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This study examined the hierarchical structure of personality disorder (PD) symptoms and impact of the resulting symptom dimensions on health and well-being across self- and informant ratings. The PD symptom hierarchy includes eight levels, with a general factor at the top, two broad dimensions of internalizing and externalizing pathology directly below, and increasingly more specific symptom dimensions toward the bottom. Each factor at all hierarchical levels was interpretable and robust across self- and informant ratings; however, the fourth level may be fundamental to understanding outcomes associated with PD.

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Attentional control impairments have been long recognized as fundamental aspects of cognitive dysfunction in schizophrenia. Using precise measures of eye position, this study shows that individuals with schizophrenia are highly prone to oculomotor capture by salient, but irrelevant stimuli, thus manifesting a diminished ability to exert cognitive control over what is attended to in the visual environment.

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This study assessed cognitive empathy and affective empathy toward emotional states of children and adults in a sample distinguishing between pedophilia and child sexual abuse. Results showed higher affective empathic resonance to emotional states of children in pedophilic men but superior cognitive empathy abilities in nonoffending pedophiles only, which may act as a protective factor in the prevention of sexual offending.

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# Symptom-Level Analysis of *DSM-IV/DSM-5* Personality Pathology in Later Life: Hierarchical Structure and Predictive Validity Across Self- and Informant Ratings

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Dissatisfaction with the categorical model of personality disorder led to several investigations on alternative, dimensional systems. The majority of these studies were conducted at the syndrome-level where each diagnostic criterion is summed or averaged within each disorder. Studies at the symptom-level have identified symptom dimensions that define and cut across categories, but the number and nature of dimensions varies across studies. The purpose of the present study was to examine the hierarchical structure and impact of personality pathology at the symptom-level across self- and informant ratings in a large community sample of older adults ( $N = 1,630$ ; ages 55 to 64). Results indicated that multiple structural patterns can be organized within a common hierarchical framework, with a general factor of maladjustment at the top, 2 broad dimensions of internalizing and externalizing pathology directly below, and progressively more specific symptom dimensions toward the bottom. Factors at each level of the hierarchy were similar across self- and informant ratings. The 4-factor model showed significant incremental validity in predicting a range of life outcomes over simpler models, while increasingly complex models incrementally but modestly improved predictive power. Several consistencies emerged between the current findings and prior factor analytic studies. The most unexpected result was the conspicuous absence of a disinhibition factor reflecting antisocial and impulsivity-related problems. This anomaly may involve the older age of our sample and the changing expression of personality pathology in later life.

### *General Scientific Summary*

This study examined the hierarchical structure of personality disorder (PD) symptoms and impact of the resulting symptom dimensions on health and well-being across self- and informant ratings. The PD symptom hierarchy includes eight levels, with a general factor at the top, two broad dimensions of internalizing and externalizing pathology directly below, and increasingly more specific symptom dimensions toward the bottom. Each factor at all hierarchical levels was interpretable and robust across self- and informant ratings; however, the fourth level may be fundamental to understanding outcomes associated with PD.

**Keywords:** factor analysis, maladaptive personality, multisource assessment of personality pathology, personality disorder, predictive validity

**Supplemental materials:** <http://dx.doi.org/10.1037/abn0000444.supp>

Despite efforts to provide an objective, categorically based diagnostic and classification system of personality disorder (PD), several problems emerged and continue to endure in the American

Psychiatric Association's (APA) *Diagnostic and Statistical Manual of Mental Disorders (DSM; APA, 2013)*. These problems have been reviewed extensively (e.g., Clark, 2007; Krueger & Eaton,

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not necessarily reflect those of the funding source. The Washington University in St. Louis ethics review board approved each phase of the study (IRB ID 201102523).

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# Are Rumination and Neuroticism Genetically or Environmentally Distinct Risk Factors for Psychopathology?

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Neuroticism, a dispositional trait of heightened negative emotionality, is a vulnerability factor for psychopathology. Given neuroticism's strong association with rumination, a repetitive thought pattern that intensifies and prolongs emotions, some question whether these constructs capture the same or unique information about vulnerability for psychopathology. The present study examined whether neuroticism is genetically and environmentally distinct from two clinically relevant ruminative subtypes—anger and depressive rumination—and whether genetic and environmental influences specific to rumination versus shared with neuroticism overlap with internalizing and externalizing psychopathology. These analyses were conducted on 439 same-sex twin pairs in the Colorado Longitudinal Twin study. Rumination and neuroticism latent variables were created from multiple rumination questionnaires administered at age 23 and shortened Eysenck Personality Questionnaires administered at ages 17 and 21, respectively. Lifetime psychopathology symptoms, assessed by two structured clinical interviews, were used to create ordinal composite variables. Multivariate Cholesky decompositions indicated that neuroticism, anger rumination, and depressive rumination have common genetic and nonshared environmental influences but are differentiated by nonshared environmental influences specific to each ruminative subtype. Genetic influences common to rumination and neuroticism explained considerable variance in internalizing psychopathology, suggesting possible genetic mediation or common genetic causes. Genetic and environmental influences on externalizing psychopathology did not substantially overlap with those on neuroticism and rumination. These findings suggest that rumination and neuroticism share most genetic influences yet are influenced by distinct environmental influences. Furthermore, our results indicate that a comprehensive understanding of transdiagnostic risk factors must include an examination of both genetic and environmental influences.

### General Scientific Summary

This study suggests that neuroticism and rumination have genetic overlap that is associated with lifetime internalizing symptoms and diagnoses. Neuroticism and rumination are differentiated by environmental influences that are specific to each twin within a twin pair (e.g., life events or peer groups). Using a genetically informed sample, this study improves understanding of the independent and additive effects of risk factors for psychopathology and encourages future research on environmental influences specific to neuroticism and rumination.

**Keywords:** brooding, personality, cognitive vulnerability, negative affect, genetics

**Supplemental materials:** <http://dx.doi.org/10.1037/abn0000430.supp>

Neuroticism, a dispositional trait, and rumination, a cognitive coping style, are both transdiagnostic vulnerability factors for psychopathology (Aldao, Nolen-Hoeksema, & Schweizer, 2010;

Kotov, Gamez, Schmidt, & Watson, 2010). Given that neuroticism is strongly associated with rumination (Nolan, Roberts, & Gotlib, 1998), some have questioned whether these constructs capture

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This research was supported by the National Institutes of Health under grants DA011015, AG046938, MH063207, and MH016880. Preliminary

results from this study were presented at the Annual Meeting of the Behavior Genetics Association in Boston, MA in July 2018, and the presentation abstract was published in the November 2018 issue of *Behavior Genetics*. Research protocols were approved by the University of Colorado's Institutional Review Board (Protocol 0600.01).

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## BRIEF REPORT

# Depressive Symptom Contagion in the Transition to Parenthood: Interparental Processes and the Role of Partner-Related Attachment

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How depressive symptoms unfold within a couple during the perinatal events of pregnancy, childbirth, and early parenthood is poorly understood. In this prospective study, we aim to investigate the reciprocal relation between maternal and paternal depressive symptomatology, specifically how symptoms in 1 partner relate to subsequent symptom level changes in the other partner throughout the perinatal period. Further, we aim to identify parents who are particularly vulnerable to the development of disruptive processes of negative mood states. Data were collected from 1,036 mothers and 878 fathers participating in the *Little in Norway* study from midpregnancy until 12 months postpartum. Depressive symptoms were assessed at 7 time points (4 prenatally) in both parents. Partner-related attachment was measured early in pregnancy. By using an autoregressive latent trajectory modeling approach, accounting for time invariant confounding, we found mothers' depressive symptoms late in pregnancy to predict elevated symptom levels in fathers 6 weeks after birth, with a small effect size. No other time-adjacent effects were observed among partners at other time points or with the opposite directionality. However, moderation analyses revealed that among parents characterized by insecure partner-attachment styles, additional cross-lagged pathways were evident during pregnancy and throughout the first year of parenthood. Clinicians need to be aware of fathers' vulnerability to symptom development in instances of maternal perinatal depressive states at the time around childbirth, and tailor preventive and treatment efforts to address both parents' needs. Further, particular attention should be directed to parents with heightened susceptibility to prolonged depression contagion processes.

### **General Scientific Summary**

We found that heightened maternal depressive symptoms toward the end of pregnancy predicted elevated depressive symptoms in fathers after the baby was born. For parents with an insecure attachment style, such processes were also evident earlier in pregnancy and throughout the first year after birth. These findings underscore the importance of including the partner of the affected parent when working to prevent and treat depressive states in the perinatal period.

**Keywords:** autoregressive latent trajectory (ALT) models, partner-related attachment, perinatal depression, postnatal depression

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This research was supported by Grant 196156 from the Norwegian Research Council. There has been no prior dissemination of the data and ideas appearing in the manuscript. The study was approved by the Regional Committees for Medical and Health Research Ethics in Norway (2011/560).

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# Physical Aggression Is Associated With Heightened Social Reflection Impulsivity

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Physical aggression harms individuals, disrupts social functioning across multiple forms of psychopathology, and leads to destruction within communities. Physical aggression is associated with aberrations in the interpretation of ambiguous information. However, the specific cognitive mechanisms supporting this link remain elusive. One potentially relevant cognitive mechanism is reflection impulsivity, the amount of information gathered during decision-making. Reflection impulsivity characterizes how individuals resolve ambiguity in the process of forming judgments when multiple interpretations of a stimulus are possible. In a sample of 98 incarcerated men, we examined reflection impulsivity using a novel social information sampling task. The primary aim of the study was to investigate the relationship between physical aggression and social reflection impulsivity. Additionally, we assessed the frequency of different social judgments (hostile vs. benign), the extent to which reflection impulsivity varied in the context of these different social judgments, and subjective certainty about social judgments. Finally, we investigated whether social reflection impulsivity moderated the relationship between physical aggressiveness and violent crime. Results indicated that more physically aggressive individuals displayed heightened social reflection impulsivity, which was amplified in the context of hostile judgments. Moreover, more physically aggressive individuals were more certain about their hostile judgments and more certain when judgments were made with unconstrained access to behavioral information. Finally, impulsive hostile judgments in physically aggressive individuals related to a more extensive history of assault charges. These findings suggest that physically aggressive individuals exhibit deficits in information gathering, leading to ill-informed and inflexible social judgments.

### *General Scientific Summary*

Physical aggression is a costly form of human behavior that is evident across multiple forms of psychopathology. This study provides the first direct evidence that more physically aggressive individuals gather less evidence during social decision-making (i.e., exhibit heightened social reflection impulsivity), particularly while making hostile judgments, and yet they are nevertheless more certain about their hostile judgments. Moreover, physically aggressive individuals with more pronounced social reflection impulsivity have a more extensive history of assault charges, highlighting the real-world implications of this social-cognitive process.

*Keywords:* aggression, reflection impulsivity, social decision-making, social cognition, violent crime

*Supplemental materials:* <http://dx.doi.org/10.1037/abn0000448.supp>

Aggressive behavior represents a pressing public health concern, not only because it leads to significant direct harm but also because it spreads within and devastates entire communities in the same manner as infectious disease (Patel, Simon, & Taylor, 2013). Aggression is commonly defined as behavior that is likely to result in physical, social, and/or emotional harm. Aggression can manifest in various forms (e.g., physical, verbal, and relational), but no

form of aggression generates greater public concern than physical aggression, which is behavior that inflicts bodily harm or conveys a threat of bodily harm. The manifestations of physical aggression include a range of acts from bullying, physical fighting, and throwing objects, to more severe forms of violence, such as assault and murder. Research indicates that each year nearly 17,000 people are victims of homicide in the United States, and over 1.6

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## BRIEF REPORT

## Failures in Top-Down Control in Schizophrenia Revealed by Patterns of Saccadic Eye Movements

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University of Colorado DenverBritta Hahn  
University of Maryland School of MedicineSteven J. Luck  
University of California, DavisJames M. Gold  
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Successful execution of many behavioral goals relies on well-organized patterns of saccadic eye movements, and in complex tasks, these patterns can reveal the component processes underlying task performance. The present study examined the pattern of eye movements in a visual search task to provide evidence of attentional control impairments in people with schizophrenia (PSZ). We tested PSZ ( $N = 38$ ) and nonpsychiatric control subjects (NCS,  $N = 35$ ) in a task that was designed to stress top-down control by pitting task goals against bottom-up salience. Participants searched for either a low-contrast (nonsalient) or a high-contrast (salient) target among low- and high-contrast distractors. By examining fixations of the low- and high-contrast items, we evaluated the ability of PSZ and NCS to focus on low-salience targets and filter out high-salience distractors (or vice versa). When participants searched for a salient target, both groups successfully focused on relevant, high-contrast stimuli and filtered out target-mismatched, low-contrast stimuli. However, when searching for a nonsalient target, PSZ were impaired at efficiently suppressing high-contrast (salient) distractors. Specifically, PSZ were more likely than NCS to fixate and revisit salient distractors, and they dwelled on these items longer than did NCS. The results provide direct evidence that PSZ are impaired in their ability to utilize top-down goals to overcome the prepotent tendency to focus attention on irrelevant but highly salient information.

**General Scientific Summary**

Attentional control impairments have been long recognized as fundamental aspects of cognitive dysfunction in schizophrenia. Using precise measures of eye position, this study shows that individuals with schizophrenia are highly prone to oculomotor capture by salient, but irrelevant stimuli, thus manifesting a diminished ability to exert cognitive control over what is attended to in the visual environment.

**Keywords:** guided visual search, saccadic eye movements, schizophrenia, top-down control

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The current study was funded by National Institutes of Health Grant R01MH065034 awarded to James M. Gold and Steven J. Luck. All participants gave written informed consent before taking part in the study. The protocol was approved by the Institutional Review Board at the University of Maryland, Baltimore (Protocol No. HP00054557: Attention, Working Memory, and Brain Electrophysiology).

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## A Working Memory Related Mechanism of Auditory Hallucinations

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University of Maryland School of Medicine

Cognitive mechanisms underlying auditory hallucinations (AH) in schizophrenia have been related to working memory (WM), although the formative mechanism is unknown. The *phonological loop* refers to subvocal rehearsals of information held online for supporting WM. As WM deficiency is frequent in schizophrenia, we hypothesized that AH and WM deficit share a common dysfunction in phonological loop operation, especially when it is taxed by ambiguous auditory and verbal associations. We developed an active phonological priming (APP) paradigm in which participants generated arbitrary verbal associations to pseudowords with ambiguous meaning. They were later asked to rate their familiarity to each pseudoword, a task that required subvocal evaluation of ambiguous auditory-verbal information. Factor and mediation analyses were used to test the hypothesis that WM, AH, and APP induced phonological bias toward perceiving ambiguous contents as familiar may share a common underlying mechanism. In 32 patients with schizophrenia (SZ) and 20 healthy controls (HC), SZ rated ambiguous pseudowords as significantly more familiar compared with HC ( $p = .006$ ), indicating a proneness to APP-induced bias. This increased subjective bias to perceive ambiguous contents as familiar after APP significantly correlated with AH severity ( $p = .001$ ) and mediated the relationship between WM and AH. Factor analysis demonstrated a common latent factor among WM, AH, and the bias induced by active priming to ambiguous contents. A heightened phonological loop priming to ambiguous contents appears to be mechanistically linked to WM deficits and AH in schizophrenia. These findings emphasize the importance of jointly addressing WM deficits and AH in clinical practice and research.

### General Scientific Summary

The study applies an active priming paradigm that demands phonological loop operation (a working memory component) that requires subjectively generated associations with pseudowords that have ambiguous meanings. People with schizophrenia are found to be significantly more prone to bias toward recognizing meaningless pseudowords as familiar, and the bias mediates the working memory–auditory hallucination relationship. Auditory hallucinations and working memory may share a common underlying phonological loop mechanism, a finding that encourages developing new behavioral or pharmacological interventions that jointly target working memory deficit and auditory hallucinations in schizophrenia.

**Keywords:** working memory, hallucination, psychosis, phonological loop, psychosis

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Regeneron. All other authors declare no conflict of interest. Support was received from National Institutes of Health Grants MH112180, MH103222, MH108148, and MH067533, a State of Maryland contract (M00B6400091), and a generous private philanthropic donation from the Clare E. Forbes Trust.

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# Rigidity Coincides With Reduced Cognitive Control to Affective Cues in Children With Autism

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The present study tested whether salient affective cues would negatively influence cognitive control in children with and without autism spectrum disorder (ASD). One hundred children aged 6–12 years who were either typically developing or had ASD performed a novel go/no-go task to cues of their interest versus cues of noninterest. Linear mixed-effects (LME) models for hit rate, false alarms, and the sensitivity index  $d'$  were used to test for group differences. Caregivers completed the Repetitive Behavior Scale-Revised to test associations between repetitive behaviors and task performance. Children with ASD had reduced cognitive control toward their interests compared with typically developing children. Further, children with ASD showed reduced cognitive control to interests compared with noninterests, a pattern not observed in typically developing children. Decreased cognitive control toward interests was associated with higher insistence on sameness behavior in ASD, but there was no association between sameness behavior and cognitive control for noninterests. Together, children with ASD demonstrated decreased cognitive flexibility in the context of increased affective salience related to interests. These results provide a mechanism for how salient affective cues, such as interests, interfere with daily functioning and social communication in ASD. Further, the findings have broader clinical implications for understanding how affective cues can drive interactions between restricted patterns of behavior and cognitive control.

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# Atypical EEG in Autism Spectrum Disorder: Comparing a Dimensional and a Categorical Approach

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Myriad studies have found group differences in neural dynamics between people with and without autism spectrum disorder (ASD). However, the extent to which variation in neural dynamics is related to variation in the autism phenotype across the population is not known. Here we measured behavioral characteristics of autism alongside intertrial phase coherence (ITC) and multiscale entropy (MSE) computed from EEG in order to address this question. Data were obtained from 99 adults, 38 of whom had an ASD diagnosis. Phenotypic information was obtained from the Social Responsiveness Scale (Revised), the Repetitive Behavior Questionnaire, the WHO Adult ADHD Self-Report Scale Screener, and the Beck Anxiety Inventory (Trait version). ITC and MSE were computed from EEG recorded during visual stimulation and eyes-closed rest. We found no evidence to suggest that population variance in autistic traits is underpinned by variance in neural dynamics, despite finding that ITC and MSE are more likely to be reduced in people with ASD than in those without. We conclude that there are likely to be multiple neural profiles underpinning ASD, and suggest that while individual differences in the autism phenotype exist across the population, their distribution is not underpinned by individual differences in neural dynamics.

### General Scientific Summary

This study shows that while traits and behaviors associated with autism spectrum disorder (ASD) occur to a greater or lesser degree across the general population, this variation in autistic traits is not related to differences in brain activity. However, at a group-level, we found that brain activity differed between people with and without a diagnosis of ASD. This study supports the notion that there are likely to be multiple routes to the traits and symptoms of ASD, rather than a unique neurological difference that is common to all people with a diagnosis of ASD.

*Keywords:* autism, intertrial phase coherence, multiscale entropy, EEG

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By definition, autism spectrum disorder (ASD) is a neurodevelopmental disorder (American Psychiatric Association, 2013), albeit of unknown neural etiology. Although a number of recent

studies have focused on identifying potential neural biomarkers for ASD (Bosl, Tierney, Tager-Flusberg, & Nelson, 2011), no underlying neurobiological differences that consistently differentiate autistic and nonautistic brains have been identified. The search for a neural signature that distinguishes autism from nonautism assumes that there is a universally optimal neural profile within individuals without ASD. This assumption is likely to be incorrect (see Holmes & Patrick, 2018) but is prescient within ASD research given that traits associated with ASD are continuously distributed among the population (Skuse et al., 2009), reflecting the potential misnomer in the use of the term “neurotypical” to describe people who are not autistic.

Two neural variables which have been shown to differ between people with and without ASD, and are the focus of this investigation, are intertrial phase coherence (ITC) and multiscale entropy (MSE). ITC is a measurement of the consistency of the phase angles of EEG oscillations across trials following events such as stimulus presentation (Tallon-Baudry, Bertrand, Delpuech, & Pernier, 1996). Many studies have found reduced ITC in ASD relative to controls, leading to the claim that reduced ITC could be an

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## Empathy in Pedophilia and Sexual Offending Against Children: A Multifaceted Approach

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Empathy is regarded as dynamic risk factor of child sexual offending. However, empathy research in the

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*continued*

context of child sexual abuse suffers from various problems. First, prior studies failed to differentiate between pedophilic and nonpedophilic sexual offenders. Second, there is no distinction made between cognitive and affective empathy. Third, cognitive and affective empathy toward emotional states of specific age groups (children and adults) has not been adequately addressed. The current study tackles these shortcomings investigating offending and nonoffending pedophiles and multiple aspects of empathy using self-reports and objective behavioral measures. Participants included 85 pedophilic men who committed hands-on child sexual offenses (P+CSO), 72 pedophilic men who never committed hands-on child sexual offenses (P-CSO), and 128 nonoffending teleiophilic male controls (TC). Several affective and cognitive aspects of empathy were assessed using the Multifaceted Empathy Test (MET) and the Interpersonal Reactivity Index (IRI). Whereas in self-reports (IRI) P+CSO scored lower than TC (P-CSO intermediate) in cognitive perspective-taking abilities, a performance-based measure (MET) revealed evidence for a better differentiation of emotional states in P-CSO as compared with P+CSO (TC intermediate). In addition, P+CSO and P-CSO showed significantly higher affective resonance while observing children (MET), which was paralleled by higher self-reported levels of personal distress in social situations (IRI). The results indicate evidence for higher general affective empathic resonance to children in pedophilic men but superior cognitive empathy abilities in nonoffending pedophiles only, which may act as a protective factor in the prevention of sexual offending. Together, these findings underline the importance of accounting for multiple facets of empathy when targeting pedophilia and child sexual offending.

#### **General Scientific Summary**

This study assessed cognitive empathy and affective empathy toward emotional states of children and adults in a sample distinguishing between pedophilia and child sexual abuse. Results showed higher affective empathic resonance to emotional states of children in pedophilic men but superior cognitive empathy abilities in nonoffending pedophiles only, which may act as a protective factor in the prevention of sexual offending.

**Keywords:** pedophilia, sexual offending against children, cognitive empathy, affective empathy, performance-based measures

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Pedophilia is characterized by recurrent sexual impulses, urges, and fantasies involving minors. In the International Statistical Classification System of Diseases and Related Health Problems (ICD-10; World Health Organization, 1992) the term *minors* include prepubertal and early pubertal children, the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; American Psychiatric Association, 2013) limits its definition to prepubertal children. Population-based studies suggest that the prevalence of pedophilic interest is 1% or 5% in men (Ahlens et al., 2011; Beier, Bosinski, & Loewit, 2005; Seto, Cantor, & Blanchard, 2006). Pedophilia is not to be equated with child sexual offenses (CSO).

Even though, pedophilic interest is a major risk factor for committing sexual offenses against children (Hanson & Morton-Bourgon, 2005; Mann, Hanson, & Thornton, 2010; Seto et al., 2006), a pedophilic inclination does not automatically lead to offending behavior (Beier et al., 2009; Cantor & McPhail, 2016). The question on why some pedophiles refrain from CSO and others act on their sexual impulses is a hot topic of research. There is a particular focus on dynamic risk factors, as they are not only assumed to be associated with the likelihood of reoffending (Barbaree & Marshall, 1988; Neutze, Grundmann, Scherner, & Beier, 2012), but are also expected to be susceptible to treatment (Beier et al., 2009).

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## Mental Health Professionals' Pathologization of Compulsive Sexual Behavior: Does Clients' Gender and Sexual Orientation Matter?

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It has recently been proposed that compulsive sexual behavior disorder should be included in the 11th version of the *International Statistical Classification of Diseases and Related Health Problems*. Concerns have been repeatedly expressed regarding the overpathologizing of sexual behaviors and the potential for false-positive results in clinical practice. Empirical evidence indicates that stereotypes related to gender and sexual orientation might influence therapists' assessments of clients. Those stereotypes are likely to be associated with different levels of pathologization and stigmatization of high levels of sexual interest and behavior. The aim of this study was to explore the possible connections between clients' gender and sexual orientation and mental health professionals' (MHP) pathologization of compulsive sexual behavior. A sample of MHPs ( $N = 546$ ) were presented with a case vignette describing a client with compulsive sexual behavior. The information on the client varied by gender (male or female), sexual orientation (homosexual or heterosexual), and clinical condition (ambiguous diagnostic criteria and fulfilled compulsive sexual behavior disorder diagnostic criteria). After reading the vignette, the MHPs rated the client's mental health status and gave an opinion about causation (psychological vs. biological etiology) and stigmatization indicators (blaming the affected individual for their problems, desire for social distance, perception of dangerousness). The MHPs showed significantly fewer tendencies to pathologize when the client was a homosexual woman or man independent of their clinical condition. Mediation analyses revealed that the biological etiological model partly mediated the effects of reduced pathologization in homosexual clients. These results indicate that clinical decisions relating to compulsive sexual behavior are influenced by nosologically irrelevant beliefs about the biological causation of sexual behavior.

### General Scientific Summary

The psychiatric classification of normal versus pathological sexuality is a disputed subject. We examined how gender and sexual orientation can influence whether mental health professionals classify compulsive sexual behavior as a disorder. The results showed that homosexual women and men are less pathologized for compulsive sexual behavior than heterosexual women and men, which points to stereotypical beliefs influencing clinical decision making.

**Keywords:** compulsive sexual behavior disorder, hypersexuality, gender differences, clinical bias, sexual orientation

Although hypersexual disorder (HD) is not included in the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)*; American Psychiatric Association, 2013; Kafka, 2014), it

is proposed that compulsive sexual behavior disorder (CSBD) should be included in the 11th version of the *International Statistical Classification of Diseases and Related Health Problems (ICD-11)*; Kraus et al., 2018; Reed et al., 2016). CSBD is characterized by a persistent pattern of failure to control intense, repetitive sexual impulses or urges, resulting in repetitive sexual behavior over an extended period (6 months or more) that causes marked distress or impairment in personal, family, social, educational, occupational, or other important areas of functioning (Kraus et al., 2018). The boundaries between having out-of-control versus normal sexual behavior is sometimes vague in clinical practice, particularly as their expression intersects with cultural expectations. As such, concerns about overpathologizing sexual behavior and the potential for false positives in clinical practice (i.e., erroneously diagnosing a person with a mental disorder that is a normal variant of human sexual behavior) have been regularly discussed in the context of compulsive sexual behavior (Fuss et al., 2019; Wakefield, 2012).

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The Ethics Committee of the Psychotherapeutic Chamber, Hamburg, Germany, approved the study protocol, and the experiment was performed in accordance with relevant guidelines and regulations.

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# The Influence of Sample Selection on the Structure of Psychopathology Symptom Networks: An Example With Alcohol Use Disorder

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Increasingly, the structure of mental disorders has been studied in the form of a network, characterizing how symptoms or criteria interact with and influence each other. Many studies of psychiatric symptoms and diagnostic criteria employ community or population-based surveys using co-occurrence of the symptoms/criteria to form the networks. However, given the overall low prevalence rates of mental disorders and their symptoms in the general population, most of those surveyed may not exhibit or endorse any symptoms and yet are often included in network analyses. Consequently, because network models are built on associations between symptoms/criteria, much of the observed variability is driven by individuals who are asymptomatic. Using data from the National Epidemiological Survey of Alcohol and Related Conditions (NESARC) Wave 2 and NESARC-III, we explore the effect of these “asymptomatic” observations on the estimated relations among diagnostic criteria of alcohol use disorder to determine the effects of such observations on estimated networks. We do so using the *eLasso* tool, as well as with traditional measures of correlation between binary variables (the  $\Phi$  coefficient and odds ratio). We find that when the proportion of asymptomatic individuals are systematically culled from the sample, the estimated pairwise relations are often significantly affected, even changing signs in some cases. Our findings indicate that researchers should carefully consider the population(s) included in their sample and the implications it has on their interpretations of pairwise similarity estimates and resulting generalizability and reproducibility of estimates of network structures.

### General Scientific Summary

Network representations of psychopathological symptoms are becoming increasingly popular in clinical research, modeling how diagnostic symptoms interact with each other, often in terms of co-occurrence. This study examines the influence of restrictions on the observations included in a sample used to estimate the network relations, demonstrating how a clinical and national sample can identify very different network structures.

**Keywords:** alcohol use disorder, DSM-5 criteria, network analysis, reproducibility

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In network form, a system is modeled as a set of nodes representing the objects or variables being studied, and edges, modeling connections or relationships among the nodes. For example, a researcher may have a social network from a school of students (the nodes) and the observed friendships connecting pairs of stu-

dents (the edges). Network analyses are not limited to social relations among individuals, but can also be used to model a wide variety of systems in many different fields. One of these new fields is symptom or criteria networks. In these models, the symptoms or criteria of a disorder are represented by the nodes, and the edges

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