



Discretionary spending priorities of unemployed, job-seeking adults who smoke cigarettes

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ABSTRACT

Objective: Tobacco use is detrimental to physical and financial wellbeing. Smoking is associated with unemployment and a harder time finding re-employment. The current study examined job-seekers' prioritization of smoking over other discretionary items.

Methods: Adult, unemployed job-seekers smoking daily ranked items from 1 (highest) to 13 (lowest) for prioritization of their discretionary spending. The online survey randomly ordered the presentation of items. The Heaviness of Smoking Index (HSI, time to first cigarette and cigarettes per day) assessed severity of nicotine addiction.

Results: The sample (N = 290) was 70% men, 42% African American and 30% non-Hispanic Caucasian, with mean age of 43 (SD = 11), smoking an average of 12 cigarettes per day (SD = 6), and 67% smoking within 30 min of waking. Overall, cigarettes (M = 4.7, SD = 3.1) ranked second in importance behind only food (M = 2.5, SD = 2.7); 45% of the sample ranked tobacco in their top 3 spending priorities, and 26% ranked cigarettes as a higher priority than food. Cellular charges, transportation, grooming, and clothing ranked third through sixth, respectively. Higher HSI scores significantly correlated with greater prioritization of cigarettes ($r = -0.25$), and lower prioritization of food ($r = 0.16$) and transportation ($r = 0.13$), p 's < 0.05.

Conclusions: Findings indicate cigarettes were highly prioritized, second only to food among job-seekers who smoke. Cigarettes were prioritized over job-seeking resources and health care, particularly among those who were more heavily addicted. Tobacco addiction can preempt basic life needs and reduce resources for finding re-employment.

1. Introduction

The decline in the prevalence of cigarette smoking in the US over the last several decades has not been equal for all groups. People who are unemployed, have lower education, and live in poverty are disproportionately more likely to smoke, incurring substantial harms to health and financial wellbeing (Leas, Schleicher, Prochaska, & Henriksen, 2019; Rachele, Wood, Nathan, Giskes, & Turrell, 2016).

Smoking has become an expensive addiction to maintain. As of January 2020, the average retail price for a pack of cigarettes, including taxes, was \$6.64 nationally and \$8.31 in California, where the current study was conducted (Boonn, 2020). For a pack a day smoker in California, the costs exceed \$3000 annually.

Recent research has examined smoking-induced deprivation and financial stress among low-income smokers (Guillaumier, Bonevski, &

Paul, 2015). Smoking-induced deprivation has been measured as spending money on cigarettes that would be better spent on household essentials. Smoking-induced deprivation is associated with younger age, minority status, lower income, and the severity of nicotine addiction, as measured by the Heaviness of Smoking Index (HSI) (Siahpush, Borland, & Yong, 2007). The HSI is a composite score of cigarettes per day and latency to smoking upon waking (Heatherton, Kozlowski, Frecker, Rickert, & Robinson, 1989). In a second study, smoking-induced deprivation was significantly associated with time to first cigarette, cigarette expenditure (which reflects quantity), younger age, lower income, and less education (Siahpush, Borland, Yong, Cummings, & Fong, 2012). Employment status was not reported in either study.

The National Cancer Institute's Monograph 21 on *The Economics of Tobacco and Tobacco Control* concluded that "tobacco use exacerbates poverty by diverting the limited resources of poor households away

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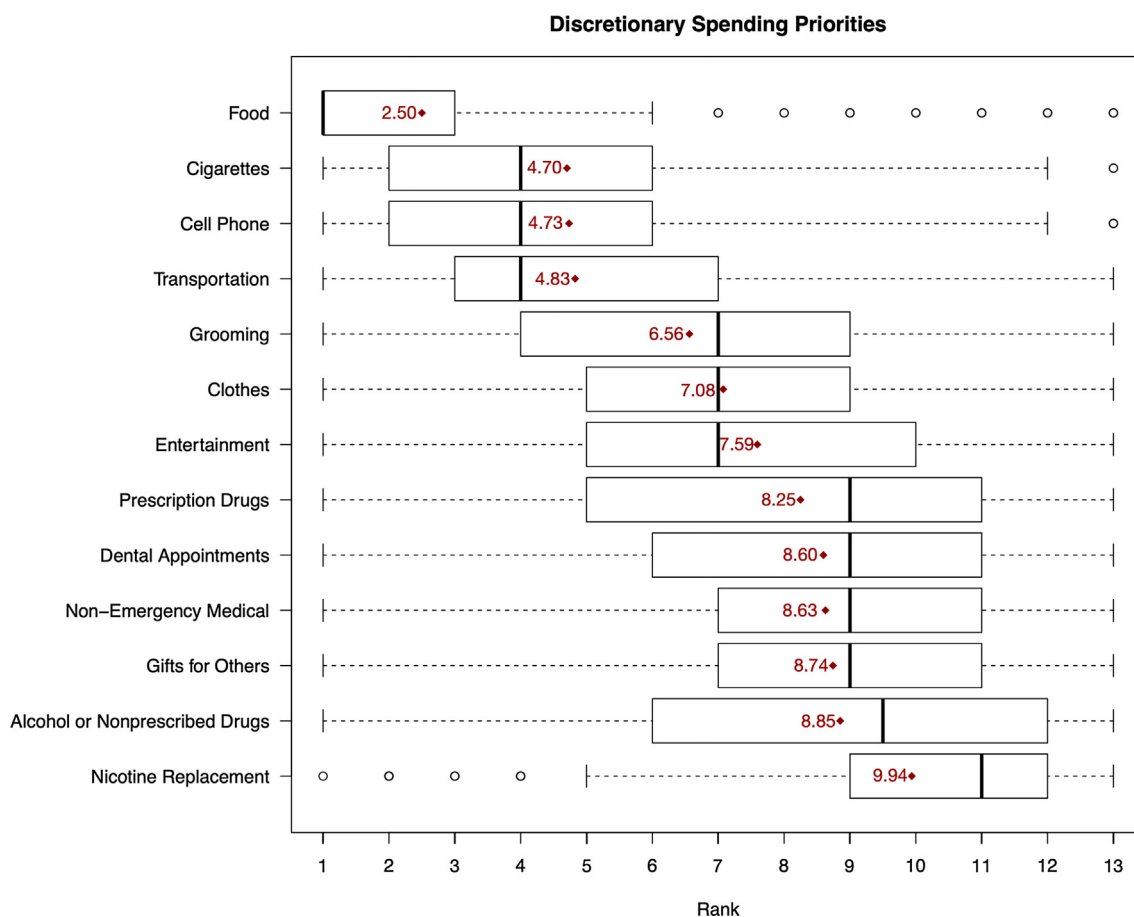


Fig. 1. Boxplots of items from most (rank of 1) to least (rank of 13) prioritized for discretionary spending.

from basic needs such as food and shelter, health care, and education (U.S. National Cancer Institute and World Health Organization, 2016).” The Monograph did not touch upon the direct effects of smoking on unemployment, though did recognize that quitting smoking leads to lower health care costs for employers. Employers incur an annual excess cost of \$5816 employing a person who smokes, compared to a non-smoking employee, which may discourage employers from hiring job applicants who smoke (Berman, Crane, Seiber, & Munur, 2014).

Smoking is associated with being unemployed. In California, the job-seeking unemployed were found to have the highest smoking prevalence (21%) relative to the non-job-seeking unemployed (16%) and the employed (15%) (Prochaska, Shi, & Rogers, 2013). Similar findings have been reported in other states and nations (Brook, Zhang, Burke, & Brook, 2014; Office for National Statistics, 2013). Most of the research has been cross-sectional; hence, it is unknown whether smoking makes it harder to find employment, whether job-loss leads to smoking, or both, or whether a third factor better accounted for the association between employment and smoking, such as having less education or living in an impoverished area.

To address some of these data limitations, a prospective observational study of job-seeking and smoking was conducted, and analyses controlled for confounding factors. The study found that by 12-months follow-up, 57% of nonsmokers were re-employed compared with 27% of job-seekers who were smoking (Prochaska et al., 2016). When asked about their discretionary spending priorities (defined as money spent after one’s bills are paid), smokers in the study ranked cigarettes higher than job-seeking necessities, such as transportation and cellular telephone; heavier smoking was associated with greater prioritization of cigarettes (Prochaska et al., 2016). Hence, prioritization of smoking may crowd-out resources for finding re-employment, particularly

among more heavily, addicted smokers. To better understand the mechanisms of association between smoking and unemployment, further study is needed.

In a larger sample of unemployed, job-seekers who smoke, the current study examined participant characteristics associated with prioritization of cigarettes over other discretionary items. It was hypothesized that cigarettes would be highly prioritized among unemployed job-seekers who smoke; that prioritization of cigarettes would pre-empt essential job-seeking needs (e.g., transportation, clothing, cellular telephone); and that greater prioritization of cigarettes would be associated with more severe nicotine addiction.

2. Methods

2.1. Sample

Data were drawn from baseline surveys completed by participants in a clinical trial testing a tobacco cessation intervention for adult, unemployed, job-seekers. The tobacco cessation intervention was tailored to stage of change for quitting smoking, and intention to quit smoking was not a requirement for study participation. Recruitment was conducted October 2015 through February 2018 in five employment development departments in the San Francisco Bay Area. Inclusion criteria were age 18 years or older; English literate; residing in the San Francisco Bay Area; unemployed or underemployed (< 40 h worked in the past month or < 10 h in the past week); established current daily smoking (100+ cigarettes smoked in one’s lifetime and current smoking of 1+ cigarettes daily, with a measured carbon monoxide breath sample reading of ≥ 7 ppm), and actively seeking work evidenced by an updated resume, job application, or attendance

at an onsite job seminar. Exclusion criteria included being chronically unemployed (> 2 years). Eligible and interested individuals provided signed informed consent. Study procedures were approved by Stanford University's Institutional Review Board.

2.2. Measures

All measures were self-reported in an online survey system, and participants were assured of privacy. Demographic characteristics included gender, age, race/ethnicity, education level, marital status, living situation, and primary source of transportation. Discretionary spending priorities were assessed with a list of 13 items that participants rank ordered based on what they were most likely to purchase, assuming finite resources, using their discretionary funds, defined as money available after one's bills are paid. Possible rank values ranged from 1 (highest priority) to 13 (lowest priority). Two items were tobacco-related: cigarettes and nicotine replacement therapy (NRT). The 13 items were presented in random order for each participant by the online survey system (Fig. 1 shows the complete list). The measure was used prior in our research with job-seekers who smoke (Prochaska et al., 2016) with one edit: the item referencing purchasing "nutritious food" was changed to simply "food." Nicotine addiction severity was measured with the HSI (Heatherton et al., 1989), sum scores can be analyzed continuously and are interpreted as low (0–2), moderate (3–4), and high (5–6) dependence. Additionally, the date of baseline survey completion was recorded and categorized as pre- or post- a California state \$2.00 per pack tax increase that went into effect April 1, 2017.

2.3. Analyses

Descriptive statistics were run to characterize the sample and their spending priorities. Mann-Whitney U tests and Spearman rank correlations were run to test for associations and group differences in discretionary spending priority scores. Chi-square tests were run to examine group differences by addiction severity in ranking of cigarettes as a top priority and as a priority over food.

3. Results

3.1. Sample characteristics

The sample (N = 290) was 70% male with mean age of 43 (SD = 11, range 19 to 70); identifying as African American (42%), non-Hispanic white (30%), multiracial (17%), and other race/ethnicity (5%); 56% were single/never married, 29% married/cohabitating, and 24% divorced/separated/widowed. Highest completed education was < HS degree (10%), HS degree/GED (33%), some college (32%), and college degree (25%). Most (77%) reported access to reliable transportation; 61% relied on public transportation, 24% their own automobile, 8% shared automobile, and 7% walking/biking. Living situations were 38% own/rent, 25% friend's/relative's home, 21% homeless, 9% SRO or hotel, 6% therapeutic setting, and 1% other.

The sample averaged 12 cigarettes per day (SD = 6, range 1–38); 31% smoked within 5 min of waking, 36% between 6 and 30 min, 15% between 31 and 60 min, and 18% after 60 min. The sample averaged 2.3 (SD = 1.5) on the HSI with 50% classified as low, 43% as moderate, and 7% as heavily addicted.

3.2. Discretionary spending priorities

A majority (55%) ranked food as their top priority, followed by 13% ranking cigarettes as their top priority, 11% for cellular telephone, and 7% for transportation. Only one person (0.3%) ranked NRT as their top priority. One in four participants (25.5%) ranked cigarettes as a higher priority than food; 45% ranked tobacco in their top 3 spending

priorities.

Fig. 1 shows the sample mean ranks. Cigarettes (M = 4.70, SD = 3.12) ranked second in importance behind only food (M = 2.50, SD = 2.73) and close in rank to cellular telephone (M = 4.73, SD = 3.13). Transportation, grooming, and new clothing were ranked fourth through sixth. Entertainment was seventh. Prescription drugs, dental care, and non-emergent medical treatment ranked eighth through tenth. NRT was least prioritized (M = 9.94, SD = 3.06).

3.3. Demographic differences in tobacco-related discretionary spending priorities

In nonparametric tests of demographic and time differences in the sample's prioritization of cigarettes, gender, education, marital status, age, and survey completion date all were nonsignificant. Non-Hispanic whites gave significantly higher priority to cigarettes than other racial/ethnic groups, Mann-Whitney U test = -2.43, p = .015. In nonparametric tests of demographic and time differences in the sample's prioritization of NRT, age, marital status, and survey date were unrelated to NRT prioritization. NRT prioritization was greater for men than women (Mann-Whitney U test = 2.44, p = .015) and for participants without a college degree than with a college degree (Mann-Whitney U test = 2.69, p = .007). Non-Hispanic whites prioritized NRT less than did other racial/ethnic groups, Mann-Whitney U test = 3.02, p = .003.

3.4. Addiction severity and discretionary spending priorities

Higher HSI scores significantly correlated with greater prioritization of cigarettes (r = -0.25), and lower prioritization of food (r = 0.16) and transportation costs (r = 0.13), p's < 0.05. In partial correlations controlling for non-Hispanic Caucasian race/ethnicity, the correlations for HSI were unchanged. HSI was not significantly associated with other prioritization scores, including NRT.

By HSI addiction-severity group, the percent ranking cigarettes as the highest priority was 32% among those heavily dependent, 18% for those moderately dependent, and 7% for those with a low level of dependence, $\chi^2_{df=2} = 13.74$, p = 0.001. Similarly, the percent prioritizing tobacco over food was 59% among those heavily dependent, 33% for those moderately dependent, and 14% for those with a low level of dependence, $\chi^2_{df=2} = 27.75$, p < 0.001.

4. Discussion

Among unemployed job-seekers who smoke, cigarettes were highly prioritized as a spending priority, second only to food. Nearly half the sample ranked tobacco in their top 3 spending priorities. Non-Hispanic whites gave higher priority to cigarettes than other racial/ethnic groups. Prioritization of cigarettes did not differ by gender, education, marital status, age, or survey completion date in relation to a \$2.00 per pack cigarette tax increase. Prioritization of spending for cigarettes was associated with severity of nicotine addiction, with about a third of those heavily addicted ranking cigarettes as their top priority and a majority prioritizing cigarettes over food.

Previous studies have suggested diversion of funds from basic needs such as food and even housing toward cigarettes among low-income smokers (Armour, Pitts, & Lee, 2007; Busch, Jofre-Bonet, Falba, & Sindelar, 2004; Rogers et al., 2019); the studies, however, did not specifically consider employment status or job-seeking needs. A qualitative interview study with 20 low-income smokers in Australia, all of whom were out of work, characterized cigarettes as a "protected purchase," for which participants sacrificed essential household spending (e.g., paying bills, meals) to maintain their tobacco addiction (Guillaumier et al., 2015). The current study findings suggest cigarettes may be diverting funds away from job-seeking resources, such as cellular telephone costs, transportation, grooming needs, and new

clothing. These findings implicate a mechanism by which smoking may hinder re-employability.

In a recent national study, people of lower socioeconomic status (SES; defined by education and poverty level) were more likely than those of higher SES to receive direct tobacco mail or email coupons (Choi, Chen, Tan, Soneji, & Moran, 2019). Targeted promotional practices, and particularly price discounting, may contribute to continued smoking and a lack of motivation to quit in the face of financial hardship (Rogers et al., 2019).

Notably, though recruited as part of a clinical tobacco treatment trial, NRT was prioritized the least. The intervention was tailored to stage of change for quitting smoking; hence, being prepared to quit in the near future was not required. Further research on smoking-induced deprivation and low prioritization of tobacco cessation treatment among job-seeking, low-income smokers is merited.

Study strengths included the sizeable diverse sample from a major metropolitan area. With regard to study limitations, participants were recruited from a single geographic area, and measures were self-reported. Findings may not be generalizable, particularly for rural areas; further investigation is warranted. The assessment of discretionary spending was not open-ended, and some items relevant to participants may have been missed (e.g., travel). The assessment of discretionary spending items did not reference one's job search. For example, transportation as a spending priority was queried generally and not in relation to going to a job interview, same for new clothing. This was done purposefully to avoid a demand characteristic, particularly since assessments, though completed online and with assured privacy, were completed in an employment development department setting.

5. Conclusions

Job-seekers who smoke have greater difficulty finding re-employment (Prochaska et al., 2016). The current findings reveal high prioritization of cigarettes with discretionary spending. Successfully quitting smoking would increase the resources available to job-seekers. Evidence-based treatments to assist job-seekers with quitting smoking are needed and with attention toward achieving improving their financial security.

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Contributors

Judith J. Prochaska designed the study, wrote the protocol, supervised, acquired funding, and conducted statistical analyses. Amy Chieng generated Fig. 1 using R. Sarah Stinson and Amy Chieng collected the data. All authors conducted literature search and were involved at all stages of writing the manuscript.

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CRedit authorship contribution statement

Sarah Stinson: Investigation, Writing - original draft, Writing - review & editing, Visualization. **Amy Chieng:** Formal analysis, Investigation, Writing - original draft, Writing - review & editing, Visualization. **Judith J. Prochaska:** Conceptualization, Methodology,

Software, Validation, Formal analysis, Investigation, Resources, Supervision, Writing - original draft, Writing - review & editing, Project administration, Funding acquisition.

Declaration of Competing Interest

JPP has provided consultation to pharmaceutical and technology companies that make medications and other treatments for quitting smoking and has served as an expert witness in lawsuits against the tobacco companies. The other authors declare that they have no financial relationships with any organizations that might have an interest in the submitted work.

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