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Gene–environment interplay in adult depression symptomatology: Initial findings from iGEMS

iGEMS Consortium, Karolinska Institutet; Nancy Pedersen, Karolinska Institute; Kaare Christensen, University of Southern Denmark; Deborah Finkel, Indiana University Southeast; Margaret Gatz, University of Southern California; Boo Johansson, University of Gothenburg; Wendy Johnson, University of Edinburgh; Bo Malmberg, Jonkoping University; Matthew McGue, University of Minnesota; Jenae Neiderhiser, The Pennsylvania State University; Chandra Reynolds, University of California Riverside; Anna Dahl, Karolinska Institutet; Chris Hahn, University of Southern California; Mari De Araujo-Held, The Pennsylvania State University; Briana Horwitz, The Pennsylvania State University; Inge Petersen, University of Southern Denmark; Catalina Zavala, UC Riverside; Yan Zhou, University of Southern California

The consortium on Interplay of Genes and Environment across Multiple Studies (iGEMS) aims to understand the joint impact of the social environment and genetic factors on the course of adult development and aging. Towards this goal, we are creating a large and informative research resource by harmonizing data collected in longitudinal twin studies from Denmark, Sweden and the USA. In total, iGEMS includes data on over 16,000 twin individuals including over 2,600 MZ and 4,400 DZ twin pairs aged between 24 and [95 years at their initial assessment and followed for as many as 26 years in up to 9 follow-up assessments. One initial focus was depressive symptomatology, assessed in iGEMS studies either with the CESD or the CAMDEX. These two scales have been harmonized using IRT methods in a new sample that completed both measures. Similar procedures have been applied to the different social- environmental measurements, used in the different twin studies (e.g., perceived SES). We present results from analysis of baseline data from all of the twin studies using the harmonized measure of depression to address the following questions: (a) How does depressive symptomatology change across the adult lifespan? (b) Do genetic influences on depression become more or less important with age? (c) Is the heritability of depression moderated by gender or age? (d) is there evidence for possible G 9 E? Mean scores show the characteristic U-shaped pattern by age, greater depression among women than men and a cross-over in the oldest years. Phenotypic variance increases with age, largely due to significant increases in nonshared environmental variance. Initial tests of G 9 E in MZ twins, testing for heterogeneity of within-pair differences in depression scores, were significant for the full sample, within country, and within sex. These findings represent a demonstration of successful data harmonization, point to important etiological underpinnings of age differences in depressive symptoms including gene–environment inter- play, and inform our future efforts to investigate the role of social factors in the etiology of depression symptoms among other health and well- being outcomes.