



Research Summary

Risk Factors for Depression and Anxiety: A Selective Annotated Bibliography

I. TRANSITIONS AND MOBILITY

Key Words: residential mobility, residential instability, relocation, moving

A. Cross-sectional/Retrospective Longitudinal Association of Residential Mobility with:

Internalizing Symptoms

Adam, K. E., & Chase-Lansdale, L. (2002). Home sweet home(s): Parental separations, residential moves, and adjustment problems in low-income adolescent girls. *Developmental Psychology, 38* (5), 792-805. *A study of African-American female adolescents aged 15-18 years and their female caregivers found that retrospectively reported number of residential moves within the past 5 years was associated positively with adolescent internalizing symptoms.*

Depressive Symptoms

Magdol, L. (2002). Is moving gendered? The effects of residential mobility on the psychological well-being of men and women. *Sex Roles, 47* (11-12), 553-560. *In reanalyses of the National Survey of Families and Households, found that residential mobility was associated positively with depression among women, but not men.*

Norford, B. C., & Medway, F. J. (2002). Adolescents' mobility histories and present social adjustment. *Psychology-in-the-Schools, 39* (1), 51-62. *A study of high school students in Grades 10-12 in the southeastern U.S. found that highly mobile teens reported more depressive symptoms than moderately mobile and non-mobile teens; these differences disappeared after controlling for stressful life events.*

Stoneman, Z, Brody, G. H., Churchill, S. L., & Winn, L. L. (1999). Effects of residential mobility on Head Start children and their relationships with older siblings: Influences of child emotionality and conflict between family caregivers. *Child Development, 70* (5), 1246-1262. *A study of Head Start children aged 32-67 months and their families found that residential instability (lifetime number of moves) was associated with mother-reports of child depressive symptoms, more so for children rated higher in emotional intensity and for families with higher caregiver conflict.*

Depression Diagnoses

Brown, D. R., Ahmed, F., Gary, L. E., & Milburn, N. G. (1995). Major depression in a community sample of African Americans. *American Journal of Psychiatry*, *152* (3), 373-378. *A community sample of African American adults aged 20 years and older found that retrospective reports of residential mobility were associated positively with major depression diagnosis.*

Silver, E., Mulvey, E. P., & Swanson, J. W. (2002). Neighborhood structural characteristics and mental disorders: Faris and Dunham revisited. *Social Science and Medicine*, *55* (8), 1457-1470. *Analyses of the Epidemiological Catchment Area study data set found that residential mobility was associated with higher rates of major depression.*

Anxiety (Symptoms and/or Diagnoses)

Roy-Byrne, P.P., Geraci, M., & Uhde, T. W. (1986). Life events and the onset of panic disorder. *American Journal of Psychiatry*, *143* (11), 1424-1427. *Examined life events in a group of clinical patients with a diagnosis of panic disorder and a group of matched controls; analyses indicated that mobility (i.e., moves to other neighborhoods or cities) was more common among patients than controls.*

Suicidal Ideation and Attempts

Potter, L. B., Kresnow, M-J., Powell, K. E., Simon, T. R., Mercy, J. A., Lee, R. K., Frankowski, R. F., Swann, A. C., Bayer, T., & O'Carroll, P. W. (2001). The influence of geographic mobility on nearly lethal suicide attempts. *Suicide and Life Threatening Behavior*, *32* (1, supplement), 42-48. *A study of nearly-lethal suicide attempts among adolescents and young adults aged 13-34 years in the metropolitan Houston area. Results found that mobility in the past 12 months was associated positively with suicide attempts.*

B. Longitudinal Prediction From Residential Mobility to:

Internalizing Symptoms

Anderzen, I., & Arnetz, B. B. (1999). Psychophysiological reactions to international adjustment. *Psychotherapy and Psychosomatics*, *68*, 67-75. *This study followed a sample of Swedish employees making an international job-related move and found that mental well-being (e.g., absence of depression, anxiety, social dysfunction, etc.) decreased 1- and 2-years after the move compared with a sample of matched controls.*

Fisher, S., & Hood, B. (1987). The stress of transition to university: A longitudinal study of psychological disturbance, absent-mindedness, and vulnerability to homesickness. *British Journal of Psychology*, *78* (4), 425-441. *This longitudinal study of students making the transition to college found positive effects of the move on psychological disturbance, especially for those characterized as homesick.*

Robin, M. (1995). The effects of prior moves on job relocation stress. Journal of Occupational and Organizational Psychology, 68 (1), 49-56. *Followed a sample of relocating employees from a single organization in the UK and found that certain characteristics of the move, such as length of time the individual had lived in the area prior to moving, predicted job-related anxiety and depression 10-weeks after the move.*

Depressive Symptoms

Fonda, S. J., & Herzog, A. R. (2001). Patterns and risk factors of change in somatic and mood symptoms among older adults. Annals of Epidemiology, 11 (6), 361-368. *Findings from a panel study of a community sample of older adults (i.e., those born in 1923 or earlier) found that the number of residential relocations between baseline in 1993 and follow-up in 1995 predicted increased depressed mood symptoms over time.*

Anxiety (Symptoms and/or Diagnoses)

Puskar, K. R., & Rohay, J. M. (1999). School relocation and stress in teens. Journal of School Nursing, 15 (1), 16-22. *This 2-year study followed a sample of highly mobile adolescents from a middle-class suburban community in the Northeast and found that mobile teens were mildly but significantly more anxious than a matched sample of non-mobile teens.*

Suicidal Ideation and Attempts

Fergusson, D. M., & Lynskey, M. T. (1995). Suicide attempts and suicidal ideation in a birth cohort of 16-year-old New Zealanders. Journal of the American Academy of Child and Adolescent Psychiatry, 34, 1308-1317. *Changes of residence and changes of school between the ages of 5-15 years both were positive predictors of self-reported suicidal tendencies (i.e., ideation and attempts) among target children aged 15-16 years in the Christchurch Health and Development Study.*

II. FAMILY HISTORY OF DEPRESSION/ANXIETY

Key Words: family history, maternal depression/anxiety, paternal depression/anxiety

A. Cross-sectional Association of Family History with:

Depression Diagnoses

Reinherz, H. Z., Giaconia, R. M., Hauf, A. M., Wasserman, M. S., & Paradis, A. D. (2000). General and specific childhood risk factors for depression and drug disorders by early adulthood. Journal of the American Academy of Child and Adolescent Psychiatry, 39 (2), 223-231. *Within the context of a longitudinal study, found that history of parental depression measured at age 21 predicted major depression at age 21.*

B. Longitudinal Prediction from Family History to:

Depression Diagnoses

Chen, L-S., Eaton, W. W., Gallo, J. J., & Nestadt, G. (2000). Understanding the heterogeneity of depression through the triad of symptoms, course, and risk factors: A longitudinal, population-based study. *Journal of Affective Disorders, 59*, 1-11. *A prospective longitudinal study using data from the Baltimore Epidemiological Catchment Area Study. Results showed that severe depression was associated with a family history of depression that occurred before the onset of the first episode.*

Cui, X-j., & Vaillant, G. E. (1996). Antecedents and consequences of negative life events in adulthood: A longitudinal study. *American Journal of Psychiatry, 153 (1)*, 21-26. *A study of college men followed into late adulthood (about age 62). Results showed that family history of depression during college predicted DSM-III-R affective spectrum disorder (predominantly depression) in adulthood.*

Hoffman, J. P., Baldwin, S. A., & Cerbone, F. G. (2003). Onset of major depressive disorder among adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 42 (2)*, 217-224. *Found that parental affective disorder prospectively predicted adolescent MDD onset, even controlling for family cohesion, self-esteem, and stressful life events.*

Eaton, W. W., Muntaner, C., Bovasso, G., & Smith, C. (2001). Socioeconomic status and depressive syndrome: The role of inter- and intra-generational mobility, government assistance, and work environment. *Journal of Health and Social Behavior, 42*, 277-294. *A prospective longitudinal study using data from the Baltimore Epidemiological Catchment Area Study. Results showed that family history of depression assessed in 1982 was associated with increased odds (OR = 1.42) of having developed depressive syndrome (similar to a diagnosis of minor depression) at follow-up approximately 10 years later.*

Anxiety Diagnoses

Lieb, R., Wittchen, H. U., Hofler, M., Fuetsch, M., Stein, M. B., & Merikangas, K. R. (2000). Parental psychopathology, parenting styles, and the risk of social phobia in offspring: A prospective-longitudinal community study. *Archives of General Psychiatry, 57 (9)*, 859-866. *A longitudinal study of German youths between the ages of 14 and 17 at baseline found that rates of adolescent/young adult social phobia were elevated among men and women whose parents previously met criteria for social phobia.*

III. FAMILY MANAGEMENT PROBLEMS

Key Words: monitoring, supervision, discipline, bonding, attachment, parenting

A. Cross-sectional Association of Family Management Problems with:

Depressive Symptoms

Ge, X., Conger, R. D., Lorenz, F. O., & Simons, R. L. (1995). Parents' stressful life events and adolescent depressed mood. *Journal of Health and Social Behavior*, *35*, 28-44. *Parents' stressful life events were related positively to parental depression, which was related positively to harsh/inconsistent parenting, which was related positively to adolescent depressive symptoms.*

B. Longitudinal Prediction from Family Management Problems to:

Depressive Symptoms

Ge, X., Best, K. M., Conger, R. D., & Simons, R. L. (1996). Parenting behaviors and the occurrence and co-occurrence of adolescent depressive symptoms and conduct problems. *Developmental Psychopathology*, *32* (4), 717-731. *Maternal and paternal disciplinary practices (e.g., consistent discipline, child monitoring, positive reinforcement--based on observational data) across Grades 7, 8, and 9 were negative predictors of children's Grade 10 adjustment problems, including depressive symptoms and conduct problems, even after controlling for the effects of prior depressive symptoms.*

Juang, L. P., Silbereisen, R. K. (1999). Supportive parenting and adolescent adjustment across time in former East and West Germany. *Journal of Adolescence*, *22*, 719-736. *A 3-wave, 3-year longitudinal study of German youths (mean age = 11.4 years at Time 1) found that inconsistently supportive parenting (i.e., inconsistent sensitivity, predictability, and involvement) as perceived by the adolescents was associated with higher levels of adolescent depression over time.*

Sagrestano, L. M., Paikoff, R. L., Holmbeck, G. N., & Fendrich, M. (2003). A longitudinal examination of familial risk factors for depression among inner-city African American adolescents. *Journal of Family Psychology*, *17* (1), 108-120. *Positive parenting (e.g., time spent together, positive reinforcement--based on parent reports) when youths were approximately age 11 predicted decreased adolescent depressive symptoms when youths were approximately age 13.*

Depression Diagnoses

Burge, D., & Hammen, C. (1991). Maternal communication: Predictors of outcome at follow-up in a sample of children at high and low risk for depression. *Journal of Abnormal Psychology*, *100* (2), 174-180. *Mother-child communication patterns (e.g., mothers' provision of positive task-focused and personal feedback-- based on observational data) predicted children's depression diagnosis status 6-months later. Children were between the ages of 8 and 16 years at baseline.*

Lara, M. E., Klein, D. N., & Kasch, K. L. (2000). Psychosocial predictors of the short-term course and outcome of major depression: A longitudinal study of a nonclinical sample with recent-onset episodes. *Journal of Abnormal Psychology*, *109* (4), 644-650. *Among a sample of college students*

with MDD, history of harsh discipline (as reported by a confidant, such as a parent, a sibling, etc.) predicted depression course and relapse over a 6-month period.

Lindelov, M. (1999). Parent-child interaction and adult depression: A prospective study. *Acta Psychiatrica Scandinavica*, *100* (4), 270-278. *Lack of positive parent-child interaction during middle childhood (based on mother-reports) predicted the development of depression among young men and women approximately 20 years later in a longitudinal study of families in an inner London borough.*

Anxiety Diagnoses

Lieb, R., Wittchen, H. U., Hofler, M., Fuetsch, M., Stein, M. B., & Merikangas, K. R. (2000). Parental psychopathology, parenting styles, and the risk of social phobia in offspring: A prospective-longitudinal community study. *Archives of General Psychiatry*, *57* (9), 859-866. *A longitudinal study of German youths between the ages of 14 and 17 at baseline found that perceived parental overprotection and rejection at Time 1 were associated with increased rates of social phobia at Time 2 (20 months later).*

Suicidal Ideation and Attempts

Fergusson, D. M., & Lynskey, M. T. (1995). Suicide attempts and suicidal ideation in a birth cohort of 16-year-old New Zealanders. *Journal of the American Academy of Child and Adolescent Psychiatry*, *34*, 1308-1317. *Low maternal emotional responsiveness as measured via observations of mother-child interactions when children were 3 years-old predicted higher self-reported suicidal tendencies (i.e., ideation and attempts) among target children when they were aged 15-16 years.*

IV. FAMILY CONFLICT

Key Words: family/parent-child conflict, family/parent-child disagreements

A. Cross-sectional Association of Family Conflict with:

Depressive Symptoms

Formoso, D., Gonzales, N. A., & Aiken, L. S. (2000). Family conflict and children's internalizing and externalizing behavior: Protective factors. *American Journal of Community Psychology*, *28* (2), 175-199. *Higher family conflict was associated with higher adolescent depression in a cross-sectional study of junior high school students residing in the Phoenix metropolitan area. This relationship was not modified by parental attachment, parental monitoring, or peer attachment.*

Sagrestano, L. M., Paikoff, R. L., Holmbeck, G. N., & Fendrich, M. (2003). A longitudinal examination of familial risk factors for depression among inner-city African American adolescents. *Journal of Family Psychology*, *17* (1), 108-120. *Within a longitudinal study, parent-reports of parent-child conflict were concurrently predictive of children's depressive symptoms at approximately age 13, controlling for age 11 child depressive symptoms.*

B. Longitudinal Prediction from Family Conflict/Disagreements to:

Internalizing Symptoms (Depression/Anxiety)

Shaw, D. S., Keenan, K., Vondra, J. I., Delliquadri, E., & Giovannelli, J. (1997). Antecedents of preschool children's internalizing problems: A longitudinal study of low-income families. Journal of the American Academy of Child and Adolescent Psychiatry, *36* (12), 1760-1767. *Studied low-income mother-child pairs longitudinally. Children's exposure to child-rearing disagreements during infancy (as measured by mother-report) was a risk factor for the development of preschool-age internalizing problems (as measured by mother-report using the Child Behavior Checklist).*

Rueter, M. A., Scaramella, L., Wallace, L. E., & Conger, R. D. (1999). First onset of depressive or anxiety disorders predicted by the longitudinal course of internalizing symptoms and parent-adolescent disagreements. Archives of General Psychiatry, *56*, 726-732. *Rural Iowa families were studied longitudinally; latent growth curve modeling showed that changes in annual assessments of parent-reported parent-child disagreements from year 1 (when target children were about 13 years-old) to year 3 of the study positively predicted changes in self-reported adolescent internalizing symptoms from year 1 to year 4 of the study.*

Depressive Symptoms

Sheeber, L., Hops, H., Alpert, A., Davis, B., & Andrews, J. (1997). Family support and conflict: Prospective relations to adolescent depression. Journal of Abnormal Child Psychology, *25* (4), 333-344. *Family conflict prospectively predicted increased depressive symptoms in a cross-lagged SEM across a 1year period; relations were similar for boys and girls.*

Suicidal Ideation and Attempts

Fergusson, D. M., & Lynskey, M. T. (1995). Suicide attempts and suicidal ideation in a birth cohort of 16-year-old New Zealanders. Journal of the American Academy of Child and Adolescent Psychiatry, *34*, 1308-1317. *Parental conflict measured by parent self-report when target children were between 0 and 15 years of age was a positive predictor of self-reported suicidal tendencies (i.e., ideation and attempts) when target children were 15-16 years-old.*

Sheeber, L., Hops, H., Alpert, A., Davis, B., & Andrews, J. (1997). Family support and conflict: Prospective relations to adolescent depression. Journal of Abnormal Child Psychology, *25* (4), 333-344. *Adolescents (mean age = 16.71 years at Time 1) and their mothers participated in a 2-wave, 2-year longitudinal study; all constructs were measured with child- and parent-reports and observational measures. Structural equation modeling showed that family conflict at Time 1 predicted increased depressive symptoms at Time 2.*

V. ACADEMIC FAILURE

Key Words: academic failure, performance, competence, achievement

A. Cross-sectional Associations of Academic Failure with:

Depressive Symptoms

Patterson, G. R., & Stoolmiller, M. (1991). Replications of a dual failure model for boys' depressed mood. Journal of Consulting and Clinical Psychology, 59 (4), 491-498. *Investigated three subsamples of the Oregon Youth Study boys and found that academic skills (e.g., parent and teacher ratings on the CBC; achievement test scores) were associated negatively with depressed mood (based on multiple raters and observation) in all but one of the subsamples.*

B. Longitudinal Prediction from Academic Failure to:

Depressive Symptoms

Chen, X., Rubin, K. H., & Li, B. S. (1995). Depressed mood in Chinese children: Relations with school performance and family environment. Journal of Consulting and Clinical Psychology, 63 (6), 938-947. *A 2-year, 2-wave longitudinal study of Chinese second-grade children (Time 1 mean age = 7 years, 10 months) found that academic failure (based on school records) predicted self-reported depressive symptoms for students who had rejecting mothers and whose parents had a conflictual relationship. Further analyses showed that decline in academic performance over time was associated with higher depression.*

Cole, D. A., Martin, J. M., Peeke, L. A., Seroczynski, A. D., & Fier, J. (1999). Children's over- and underestimation of academic competence: A longitudinal study of gender differences, depression, and anxiety. Child Development, 70 (2), 459-473. *A six-wave (with 6-month intervals) longitudinal study of middle school and high school students; results provided some evidence that the tendency to underestimate academic competence (measured as the discrepancy between self- and teacher-reports) was significantly associated with increased self-reported depressive symptoms over time.*

Metalsky, G. I., Joiner, T. E., Hardin, T. S., & Abramson, L. Y. (1993). Depressive reactions to failure in a naturalistic setting: A test of the hopelessness and self-esteem theories of depression. Journal of Abnormal Psychology, 102 (1), 101-109. *A multiwave, short-term longitudinal study of college students during the course of an academic year. Results showed that negative attributional style combined with low self-esteem and the experience of an academic failure predicted enduring depressive symptoms.*

Depression Diagnoses

Morris, M., & Tiggemann, M. (1999). Depressive reactions to academic failure: A test of the diathesis-stress and mediation components of the hopelessness model of depression. Australian Journal of Psychology, 51 (2), 98-103. *A longitudinal study of college students (mean age = 22.04 years) followed over the course of an academic year. Results showed that negative attributional style*

measured at the beginning of the year interacted with academic grade dissatisfaction (measured about 4 months later) to predict depressed mood at the end of the academic year.

Lewinsohn, P. M., Rohde, P., & Seeley, J. R. (1998). Major depressive disorder in older adolescents: Prevalence, risk factors, and clinical implications. Clinical Psychology Review, 18 (7), 765-794. *Summarizing their findings from the Oregon Adolescent Depression Project, the authors note that dissatisfaction with grades has been found to be a positive, prospective longitudinal predictor of the onset of depression diagnosis in late adolescence.*

VI. EARLY AND PERSISTENT ANTISOCIAL BEHAVIOR

Key Words: conduct problems, conduct disorder, externalizing problems

Longitudinal Prediction from Antisocial Behavior to:

Depressive Symptoms

Capaldi, D. (1992). Co-occurrence of conduct problems and depressive symptoms in early adolescent boys: II. A 2-year follow-up at Grade 8. Development and Psychopathology, 4, 125-144. *Analyses of the Oregon Youth Study boys showed that conduct problems were associated with increased depressive symptoms between Grades 6 and 8.*

Capaldi, D., & Stoolmiller, M. (1999). Co-occurrence of conduct problems and depressive symptoms in early adolescent boys: III. Prediction to young-adult adjustment. Development and Psychopathology, 11, 59-84. *Analyses of the Oregon Youth Study boys showed that early adolescent (Grade 6) conduct problems were significantly and positively correlated with depressive symptoms at Grade 12; however, regression analyses showed that early conduct problems did not predict change in depressive symptoms over time.*

Curran, P. J., & Bollen, K. A. (2001). The best of both worlds: Combining autoregressive and latent curve models. In L. M. Collins & A. G. Sayer (Eds.), New methods for the analysis of change (pp. 107-135). Washington, DC: American Psychological Association. *Examined 4 waves of panel data from the National Longitudinal Survey of Youth. Children were 8 years-old at baseline. Results showed that earlier antisocial behavior was a positive predictor of later depressive symptoms, controlling for the underlying latent growth processes of these two outcomes.*

Depression Diagnoses

Biederman, J., Faraone, S., Milberger, S., Guite, J., Mick, E., Chen, L., Mennin, D., Marris A., Ouellette, C., Moore, P., Spencer, T., Norman, D., Wilens, T., Kraus, I., & Perrin, J. (1996). A prospective 4-year follow-up study of attention-deficit hyperactivity and related disorders. Archives of General Psychiatry, 53 (5), 437-446. *Children's mental health was assessed through structured diagnostic interviews at baseline, as well as at 1- and 4-year follow-ups. Results showed that baseline conduct disorder predicted major depression at follow-up.*

Feehan, M., McGee, R., & Williams, S. M. (1993). Mental-health disorders from age 15 to age 18 years. Journal of the American Academy of Child and Adolescent Psychiatry, *32* (6), 1118-1126. *Analyses of the Dunedin study data revealed that diagnosis of conduct disorder during middle adolescence (age 15) was associated with increased likelihood for psychiatric disorders, including depression, in late adolescence (age 18).*

Fombonne, E., Wostear, G., Cooper, V., Harrington, R., & Rutter, M. (2001). The Maudsley long-term follow-up of child and adolescent depression. British Journal of Psychiatry, *179*, 210-217. *Twenty-year follow-up of a group of patients who attended the child psychiatry department at the Maudsley Hospital. Results showed that children who both major depression (MDD) and conduct disorder (CD) were more likely to have minor depression as adults compared with children who had MDD only.*

Kendler, K. S., Gardner, C. O., & Prescott, C. A. (2002). Toward a comprehensive developmental model for major depression in women. American Journal of Psychiatry, *159* (7), 1133-1145. *Examined 4-wave longitudinal data collected from female participants of a longitudinal twin study to examine factors associated with the development of major depression over a 7-year period. Results showed that, among other variables, DSM-IV conduct disorder symptoms prior to age 18 predicted major depression (MDD) at approximately age 35, even after controlling for the effects of several additional variables such as past history of MDD, stressful life events, and childhood sexual abuse.*

Lewinsohn, P. M., Rohde, P., & Seeley, J. R. (1998). Major depressive disorder in older adolescents: Prevalence, risk factors, and clinical implications. Clinical Psychology Review, *18* (7), 765-794. *Summarizing their findings from the Oregon Adolescent Depression Project, the authors note that externalizing problem behaviors have been found to be positive, prospective longitudinal predictors of the onset of depression diagnosis in late adolescence.*

Suicidal Ideation and Attempts

Fergusson, D. M., Woodward, L. J., & Horwood, L. J. (2000). Risk factors and life processes associated with the onset of suicidal behaviour during adolescence and early adulthood. Psychological Medicine, *30*, 23-39. *Analyses of the Christchurch Health and Development study data showed that late adolescents and early adults who reported suicidal ideation and suicide attempts had significantly higher rates of early adolescent conduct problems as measured through structured interviews with children and parents than those who reported no suicidal ideation/attempt.*

VI. CONSTITUTIONAL FACTORS

Key Words: genetic factors, heritability, physiological factors, neurobiological factors

Longitudinal Prediction from Constitutional Factors to:

Depressive Symptoms

O'Connor, T. G., Neiderhiser, J. M., Reiss, D., Hetherington, E. M., & Plomin, R. (1998). Genetic contributions to continuity, change, and co-occurrence of antisocial and depressive symptoms in adolescence. *Journal of Child Psychology and Psychiatry*, *39* (3), 323-336. *Results from a longitudinal twin study of 405 adolescents (aged 10-18 at wave 1) showed that **genetic factors** explained 64% of the stability of depressive symptoms over a 3-year period of time. Genetics did not contribute to an explanation of change in depressive symptoms over time.*

Depression Diagnosis

Kasch, K. L., Rottenberg, J., Arnow, B. A., & Gotlib, I. H. (2002). Behavioral activation and inhibition systems and the severity and course of depression. *Journal of Abnormal Psychology*, *111* (4), 589-597. *In a study of 62 depressed adults (between the ages of 18 and 60) and 27 non-depressed controls, the authors found that lower self-reported **behavioral activation system (BAS) levels** predicted worse severity of depression over an 8-month period of time. Behavioral activation (and inhibition) were measured by participants' responses to questions that assess how people typically respond to certain situations. The BAS is an approach-related, positive motivational system that is linked with certain neurobiological structures and functions.*

Kendler, K. S., Gardner, C. O., & Prescott, C. A. (2002). Toward a comprehensive developmental model for major depression in women. *American Journal of Psychiatry*, *159* (7), 1133-1145. *Examined 4-wave longitudinal data collected from female participants of a longitudinal twin study to examine factors associated with the development of major depression over a 7-year period. Results showed that, among other variables, **genetic risk** for major depression (based on history of depression in co-twin and in parents) predicted major depression (MDD) at approximately age 35, even after controlling for the effects of several additional variables such as stressful life events and childhood sexual abuse.*