DIFFERENCES IN SMOKING AND QUITTING EXPERIENCES BY LEVELS OF SMOKING AMONG AFRICAN AMERICANS

Background: Despite smoking fewer cigarettes per day than their White counterparts, African Americans have higher tobacco-related morbidity and mortality. Since most tobacco control efforts have focused on heavy smokers, little is known about smoking and quitting experiences of African-American occasional and light smokers.

Methods: We conducted a survey of 484 African-American smokers, which included: 104 occasional (smoked in ≥25 of last 30 days), 176 light [smoked 1–10 cigarettes per day (cpd)], 69 moderate (11–19 cpd), and 135 heavy (≥20 cpd) attending an inner-city clinic. The survey assessed their sociodemographic characteristics, smoking characteristics, and cessation experiences.

Results: Compared with moderate and heavy smokers, occasional and light smokers were, on average, younger, more likely to be female, and more likely to initiate regular smoking at an older age. Forty percent of occasional smokers used other tobacco products compared to 23.3%, 24.6%, and 27.4% for light, moderate, and heavy smokers, respectively. Motivation and confidence to quit were higher among occasional and light smokers. Interest in participating in a formal cessation program was equally high in all 4 groups (mean ranged from 7.6–8.0 on a scale of 1–10). The use of pharmacotherapy for smoking cessation was similar, and generally low, among all 4 groups.

Conclusions: High levels of motivation for smoking cessation exist among African-American occasional and light smokers. The interest of these lighter smokers in smoking cessation represents a window of opportunity to design programs for a group that has been excluded from most cessation interventions. (Ethish Dis. 2004;14:127–133)

Key Words: Occasional, Light, African Americans, Smoking Cessation

INTRODUCTION

Despite considerable prevention and intervention efforts, approximately 50 million adults in the United States, about 6 million of whom are African Americans (AAs), continue to smoke cigarettes. Although recent studies suggest a decline in overall smoking prevalence and similar smoking rates for AAs and Whites (23.2% for AAs and 23.7% for Whites in 2000), prevalence rates for certain segments of the population, especially those individuals who are of lower socioeconomic status, remain considerably higher. Furthermore, the decline in smoking rate is not universal across all sub-populations of smokers, and is also not occurring at a rate sufficient to meet the 2010 national health objective, which is to reduce smoking among adults to 13%. The reasons why smoking rates may not be declining uniformly across all segments of the smoking population include known differences in smoking patterns in different sub-populations of smokers and possible differing treatment effectiveness across sub-populations of smokers. Differences also exist in levels of smoking (ie, light vs heavy) of African-American and White smokers.

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American smokers reported smoking an average of 15 cpd compared to 25 cpd for Whites. Despite smoking fewer cigarettes, AAs bear a disproportionately share of the health consequences of tobacco use compared to Whites and other US racial/ethnic groups. African Americans (AAs) have the highest incidence rates for all cancers combined, and the highest overall cancer mortality rates compared to other racial/ethnic groups. The lower rate of cigarette consumption among AAs is offset by their preference for high tar/nicotine (>1.0 mg nicotine/cigarette) and mentholated cigarettes, their tendency to inhale more deeply, their capacity to achieve higher net indexes of smoke inhalation, and their slower rate of nicotine metabolism. These factors increase tobacco-related health risks.

Although the prevalence of smoking among adults has decreased over the past few decades, the proportion of light smokers (≤10 cpd) as a subset of smokers is increasing. The increase in the proportion of light smokers as a subset of the smoking population is particularly evident in ethnic minorities.
 Furthermore, the decline in smoking rate is not universal across all sub-populations of smokers, and is also not occurring at a rate sufficient to meet the 2010 national health objective, which is to reduce smoking rates among adults to 13%.5

Sixty percent of Hispanic smokers and up to 50% of African-American smokers are classified as light smokers.13 Of particular note, despite smoking fewer cigarettes per day than Whites, AAs have higher than expected tobacco related morbidity and mortality.14

While tobacco control efforts have focused primarily on heavy smokers, there is growing interest to better understand light smokers. Many former heavy smokers may become light smokers, if they are unable or unwilling to completely stop smoking.15–18 The California Tobacco Survey found that 40% of occasional smokers were formerly heavy smokers, or abstinent one year prior and were considered to be in a transitional state associated with cessation.19 Other studies have found that the vast majority of light smokers are stable, maintaining their current smoking rates for a period ≥5 years.20 The exclusion of light smokers from most smoking cessation programs is due in part to a number of presumptions. These presumptions include the view that light smoking is safer, there are fewer light smokers, and that light smokers do not need help to quit because they should not experience difficulty quitting.

Low levels of smoking, however, do not necessarily translate to less difficulty with smoking cessation, especially among AAs. Despite lower levels of consumption, AAs have greater difficulty quitting than Whites; they make more attempts to quit yet are less successful in quitting.21 Additionally, despite fewer cigarettes per day, AAs are more likely than Whites to smoke within 10 minutes of waking—a marker for nicotine addiction.21

Due to the exclusion of light and occasional smokers from most tobacco control programs, little is known about interest in quitting smoking and experiences with smoking cessation among occasional and light smokers. Understanding motivation and smoking cessation experiences among these groups of smokers is an important step toward designing interventions for these subsets of smokers.

This study was conducted to examine differences in smoking and quitting experiences among African-American occasional, light, moderate, and heavy smokers attending an inner-city community health center. Specifically, we tested the hypothesis that occasional and light smokers will report greater motivation to quit but experience similar difficulty with quitting smoking compared to moderate and heavy smokers. Data were derived from a previously published study designed to examine smoking reduction practices among inner-city residents.22,23

METHODS

Setting and Study Population

This study was conducted at an inner-city health center that has approximately 200,000 patient visits yearly through its clinics. The health center is based in a residential neighborhood and mostly serves a low-income, African-American population. Participants were recruited through clinic referrals and intercept interviews in the health center’s lobby, clinics’ waiting areas, and designated smoking areas. All surveys were conducted by trained study staff during the hours of 8:30 am and 5:00 pm on weekdays between August and November 2000. Study eligibility criteria included: age ≥18 years, African-American, smoked a cigarette in the last 30 days, and smoked at least 100 cigarettes in one’s lifetime. Eligible participants completed a survey instrument, an expired carbon monoxide (CO) test, and were reimbursed $20 for their time. The CO test was performed before the survey was administered and participants were told the CO test was performed to verify self-reported smoking. Although no one was excluded based on their CO reading, this procedure was adopted to minimize over-reporting of smoking.

A total of 607 participants presented for enrollment in the study. Eighty-three percent were self-referred, having heard about the study from friends, other patients, or health center staff. The remaining participants were recruited through intercept interviews by study staff in the health center lobby or in designated smoking areas. Nine participants were excluded because of mental incompetence as measured by failure to complete the survey (3), or meet age (2) or smoking criteria (4). Because the present study is focused on AAs, analysis is limited to the 484 participants who identified themselves as African-American or Black. Details of recruitment and study procedures for the main study have been previously reported.22,23

Measures

Sociodemographics: The demographic data collected in the survey included gender, education, marital status, age, income, and employment status.

Smoking Characteristics: These were assessed using previously published NIH-funded studies, the Center for Disease Control and Prevention, and other national studies.19,24 Participants were asked about current level of smoking and readiness to quit based on the transtheoretical stages of change.25 Current smoking was assessed with the question “During the last 30 days, on
the days that you smoked, on average how many cigarettes did you smoke per day?’ This question was immediately followed by another question ‘How long have you smoked at this rate?’ to assess duration of smoking. Participants were also asked about their use of other forms of tobacco (pipes, cigars, chewing tobacco, snuff).

Smoking-related Measures: These were assessed using measures from previous studies by the Center for Disease Control’s Behavioral Risk Factors Surveillance Survey and the California Tobacco Survey. Consistent with these previous studies, participants were asked about age at first cigarette use and age when they started smoking regularly. Duration of smoking was calculated by subtracting the age at which regular smoking began from current age. Participants were also asked if they had used other forms of tobacco such as pipes, cigars, chewing tobacco or snuff in the past 30 days. Individuals were asked about both lifetime and past year quitting experiences in terms of number of attempts to quit smoking and the level of difficulty they experienced when they attempted to quit smoking. To ensure that current definitions were consistent with previous studies, a quit attempt was defined as not smoking a cigarette for at least 24 hours with the intention of quitting. Participants were also asked about methods they have utilized in past attempts to quit smoking. These methods included the 5 FDA-approved pharmacotherapies such as nicotine gum, patch, spray, inhaler, and bupropion. Participants were also asked about non-pharmacological methods they have utilized to attempt to quit smoking. Non-pharmacological methods participants utilized in their attempt to quit smoking included: will power/on my own, prayer/God/spirituality, self-help materials, a formal program, gradual reduction, abrupt stop/cold turkey, and counseling from a healthcare provider.

Data Analysis

Since the main objective of the study was to examine differences among occasional, light, moderate, and heavy smokers, participants were recruited to ensure that our study would have a good distribution of participants in each of the 4 smoking categories. Because there are no widely accepted criteria for defining smoking levels in the literature, occasional smokers were defined as those who smoked 11–19 cpd were classified as moderate smokers.

Data were double entered into a Microsoft Access® database and statistical analyses were performed using SAS software (SAS User’s Guide: Statistics, 6th ed, SAS Institute Inc, Cary, NC, 1990). Categorical variables were summarized with percentages and continuous variables were summarized by means. The chi-square test was used to make global comparisons of categorical variables across 4 groups. Because continuous variables were not normally distributed, the non-parametric analysis of variance (ANOVA), Kruskal-Wallis, was used to make global comparisons of medians across the 4 groups. Pair-wise comparisons were made using χ² test for categorical variables and the non-parametric Wilcoxon test for continuous variables. For all analysis, P values less than .05 were considered statistically significant.

RESULTS

Table 1 highlights the sociodemographic characteristics of participants by the 4 smoking categories. Included in these groups were occasional, light, moderate, and heavy smokers. Occasional and light smokers on average were slightly younger and more likely to be female. Table 2 highlights smoking

<table>
<thead>
<tr>
<th>Table 1. Sociodemographic characteristics by smoking categories</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Sample</strong></td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>Age in years, median (SD)</td>
</tr>
<tr>
<td>Gender, % female</td>
</tr>
<tr>
<td>Marital status, % married</td>
</tr>
<tr>
<td>Education, &lt;High school</td>
</tr>
<tr>
<td>Employment, % Employed</td>
</tr>
<tr>
<td>Income, % &lt;$1200/month</td>
</tr>
</tbody>
</table>

a A significant pair-wise difference between occasional and light smokers.
b A significant pair-wise difference between occasional and moderate smokers.
c A significant pair-wise difference between occasional and heavy smokers.
d A significant pair-wise difference between light and moderate smokers.
e A significant pair-wise difference between light and heavy smokers.
f A significant pair-wise difference between moderate and heavy smokers.

* P=.05; † P=.01; ‡ P=.001.
characteristics by smoking levels. Utilizing
the definition given for the 4
groups, cpd showed a dose response.
Years of smoking at the current rate also
showed a dose response with occasional
smokers smoking for a median of 2
years at their current rate. Both the ages
of first cigarette use and regular smoking
were highest for occasional smokers,
while the years of entire smoking history
was lowest for occasional smokers. A
significantly higher proportion of occa-
sional smokers have used other tobacco
products in the last 30 days. The other
3 groups were not different in this as-
spect. Cigars accounted for more than
90% of other tobacco product use
among all 4 groups of smokers. Nearly
two-thirds of occasional smokers now
smoked fewer cigarettes compared to
one year ago. A step-down trend in this
proportion was evident for the other 3
groups of smokers.

Table 3 highlights readiness to
change, by smoking levels, with readi-
ess to quit being highest among the
occasional smokers and lowest among
heavy smokers. No difference was ob-
served between the categories evaluating
interest in participating in a formal pro-
gram to help quit smoking.

Table 4 highlights the quitting ex-
periences by smoking levels. No differ-
ences were indicated between the 4
groups in the number of lifetime quit
attempts. Time since the most recent
quit attempt by occasional smokers was
shorter by almost one-fourth of that for
heavy smokers for whom the median
was about 2 years ago. Occasional and
light smokers found their most recent
quit attempts to be slightly easier than
heavier smokers. Occasional, light, mild,
and moderate, and heavy smokers were
equally likely to have used pharmacol-
otherapy methods including any of the 5
FDA approved medications to quit
smoking (Table 5). The only differences
in methods used were noted in the non-
pharmacological methods utilized to
quit smoking category. Occasional
smokers were most likely to use will
power/on my own, prayer, God, and
spirituality, have received counseling
from a healthcare provider, and to have
utilized gradual reduction as a quit tech-
nique.

Table 2. Smoking characteristics by smoking levels

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Occasional N=104</th>
<th>Light N=176</th>
<th>Moderate N=69</th>
<th>Heavy N=135</th>
<th>Global P value (χ² or F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cigarettes per day</td>
<td>4.0 (5.0)</td>
<td>8.0 (2.3)</td>
<td>15.0 (2.0)</td>
<td>20.0 (6.5)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Expired CO, ppm (SD)</td>
<td>5.0 (9.6)</td>
<td>11.6 (8.4)</td>
<td>15.0 (9.9)</td>
<td>17.0 (11.6)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Age of first cigarette, years (SD)</td>
<td>16.0 (6.8)</td>
<td>16.0 (4.4)</td>
<td>15.0 (3.9)</td>
<td>14.0 (5.2)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Age of regular smoking, years (SD)</td>
<td>20.0 (8.0)</td>
<td>18.0 (5.7)</td>
<td>17.0 (5.2)</td>
<td>17.0 (6.2)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Lifetime smoking, years (SD)</td>
<td>18.0 (11.9)</td>
<td>20.0 (10.4)</td>
<td>24.0 (11.4)</td>
<td>25.0 (10.8)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Hours since last cigarette</td>
<td>7.0 (158.1)</td>
<td>1.0 (13.5)</td>
<td>.75 (7.0)</td>
<td>0.5 (2.6)</td>
<td>&lt;.0001</td>
</tr>
</tbody>
</table>

Years of smoking at current

- Smoked for ≥2 years at current rate, % 54.81 71.02 82.61 90.37 <.0001
- Compared to a year ago, do you now smoke . . . %<.0001
  - Fewer cigarettes?
  - More cigarettes?
  - About the same?

Used other tobacco product in last 30 days, % 40.4 23.3 24.6 27.4 .017

1 Median (standard deviation).
2 A significant pair-wise difference between occasional and light smokers.
3 A significant pair-wise difference between occasional and moderate smokers.
4 A significant pair-wise difference between occasional and heavy smokers.
5 A significant pair-wise difference between light and moderate smokers.
6 A significant pair-wise difference between light and heavy smokers.
* A significant pair-wise difference between moderate and heavy smokers.

DISCUSSION

This study shows a substantial vari-
ability in the smoking patterns of the 4
groups of smokers in this study. How-
ever, the variability was more pro-
nounced among occasional and light
smokers. For example, only 23% of oc-
casional and 42% of light smokers re-
spectively reported smoking about the
same number of cigarettes compared to
a year prior. This variability in smoking
patterns of African-American occasional
smokers was similar to findings among
their White counterparts. The Califor-
nia Tobacco Survey19 found that occa-
sional smoking was a transitional stage
for many smokers. Our study suggests
that the majority (nearly two-thirds) of
occasional smokers have cut down on
their smoking compared to a year ago.
This supports findings from the Cali-
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Table 3. Motivation to quit, quit attempts, and interest in participating in a cessation program by smoking levels

<table>
<thead>
<tr>
<th>Stages of change, %</th>
<th>Occasional N=104</th>
<th>Light N=176</th>
<th>Moderate N=69</th>
<th>Heavy N=135</th>
<th>Global P value (χ² or F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-contemplation</td>
<td>22.8</td>
<td>30.3</td>
<td>30.7</td>
<td>37.3</td>
<td></td>
</tr>
<tr>
<td>Contemplation</td>
<td>36.6</td>
<td>42.9</td>
<td>43.5</td>
<td>45.2</td>
<td></td>
</tr>
<tr>
<td>Preparation</td>
<td>40.6</td>
<td>26.8</td>
<td>25.8</td>
<td>17.5</td>
<td></td>
</tr>
<tr>
<td>Quit attempts in past year</td>
<td>1.0 (15.7)</td>
<td>1.0 (10.5)</td>
<td>0.0 (17.1)</td>
<td>0.0 (2.0)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Interest to participate in a formal smoking cessation program</td>
<td>10.0 (3.23)</td>
<td>10.0 (2.85)</td>
<td>8.0 (2.83)</td>
<td>10.0 (2.82)</td>
<td>.460</td>
</tr>
</tbody>
</table>

1 Percent who answered “yes” (N).
2 Median (standard deviation).
3 Scale of 1–10 (1 = not interested at all, and 10 = extremely interested).
4 A significant pair-wise difference between occasional and light smokers.
5 A significant pair-wise difference between occasional and moderate smokers.
6 A significant pair-wise difference between occasional and heavy smokers.
7 A significant pair-wise difference between light and moderate smokers.
8 A significant pair-wise difference between light and heavy smokers.
9 A significant pair-wise difference between moderate and heavy smokers.
10 A significant pair-wise difference between occasional and moderate smokers.
11 A significant pair-wise difference between occasional and light smokers.
12 Median (standard deviation).
13 Percent who answered “yes” (%).

Table 4. Quitting experiences by smoking levels

<table>
<thead>
<tr>
<th>Experience</th>
<th>Occasional N=104</th>
<th>Light N=176</th>
<th>Moderate N=69</th>
<th>Heavy N=135</th>
<th>Global P value (χ² or F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has a doctor ever told you to stop smoking?</td>
<td>51.0 (53)</td>
<td>52.3 (92)</td>
<td>56.5 (39)</td>
<td>57.8 (78)</td>
<td>0.671</td>
</tr>
<tr>
<td>Lifetime quit attempts</td>
<td>2.0 (11.6)</td>
<td>2.0 (8.2)</td>
<td>2.0 (6.1)</td>
<td>2.0 (5.7)</td>
<td>.222</td>
</tr>
<tr>
<td>Months ago since most recent quit attempt</td>
<td>6.0 (59.0)</td>
<td>18.0 (65.5)</td>
<td>24.0 (52.2)</td>
<td>22.5 (87.1)</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Days most recent quit attempt lasted</td>
<td>60.0 (452.4)</td>
<td>30.0 (571.8)</td>
<td>18.0 (593.3)</td>
<td>30.0 (573.7)</td>
<td>.068</td>
</tr>
<tr>
<td>How easy/hard was most recent quit attempt</td>
<td>7.0 (3.2)</td>
<td>7.0 (3.0)</td>
<td>8.0 (2.8)</td>
<td>8.0 (3.3)</td>
<td>.022</td>
</tr>
</tbody>
</table>

1 Percent who answered “yes” (N).
2 Median (standard deviation).
3 Scale of 1–10 (1 = not interested at all, and 10 = extremely interested).
4 A significant pair-wise difference between occasional and light smokers.
5 A significant pair-wise difference between occasional and moderate smokers.
6 A significant pair-wise difference between occasional and heavy smokers.
7 A significant pair-wise difference between light and moderate smokers.
8 A significant pair-wise difference between light and heavy smokers.
9 A significant pair-wise difference between moderate and heavy smokers.
10 A significant pair-wise difference between occasional and moderate smokers.
11 A significant pair-wise difference between occasional and light smokers.
12 Median (standard deviation).
13 Percent who answered “yes” (%).
reason for this omission is not clear. High level of consumption of other tobacco products could be a factor in the occasional smokers’ ability to maintain low-level cigarette smoking since they may obtain nicotine from more than one tobacco product. While reduced cigarette smoking would suggest lower health risk for individuals who smoke occasionally, their actual health risk could be higher due to consumption of tobacco from other sources. The difficulty in quitting experienced by some occasional smokers may also be because their total tobacco consumption is higher than that suggested by the number of cigarettes smoked.

Occasional and light smokers seemed more motivated to quit smoking than heavier smokers. This finding is consistent with reports from other studies.27,30 However, despite their high motivation and multiple quit attempts, these 2 groups of smokers reported experiencing difficulty with quitting, although to a lesser degree than heavier smokers. Some studies have found that “chippers,” those who smoked ≤5cpd, did not show any signs of nicotine withdrawal symptoms when abstinent from smoking.26,31 The current study included 6–10 cpd smokers (not included in “chippers”) who may have greater difficulty quitting than “chippers.” Also, previous studies which included “chippers” were limited to Whites who differ in their smoking patterns and nicotine metabolism from AAs in the current study.6,32

The authors of this study found it interesting that all 4 groups of smokers were equally likely to have tried pharmacological therapy to help them quit. This finding is subject to more than one interpretation. One theory may suggest that lighter smokers are willing to use pharmacotherapy. Recommending pharmacotherapy for these lighter smokers is a logical next step since they have experienced difficulty in quitting despite high usage of non-pharmacological methods. On the other hand, use of pharmacotherapy may have preceded occasional or light smoking status. Participants were not asked whether their experience with pharmacotherapy was as a light or heavy smoker.

The present study is limited by its reliance on self-reporting and thereby subject to recall bias or false reporting. The infrequent smoking by occasional smokers could make participants’ recall of their smoking behavior less accurate than for heavy smokers. Some discrepancies in the answers to questions about prior smoking history were also evident. For example, 55% of occasional and 71% of light smokers reported smoking at their “current rate” for 2 or more years, yet only 23% of occasional and 42% of light smokers reported smoking the same number of cigarettes compared to a year prior. These discrepancies may be due to a number of reasons. First, both responses are subject to recall bias which may vary between individuals. Confirming self-reporting responses with friends or relatives may improve the accuracies of these reports. Second, smoking at “current rate” may have been interpreted differently to mean either number of cpd smoked or number of days in which participants smoked. However, the magnitude and consistency of group differences observed on many measures do not suggest significant distortions or obvious biases. Our study also could not definitively assess the proportion of occasional smokers who may have smoked daily in the past or directly examine the number of cigarettes reduced by former heavy smokers. Nevertheless, our findings about previous year’s smoking history provided some indication that a sizeable proportion of occasional smokers have smoked at a higher rate in the past. Future studies may find it useful to dif-

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Table 5. Methods used to quit by smoking levels

<table>
<thead>
<tr>
<th>Have You Ever Used Any of These Methods to Help You Quit Smoking?</th>
<th>Occasional</th>
<th>Light</th>
<th>Moderate</th>
<th>Heavy</th>
<th>Global P value (χ² or F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Yes</td>
<td>N=104</td>
<td>N=135</td>
<td>N=69</td>
<td>N=136</td>
<td></td>
</tr>
<tr>
<td>Will power/on my own†</td>
<td>79.81 (83)</td>
<td>71.59 (126)</td>
<td>69.57 (48)</td>
<td>62.22 (84)</td>
<td>.031</td>
</tr>
<tr>
<td>Prayer/God/spiritualityd*,e*</td>
<td>63.46 (66)</td>
<td>65.34 (115)</td>
<td>50.72 (35)</td>
<td>52.59 (71)</td>
<td>.045</td>
</tr>
<tr>
<td>Self-help materials</td>
<td>23.08 (24)</td>
<td>18.18 (32)</td>
<td>20.59 (14)</td>
<td>15.56 (21)</td>
<td>.501</td>
</tr>
<tr>
<td>Counseling from a health care provider‡,e*</td>
<td>16.35 (17)</td>
<td>11.93 (21)</td>
<td>13.04 (9)</td>
<td>5.19 (7)</td>
<td>.045</td>
</tr>
<tr>
<td>Gradual reduction‡,e*</td>
<td>77.88 (81)</td>
<td>71.02 (125)</td>
<td>68.12 (47)</td>
<td>59.26 (80)</td>
<td>.017</td>
</tr>
<tr>
<td>Abrupt stop/cold turkeyd*,e*</td>
<td>71.15 (74)</td>
<td>60.23 (106)</td>
<td>72.46 (50)</td>
<td>56.30 (76)</td>
<td>.032</td>
</tr>
</tbody>
</table>

† A significant pair-wise difference between occasional and light smokers.
‡ A significant pair-wise difference between occasional and moderate smokers.
§ A significant pair-wise difference between occasional and heavy smokers.
A A significant pair-wise difference between light and moderate smokers.
* A significant pair-wise difference between light and heavy smokers.
x A significant pair-wise difference between moderate and heavy smokers.

P=.05; † P=.01; ‡ P=.001.
differentiate stable occasional smokers from those in transition (former heavy or former light smokers). Having a better understanding of the various subsets of occasional smokers would facilitate developing cessation interventions for occasional smokers. This study may also be strengthened by biochemical validation of self-reported smoking, such as salivary cotinine. Finally, the present study was a convenient sample of smokers that may not be representative of smokers in general.

In conclusion, occasional and light smokers seem highly motivated to quit and are interested in participating in programs to help them quit. Contrary to commonly held opinions that quitting should be easy for these lighter smokers, many individuals who fall into this group of smokers experience difficulty remaining abstinent from smoking. Given this challenge, research is needed to develop and test effective interventions for occasional and light smokers. Because of sporadic patterns of smoking for many occasional and light smokers, not everyone in these groups would be candidates for pharmacological interventions. Controlled studies are therefore needed to identify the profile of occasional and light smokers who will benefit from pharmacotherapy. African Americans represent the substantial proportion of light smokers. Effectively intervening in this population would be a positive step towards reducing health disparities from tobacco-related diseases between White and minority populations.

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REFERENCES


AUTHOR CONTRIBUTIONS

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Supervision: Okuyemi, Ahluwalia, Harris, Mosier