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Study of smoking twins points to growing influence of genetic factors

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A new study of twins led by the University of Colorado Boulder shows that today's smokers are more strongly influenced by genetic factors than in the past and that the influence makes it more difficult for them to quit.

"In the past, when smoking rates were higher, people smoked for a variety of reasons," said sociology Professor Fred Pampel, a study co-author. "Today the composition of the smoking population has changed. Smokers are more likely to be hard-core users who are most strongly influenced by genetic factors."

The study showed that adult identical twins sharing a common genetic structure are significantly more likely to quit smoking at the same time compared with fraternal twins who do not share identical genes. This genetic influence has increased in importance among smokers following the initial restrictive legislation on smoking enacted in the United States in the 1970s, Pampel said.

"These days people don't smoke as much for social reasons," Pampel said. "They in fact face criticism for the habit but tend to smoke because of their dependence on nicotine."

The study, to be published in this month's edition of the journal *Demography*, was led by Associate Professor Jason Boardman and doctoral student Casey Blalock of CU-Boulder's sociology department and Institute of Behavioral Science, and co-authored with Pampel, also

of IBS, Peter Hatemi of Pennsylvania State University, Andrew Heath of Washington University in St. Louis and Lindon Eaves of the Medical College of Virginia in Richmond.

Using a database of twins who responded to an extensive health questionnaire, the researchers examined the smoking patterns of 596 pairs of twins, 363 of them identical and 233 of them fraternal. The researchers looked at their smoking patterns from 1960 to 1980 because they wanted to focus on a period of changing views about smoking.

Among identical twins, 65 percent of both twins quit during a two-year timeframe if one twin quit, but among fraternal twins, the percentage dropped to 55 percent, a statistically significant difference that indicates a genetic component at work, Pampel said.

While a specific genetic marker has been hard to identify among those who smoke, certain genetic similarities can be inferred. "If one identical twin quits the other is likely to quit," he said. "And if one twin continues so is the other twin."

The study has implications for current public policies aimed at reducing smoking, which may be becoming less effective, Pampel said.

Since the early and mid 1970s when restrictive anti-smoking legislation began to be enacted in the United States, many smokers have quit. "Prior to 1975 this (potentially genetic) pattern wasn't clear because there were so many smokers."

Two of today's main anti-smoking policies include heavy taxes on cigarettes and vast reductions in the number of public spaces where smoking is allowed, particularly in bars and restaurants, Pampel said.

But with indications that the genetic component is growing, it may be

time to treat smoking more like an addiction than a choice, Pampel said. Such a policy shift might include more emphasis on nicotine-replacement therapy and counseling.

Provided by University of Colorado at Boulder