Childhood stress such as abuse or emotional neglect can result in structural brain changes

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New research using magnetic resonance imaging (MRI) shows that childhood stress such as abuse or emotional neglect, in particular when combined with genetic factors, can result in structural brain changes, rendering these people more vulnerable to developing depression. The study led by scientists at Trinity College Dublin has just been published in the international scientific journal, *Neuropsychopharmacology*.

Commenting on the significance of the findings, Trinity's Professor Thomas Frodl at the School of Medicine and Trinity Institute for Neuroscience said: "This improved neurobiological understanding shows how stress and genetic variants interact and affect brain structure and function. In turn it demonstrates how it could affect a person's propensity for depression. These structural alterations of the brain are associated with a higher vulnerability to depression and a more chronic course of the depression might be associated with further structural changes".

"Therefore, early intervention in the case of major depression is necessary to increase the chance of a good disease outcome. Fortunately, depression can be treated very well by psychotherapy and antidepressant medication. Moreover, prevention strategies for childhood neglect and misuse are highly important to increase public health and to avoid in later life for these individuals, the burden of major depression."

The world health organisation (WHO) found that major depression is

one of the most important human diseases with a prevalence of about 10% worldwide. Approximately 500,000 people in Ireland have or will develop major depression in their life. The WHO has forecast that major depression will be the second most common cause of disability by 2020. Advances in this area will have a high impact on overall disease costs.

The study was conduceted on a total of 24 patients (aged 18-65 years) being treated as inpatients for major depression. They were investigated with high-resolution structural MRI and childhood stress asessments. Special analysis programmes were used to measure brain regions. These patients were compared with 27 healthy control subjects from the local community who were matched for age and gender. Further research is needed in a larger number of patients and controls to identify the underlying causes of depression and stress-gene interaction on brains structure as well as function.

Provided by Trinity College Dublin