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## Interview: Michael Zvolensky

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Michael Zvolensky, professor of psychology, will speak on anxiety and smoking Oct. 6, from 5 to 6 p.m. in Waterman's Memorial Lounge. (Photo: Sally McCay)

An expert on anxiety disorders, Michael Zvolensky has focused much of his time untangling the interrelated relationship between anxiety and addiction with numerous grants and millions of dollars from the National Institute of Mental Health. In honor of his appointment as Richard and Pamela Ader Green and Gold professor this fall, Zvolensky will give a talk, part of the College of Arts and Sciences full professor lecture series, on "Anxiety, Smoking, and Smoking Cessation."

UVM Today talked with Zvolensky about his research and why smoking in particular remains so vexing.

**UVM Today: You started in academia as an anxiety specialist, but working with addicts during your training you noticed an overlooked link. What has your research shown?**

MICHAEL ZVOLENSKY: There's evidence that anxiety and tobacco use co-occur at a higher rate than would have been expected, higher than would typically be found for mood and other emotional disorders.

**A person with "anxiety sensitivity," you've said, is likely to find it harder to stop smoking than someone with actual symptoms of anxiety. How do those differ?**

Anxiety sensitivity reflects the belief or expectancy that when you experience internal distress like anxiety symptoms they will cause you harm. It's that belief as opposed to actual symptoms that appears to be particularly important in understanding different types of problems ending in anxiety and stress and substance abuse. It's important because for a long time the literature in psychiatry, medicine and even psychology has focused on symptoms but the belief in what those symptoms could, in theory, do to you seems to be more important in explaining certain types of behavior.

**What distinguishes how they predict behavior?**

If you think about why people might experience anxiety symptoms, there might be precipitating factors like life stress, a biological or genetic predisposition, an actual threat — in today's terms it might be you're about to lose your job, so there's some impending threat that may elicit worry. And the distinction between the two is largely what nerds call subcortical. Anxiety is hard-wired, reptilian, selected for millennia. But with anxiety sensitivity it's believed that you need language and cognitive capacity, it's a more cortical, higher-order brain function. The easiest way to think about it is that states like anxiety and fear and worry, they're actively occurring in the moment. I think it's more important in the short term because it explains what separates a normal reaction from a reaction that's abnormal or causes life impairment.

So one of the reasons we believe that anxiety sensitivity separates what is normal from abnormal or functional from dysfunctional is that it leads to maladaptive ways to regulate how we act. In the case of tobacco users with anxiety sensitivity, when they are about to go on a quit attempt and prompt internal stress like withdrawal symptoms, they almost reflexively respond by starting to catastrophize. Then they seek out any strategy that would dampen not only those symptoms but actually change their cognitive reaction to it. So in the case of a drug user, oftentimes they have this dominant reflexive response to use, which may or may not have a physiological result on tension or anxiety or stress, but they believe it does and that's as important if not more important than the actual objective change. They seek out a tactic to use as a distraction.

**You've found that smoking can actually cause anxiety disorders?**

Yes, cigarette use seems to increase the risk for developing certain anxiety disorders. While tobacco use is related to a more anxiety-sensitive personality type compared to nonsmokers, the more you smoke the worse it gets. It's also an important predictor of who will go on to develop problems like panic attacks and agoraphobia. What's really striking is that mental health clinicians focus on things like genetics, learning style, personality, familial factors — all of which are very important — but they haven't focused on the role of addictive behavior in explaining mental health outcome. Our work has shown that cigarette smoking is as important as any other risk factor. So it's bi-directional. We have a large-scale prevention trial now that takes young high anxiety-sensitive daily smokers and tries to modify their smoking behavior by changing anxiety sensitivity to prevent not just physical disease that occurs decades later, but also panic disorder, which can arise in three to four years.

### **Standard smoking cessation techniques don't work for this population?**

People with emotional risk factors for anxiety disorders tend to use tobacco for different reasons than your typical tobacco user and that seems to impair their ability to quit successfully. In one study we compared people with PTSD to those with other anxiety disorders and also with people who had no history of mental illness. We found that people with PTSD lapsed fastest, but even the other anxiety disorder group had a lot of problems compared to people without mental illness. What's really sad, to be honest, is that when we're running these trials (we see) that the current treatments don't work for these folks. Today's tobacco users are different than they were 20 years ago even. The people that could quit have quit.

### **Is it that hopeless?**

Not necessarily. We developed a specialized treatment for smokers with anxiety disorders and ran a randomized trial comparing that to the standard of care (nicotine replacement therapy and cognitive behavior therapy). Preliminary indications are promising in its first generation, that is, people seem to be able to quit more successfully and experience less distress than compared to standard treatment.

The idea is that if people are afraid of the internal stress and withdrawal, we expose them to it before they try to quit, get them used to it, more tolerant of it and we practice changing their thoughts in response to it before they undergo it, slow them down and teach them not to catastrophize. Behaviorally, we're presenting distressing events and habituating people to them. If we don't reinforce those full-blown panic reactions then eventually they're going to lose their ability to elicit them.

But unless you offer a fundamentally different lifestyle strategy people are vulnerable to relapse. We have a new grant for sedentary smokers with anxiety disorders to utilize aerobic exercise as a tactic to reduce panic-induced bodily sensations. Part of the logic is to introduce another behavior to prevent tobacco use, so we're trying to find things that are healthy that can also serve the function of reversing the internal experience.

The other piece to it is that we need to educate the public that things like tobacco don't just cause medical problems like heart disease and cancer — they do — but they also cause mental illness and that's equally disabling, in some cases more disabling and the effects for those happen much more quickly.