Factors that increase sensitivity to nicotine dependence

Age of tobacco use initiation, concomitant tobacco use and nicotine dependence

- Ziyue Wu

Abstract

Introduction

The growing use of tobacco products have strong negative effects on public health conditions such as cardiovascular disease, cancer and lung disease (MacKenzie, Bartecchi, & Schrier, 1994). As the leading cause of preventable death in the U. S., tobacco use has been linked to the death of approximately 5 million people annually (Jha, Chaloupka, Moore, Gajalakshmi, Gupta, Peck, Asma & Zatonski, 2006). Given the addictive nature of nicotine, many tobacco users are likely to become chronic smokers and to have difficulty achieving successful cessation. Most research on tobacco use has focused on cigarette smoking. Ethnicity and gender have been found to be associated with cigarette smoking behavior (Hu et al., 2006[LD1]). Further, psychiatric disorders have been shown to contribute to the transition from daily smoking to nicotine dependence (Dierker & Donny, 2007; Breslau et al., 1998).

Despite the large number of studies examining cigarette smoking and nicotine dependence, risk for dependence based on other types of tobacco use have received far less research attention. Different types of tobacco use (cigarette, cigar, pipe smoking, snuff, tobacco chewing) may predict nicotine dependence differently. Such difference may be more significant between smokeless tobacco users and smokers. Moreover, little is known about

combined effects of tobacco use on risk for nicotine dependence. ways of tobacco use .

Different types of tobacco use (cigarette, cigar, pipe smoking, snuff, tobacco chewing) may predict nicotine dependence differently. Such difference may be more significant between smokeless tobacco users and smokers. Concomitant smokers may follow a unique pattern.

Also, age of the initiation of tobacco use may be correlated with current usage amount and number of ways of tobacco use. It remains uncertain that whether individuals with earlier onsets of tobacco use have greater risk of becoming nicotine dependent and using tobacco concomitantly.[LD2]

By examining the data from The National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), this study sought to (a) understand whether different ways of consuming tobacco might lead to different levels of sensitivity to nicotine dependence; (b) discover whether age of initiation of tobacco using behavior contributes to different levels of sensitivity to nicotine dependence; (c) find out whether age of initiation is associated with concomitant tobacco use, especially combined use of smokeless tobacco and smoking; (d) discover that which ways of tobacco did most concomitant users used first . [LD3]

Method

Sample

The sample was taken from the first wave of the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). NESARC, described by

Grant et al . (2006 publication year?) . , has an unprecedented large sample size (n= 43, 093) to achieve stable estimates of even rare conditions. It represents the civilian, noninstitutionalized adult population of the United States, including residents of the District of Columbia, Alaska, and Hawaii. People that lived in households, military personnel that lived off base, and people that lived group quarters: boarding or rooming houses, non – transient hotels and motels, shelters, facilities for housing workers, college quarters, and group homes (Grant et al , publication year), were interviewed in a computer-assisted personal basis after consenting to participate. The present analyses were based on all the respondents. This sample was chosen to assess both current tobacco users and tobacco abstainers .

Measures

Use of T obacco products us e was measured by asking respondents whether they had used cigarettes/ cigars/ pipes/ snuffs/ chewing tobacco these products in past twelve month (“ Had you used cigarettes/ cigars/ pipes/ snuffs/ chewing tobacco in past twelve months?”). Frequency of C c urrent tobacco us e was measured with the question ing behavior was evaluated by the frequency (“ How often did you use cigarettes/ cigars/ pipes/ snuffs/ chewing tobacco in past twelve months?”) and quantity was measured with the question (“ What was the usual quantity when you used them?”) . Usage quantities of certain kinds of tobacco per month were estimated by multiplying midpoint of the range of each reported frequency per month and reported usual usage quantity.

Age related measures selected as third variables and control variables included age, age at the onset of certain kinds of smoking behavior (" How old were you when you first used cigarettes/ cigars/ pipes/ snuffs/ chewing tobacco?"), age at the onset of using them daily use (" How old were you when you started using them daily?"), age at the onset of tobacco using behavior (" How old were you when using tobacco at the first time?") and age at the onset of everyday tobacco us e ing behavior (" How old were you when starting to use tobacco daily?"). A variable reflecting number of kinds of tobacco used was created to separate concomitant tobacco users from single way users. For concomitant tobacco users, I created variables to show the current combination of ways in tobacco use and the combination of ways when the respondents started using tobacco[LD4][EW5]. A variable reflecting the number of years since the respondents started using tobacco was also created by subtracting the age at the onset of tobacco using initiation from age at the interview. A categorical variable was also created to describe which combination s of tobacco use the respondents fell into , single way smoking, single way smokeless tobacco, concomitant use of smoking, concomitant use of smokeless tobacco, or concomitant use of smoking and smokeless tobacco. NICE!!

Nicotine dependence related variable was " Nicotine dependence in past twelve month".

Data Analyses

In the first question asked, Logistic regression was estimated to determine see whether different ways of tobacco us i e ng predicted nicotine

dependence independently. For the second A second set of question, another logistic regression analyses were was conducted within each type of tobacco using behavior, with control variables for amount used usage amount , age, ethnicity and gender controlled , to verify the correlation between the age of initiation and probability in getting nicotine dependent . A two way interaction tested by Pearson Correlation Test was conducted to examine find out association between age of initiation of tobacco using and current number of tobacco use ways.[LD6]

Results

Different tobacco uses and nicotine dependence

More than one fourth (25. 8 0 %) of the respondents reported some forms of tobacco use in past 12 months. Among those who used tobacco in past 12 months, 89. 2 16 % (n= 9, 913) smoked cigarettes, 10. 1 06 % (n= 1, 119) smoked cigars, 1. 9 3 % (n= 215) used pipes, 6. 5 48 % (n= 720) used snuff s and 4. 5 2 % (N= 502) chewed tobacco.

Further, the number of average cigarettes smoked per month climbed to was 186. 26 (SD= 332. 32), whereas the numbers of monthly use s of cigars, pipe smoking, snuffs and chewing tobacco are only were 2. 1 08 (SD= 27. 61), 2. 8 79 (SD= 28. 70), 4. 1 08 (SD= 38. 38) and 1. 9 4 (SD= 24. 71) , respectively. . [EW7]

Logistic regression was used to examine the association between different kinds of tobacco use and nicotine dependence, with covariates controlling for of age of tobacco use initiation, years using tobacco, ethnicity and gender.

Cigarettes, snuffs and chewing tobacco were positively associated with nicotine dependence, while cigars and pipe smoking failed to independently predict nicotine dependence.[EW8]

Age of onset, tobacco usage amount, and nicotine dependence

The average age of onset of tobacco use was 16. 5 48 (SD= 5. 21) years old, and the average number of years using tobacco was 32. 1 0 8 (SD= 17. 37) years old. Of 18, 943 subjects who reported ever using tobacco, 77. 6 56 % (n= 14, 693) started before adulthood.

Logistic regression was used to estimate the association between age of initiation and nicotine dependence. Covariates included years using tobacco, ethnicity, gender and tobacco use. Age of onset of tobacco use was found to be negatively related to nicotine dependence, with earlier onset s associated with higher risks for nicotine dependence.

Moreover, multiple regression was used to estimate the correlation between age of initiation and current tobacco us e age amount , also with variables for controlling for years using tobacco, ethnicity and gender controlled . For users of most popular type of tobacco use, cigarette smok ing ers showed strong positive relationship between age of onset of cigarette smoking and amount of current smoking amount. Earlier onset s actually elevated was associated with a higher current cigarette smoking amount. N And n umber of cigarettes consumed was found directly linked to be positively associated with likelihood of experiencing to nicotine dependence[LD9]. This result might serve as another clue for earlier onsets probably promoted risks for nicotine dependence. [EW10]

Concomitant tobacco users and single way users

Among th e ose 11, 118 respondents who reported tobacco use in past 12 months, 10. 3% (n= 1, 149) of them were concomitant users. A lso, a mong 1144 concomitant tobacco users (total 1149) with available data, 54. 6 55 % (n= 624) had of them started smoking cigarettes as the first way to of us ing e tobacco. In total, 71. 3% (n= 816) of respondents started using tobacco in smoking forms (cigarettes, cigars, pipes or combined smoking). Only 20. 7 2 % (n= 237) of respondents first started using tobacco in smokeless form (snuffs, tobacco chewing or combined smokeless tobacco). The rest, only 8. 39% (n= 96) of respondents, first used tobacco in both smoking and smokeless tobacco. Also, among 1034 daily concomitant tobacco users, 70. 5 0 % (n= 729) started smoking cigarettes first. REALLY NICE!!

Outcome of the Pearson correlation tests for age of tobacco use initiation and current numbers of ways used showed a small, significant negative correlation (r= -0. 11, p <0. 0001). Earlier onset tobacco use was associated with a larger number of ways of using tobacco. elevated the probability in becoming tobacco co-users.

Moreover, tobacco users were separated into different categories, single way smoking, single way smokeless tobacco, concomitant use of smoking, concomitant use of smokeless tobacco, or concomitant use of smoking and smokeless tobacco. Chi-square test was conducted to examine each of two different categories and nicotine dependence. Single way smokeless tobacco users were found to have lower probabilities of becoming nicotine dependence than all the other groups of users, except of the concomitant

use of smokeless tobacco users. Also, the group of concomitant use of smokeless tobacco users were also found to have lower probabilities of nicotine dependence than co-users of smoking and smokelesstobacco[LD11]. [EW12]

Discussion

The present study sought to examine whether age of onset of tobacco use was associated with nicotine dependence and numbers of kinds of tobacco used. The study also aimed to examine whether different kinds of tobacco use were differently related to nicotine dependence. Further, it Toabcco Tobacco use was also examined among the tobacco use of concomitant users. Four major findings appeared. First, different ways of tobacco use were actually associated with nicotine dependence differently. Whereas cigars and pipe smoking failed to independently predict nicotine dependence, the other three kinds of tobacco, cigarettes, pipe smoking, snuffs and chewing tobacco were independently positively related to nicotine dependence. Second, age of onset of tobacco use was associated with nicotine dependence. An earlier initiation of tobacco use enhanced the probability of getting nicotine dependence. Third, age of onset of tobacco use also had correlation with number of kinds of tobacco use. An earlier onset also elevated the probability of becoming concomitant users. Lastly, most of the co-users of tobacco started with smoking cigarettes.

The finding of different directions of association with nicotine dependence in various kinds of tobacco may be explained by discrete habits and intentions of tobacco use. Of the five kinds of tobacco, cigars and pipe smoking failed

to independently predict nicotine dependence (p= 0. 40). Two facts may be the causes of this may explain this explainations explanations phenomenon. First, First, most of the cigar smokers and pipe smokers were concomitant smokers. A It is possible that a mong all cigar smokers (n= 1, 119) and pipe smokers (n= 215), 62. 02% (n= 694) of cigar smokers and 74. 88% (n= 161) of pipe smokers were concomitant tobacco users. Second, most cigar smokers and pipe smokers did not consume large amount of cigar products. 80. 07% (n= 896) of cigar users smoked less than or equal to 14 cigars per month. 60. 93% (n=[LD13]131)[EW14]of pipe smokers used pipe smoking 18 times or less. Such small dose of intake may not result in enough variety of nicotine dependence. To sum up, cigar users and pipe users probably consumed these products not for satisfying the desire for nicotine but simply for a hobby.

The correlation between age of tobacco use initiation and nicotine dependence showed that early initiation enhanced increased the probability of nicotine dependence. In the case of a special substance, the cigarette smoking , early initiation also elevated the current us e age amount . of tobacco product [LD15] . This outcome is consistent with previous literature that stated early age of onset was associated with heavy smoking in later life (Chen & Millar, 1998). Although early age of onset has been evaluated with its potential to enhance tobacco use amount, difficulty in tobacco cessation (Chen & Millar, 1998; Khuder et al., 1999) and tobacco use frequency (Taioli & Wynder, 1991), result of the present study has initiated strong implication that age of onset may also directly influence the possibility of becoming nicotine dependent.

Moreover, the relationship between age of tobacco initiation and current kinds of tobacco use indicated that early onset also promoted the probability of becoming a current polytobacco user s . Previous researchers have discovered that evidence that gender, ethnicity, education and income are related to concomitant tobacco use (Bombard, Pederson, Nelson & Malarcher, 2007). However, the present study has shown evidence for the association between age of tobacco use onset and concomitant tobacco users.

Further, the present study showed that a significantly large proportion of concomitant users started using tobacco by smoking cigarettes, and then stepped initiated into other kinds of tobacco. The direction of shifting among different tobacco products has been studied by others, and several various results have emerged. While some have suggested that smokeless tobacco products may act as gateway substances to cigarette smoking (Hatsukami, Nelson & Jensen, 1991; Haddock et al., 2001), others have also proposed that cigarette smoking initiates smokeless tobacco use (Riley et al., 1996). There are also some researchers that have claimed none of them initiates the other (Wetter et al., 2002). The outcome of the present study suggests that cigarette smoking is likely to precede smokeless tobacco use.

In the pair comparisons of different combinations of tobacco use, the group that only used one kind of smokeless tobacco showed a significant ly lower probability of in becoming nicotine dependent than groups of single way smokers, concomitant smokers and co-users of smoking and smokeless tobacco. The only group that was not significantly different did not show significan t ce variation in sensitivity to nicotine dependence from the group

of single way smokeless tobacco users was the group of concomitant smokeless[LD16]tobacco users. One of the reasonable explanation of such phenomenon is that smokeless tobacco may be less addictive than smoking (Henningfield, Fant & Tomar, 1997). Another explanation is that smokeless tobacco users might use less amount of tobacco products per month. The ANOVA of the combined amount of tobacco products used per month was conducted to test whether smokeless tobacco users had smaller amount of tobacco use. The result showed that the average usage amount of single way smokeless tobacco users was 97. 94, which was significantly lower than those of single way smokers, concomitant smokers and concomitant users of smoking and smokeless tobacco, which were 408. 22, 460. 77 and 584. 38.

Strengths and limitations

There are several limitations in the present study. First, only frequency o f use and usual use quantity were available for estimating the amount of the tobacco products used per month. Such calculation was incomplete for reflecting the actual amount of use. Moreover, there was no measure for

Conclusions and implications

OUTLINE

1. Briefly summarizing what you found (Summary)

- Take the main sentences of the results, don't keep changing the words

2. Finding 1, 2, 3: linking them to previous literature

- When talk about literature, don't keep writing about the results

3. Strengths and limitations

4. Conclusions and implications: what should future research look at

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[LD1]You need to say what ethnic groups or which gender are more likely to

use tobacco. It is not enough to say ethnicity and gender are associated with

tobacco use.

[LD2]This needs to be preceded by what the literature has shown on age of

onset. In its current form, the paragraph comes a bit from left field for the

reader.

[LD3]You can include this in your results, but I don't think it is on par with

your other questions, so it does not need to be included here.

[LD4]Not sure how to edit this, but a little less clear than earlier descriptions.

[EW5]Describe the categories

[LD6]?? We can discuss.

[EW7]One decimal place for percentage and number

Two decimal places for SD and SE

[EW8]Add the sentence stating the likelihood, odd ratios and confidence

intervals

[LD9]Logistic regression?

[EW10]Maybe I can delete it

[LD11]Add the actual rates to this sentence.

[EW12]Should I add some more details?

[LD13]??

[EW14]Decide whether to delete it or put it in the result part

[LD15]??

[LD16]??