Undergraduate Psychology Research Methods Journal

Volume 1 | Issue 10 Article 6

11-2009

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Advanced Research Methods Journal | **64**
Fall 2008

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The purpose of this study was to see if there is a co relational relationship between an individual's smoking habits and the smoking habits of his/her family. There were hopes of finding a relationship between people's habits and whether their smoking relative is biologically related or not. The hypothesis seeks to find a relationship between an individual's smoking habits and the smoking habits of their family. There were seventy-eight undergraduate students from Lindenwood University surveyed and only eight were smokers. Thirty-seven point five percent, or three out of eight, smokers in the study had a mom that smoked, and the same percentage goes for smokers who had a dad that smoked. Only one out of eight smokers had a biological brother, sister, or step parent that smoked which is twelve point five percent. The implications of the findings of the smokers' surveys found no statistical significance for any of the categories. What was found is that more smokers have family members that do not smoke, which is the opposite of the hypothesis stated.

There are a lot of people around the world that smoke cigarettes despite the obvious negative effects. According to Hesman's (2004) article in the *St. Louis Post Dispatch,* cigarettes kill more people every year than all the majorly addictive drugs, murders, suicides, burning, smoke inhalation, car wrecks and STDs combined. According to Alexander Glassman (1997), smokers are usually considered to be more nervous by nature than people who do not smoke. He also mentioned how cigarettes and depression are highly correlated with one another. Like

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depression, literature suggests that there are genetic predispositions that make a person more likely to indulge in the questionable habit. At the same time, Bobo and Husten mentioned that literature also suggests that people begin smoking because of social and psychological factors.

According to Bobo and Husten (2000), adolescents whose parents smoke cigarettes are more likely to start and adolescents whose friends or siblings smoke are more likely to begin smoking at an earlier age than those whose peers refrain from smoking cigarettes. They also mention that factors in parent-child relationships affect whether junior high and high school aged individuals smoke. Bobo and Husten (2000) mentioned things like poor attachment, poor supervision, lack of punishment, and insufficient involvement in the child's life as contributory factors. They also mentioned that according to a study conducted by Conrad and his colleagues in 1992 lower socioeconomic status is related to cigarette smoking in adolescents. Bobo and Husten (2000) reviewed national students' surveys that indicate more white youngsters begin to smoke than African Americans and Hispanics. Thus there are many diverse reasons that people smoke. Both nature and nurture play a role in an individual's decision to smoke.

According to Lawton's study (1962), wanting to imitate others is a big reason why adolescents may begin to smoke. It also helps some of them figure out how to define who they are and who they want to be. This idea backs up what Bobo and Husten (2000) say about the influence of parents, siblings, and peers on an individual's decision to smoke. It is a way of identifying with certain other individuals and thus helping the adolescent decide who they are and who they would like to be like.

Lawton (1962) found that 40% of adolescent whose mom and dad smoke also smoke, 33% of those with one smoking parent smoke, and 23% of those whose parents do not smoke at all smoke cigarettes. Lawton (1962) also found that 44% of those whose older siblings smoked,

also smoke too, and only 22% of adolescents without smoking siblings smoked. At first glance one may think that this is due to genetic factors, but it is just as likely that it is due to learned behaviors and as Lawton said earlier, identifying with others to figure out who they are.

The present study found some answers to this conundrum by surveying individuals to see if they smoke and if there parents do, and also if they are their genetic parents or simply an unrelated guardian, step parent, or adopted parent. The outcome will show which factor has a stronger correlation, and thus how individuals can help prevent the start of their younger loved ones from the unhealthy habit.

Lawton (1962) also mentioned "striving for status" as an interpersonal need for those who decide to smoke. He believed that people begin smoking cigarettes because of "an inner feeling of lack, of inadequacy, or striving for self assurance" (p. 164). He also found smoking was more prevalent in those adolescents that could not obtain "normal peer group status". Lawton mentioned how simply viewing older family members enjoying something would bring curiosity, thus he believes learned behavior is a factor. Plus, parents who smoke are less likely to chastise their kids for smoking cigarettes; therefore the rate of smokers who parents smoke should be higher for a lot of reasons, not just genetics or imitation. Lawton (1962) also found that the prevalence of cigarette smoking is much lower among religious sects that prohibit the habit. Those who smoke in college, according to Lawton (1962), have lower grades than those who do not, but this may be due to the fact that more rebellious individuals smoke as well as get lower grades. It is a correlation, not causation that rebellious people tend to smoke and also to achieve lower educational status than those who are not considered to be rebellious. Lawton (1962) reviewed a study that found "low pulse and low blood pressure during adolescence were predictive of adult non-smoking" (p. 166). Although this study was done in 1962 the biological

aspects still ring true, and it is interesting to look at the statistics of smokers back then so that we may get an idea of how health consciousness has changed the numbers today. So there may be something physiologically different about those who smoke cigarettes that nicotine may fulfill or calm.

According to Hesman (2004), people biologically have different amounts of certain enzymes in their liver that break down the toxins found in cigarettes. This fact most likely helps researchers to understand the difference in the amount of cigarettes smoked by different ethnicities. Apparently African Americans are less likely to smoke and when they do smoke, they smoke fewer cigarettes than European Americans. Hesman (2004) also mentioned that individuals that have attention deficit disorder are a lot more likely to smoke cigarettes because it helps with concentration. Hesman (2004) is quick to point out though, that besides nicotine, there are over 4,000 other chemicals in cigarettes that could contribute to such a strong addiction for some people. For example, there is a chemical that is a byproduct of alcohol when it's broken down that may help people's addiction to grow strong. Sixty-two percent of adult smokers say they want to stop smoking according to Hesman (2004), and around 50% of smokers say they have quit at least one day in the past year.

Hesman (2004) explained how all addictions seem to trigger the same part of an individual's brain no matter what the addiction is. The nucleus accumbens, which controls pleasure and rewarding feelings in our brains, is responsible for organizing how an individual feels and what emotions are experienced. This is the part of the brain that is affected by the chemicals in cigarettes and this is because of a neurotransmitter called dopamine. Dopamine is our pleasure chemical and addictive substances affect the amount that's released in an individual's brain. Hesman (2004) mentioned how the flow of dopamine and a brains reaction to

things is also affected by the genetics of that individual which in turn affects if some one becomes addicted to cigarettes. Rossing (1998) agrees by saying "nicotine operates through dopamine neurotransmission in the mesolimbic, 'reward' system of the brain" (p. 231), in the same way any addictive substance like cocaine, opiates, or alcohol would. "Nicotine increases extracellular dopamine by stimulating the firing of dopaminergic neurons." Addiction could change how the human brain produces dopamine. If an individual suddenly stopped smoking, the levels of dopamine in their brain would change, thus causing symptoms of with draw. Rossing (1998) continued saying that there has been medicines developed that stimulate the release of dopamine which could help certain individuals stop smoking and also identify a genetic subgroup that would be positively helped by these types of medications. These medications could aid addictions and many other behavioral disorders according to Rossing (1998). Research of brain imaging has shown that those addicted to cigarettes have a swift increase in dopamine in their nucleus accumbens according to Hensman (2004), who also said that smoking gets a substance through the body within ten seconds, which is three times faster than injecting it. The first drag of the day, Hensman (2004) mentioned, makes an individual's adrenaline and noradrenaline flow, restricting blood vessels and releasing sugars into their body. Hensman then went on to describe a study conducted in which a group of individuals were measured in the areas of blood pressure and pulse after smoking their first two cigarettes of the day. Each individual had an increase in their pulse and blood pressure quickly rose.

Hesman (2004) continued with more genetic options for cigarette addiction. Smoking cigarettes lessens how much monoamineoxidase (MAO) is in the human brain. The MAO enzyme reduces an individual's dopamine levels, thus with less MAO due to cigarettes, the more the dopamine gets to hang around longer and more intense it would allow the individual to feel

the pleasure. Rossing (1998) agreed, saying "monoamine oxidases A and B, which are involved in the oxidation and degradation of dopamine, are partially inhibited in the brains of smokers due to a tobacco constituent other than nicotine" (p. 232). This may strengthen how addictive nicotine is because the dopamine reuptake is inhibited by the MAO. Another chemical beta-carboline, according to Hesman (2004), found in the smoke if cigarettes, also slows down the enzyme in the brain that breaks down dopamine, and may have an affect on smoking's addictiveness. In conclusion, Hesman (2004) believes that cigarette addiction reconditions the human brain and that smoking is not people's lack of will power or concern for their health, but a genetic trap of swirling pleasure causing chemicals.

Another genetic reason for some people smoking and other not, according to Hesman (20024), is because of an enzyme called CYP2A6 that is responsible for breaking down nicotine and the toxins found in cigarettes. This enzyme is concentrated differently in different individuals and the lower the concentration; the more difficult it is for that person to process all the toxins in cigarette smoke. The lack of this enzyme to break those toxins down causes some people to become nauseous, and thus they smoke less or not at all. Hesman (2004) said that the study done showed that African Americans have less of the enzyme and thus smoke less because they felt the negative affects faster and stronger than European Americans. Hesman (2004) continued to say only 5% of the white people in the study had the variation that makes the enzyme low, while 12% of blacks did. She continues saying that 30% of Asians tested in cigarette studies also have it. This is possibly the explanation for an ethnic difference in smoking habits. Along with that variation comes another surprising difference. According to Hesman's (2004) research, African Americans also, start smoking at a later age, suffer more from diseases

like chronic obstructive pulmonary disease, and develop the diseases on average at an earlier age than European Americans. Thus, genetics can definitely play a role in why an individual smokes.

Another reason genetics is thought to play a role in the habit and addiction of cigarette smoking has to do with nicotine receptors in the brain and attention deficit disorder. Since attention deficit disorder and attention deficit hyperactivity disorder children have different genetic causes, Hesman (2004) mentioned a study that found the difference of DNA in both groups of kids. There was a difference in the receptor for nicotine called CHRNA4. Nictotine sticks to the human brain's cells that receive dopamine and that may help people concentrate. Ninety percent of ADD kids have the variant, while the ADHD children were not at all more likely than anyone else to have it. Thus, Hesman (2004) explained how drugs that affect the nicotine receptor in the brain may be a way of treating individuals with ADD.

Many twin studies have found, according to Rossing, "a common genetic influence on smoking, alcohol, and coffee use with 36% of the heritability of smoking attributed to a shared susceptibility to these substances" (p. 231). Patrick Zickler (2004) mentioned that in a study conducted of 3,356 twin pairs and found 61% of nicotine addiction was related to genetics, while 55% is found to relate to the individual's environment. The National Institute for Drug Abuse has found that different alleles, being a small variation in a specific gene, seem to match with different behaviors in smoking. Zickler (2004) continued saying that one allele in a gene may show a predisposition to nicotine addiction, while another may show that an individual is genetically more likely to be able to quit smoking. Specifically, "smokers are less likely to have an allele designated SLC6A3-9 (46.7%) than were nonsmokers (55.8%)." An individual was least likely to smoke when they had both the alleles SLC6A3-9 allele and the DRD2-A2 allele.

Smokers with the SLC6A3-9 allele were found to have begun smoking at a later age, and to have an easier time when trying to quit smoking.

In conclusion there are many reasons to contribute to whether a person smokes cigarettes or not. There are multiple reasons on both sides of the fence for an individual to start smoking, become addicted, quit smoking, or keep smoking. From family and peer influence, learning who one is, or just wanting to look cool or fit in, to liver enzymes, dopamine management, and general predispositions to smoking, there are hundreds of reasons that people smoke.

The present study sought to find a relationship between an individual's smoking habits and the smoking habits of their family. Participants were askedquestions pertaining to when they began smoking and if they were adopted, or had step families that indulged in cigarette use. The questions were meant to shed light on whether more people smoke when their parents smoke, or whether more individuals smoke when their parents do not.

Method

Participants

There were 78 participants with a mean age of 20.45 years old and the standard deviation for age was 1.937. There were 29 men and 48 women and one participant did not answer this question. Seventy-nine point five percent of participants were from the U.S.A., while three were from Germany, and every other country of origin was mentioned only once. Only one participant was adopted and eight had step parents. Only eight out of seventy-eight were cigarette smokers. They were all recruited from Lindenwood University Undergraduate classes. These classes included one sociology class, one anthropology class, and a couple composition classes.

Materials and Procedure

Each participant was given a short survey about their demographics and their cigarette smoking habits, along with questions about their families smoking habits and history. Attached to the survey was two consent forms they were to sign, one for them and one for the researcher. Both consent forms were removed right away. Also attached was a feedback letter giving them contact information in case they wanted to know the outcome of the study.

Results

Out of the seventy-eight participants only eight were smokers. There were twenty-nine men and forty-eight women. The average age of smokers began was 17.29 years old. Of the eight smokers in the study only three had parents that smoked. There were very few other relatives of smokers that smoked. Fourteen and a half non-smokers had moms that smoked and twenty-six point one percent of non-smokers had a dad that smoked.

Discussion

The results were interesting because it was thought that there are many reasons why children of smokers would be more likely to smoke cigarettes. Maybe in today's society people are more health conscious than ever. Maybe those whose parents smoke find it "uncool" and thus refrain. Only one out of the eight smokers had a biological brother, biological sister, step mom, or step dad that smoked. Out of the non-smokers 9.8% of biological brothers smoked, while 9.7% of biological sisters smoked. It seems that parents and children smoking has a negative correlation, to the dismay of the hypothesis. Not very many of the participants had step families, and only one was adopted for sure. This may be due to the fact that all the participants were recruited from a private university which may not be a representative example of the real American population.

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Appendix A

Feedback Letter

Thank you for participating in the study. The questionnaire was used in order to determine if there is a relationship between people deciding to smoke and whether their parents or other family members smoke cigarettes. The point was to see if there is a relationship and help individuals either avoid smoking, or stop smoking, and to understand what reasons may have helped lead them to smoking. The hypothesis was stated that those who have parents that smoke cigarettes are more likely to engage in the habit than those who have parents that are non-smokers. The outcome of this study could prove beneficial in finding that there is a genetic predisposition to smoking, or maybe that it is a learned behavior through operant, social, or classical conditioning and maybe parents will begin to think of their child's well being instead of their own cravings.

Please note that the study is not interested in your individual results; rather, the study is only interested in the results of a large group of consumers, of which you are now a part of. No identifying information about you will be associated with any of the findings.

If you have any questions or concerns regarding any portion of this study, please do not hesitate to bring them up now or in the future. The contact information is found at the bottom of this letter. If you are interested in obtaining a summary of the findings of this study at a later date, please contact the researcher and the researcher will make it available to you at the completion of this project.

Thank you again for your valuable contribution to this study.

Sincerely,

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Appendix B

Cigarette Study Informed Consent Form

I, _____ (print name), understand that I will be taking part in a research project that requires me to complete a short questionnaire asking about me and my families smoking preference and habits. I understand that I should be able to complete this project within 10 minutes. I am aware that my participation in this study is strictly voluntary and that I may choose to withdraw from the study at any time without any penalty or prejudice. I should not incur any penalty or prejudice because I cannot complete the study. I understand that the information obtained from my responses will be analyzed only as part of aggregate data and that all identifying information will be absent from the data in order to ensure anonymity. I am also aware that my responses will be kept confidential and that data obtained from this study will only be available for research and educational purposes. I understand that any questions I may have regarding this study shall be answered by the researcher(s) involved to my satisfaction. Finally, I verify that I am at least 18 years of age and am legally able to give consent or that I am under the age of 18 but have on file with the LPP office, a completed parental consent form that allows me to give consent as a minor.

_____ Date: _____
(Signature of participant)

_____ Date: _____
(Signature of researcher obtaining consent)
Danielle Strasser

Appendix C

Smoking survey

ID#_____

Demographic and smoking survey for the smoking research. Please answer all questions. If at any time a question causes you discomfort you may stop the survey or leave the question blank.

All the information collected will be confidential, and the surveys will not have names on them to ensure that all the information used is anonymous.

1.) How old are you? _____

2.) Male/ female? (circle one)

3.) Are you adopted, to your knowledge? Yes/ No/ I don't know

4.) What country were you born in? _____

5.) If your parents are divorced, do you have step parents? Yes/No

6.) If so, check mark the ones you have? Step-Mom_____ Step-Dad_____

7.) What is your ethnic background? (circle one)

European Latino/a African Asian Middle Eastern Other

8.) Do you smoke cigarettes? Yes/No

9.) If so, what age did you start? _____

10.) If you quit, what age did you quit? _____

11.) Put the number of the type of family member you have and then put tally marks for them under either the smoking or non-smoking section. For example, for the space next to biological brother you put the number of blood related brothers you have. Then make tally marks for whether each smokes cigarettes or not under the section the mark belongs.

	Smoker	non-smoker
Mom		
Dad		
Adopt/step mom_____		
Adopt/step dad _____		
Biological brother _____		
Biological sister_____		
Adopt/step brother _____		
Adopt/step sister _____		

Include if raised by: (grandparent, aunt, uncle, other non-related guardians)

Other legal guardian 1 _____

Other legal guardian 2 _____