Genes Contribute to Both Pathological Gambling and Depression

VISN 1 MIRECC researchers have shown that one third of the genetic contribution to both Pathological Gambling(PG) and Major Depression (MD) is shared. Unexpectedly, the genetic overlap between gambling and depression is larger than the overlap between gambling and impulse control disorders like alcoholism or antisocial personality. Pathological Gambling is often considered to be an "addiction without the drug" but this study suggests a strong relationship to depression as well. Researchers have shown that mental illness can be usefully divided into "internalizing" conditions with predominant subjectively painful symptoms like depression and "externalizing" conditions where symptoms are mostly expressed in impulsive or disruptive behavior such as addictions. The current study suggests a relationship of Pathological Gambling to both internalizing and externalizing mental illnesses.

To study the contribution of genes and life experiences to gambling and depression, the research team used findings from the well-known Vietnam Era Twin Study, with over 7000 male twins who served in the U.S. armed forces during the Vietnam era. Twin studies are important for estimating the contribution of genes and life experiences for mental illness because twins are usually raised together but either share 100% of their genes if they are identical or only 50% if they are non-identical. The difference between identical and non-identical twins can help estimate how much genes contribute. The lack of identical mental illnesses in identical twins contributes to the estimate of how much life experiences contribute to illness. In this study, twins with Pathological Gambling had a 4 times greater risk for Major Depression than those without PG. For Pathological Gambling genes accounted for 66% of risk and life experiences for 34%. For Major Depression genes accounted for 41% of the risk and life experiences for 59%. Most importantly, the dual diagnosis of Pathological Gambling and Major Depression was shown to be strongly determined by the same genes. This study may have treatment implications as medications and psychotherapy approaches that work for Major Depression may be useful candidates for treating Pathological Gambling. The research team was led by VISN 1 MIRECC researcher Marc Potenza and included St. Louis VA researchers Hong Xian, Kamani Shah, Jeffrey Scherrer and Seth Eisen.