

TITLE:

Genetic and environmental bi-factorial contributions on depressive symptoms

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ABSTRACT:

The current study conducted a genetically informed factor analysis to elucidate both the phenotypic and aetiological architectures of self-reported depressive symptoms among a Japanese adult twin sample. Depressive symptoms, assessed by the Zung's (1965) Self-rating Depression Scale, were self-rated by 425 twin pairs (301 monozygotic and 124 dizygotic twin pairs) in a community sample in Japan. Exploratory factor analysis extracted three domains representing cognitive, affective, and somatic symptomology which was consistent with Zung's original theoretical constructs. Confirmatory factor analysis then demonstrated that a bi-factor solution fit better than first-order three-factor and higher-order factor solutions, implying that depression may be defined as a combination from both general factor and specific domains. The univariate genetic analyses estimated that the heritabilities of three domains were 41%, 35%, and 27% respectively. Multivariate genetic analysis with a bi-factor modelling exhibited that the general factor was substantially heritable ($h^2 = .48$) in addition to non-shared environmental influences, suggesting that a substantial degree of common genetic contributions across the depressive symptom domains. In addition, our analyses indicated that unique and relatively smaller genetic contributions were also found for the cognitive, affective, and somatic domains ($h^2 = .14, .31, \text{ and } .28$, respectively). Aetiologically, there is substantial overlapping across the three depressive symptom domains, and at the same time, these three were domain-specifically featured.