

Smoking actually raises stress for smokers compared to non-smokers.

# Tobacco **FACT** Sheet

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## Smoking and Mental Health

### How smoking affects the brain

Within 8 to 10 seconds of taking that first puff off a cigarette, nicotine reaches the brain and attaches to the neurons, which are the working cells of the brain. Neurons contain receptors, which are like slots or keyholes onto which brain chemicals called neurotransmitters attach, causing the brain to transmit messages. Nicotine fits into the receptors which causes the brain to release two other substances, noradrenaline and dopamine, which act as stimulants.

### Smoking and Stress

Smokers often report that smoking tobacco helps to relieve feelings of anxiety and stress. The high smoking prevalence among people facing social and economic deprivation suggests that smoking is often used as a stress coping mechanism. However, the stress reducing properties of nicotine seem more illusory than real, as smokers exhibit higher levels of stress in their lives than non-smokers.

Nicotine causes the brain to release dopamine, which is associated with pleasurable feelings, and smokers quickly develop regular smoking patterns. Eventually, smokers need increasing levels of nicotine to feel 'normal'. If the nicotine content in their blood drops below a certain level, they begin to crave for a cigarette. This craving makes the smoker feel 'stressed' until the craving is relieved. Studies have shown that the feeling of 'relaxation' felt upon smoking is really just the person returning to their normal unstressed state that non-smokers experience all the time<sup>1</sup>.

### Depression

Cigarette smoking is linked with a wide range of psychiatric diagnoses including anxiety, agoraphobia and panic disorder, but smoking is especially associated with depression. Many studies have reported an association between clinical depression and smoking. For example, a study done by the National Center for Health Statistics recently found that almost one-half of adults under the age of 55 with current depression were current smokers, while less than one-quarter of people in the same age group without depression were smokers<sup>2</sup>.

The evidence so far is inconclusive and there is dispute among scientists as to whether smoking is the cause, or effect of mental illness. Some even feel that smoking may contribute to the cause of depression for some people, and depression may contribute to beginning smoking for others<sup>3</sup>.

### Schizophrenia

Patients with schizophrenia have an extremely high prevalence of smoking; a US study in 1986 found about 88% of patients were smokers compared with only 33% in the general population<sup>4</sup>. The reason for this is unknown, but it is likely that smoking behaviour in schizophrenia is a complex process. The increase in dopamine release induced by smoking may be helpful in alleviating some schizophrenic symptoms. Therefore, schizophrenics may smoke in an attempt to self medicate.

<sup>1</sup> Parrott AC, "Does Cigarette Smoking Cause Stress?," *American Psychologist*, 54(10): 817-20, October 1999.

<sup>2</sup> Pratt LA, Brody DJ. Depression and smoking in the U.S. household population aged 20 and over, 2005-2008. NCHS data brief, no 34. Hyattsville, MD: National Center for Health Statistics. 2010.

<sup>3</sup> Henry Ford Health System (1998, February 12). Henry Ford Study Shows Daily Smoking May Lead To Major Depression. *ScienceDaily*.

<sup>4</sup> Hughes JR, Hatsukami DK, Mitchell JE, Dahlgren LA. Prevalence of smoking among psychiatric outpatients. *American Journal of Psychiatry*. 1986;143:993-997.

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One thing to note is that smoking also interacts with neuroleptic treatment (drug treatment for schizophrenics), reducing neuroleptic plasma levels and possibly causing higher doses of neuroleptics to be prescribed. This is something to keep in mind if a person with schizophrenia is trying to quit, as their medication level may need to be monitored.

### **Alzheimer's Disease and Dementia**

Alzheimer's Disease is a common form of senile dementia that causes problems with memory, thinking, and behaviour, and accounts for 50 to 70 percent of dementia cases. The link between smoking and Alzheimer's has long been inconclusive, with some studies indicating that smoking increased chances for developing Alzheimer's and other studies actually finding it might protect against Alzheimer's<sup>5</sup>.

However a new study that followed over 20,000 people over the course of 23 years found a “dramatic increase” in the incidence of dementia for heavy smokers (157% increase for developing Alzheimer's and 172% increase for developing vascular dementia). This association did not change even after adjusting for things such as race, gender, high blood pressure, high cholesterol or heart attack, stroke, or weight<sup>6</sup>.

<sup>5</sup> Campaign for Tobacco-Free Kids. Smoking's Effects on Alzheimer's Disease and Dementia.

<http://www.tobaccofreekids.org/research/factsheets/pdf/0193.pdf>.

Retrieved November 2, 2010.

<sup>6</sup> Rachel A. Whitmer, Ph.D., research scientist, Kaiser Permanente Division of Research, Oakland, Calif; William Thies, Ph.D., Chief Medical and Scientific Officer, Alzheimer's Association; Samuel E. Gandy, M.D., Ph.D., Mount Sinai Professor of Alzheimer's Disease Research, Mount Sinai School of Medicine, New York City; Oct. 25, 2010, *Archives of Internal Medicine*, online.

### ***Five tips for quitting***

Studies have shown that these five steps will help you quit and quit for good. You have the best chances of quitting if you use these five steps to develop and maintain your own quit plan.

1. Get ready.
2. Get Support
3. Learn new skills and behaviors.
4. Get medication and use it correctly.
5. Be prepared for difficult situations.

Talk to your health care provider, they can help. If you do not have insurance or just need to talk to someone, call the Washington Tobacco Quitline.

**Tobacco Quit Line**

**1-800-QUIT-NOW**

toll-free

1-800-784-8669

**QUITLINE.COM**