Gambling addiction linked to genes

“Gambling addiction can be inherited,” the Daily Mail reported. The newspaper said, “if one of your parents is addicted to gambling the odds are high that you will be as well, research has revealed”. This study in 2,889 pairs of twins investigated the role of genetic and environmental factors in the development of gambling addiction. The researchers were particularly interested in whether these factors interact in the same way in women’s gambling addiction as in men’s.

The study found that identical twins who were gamblers were more likely to have a twin who was also a gambler than non-identical twins. The researchers suggest that this association was more to do with a genetic link than environmental factors.

This study suggests there is a genetic component to gambling addiction that can be present in both men and women. However, this study did not address which genes may be involved or the strength of the association. Addictions are complex disorders. If some people do have a genetic predisposition to develop addictions, it is unlikely to be the sole cause of the addiction and environmental factors are also likely to be involved.

Where did the story come from?

The study was carried out by researchers from the University of Missouri and the Queensland Institute of Medical Research. It was funded by the US National Institutes of Health. The study was published in the peer-reviewed medical journal Archives of General Psychiatry.

What kind of research was this?

The researchers say that women represent nearly half of all individuals who are in treatment for gambling addiction. They wanted to investigate the causes of this addiction in women and whether the causes differed to gambling addiction in men.

This was a cross-sectional twin study. Some previous studies have suggested that gambling addiction runs in families. Twin studies such as this are a good way to investigate whether genetic or environmental factors underlie a condition.
What did the research involve?

The study included 4,764 participants from a previous study called the Australian Twin Registry cohort II. Between 2004 and 2007, the cohort members were contacted by telephone and interviewed to assess their gambling behaviours. The average age of the participants was 38, and 57% of the sample was female. There were 1,875 complete twin pairs, 867 of these pairs were monozygotic (identical), while the other 1,008 were dizygotic (non-identical). There were also 1,014 individual twins from incomplete twin pairs. Of these, 304 were individuals who had a monozygotic twin and 710 had a dizygotic twin. As monozygotic twins have identical genes, whereas dizygotic twins share only half the same genes, the researchers were able to assess the likelihood that correlations in traits between twins were inherited genetically.

Participants that reported gambling at least five times a year were given further psychiatric diagnostic criteria to assess whether they had a gambling problem. Most participants (77.5%) surpassed this five times a year threshold. The psychiatric evaluations were made using established criteria called DSM-IV. This allowed the researchers to assess how many of the 10 DSM-IV symptoms of pathological gambling the participants had.

The researchers also screened the participants for mania, as a person experiencing a manic episode may be more likely to gamble. This ensured that people diagnosed as gambling addicts were not gambling as a consequence of mania or other mental health problems. The researchers used data from a previous telephone interview, conducted between 1996 and 2000, to assess whether the twins shared a similar environment. Each twin had been asked how often they shared friends and dressed alike when they were between 6 and 13 years and whether they had been in the same class in primary and high school. The twins were also asked how often they saw or contacted each other so the researchers could assess how similar their adult environment was.

What were the basic results?

Many of the twins were frequent gamblers, but only 2.2% of the twins were classified as pathological gamblers. This was 3.4% of the men and 1.2% of the women. Monozygotic twins (both male and female) had a higher rate of both twins being pathological gamblers than dizygotic twins. The researchers calculated the likelihood (correlation) of both twins being gamblers, and gave it a score between 0 (no correlation) and 1 (strong correlation).

Male monozygotic twins had a correlation of 0.49 compared with 0.21 for male dizygotic twins. Female monozygotic twins had a correlation of 0.55 compared with 0.21 for female dizygotic twins. The researchers estimated that participants who had one pathological gambling DSM-IV symptom had a 49% chance that it was inherited. Participants who had three or more symptoms had a 58% chance and those who had five or more symptoms (a clinical diagnosis of pathological gambling) had a 40% chance of it being inherited.
There was no association between twins who were both pathological gamblers and who had a shared environment, suggesting that environmental factors did not play a role.

**How did the researchers interpret the results?**

The researchers suggest that their study has established for the first time that genes are as important in the cause of disordered gambling in women as they are in men. They say “the discovery of specific genes and environments involved in the development of disordered gambling remains an important direction for future research”.

**Conclusion**

This relatively large study assessed whether there was an increased likelihood for a twin to have a gambling problem if their brother or sister did. The researchers suggest that gambling addiction was likely to be inherited and that this was due to genetic factors rather than twins growing up in a shared environment. However, there are a few limitations of their study that should be taken into account when interpreting the findings.

- The study looked at an Australian population. It is not known whether the results of this study can be generalised to other populations.
- While the study tried to separate environmental from inherited effects, it is still possible that these results were in part due to environmental factors. The researchers calculated to what extent each pair of twins had a shared environment while they were growing up by asking six broad questions. These questions may not have been able to distinguish all environmental factors that can affect a person’s likelihood of developing a gambling problem. Additionally, the twins were asked to recall this information, and there may have been differences between the way individuals perceived or remembered their past. This may have been affected further by their knowledge of their own and their siblings’ gambling habits.

There is no single reason why addictions develop. Use of substances such as alcohol, drugs and nicotine changes the way we feel, both mentally and physically. Some people enjoy this and feel a strong desire to repeat it. Activities such as gambling may cause a 'high' if you win, followed by a desire to repeat the success. Eventually, this grows into a habit that cannot be broken because it has become a regular part of life.

This is a preliminary study and further research is needed to understand the factors that trigger gambling addiction.