Genetic factors involved in psychopathy

Description

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Psychopathy in Politics and Finance – Stefan Verstappen on GRTV

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leb.fbi.gov/articles/featured-articles/the-corporate-psychopath

Further References

Sadeh, N., Javdani, S., Jackson, J. J., Reynolds, E. K., Potenza, M. N., Gelernter, J., … Verona, E.. (2010). Serotonin transporter gene associations with psychopathic traits in youth vary as a function of socioeconomic resources. Journal of Abnormal Psychology

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“Although prior research has examined the genetic correlates of antisocial behavior, molecular genetics influences on psychopathic traits remain largely unknown. consequently, we investigated the influence of polymorphic variation at the serotonin transporter protein gene (slc6a4) and socioeconomic resources (ses) on psychopathic traits in youth across two distinct samples in two separate studies. in study 1, a main effect of serotonin transporter (5-httlpr) genotype was associated with the impulsivity dimension of psychopathy. that is, individuals homozygous for the short allele evidenced more impulsivity than did those homozygous for the long allele. in contrast, a gene-environment interaction was associated with the callous-unemotional and narcissistic features of psychopathy. callous-unemotional and narcissistic traits increased as ses decreased only among youths with the homozygous-long (l/l) genotype, a novel finding replicated and extended in study 2. these studies provide preliminary results that the l/l genotype confers risk for the emotional deficits and predatory interpersonal traits associated with psychopathy among youths raised in disadvantaged environments.”
Dadds, M. R., Moul, C., Cauchi, A., Dobson-Stone, C., Hawes, D. J., Brennan, J., & Ebstein, R. E.. (2014). Methylation of the oxytocin receptor gene and oxytocin blood levels in the development of psychopathy. Development and Psychopathology

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“Child conduct problems (cps) are a robust predictor of adult mental health; the concurrence of callous-unemotional (cu) traits confers specific risk for psychopathy. psychopathy may be related to disturbances in the oxytocin (oxt) system. evidence suggests that epigenetic changes in the oxt receptor gene (oxtr) are associated with lower circulating oxt and social-cognitive difficulties. we tested methylation levels of oxtr in 4- to 16-year-old males who met dsm criteria for a diagnosis of oppositional-defiant or conduct disorder and were stratified by cu traits and age. measures were dna methylation levels of six cpg sites in the promoter region of the oxtr gene (where a cpg site is a cytosine nucleotide occurs next to a guanine nucleotide in the linear sequence of bases along its lenth, linked together by phosphate binding), and oxt blood levels. high cu traits were associated with greater methylation of the oxtr gene for two cytosine nucleotide and guanine nucleotide phosphate linked sites and lower circulating oxt in older males. higher methylation correlated with lower oxt levels. we conclude that greater methylation of oxtr characterizes adolescent males with high levels of cu and cps, and this methylation is associated with lower circulating oxt and functional impairment in interpersonal empathy. the results add genetic evidence that high cu traits specify a distinct subgroup within cp children, and they suggest models of psychopathy may be informed by further identification of these epigenetic processes and their functional significance.”
Yildirim, B. O., & Derksen, J. J. L.. (2013). Systematic review, structural analysis, and new theoretical perspectives on the role of serotonin and associated genes in the etiology of psychopathy and sociopathy. Neuroscience and Biobehavioral Reviews

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“Since its theoretical inception, psychopathy has been considered by philosophers, clinicians, theorists, and empirical researchers to be substantially and critically explained by genetic factors. in this systematic review and structural analysis, new hypotheses will be introduced regarding gene-gene and gene-environment interactions in the etiology of psychopathy and sociopathy. theory and research from neurobiological and behavioral sciences will be integrated in order to place this work in a broader conceptual framework and promote synergy across fields. first, a between groups comparison between psychopathy and sociopathy is made based on their specific dysfunctions in emotional processing, behavioral profiles, etiological pathways, hpa-axis functioning, and serotonergic profiles. next, it is examined how various polymorphisms in serotonergic genes (e.g., tph, 5htt, htr1a, htr2a, htr2c, and htr3) might contribute either individually or interactively to the development of these disorders and through which specific biological and behavioral endophenotypes this effect could be mediated. a short introduction is made into mediating variables such as gabaergic functioning and testosterone which could potentially alter the decisive effect of serotonergic genotypes on behavior and physiology. finally, critical commentary is presented on how to interpret the hypotheses put forward in this review. © 2013 elsevier ltd.”
Beaver, K. M., Barnes, J. C., May, J. S., & Schwartz, J. A.. (2011). Psychopathic personality traits, genetic risk, and gene-environment correlations

. Criminal Justice and Behavior

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“There is a great deal of evidence indicating that psychopathy and psychopathic traits represent some of the strongest correlates to serious violent criminal behavior. as a result, there has been a recent surge of behavioral genetic studies examining the genetic and environmental factors that may be related to the development of psychopathy. the current study extends this line of research by analyzing a sample of kinship pairs from the national longitudinal study of adolescent health to estimate the extent to which genetic factors relate to measures of psychopathic personality traits created from the five factor model. moreover, the authors also test for a series of gene-environment correlations between genetic risk for psychopathic personality traits and measures of parental negativity. the results of the analyses revealed that genetic factors explained between .37 and .44 of the variance in measures of psychopathy. additional statistical models indicated the presence of gene-environment correlations between parental negativity and genetic risk for psychopathic personality traits. (psycinfo database record (c) 2013 apa, all rights reserved) (journal abstract)”
Sadeh, N., Javdani, S., & Verona, E.. (2013). Analysis of monoaminergic genes, childhood abuse, and dimensions of psychopathy. Journal of Abnormal Psychology

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“Psychopathy is a multidimensional construct characterized by an interpersonally manipulative and emotionally detached personality profile that differentiates it from other antisocial syndromes. previous research with youth has linked the long allele of the serotonin transporter gene in the presence of environmental stress with the interpersonal and affective traits of psychopathy, but these relationships have yet to be examined in relation to adult psychopathy. consequently, we examined how serotonin transporter (5-httlpr) polymorphisms, monoamine oxidase-a (mao-a) variants, and childhood abuse measured with the childhood trauma questionnaire relate to dimensions of psychopathy in a forensic sample of 237 men with elevated levels of environmental adversity. we found that the emotional deficits characterizing the affective factor of psychopathy, as measured by the psychopathy checklist: screening version, were highest among carriers of the 5-htt long allele. furthermore, the impulsive and irresponsible lifestyle features of psychopathy were higher among low-activity than high-activity mao-a carriers. these genetic effects were unexpectedly not moderated by a history of childhood abuse. results provide evidence on the molecular genetics correlates of psychopathic traits in adulthood, relationships that should be investigated further in future research.”
Hicks, B. M., Carlson, M. D., Blonigen, D. M., Patrick, C. J., Iacono, W. G., & Mgue, M.. (2012). Psychopathic personality traits and environmental contexts: Differential correlates, gender differences, and genetic mediation.

Personality Disorders: Theory, Research, and Treatment

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“Theorists have speculated that primary psychopathy (or factor 1 affective-interpersonal features) is prominently heritable whereas secondary psychopathy (or factor 2 social deviance) is more environmentally determined. we tested this differential heritability hypothesis using a large adolescent twin sample. trait-based proxies of primary and secondary psychopathic tendencies were assessed using multidimensional personality questionnaire (mpq) estimates of fearless dominance and impulsive antisociality, respectively. the environmental contexts of family, school, peers, and stressful life events were assessed using multiple raters and methods. consistent with prior research, mpq impulsive antisociality was robustly associated with each environmental risk factor, and these associations were significantly greater than those for mpq fearless dominance. however, mpq fearless dominance and impulsive antisociality exhibited similar heritability, and genetic effects mediated the associations between mpq impulsive antisociality and the environmental measures. results were largely consistent across male and female twins. we conclude that gene-environment correlations rather than main effects of genes and environments account for the differential environmental correlates of primary and secondary psychopathy.”
Glenn, A. L.. (2011). The other allele: Exploring the long allele of the serotonin transporter gene as a potential risk factor for psychopathy: A review of the parallels in findings. Neuroscience and Biobehavioral Reviews

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“Converging evidence suggests that the short allele of the serotonin transporter gene polymorphism increases risk for a variety of psychological disorders, including depression, anxiety, and alcoholism. thus, the short allele is typically considered the ‘risk’ allele, and findings related to the long allele are rarely discussed. however, upon closer examination, findings associated with the long allele of the serotonin transporter gene share striking similarities with findings from studies of psychopathy. here, the parallels between findings associated with the long/long genotype and findings associated with psychopathic traits in the areas of neuropsychology, psychophysiology, hormones, and brain imaging are reviewed. it is suggested that the long/long genotype may be a potential risk factor for the development of psychopathic traits. © 2010 elsevier ltd.”
James, M. G.. (2010). Investigating dimensions of psychopathy in an adjudicated adolescent sample: The role of race, sex and disruptive family processes. ProQuest Dissertations and Theses

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“Psychopathy is a personality trait associated with persistent antisocial behavior. research has documented the staggering costs associated with antisocial behavior result from the actions of a few individuals, many of whom exhibit psychopathic traits. thus, the importance of identifying and treating these individuals is of paramount concern. the majority of psychopathy research utilizes adult caucasian male participants; however, the validity of the construct in youth, females, and minorities remains unresolved (sharp & kine, 2008). furthermore, the factor structure of psychopathy is the subject of considerable debate (e.g., neumann, kosson, & salekin, 2007 and cooke, michie, & skeem, 2007). this dissertation examined psychopathic traits in a large sample of adjudicated adolescents in an effort to better understand the extent to which results from adult males generalize to other populations. the global risk assessment device (grad; gavazzi, slade, buettner, partridge, yarcheck, & andrews, 2003) is a risk and needs classification device for adolescent offenders used by court personnel for rehabilitation recommendations prior to sentencing. exploratory and confirmatory factor analyses were performed on grad items in an effort to develop a measurement model of psychopathy and investigate race and sex differences. next, regression analyses were employed for construct validation purposes. results indicated a three factor model of psychopathy provided the best fit for caucasian males, consistent with the results of cooke and michie (2001). the model developed with caucasian males also fit well for samples of caucasian females, african-american males, and african-american females. the measurement model predicted a significant amount of variance in criminal behavior as well as a number of variables related to externalizing and internalizing symptoms. the impulsivity/conduct problems factor was strongly and consistently related to all of these outcome variables, suggesting it represents a risk factor for both externalizing and internalizing psychopathology. the callous-unemotional traits factor was also related to antisocial behavior, albeit less so than impulsivity/conduct problems. narcissism was positively related to violence. a few noteworthy race and sex differences emerged. first, the model predicted outcome variables as well or better for females as it did for males. second, the model predicted serious crime less well for african-americans than for caucas…”
Ponce, G., Hoenicka, J., Jiménez-Arriero, M. A., Rodríguez-Jiménez, R., Aragüés, M., Martín-Suñé, N., … Palomo, T.. (2008). DRD2 and ANKK1 genotype in alcohol-dependent patients with psychopathic traits: Association and interaction study. British Journal of Psychiatry

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“BACKGROUND: the taqi-a polymorphism of the ankk1 gene, adjacent to the drd2 gene, has been associated with alcoholism and other psychiatric conditions, although other drd2 gene variants, such as the c957t polymorphism, could be related to these phenotypic traits.nnaims: to investigate the contribution of the taqi-a and the c957t polymorphisms to the presence of psychopathic traits in patients with alcoholism.nnmethod: we performed association and interaction analyses of the polymorphisms in 150 controls and 176 male alcohol-dependent patients assessed for the presence of dissocial personal disorder, using the psychopathy checklist-revised (pcl-r).nnresults: there was a significant association of the taqi-a and c957t polymorphisms when both genotypes were present, with

pcl-r scores of f(1-171=0.13) (p=0.01) and a frequency of dissocial personal disorder or=10.52, p<0.001.nnconclusions: the taqi-a of the ankk1 gene and the c957t of the drd2 gene are epistatically associated with psychopathic traits in alcohol-dependent patients."
Garcia, L. F., Aluja, A., Fibla, J., Cuevas, L., & García, O.. (2010). Incremental effect for antisocial personality disorder genetic risk combining 5-HTTLPR and 5-HTTVNTR polymorphisms. Psychiatry Research

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"As the serotonin transporter gene (slc6a4 or 5-htt) is a key regulator of central serotonergic activity, several association studies between antisocial personality disorder (apd) and the slc6a4 polymorphisms have been conducted in the last decade. in the present study, the role of both 5-httlpr and 5-httvntr polymorphisms of the slc6a4 gene in apd is investigated. a sample of 147 male inmates was analyzed. apd was assessed by aluja's antisocial personality disorder scale, a measure that correlates 0.73 with the dimensional score of dsm-iv apd and 0.62 with factor ii of the psychopathy checklist-revised. inmates presenting both 5-httlpr s/s. +. s/l and 5-httvntr 12/12 had a higher risk of being classified in the apd group (odds ratio = 3.48). the results also showed that the genotype and haplotype distribution was more dissimilar when extreme groups were compared with odds ratios up to 6.50. our results supported that, in addition to the widely investigated 5-httlpr polymorphism, the 5-httvntr polymorphism might be an interesting candidate for association studies with apd. results also suggested that previous failures to replicate the association between serotonin transporter gene polymorphisms and apd, or similar phenotypes, could have been due to an under-representation of extremely high apd subjects in the samples analyzed. © 2009 elsevier ireland ltd."
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