

## Stressful life events and depression

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### Abstract

**Background:** There is some dispute regarding the association between stressful life events (SLEs) and depression. If persons who are more likely to experience these events are also more likely to exhibit symptoms of depression then the association may not be causal, rather it may stem from the same genetic source. The purpose of this paper is to clarify the causal nature of the stress-depression association by differentiating between genetic and environmental sources of variation.

**Methods:** We use twin pairs sample from the National Longitudinal Study of Adolescent Health and we estimate bivariate Cholesky models for stressful life events and depressive symptoms. **Results:** We show that depressive symptoms ( $h^2 = .36$ ) and dependent SLEs ( $h^2 = .51$ ) are both heritable and the remaining variance is due to unique environmental influences. Independent, or uncontrollable life events, are not shown to be heritable and the environmental influences are roughly split between shared and non-shared factors. Importantly, we show that approximately two-thirds of the correlation between depression and SLEs in which persons have some degree of control is due to genetic factors in common with both phenotypes. **Conclusions:** These findings support the hypothesis that independent SLEs may have a causal influence on mental health but researchers should be cautious when SLE checklists involve events that are highly conditioned by the behaviors, actions, or beliefs of the individual.