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Money as motivation to quit: A survey of a non-random Australian sample of socially disadvantaged smokers' views of the acceptability of cash incentives

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ABSTRACT

Objective. This study aimed to a) assess acceptability of personal financial incentives to socially disadvantaged smokers and non-smokers; b) examine factors associated with acceptability; and c) examine preferred levels of incentive amounts.

Methods. A cross-sectional touch screen computer survey was conducted between February and October 2010 in New South Wales, Australia. Participants were clients experiencing financial or social hardship and receiving emergency welfare aid from a non-government social and community service organisation.

Results. Of 383 participants (69% response rate), 46% believed personal financial incentives were an excellent/good idea, 47% believed personal financial incentives did more good than harm and 61% agreed they would motivate smokers to quit. High acceptability ratings were associated with participants being female, current smokers, living in low socioeconomic areas, experiencing smoking-induced deprivation, making a previous quit attempt and intending to quit in the next 6 months. When asked what amount of incentive they felt would be acceptable, 23% selected amounts between $50 and $500AUD and 37% selected amounts over $500AUD.

Conclusions. Given high smoking prevalence among socially disadvantaged groups and consequent health disparities, it is imperative novel methods of encouraging smoking cessation are explored and tested. This survey found financial incentives may be an acceptable method. Further research to understand all possible positive and negative effects is warranted.

While rates of smoking in most developed countries have fallen (Friend and Levy, 2002; Levy et al., 2004; World Health Organization, 2002), the decline has not been equal across all social groups. Socially and economically disadvantaged individuals are twice as likely to smoke compared to those of higher socioeconomic status (Marmot, 2005; Turrell and Mathers, 2000; World Health Organization, 2008) spend 34% more on tobacco (Siahpush and Scollo, 2003) and report spending money on cigarettes rather than on essentials such as food, a measure of smoking-induced deprivation (Siahpush and Carlin, 2006). Households reporting any expenditure on tobacco are more likely to experience financial stress and financial stress is associated with lesser likelihood of successfully quit smoking (Siahpush and Carlin, 2006).

Personal financial incentives (PFI) are grounded in operant conditioning theory (Lussier et al., 2006), whereby stopping smoking is reinforced by positive consequences (monetary reward) making it highly modifiable. A growing body of evidence has demonstrated the efficacy of PFIs in encouraging short-term smoking abstinence (Bryant et al., 2011a; Cahill and Perera, 2011; Jochelson, 2007; Murray et al., 2009; Sutherland et al., 2008; Volpp et al., 2009), but only one trial has so far found them to be effective at sustaining cessation longer than 6 months (Cahill and Perera, 2011; Volpp et al., 2009). In a Cochrane review of smoking cessation interventions for pregnant women, Lumley et al. (2009) found that when the outcomes were analysed by intervention subgroup, PFIs were the only subgroup which showed a significantly larger effect (relative risk: 0.76, 95% confidence interval: 0.71–0.81). Although these results were pooled from only four trials, at least two included low socioeconomic women (Lumley et al., 2009). Higgins et al. (2012) update this review and come to the same conclusion that PFIs show considerable promise for the short-term cessation of smoking among socioeconomically disadvantaged pregnant women. Two recent reviews have examined the effectiveness of financial incentives for two different socially disadvantaged groups (Sigmon and Patrick, 2012; Tidey, 2012). Sigmon and Patrick (2012) examined the evidence for the efficacy of PFIs for "special populations" one of which was substance abusers. They found that incentives were effective at encouraging cessation in four of five trials with opioid-maintained patients and that effect was moderated by incentive magnitude—the higher the incentive amount the more likely a positive outcome. Tidey (2012) found similar evidence for the effectiveness of PFIs for people with serious mental illness.

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In addition to continuing to gather evidence regarding their effectiveness at changing health behaviours, it is important to examine the acceptability of PFIs for smoking cessation among smokers and the community in general. This may be particularly important if non-smokers or ex-smokers perceive that smokers are 'profiting' from their addiction or that smokers are rewarded for a behaviour that non-smokers already engage in and receive no reward for (Sutherland et al., 2008). Such negative sentiments have been found to threaten the implementation of cash incentives for health schemes (Volpp et al., 2011).

Two surveys (Long et al., 2008; Lynagh et al., 2011a) have examined the acceptability of PFIs for smoking cessation with medical patients and have found moderate results with ratings of greater acceptability amongst smokers compared to non-smokers. Surprisingly, most participants in these studies preferred incentive amounts that were either nil or under $500 USD. Few (5–11%) selected incentive amounts higher than $500. One recent online survey of 100 US and 88 UK research participants found that rewards for cessation were rated as more acceptable than penalties for smoking and that acceptability was moderated by their perceptions of smokers responsibility for their smoking (Promberger et al., 2011). Only one qualitative study was found that explored the acceptability of PFIs to smokers from socioeconomically disadvantaged backgrounds (Bonevski et al., 2010), finding high levels of acceptability for financial and non-financial incentives compared to other forms of cessation help such as group programs. The current study aims to build on these results with a larger, quantitative survey of smokers experiencing multiple forms of disadvantage (for example, mental illness, poverty, homelessness and unemployment). The specific aims of the study are to a) assess the acceptability of PFIs to a cross-section of smokers and non-smokers from socially disadvantaged backgrounds, b) examine factors which may be associated with acceptability and c) examine preferred levels of incentive amounts. Based on previous research (Bonevski et al., 2010), it is hypothesised that the ratings of the acceptability of financial incentives for smoking cessation will be high amongst this sample and that a number of participant characteristics that reflect greater socioeconomic disadvantage and heavier smoking will be associated with high acceptability levels. Given the current population is experiencing greater economic disadvantage than the samples in previous acceptability surveys (Long et al., 2008; Lynagh et al., 2011a), it is also hypothesised that the amounts of PFIs preferred will be higher than those found in the previous surveys.

Methods

Design

A cross-sectional, touchscreen computer survey was conducted in 2010.

Setting

One large social and community service organisation (SCSO) with three sites in New South Wales, Australia participated. SCSOs are non-government, not-for-profit organisations that provide welfare services to highly disadvantaged individuals and families (Bryant et al., 2011b).

Recruitment and procedure

Clients were invited by a support worker at the end of an interview for emergency aid to complete a survey. Type of emergency aid typically provided to clients includes food hampers, short-term accommodation, and vouchers for payment of amenities bills. Clients are typically referred to the emergency aid services by government welfare departments. Eligible participants were those aged over 18 years, able to speak and/or read English, and not too distressed as assessed by the support worker. This study was approved by the University of Newcastle Human Research Ethics Committee.

Measures

Participants completed a 60-item general health survey. Only items related to the acceptability of PFI for smoking cessation are reported here. Questions were presented on a touchscreen computer using Digivey software. All respondents received questions related to socio- demographic characteristics and smoking status. Three items previously used (Long et al., 2008; Lynagh et al., 2011a) were adapted to assess acceptability of financial incentives: 1) "Some people suggest the health system should pay people to improve their health. Do you think that paying people to quit smoking is…" (5-point rating scale from "an excellent idea" to "a very bad idea" and "don't know"); 2) "Do you think that paying people to quit smoking would do more good than harm?" (5-point rating scale from "strongly agree" to "strongly disagree"); 3) "Do you think that paying people to quit smoking would motivate smokers to quit?" (5-point rating scale from "strongly agree" to "strongly disagree"). Also adapted from Long et al.'s survey instrument, one item asked respondents to select their preferred incentive amount: "How much money should the government pay a smoker to quit for 12 months?" (seven response options from "$0" to "more than $1500"). Smokers also received questions about a. spending on tobacco; b. quit history and intentions; c. nicotine dependence (Heatherton et al., 1989); and d. smoking-induced deprivation (Siahpush and Carlin, 2006). A copy of the survey may be requested from the corresponding author.

Analysis

Sample, acceptability and preferred incentive amounts

Chi-square analyses (for proportions) were used to compare the age and gender of participants and non-responders. Acceptability of financial incentives and preferred incentive amounts are measured using proportions and 95% confidence intervals (95% CI). Comparisons of acceptability according to smoking status used Chi square analyses.

Associations between acceptability of financial incentives and other variables

The relationship between demographic, smoking behaviour variables, and acceptability items was assessed using Chi square (χ^2) analyses followed by backward logistic regression and multivariate logistic regression. To explore associations between acceptability variables only answered by smokers, Chi square analyses and logistic regressions were performed on this sub-sample. Variables in the final regression model that reached a nominal significance level of 5% were reported. Goodness of fit of the logistic regression models were assessed using the Hosmer and Lemeshow test. All monetary values are presented as Australian dollars (AUD). Statistical analysis was conducted using STATA version 11.0.

Results

Sample

The sample is described in greater detail elsewhere (Bryant et al., 2011b). In summary, 552 clients were eligible to participate and 383 completed the survey (69% consent rate). The majority of participants reported an income of less than AUD$300 per week, were unemployed and reported primary or secondary school as their highest level of education. 61% of the sample were smokers and 16% were ex-smokers. Most smokers scored 'heavy' (19%) or 'moderate' (44%) nicotine dependence. Participants spent an average of AUD$42.90 per week on tobacco. Almost two thirds (61%) of smokers reported experiencing smoking-induced financial deprivation.

Acceptability of PFIs

The largest proportion of participants felt PFIs were an excellent/good idea (46%); 38% viewed PFIs as a bad/very bad idea (38%), and 14% were unsure. Almost half (48%) agreed/strongly agreed that paying people to quit would do more good than harm, with 17% being neutral. More respondents agreed or strongly agreed (61%) with the statement "paying people to quit smoking would motivate smokers to quit" than disagreed (26%).

Smokers were significantly more likely than non-smokers to think that paying people to quit smoking is a good or excellent idea (53% vs. 36%, $p=0.001$) and have favourable opinions about incentives motivating quit attempts (67% vs. 53%, $p=0.006$).

Who is most positive about PFI?

Tables 1 and 2 summarise results of the multiple regression models with the entire sample, and with smoker sub-sample, respectively. For the entire sample ($n=383$), variables positively associated with increased odds of believing that "paying people to quit was a good/excellent idea" were lower SES location of residence (OR = 1.77, $p=0.02$) and being a smoker (OR = 2.42, $p<0.001$). Negatively associated with increased odds of this belief was an income of $300 to $400 per week (OR = 0.28, $p<0.001$). Variables showing evidence of a positive association with increased odds of believing that "paying people to quit smoking would motivate them to quit" were female gender (OR = 1.69, $p=0.02$) and being a smoker (OR = 2.0, $p=0.002$).

In smoker sub-sample analyses ($n=235$), the only variable with evidence of increased odds of believing that "paying people to quit smoking was a good/excellent idea" was smoking-induced deprivation (OR = 2.23, $p<0.001$). Variables that showed evidence of positive association with increased odds of believing that" paying people to quit smoking would do more good than harm" were an "other" form of employment (OR = 6.70, $p<0.001$) or intention to quit smoking in the next six months (OR = 2.33, $p=0.08$). Negatively associated with increased odds of this belief, however, was never having tried to quit smoking (OR = 0.46, $p=0.04$). Variables positively associated with increased odds of believing that "paying people to quit smoking would motivate them to quit" were female gender (OR = 2.3, $p=0.01$), lower SES location of residence (OR = 2.08, $p=0.04$) and smoking-induced deprivation (OR = 2.19, $p=0.01$).

Table 1
Logistic regression model for acceptability of financial incentives, full sample variables ($n=383$).

Variable	Parameter estimate	Standard error	Odds ratio (95% CI)	p
Paying people to quit smoking is a good/excellent idea				
Constant	−0.25	0.45		
Income		0.50		
>500[a]				
<200	−0.31	0.50	0.73 (0.27–1.97)	0.54
200–300	−0.47	0.46	0.63 (0.26–1.54)	0.31
300–400	−1.29	0.48	0.28 (0.11–0.71)	<0.01
400–500	−0.69	0.56	0.50 (0.17–1.48)	0.21
Location of residence (SEIFA[b])	0.57	0.24	1.77 (1.09–2.87)	0.02
Higher SES[a]				
Lower SES	0.57	0.24	1.77(1.09-2.87)	0.02
Smoking status				
Non-smoker[a]				
Smoker	0.89	0.24	2.43(1.5-3.9)	<0.001
Paying people to quit smoking would do more good than harm				
Constant	−0.24	0.40		
Income				
>500[a]				
<200	0.84	0.48	2.31 (0.89–5.96)	0.08
200–300	0.52	0.44	1.69 (0.72–3.98)	0.23
300–400	−0.65	0.46	0.52 (0.21–1.29)	0.16
400–500	−0.24	0.54	0.79 (0.28–2.25)	0.66
Paying people to quit smoking would motivate smokers to quit				
Constant	−0.25	0.45		
Income				
>500[a]				
<200	0.86	0.53	2.35 (0.84–6.62)	0.10
200–300	0.12	0.46	1.13 (0.46–2.81)	0.79
300–400	−0.19	0.47	0.83 (0.33–2.11)	0.69
400–500	0.69	0.58	2.01 (0.64–6.25)	0.23
Gender				
Male[a]				
Female	0.53	0.24	1.69 (1.06–2.70)	0.02
Smoking status				
Non-smoker[a]				
Smoker	0.69	0.23	2.0 (1.27–3.15)	0.002

[a] Reference group.
[b] Australian Bureau of Statistics, Socio-economic Indexes for Areas (SEIFA).

Table 2
Logistic regression model for acceptability of financial incentives, smoker-only related variables ($n=235$).

Variable	Parameter estimate	Standard error	Odds ratio (95% CI)	p
Paying people to quit smoking is a good/excellent idea				
Constant	−0.38	0.21		
Smoking deprivation				
No[a]				
Yes	0.80	0.27	2.23 (1.30–3.81)	<0.01
Paying people to quit smoking would do more good than harm				
Constant	−0.63	0.78		
Income				
>500[a]				
<200	0.83	0.76	2.28 (0.52–10.13)	0.28
200–300	1.03	0.72	2.81 (0.69–11.48)	0.15
300–400	−0.65	0.75	0.52 (0.12–2.28)	0.39
400–500	0.20	0.80	1.22 (0.25–5.84)	0.80
Employment				
Unemployed/unable to work[a]				
Employed	−0.18	0.58	0.83 (0.27–2.59)	0.75
Home duties	−0.23	0.52	0.80 (0.29–2.20)	0.66
Other	1.95	0.57	6.70 (2.29–21.42)	<0.001
Retired	0.51	0.89	1.67 (0.29–9.52)	0.57
Student	0.32	0.76	1.38 (0.31–6.14)	0.67
Ever tried to quit				
Yes*				
No	−0.78	0.38	0.46 (0.22–0.97)	0.04
Intention to quit				
Quit, not in next 6 months*				
Don't know	0.17	0.45	1.18 (0.49–2.88)	0.71
Never quit	0.59	0.71	1.80 (0.45–7.22)	0.41
Quit next 30 days	−0.68	0.53	0.50 (0.18–1.43)	0.20
Quit next 6 months	0.85	0.48	2.33 (0.91–6.0)	0.08
Paying people to quit smoking would motivate smokers to quit				
Constant	−0.20	0.28		
Gender				
Male[a]				
Female	0.83	0.32	2.30 (1.22–4.32)	0.01
Location of residence (SEIFA[b])				
High SES[a]				
Low SES	0.73	0.36	2.08 (1.04–4.18)	0.04
Smoking deprivation				
No[a]				
Yes	0.79	0.31	2.19 (1.20–4.0)	0.01

[a] Reference group.
[b] Australian Bureau of Statistics Socio-economic Indexes for Areas (SEIFA).

What amount of PFI is preferred?

Forty percent of participants indicated they were unwilling for the government to pay any amount, with the remaining 60% selecting amounts of $50 (3.9%), $100 (3.1%), $250 (5.7%), $500 (10.4%), $1000 (10.2%), $1500 (4.4%) and most selecting the highest option of more than $1500 (23%). Overall, significantly more smokers selected higher incentive amounts than non-smokers ($p<0.001$) (see Table 3).

Discussion

This study assessed perceptions of PFIs to encourage smoking cessation among socially and economically disadvantaged clients attending a SCSO. As hypothesised, high acceptability rates were identified. Being a current smoker, living in a disadvantaged location, low income, and for

Table 3
Preferred incentive amounts according to smoking status ($n = 383$).

	Current smokers ($n = 235$) % (95% CI)	Non-smokers ($n = 148$) % (95% CI)	X^2 p
0	34.5% (28.4–40.6)	48% (39.9–56.1)	<0.001
$50/$100	7.7% (4.2–11.1)	6.1% (2.2–9.9)	
$250	2.9% (0.8–5.2)	10.1% (5.3–15.1)	
$500/$1000	25.1% (19.5–30.7)	13.5% (7.9–19.1)	
$1500	5.5% (2.6–8.5)	2.7% (0.1–5.3)	
>$1500	24.3% (18.8–29.8)	19.6% (13.2–26)	

smokers only – smoking-induced deprivation, employment status and previous unsuccessful quit attempts – were all associated with higher acceptability ratings. Unexpectedly, gender was related to acceptability, with female participants 1.69 times more likely to agree that paying people would motivate them to quit. Finally, as hypothesised, the study found that preferences for incentive amounts tended to be higher than reported in previous studies, with 37% of participants selecting $1000 or more compared to 11% reported by Long et al. (2008) and 5% reported in an Australian study by Lynagh et al. (2011a).

Overall acceptability was high in the current study, with 63% of participants agreeing that paying people to quit would motivate smokers compared to only 30% reported by Long et al. (2008) and Lynagh et al. (2011a). Beliefs that incentives were an excellent/good idea and preferences for incentive amounts tended to be higher than those reported in the previous studies which used the same acceptability measures (Long et al., 2008; Lynagh et al., 2011a) as well as the study exploring different concepts of acceptability of incentives (Promberger et al., 2011). The most likely explanation for these differences is the lower socioeconomic status of the current sample compared to the prior studies samples. The current results are similar to those found in qualitative research (Bonevski et al., 2010) that socially disadvantaged groups may be driven by financial circumstances and are very open to financial incentives to motivate cessation. This suggests cash and non-cash rewards and subsidies for counselling and pharmacotherapies should be considered as a way of motivating health behaviour change amongst socially disadvantaged groups and confirmed through effectiveness trials.

Both Long et al. (2008) and Lynagh et al. (2011a) speculated that financial incentives may be best suited to those who have lesser finances. It would be useful to compare the effectiveness of varying types and amounts of incentives. In this study, the sample of socially disadvantaged smokers preferred incentive amounts which were higher than those reported elsewhere with general population samples (Long et al., 2008; Lynagh et al., 2011a). This corresponds with some research that suggests that larger PFIs were more effective at changing health behaviour than small amounts (Lumley et al., 2009; Lynagh et al., 2011b; Sigmon and Patrick, 2012). The current study also adds another perspective on the utility of financial incentives for smoking cessation in disadvantaged groups which previous reviews have suggested is an efficacious and effective method of promoting smoking cessation amongst socially disadvantaged groups including low income pregnant women (Higgins et al., 2012; Lumley et al., 2009), illicit drug users (Sigmon and Patrick, 2012), and people with mental illness (Tidey, 2012). Further research regarding the acceptability, effectiveness and associated possible positive and negative effects of PFIs with disadvantaged groups is warranted.

The main methodological consideration of the study is that the results have limited generalisability to populations other than the sample involved in this study. The study recruited clients from only three non-government community social service sites in one state in Australia. Clients of these services include an over-representation of Aboriginal Australians, people with a mental illness, on low income or unemployed, ex-prisoners, and the homeless compared to the general population. However, the sample size ($n = 383$) was relatively high for such difficult to reach groups and the response rate was good (69%) suggesting that the sample demonstrated reasonable representativeness for disadvantaged welfare recipients in Australia.

Given the high smoking prevalence among socially disadvantaged groups and the consequent health disparities, it is imperative that novel methods of encouraging smoking cessation are explored and tested. This survey found that financial incentives may be a novel method of smoking cessation support which would have high acceptance amongst socially disadvantaged smokers. Further research to understand all the possible positive and negative effects is warranted. This is particularly important given the limited and mixed results regarding the efficacy of PFIs for medium- to long-term smoking cessation.

Conflict of interest

All authors declare there are no conflicts of interest and no financial disclosures were reported by the authors of this paper.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at http://dx.doi.org/10.1016/j.ypmed.2012.06.001.

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