participants reported using their research payments. Data from these studies suggest that many of these concerns may be unwarranted.

Sample representativeness

Recruitment

Although many studies may have no problem recruiting large, representative samples, others may not be as successful. The ability to recruit adequate samples is likely influenced by a number of factors including 1) study demands, 2) study-related risks and benefits, and 3) appeal of the study to potential participants. Certain areas of research, including substance abuse research (9), are particularly plagued with difficulties in recruitment. Low rates of recruitment are problematic because they may raise serious concerns about statistical power, the generalizability of study findings, as well as concerns related to sampling bias, distributive justice, and racial, ethnic, and gender representation.

Retention

In addition to problems with recruitment, studies have varying degrees of success in retaining representative sample cohorts. As was mentioned earlier, substance abuse research is particularly plagued by high rates of attrition (10). Numerous factors contribute to the high rates of attrition in this area of research (11), including 1) the highly transient nature of the population, 2) the high prevalence of employment instability, 3) comorbid health and psychosocial problems, and 4) participants' lack of motivation to follow through with research that is often linked to their treatment. Attrition becomes even more problematic in longer term outcome studies and those with multiple follow-up points where critical outcome data may be lost.

Reviews of dozens of drug abuse treatment outcome studies have reported average attrition rates ranging from 20% to 25% at 6 months post-admission, 25% to 35% at 12 months post-admission, and 55% to 65% at 36 months post-admission (12, 13). A meta-analysis of 85 drug abuse prevention studies similarly reported average attrition rates ranging from 27% at 12 months post-admission to 33% at 36 months post-admission (14). Importantly, these reviews and meta-analyses only included published studies, and it is reasonable to assume that many studies with lower follow-up rates were never published for the very reason that their follow-up rates were deemed to be unacceptable. According to customary standards in the research field, a follow-up rate of 70% to 80% is generally considered to be minimally acceptable for representing the baseline cohort and for drawing generalizable conclusions from the research data (12, 15, 16, 17).

One of the major problems with attrition from research is that it generally does not occur at random (18). The likelihood that a participant will complete a research follow-up is influenced by factors such as participant characteristics, the nature of the research interventions, the type of follow-up methods employed, and the time intervals for assessment. Differential attrition resulting from the nature of the research intervention cannot be confidently controlled for by random selection random assignment (18) it can be definitively established whether between-group differences in a particular study were caused by the experimental intervention(s) or by differential attrition across conditions (18, 19). Regardless of the contributing factors, differential attrition presents a very serious threat to the internal validity, external validity, and generalizability of the study (18, 19).

Monetary payments can help

Research suggests that monetary incentives can significantly increase recruitment rates in clinical trials (3, 9). In addition, there is support for its utility in retaining participants in

clinical trials by increasing their motivation and satisfaction with the research study (20). However, the use of monetary incentives with clients who have substance use disorders often raises a number of ethical objections that, to date, have received little empirical support. Two of the most frequently raised objections in this context are that 1) the provision of monetary payments could trigger a relapse to drug use (6, 21, 22, 23) and 2) large incentives may be coercive (24, 25, 26), meaning that they could compromise participants' normal decisional processes and unduly entice them to participate even if they ordinarily would hold strong preferences or pre-conceptions against such participation. As a result of these objections, researchers have often been forced to provide lower-magnitude, non-cash incentives to research participants, which the research evidence strongly suggests is likely to be a less effective modifier of human behavior (27, 28, 29). In fact, we have conducted a series of randomized controlled trials demonstrating that providing larger magnitude payments as well as payments in cash can increase follow-up rates without precipitating drug use or coercing participation (20, 30).

Despite these research findings supporting the use of large magnitude and cash payments, many individuals remain concerned that substance abusing research participants will spend their study payments on drugs or other high risk activities. In the sections that follow, we present data from several of our own studies that describe how research participants reported having spent their remuneration for completing study assessments. At the follow-up assessment for each of these studies participants were asked how they had spent their research payments in an open-ended manner. Two research assistants then coded the responses into 11 categories including: (1) household items (e.g., groceries, clothes, toiletries, cleaning supplies), (2) medical expenses (e.g., prescription or over the counter medicine, healthcare services), (3) gifts (e.g., holiday presents, birthday presents), (4) transportation-related expenses (e.g., bus tokens, gasoline, car repairs), (5) debts/bills (e.g., rent, utilities), (6) savings, (7) luxury items (items for self that are not needed for basic living; e.g., radio, CD player, television), (8) illicit drugs, (9) alcohol (including drinks bought for other people), (10) cigarettes, and (11) other. The "other" category included personal items such as haircuts, candy, and other low-frequency items that did not fit into the other categories. Importantly, the "other" category did not include any high-risk purchases such as weapons, solicitation of prostitutes, or illegal gambling. All discrepancies were resolved until complete agreement was reached. Study participants were not informed that they would be asked to report on how they spent their payments as this may have biased their spending behavior.

How do participants spend their research payments?

In a study conducted in a misdemeanor drug court in Wilmington, DE (31), we examined the efficacy of prospectively matching drug court clients to varying frequencies of status hearings given their level criminogenic risk. Clients (N = 319) received a \$40 money order for completing their baseline assessment. When clients returned for their one-month follow-up, we asked clients how they spent their study payment. The largest proportion of clients (29%) reported having spent their money to pay bills, and almost a quarter (21%) indicated that they were saving it. A substantial proportion reported spending it on transportation-related expenses (19%) and household purchases (16%). Less than 1% of clients reported using their payment to purchase alcohol or drugs, and no one indicated that they had used their payments to make other high risk purchases such as weapons, soliciting prostitutes or illegal gambling. Overall, participants appeared to have used the money in a responsible manner.

In another study (32), we examined the differential effectiveness of using either an escalating or thinning schedule of contingency management with felony drug court clients in

Philadelphia, PA (N = 269). Participants received a \$25 gift certificate for completing their baseline assessment. When they returned one month later (n = 218), we asked them how they spent their research payment and categorized their responses using the procedures described above. As seen in Figure 2 below, a little more than one third of participants reported saving their research payment and approximately a quarter reported purchasing household items. Sixteen percent of participant reported buying luxury items with their payments, and a similar percentage purchased gifts for others. No participants reported using their gift certificates to acquire drugs, alcohol, or other high-risk items or services.

As was the case in the earlier study, participants in the Marlowe et al. (32) study tended to use their payments in a generally responsible manner. Although participants in the latter study reported a higher rate of purchasing luxury items than in the former study (16% vs. 5%), this is likely due to the fact that they received their payment in the form of a gift card as compared to a check in the former study. Because gift cards require the individual to purchase items from specific retail stores, type of spending that clients can do is more limited than with cash, check, or money order payments. For instance, a substantial number of clients in the earlier study who were paid by check reported using their payment to pay bills (29%) while no one in the latter study reported such use of their payment.

In addition to our examination of how study baseline payments were used, we have also collected data related to how research participants used their follow-up payments. Importantly, data on follow-up payment spending may be qualitatively different than data on baseline payment spending because participants are generally no longer in treatment or in regular contact with research staff at follow-up. For this reason, it may be assumed that they have fewer constraints on their spending behavior. Specifically, clients may use their payment in a less responsible manner when they are no longer under the direct supervision of treatment and research staff.

We conducted a series of studies aimed at examining the ethical and practical issues related to different modes and magnitudes of follow-up research payments. Gift certificates and gift cards are generally viewed as a safer form of remuneration as they may limit the type of harmful or dangerous purchases that can be made. These studies compared the relative safety of cash and gift card/certificate remuneration. In the first study (20), 350 substance abuse outpatient clients were randomly assigned to receive cash or gift card payments of varying magnitudes (\$10, \$30, \$70) for attending a scheduled 6-month follow-up appointment. Clients who attended the follow-up (n = 149) provided a urine specimen and received their predetermined payment. They then returned in 3 days for a post-follow-up assessment (n = 135) where they provided a second urine specimen to determine whether they had engaged in new drug use and were asked how they had spent their research payment. Their responses are presented in Table 1 below.

Overall, a majority (52%) of clients reported using their follow-up payment to purchase household items. Gifts (21%), luxury items (18%), transportation-related purchases (16%), and bill payment (12%) were reported with some frequency. Only one client reported spending the payment to buy alcohol and drugs, and no clients reported using their payment for other high-risk purchases or activities. Clients receiving cash payments were significantly more likely than clients receiving gift card payments to use their remuneration on transportation expenses (28% vs. 2%, $\chi^2(1) = 16.38, p < .0001, w = .35$) and to pay bills and other debts (21% vs. 0%, $\chi^2(1) = 14.09, p < .001, w = .32$). Clients who received gift card payments were more likely than those who received cash payments to purchase household items (63% vs. 43%, $\chi^2(1) = 4.96, p < .05, w = .19$) and gifts (31% vs. 13%, $\chi^2(1) = 6.08, p < .05, w = .21$). Importantly, as reported in a previous paper (Festinger et al 2005)

there were also no significant differences between clients who received cash or gift cards in terms of urinalysis-confirmed new drug use $\chi^2(1) = 0.01, p = .97$ (ES: $w = 0.00$).

In the second study of the series (30), we examined the effects of increasing payment magnitudes. Incorporating the same basic methodology, 406 outpatient substance abuse treatment clients were randomly assigned to receive either a cash or gift card payment in the amount of \$70, \$100, \$130, or \$160 for attending a six month follow-up (follow-up $N = 250$). At a post follow-up assessment 3 days after the six month follow-up ($n = 222$), clients reported how they spent this payment. Their responses are presented in Table 2 below. In addition rates of urinalysis-confirmed new drug use were assessed as they were in the initial study. .

As was the case in the initial study, the majority (54%) of clients reported using their research payment for household purchases. Gifts (24%), luxury items (18%), and bill paying (15%) were reported with the next highest frequency. One client reported spending his payment to buy drugs, and no clients reported using the payment for alcohol, gambling or soliciting prostitutes. Participants who received cash payments were more likely than those who received gift certificate payments to spend their payment on transportation-related expenses (12% vs. 2%, $\chi^2(1) = 9.24, p < .01, w = .20$) or to pay bills (29% vs. 0%, $\chi^2(1) = 37.39, p < .0001, w = .41$). Conversely, participants who received gift certificate payments were more likely to report purchasing household goods (64%) than those who received cash payments (43%), $\chi^2(1) = 9.70, p < .01, w = .21$). Importantly, as reported in our prior paper (Festinger et al 2008) there were also no significant differences between clients who received cash or gift cards on rates of urinalysis-confirmed new drug use $\chi^2(1) = 0.08, p = 0.77$ ($w = 0.02$).

Discussion

The research enterprise, including the ability to obtain and disseminate reliable, valid, and useful findings, depends largely on the recruitment and retention of representative participant cohorts. Without adequate sample sizes and representative samples, study findings can be rendered ungeneralizable or even indefensible. For a number of reasons discussed in this paper, studies involving substance using populations are particularly vulnerable to low rates of recruitment and retention. Although research has demonstrated that participant payments and remuneration can be used to overcome these problems, many researchers and human subject review boards continue to fear that monetary payments will be misused by substance using participants. Fortunately, a growing body of research has shown that many of these fears may be unwarranted (20, 30, 33, 34).

In our own series of randomized controlled studies of outpatient substance abusers and substance abusing offenders, we have found, as expected, that participants generally use both baseline and follow-up payments in a responsible and safe manner. In addition, our findings suggest that cash and check payments were generally used to purchase household items and for other essentials like paying bills and transportation expenses. Gift cards were generally used to purchase household items and non-essentials such as gifts and luxury items (e.g., televisions, iPods, CDs). Finally, we demonstrated in our prior works (20, 30) that cash payments for follow-ups increased participants' general satisfaction with the research study and reduced study attrition.

One possible explanation for the greater desirability and potency of cash and check payments compared with gift certificates is that cash payments may provide greater flexibility in selecting the choice of reinforcement. Rather than being restricted to using a gift card in a certain store or group of stores, cash and check payments may provide greater

freedom to choose how the payments can be used. In addition, cash and checks may have a somewhat reduced exchange delay, in that the participants may not have to wait until they visit the designated store to obtain a desired item, and may be able to use the payment more expeditiously. Prior research on delay discounting has indicated that there is an inverse correlation between the perceived value of a reinforcer and the time it takes to receive it (35, 36, 37).

The group of studies discussed in the paper has a number of limitations that should be noted. First, the data on how study payments were used relied entirely on self-report. It is possible that participants may not have been able to adequately recall the types of purchases they made. In addition, despite the fact that participants were assured of the confidentiality of their responses, they have had concerns about negative repercussions related to their answers, or they may have simply responded in a manner that they perceived as more socially desirable.

A second limitation has to do with the relatively limited sample frames examined in these studies. Although the findings are surprisingly consistent across the four studies reviewed, the samples were drawn from only two populations, an urban outpatient substance abuse treatment clinic, and an urban misdemeanor drug treatment court. Although these studies were conducted in different cities, Philadelphia, PA and Wilmington, DE, we do not know to what degree these findings would generalize to other cities, more suburban or rural areas, or to different treatment or research samples.

The data reported in this paper have only scratched the surface in examining how research payments are used by participants. Future research is necessary to examine how payments are used by even more vulnerable populations, such as substance abusers whose co-occurring mental health disorders may substantially impair their judgment. Nevertheless, these preliminary findings do support the use of monetary incentives in research involving substance using populations.

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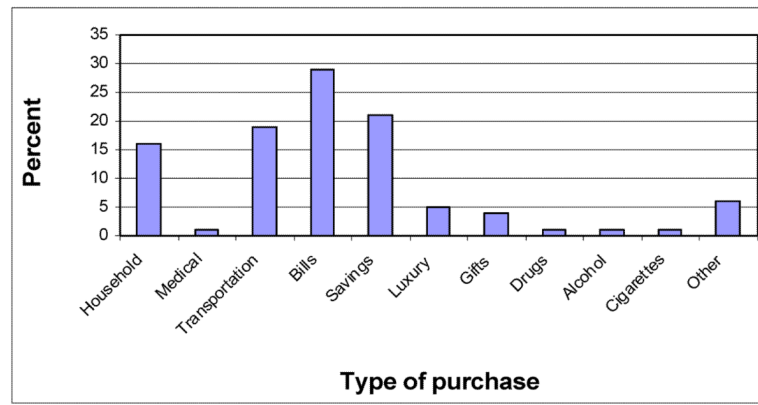


Figure 1.
Self-reported spending of baseline assessment payment in Marlowe et al., 2006.

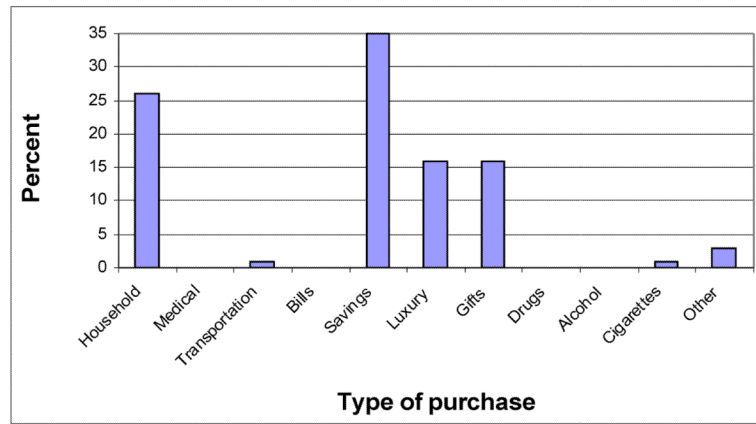


Figure 2. Self-reported spending of baseline assessment payment in Marlowe et al., 2008.

Table 1

Remuneration spending Festinger et al., 2005.

Type of purchase	Overall % (N)	Cash % (N)	Gift Card % (N)
Household items	52% (70)	43% (33)*	63% (37)
Medical expenses	--	--	--
Transportation	16% (22)	28% (21)****	2% (1)
Pay bills/other debts	12% (16)	21% (16)***	--
Savings	5% (7)	8% (6)	2% (1)
Luxury items	18% (24)	17% (13)	19% (11)
Gifts	21% (28)	13% (10)*	31% (18)
Drugs	1% (1)	1% (1)	--
Alcohol	1% (1)	1% (1)	--
Cigarettes	8% (11)	12% (9)	3% (2)
Other	7% (10)	8% (6)	7% (4)

Note:

*
p < .05,**
p < .01,***
p < .001,****
p < .0001

Table 2

Remuneration spending Festinger et al., 2008.

Type of purchase	Overall % (N)	Cash % (N)	Gift Card % (N)
Household items	54% (119)	43% (49)**	64% (70)
Medical expenses	< 1% (1)	1% (1)	--
Transportation	7% (16)	12% (14)**	2% (2)
Pay bills/other debts	15% (33)	29% (33)****	--
Savings	9% (20)	12% (14)	5% (6)
Luxury items	18% (41)	20% (23)	17% (18)
Gifts	24% (55)	22% (25)	28% (30)
Drugs	< 1% (1)	1% (1)	--
Alcohol	--	--	--
Cigarettes	4% (10)	4% (5)	5% (5)
Other	9% (19)	7% (8)	10% (11)

Note:

*
p < .05,**
p < .01,***
p < .001,****
p < .0001