Online porn may feed sex addicts' desire for new sexual images, study shows

November 23 2015

Control is an Option to Command (cropped) Credit: Frederico Cintra/Flickr

People who show compulsive sexual behaviour – sex addiction – are driven to search more for new sexual images than their peers, according to new research led by the University of Cambridge. The findings may be particularly relevant in the context of online porn, which potentially provides an almost endless source of new images.

In a study published in the *Journal of Psychiatric Research*, researchers

also report that sex addicts are more susceptible to environment 'cues' linked to sexual images than to those linked to neutral images.

Sex addiction – when an individual has difficulty controlling their sexual thoughts, feelings or behaviour – is relatively common, affecting as many as one in 25 young adults. It is heavily stigmatised and can lead to a sense of shame, affecting an individual's family and social life as well as their work. There is no formal definition of the condition to help with diagnosis.

In previous work led by Dr Valerie Voon from the Department of Psychiatry at the University of Cambridge, scientists found that three brain regions were more active in sex addicts compared with the healthy volunteers. Significantly, these regions – the ventral striatum, dorsal anterior cingulate and amygdala – were regions that are also activated in drug addicts when shown drug stimuli.

In the new study, funded by the Wellcome Trust, Dr Voon and colleagues studied the behaviour of 22 sex addicts and 40 'healthy' male volunteers undergoing tasks. In the first task, individuals were shown a series of images in pairs, including naked women, clothed women and furniture. They were then shown further image pairs, including familiar and new images, and asked to choose an image to 'win £1' – although the participants were unaware of the odds, the probability of winning for either images was 50%.

The researchers found that sex addicts were more likely to choose the novel over the familiar choice for sexual images relative to neutral object images, whereas healthy volunteers were more likely to choose the novel choice for neutral human female images relative to neutral object images.

"We can all relate in some way to searching for novel stimuli online – it

could be flitting from one news website to another, or jumping from Facebook to Amazon to YouTube and on," explains Dr Voon. "For people who show compulsive sexual behaviour, though, this becomes a pattern of behaviour beyond their control, focused on pornographic images."

In a second task, volunteers were shown pairs of images – an undressed woman and a neutral grey box – both of which were overlaid on different abstract patterns. They learned to associate these abstract images with the images, similar to how the dogs in Pavlov's famous experiment learnt to associate a ringing bell with food. They were then asked to select between these abstract images and a new abstract image.

This time, the researchers showed that sex addicts where more likely to choose cues (in this case the abstract patterns) associated with sexual and monetary rewards. This supports the notion that apparently innocuous cues in an addict's environment can 'trigger' them to seek out sexual images.

"Cues can be as simple as just opening up their internet browser," explains Dr Voon. "They can trigger a chain of actions and before they know it, the addict is browsing through pornographic images. Breaking the link between these cues and the behaviour can be extremely challenging."

The researchers carried out a further test where 20 sex addicts and 20 matched healthy volunteers underwent brain scans while being shown a series of repeated images – an undressed woman, a £1 coin or a neutral grey box.

They found that when the sex addicts viewed the same sexual image repeatedly, compared to the healthy volunteers they experienced a greater decrease of activity in the region of the brain known as the dorsal

anterior cingulate cortex, known to be involved in anticipating rewards and responding to new events. This is consistent with 'habituation', where the addict finds the same stimulus less and less rewarding – for example, a coffee drinker may get a caffeine 'buzz' from their first cup, but over time the more they drink coffee, the smaller the buzz becomes.

This same habituation effect occurs in healthy males who are repeatedly shown the same porn video. But when they then view a new video, the level of interest and arousal goes back to the original level. This implies that, to prevent habituation, the sex addict would need to seek out a constant supply of new images. In other words, habituation could drive the search for novel images.

"Our findings are particularly relevant in the context of online pornography," adds Dr Voon. "It's not clear what triggers sex addiction in the first place and it is likely that some people are more pre-disposed to the addiction than others, but the seemingly endless supply of novel sexual images available online helps feed their addiction, making it more and more difficult to escape."

More information: Paula Banca et al. Novelty, conditioning and attentional bias to sexual rewards, *Journal of Psychiatric Research* (2016). DOI: 10.1016/j.jpsychires.2015.10.017

Provided by University of Cambridge