

Proposed Specifiers for Conduct Disorder: Context, Research and Clinical Utility

Randall T. Salekin, PhD



What to do when
children have disruptive
behavior or conduct
problems?

Proposed Specifiers for Conduct Disorder (PSCD) scale

(Salekin & Hare, 2016)

PSCD Self-Report
(Salekin & Hare, 2016)

Directions: For each statement please circle the choice that describes you the most. There are no right or wrong answers. Just pick the one you think most accurately describes you.

	Not True	Somewhat True	True
1. I can turn on the charm in any situation	0	1	2
2. I am a very important person	0	1	2
3. I am very good at most things I do	0	1	2
4. Lying is easy for me	0	1	2
5. I take advantage of others	0	1	2
6. I am a natural storyteller	0	1	2
7. I don't waste time thinking about how I may have hurt others	0	1	2
8. I can turn and walk away from someone who is hurt	0	1	2
9. When people are happy or upset I don't seem to care	0	1	2
10. I like it when others are afraid of me	0	1	2
11. Some people consider me to be a mean person	0	1	2
12. I rarely feel guilt or remorse	0	1	2
13. I am daring	0	1	2
14. I like a lot of change or adventure	0	1	2
15. I get a thrill out of doing risky things	0	1	2
16. I feel like I need a lot of stimulation	0	1	2
17. I like to live in the moment	0	1	2
18. Some people say I'm reckless	0	1	2
19. I have stolen things	0	1	2
20. I have engaged in physical aggression against animals or people	0	1	2
21. I have destroyed property	0	1	2
22. I break (violate) a lot of rules	0	1	2
23. I started breaking rules before the age of 10	0	1	2
24. I can be argumentative and defiant (oppositional)	0	1	2

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We have been using the Proposed
Specifiers for Conduct Disorder (PSCD)
scale

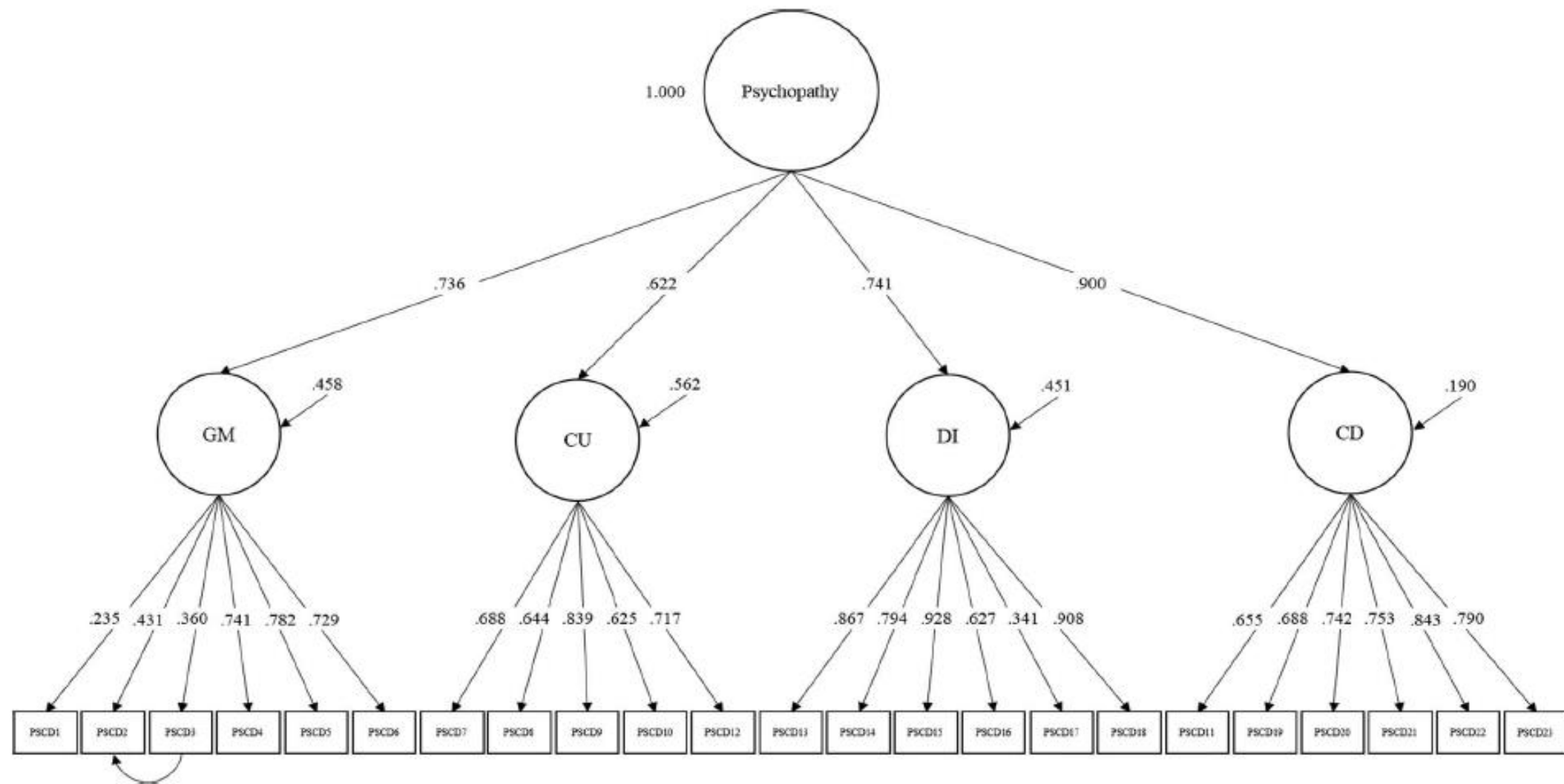


Figure 1. Standardized model parameters for the confirmatory factor analysis: Four-factor superordinate model.

Outline

- 1. Disruptive behavior disorders
- 2. Science based definition of psychopathy
- 3. Science based definition of conduct disorder
- 4. Psychopathy and conduct disorder
- 5. Etiological Mechanisms
- 6. Research examples 1 and 2
- 7. Daring-Impulsive [DI] v. ADHD
- 8. Prevalence
- 9. Clinical utility

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History of Subtypes of DBDs

Undersocialized v. socialized
aggressive CD

Aggressive-rejected v. aggressive non-
rejected youth

ODD v. CD

Early v. late starters

Conduct problems w/ co-occurring
diagnoses

- Depression
- Anxiety
- ADHD

Overt v. covert

Authority conflict

History of Subtypes of DBDs (cont)

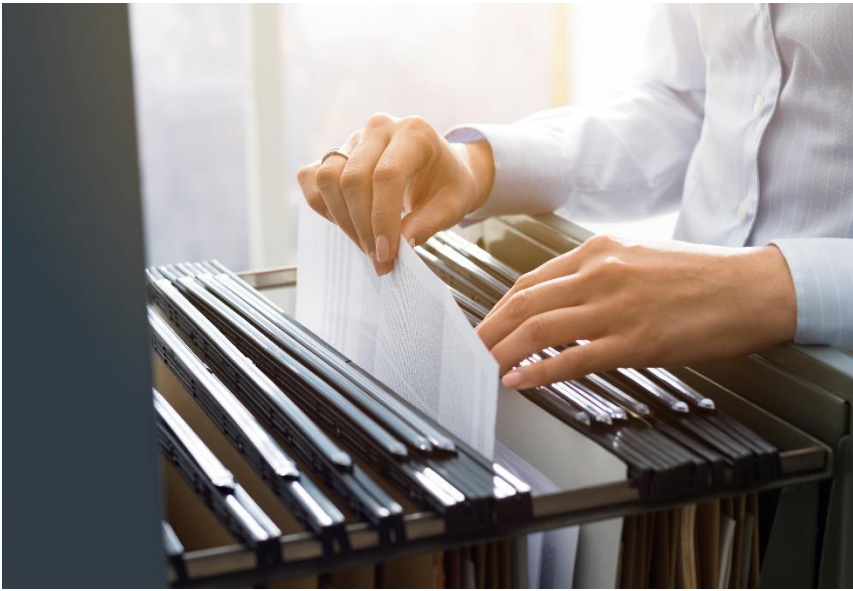
Proactive v. reactive

Severe v. moderate conduct behavior

Relational v. physical behavior

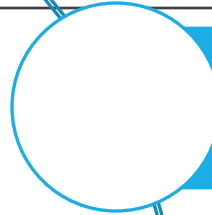
Personality (sometimes weaved in)

Destructive v. nondestructive
behavior

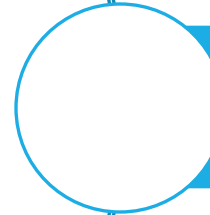


Disruptive Behavior Disorders

DSM-5



Oppositional Defiant Disorder (ODD)



Conduct Disorder (CD)



Attention Deficit/Hyperactivity Disorder (ADHD)

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Psychopathy is considered a multicomponent construct

CD traits

GM traits

CU traits

DI traits



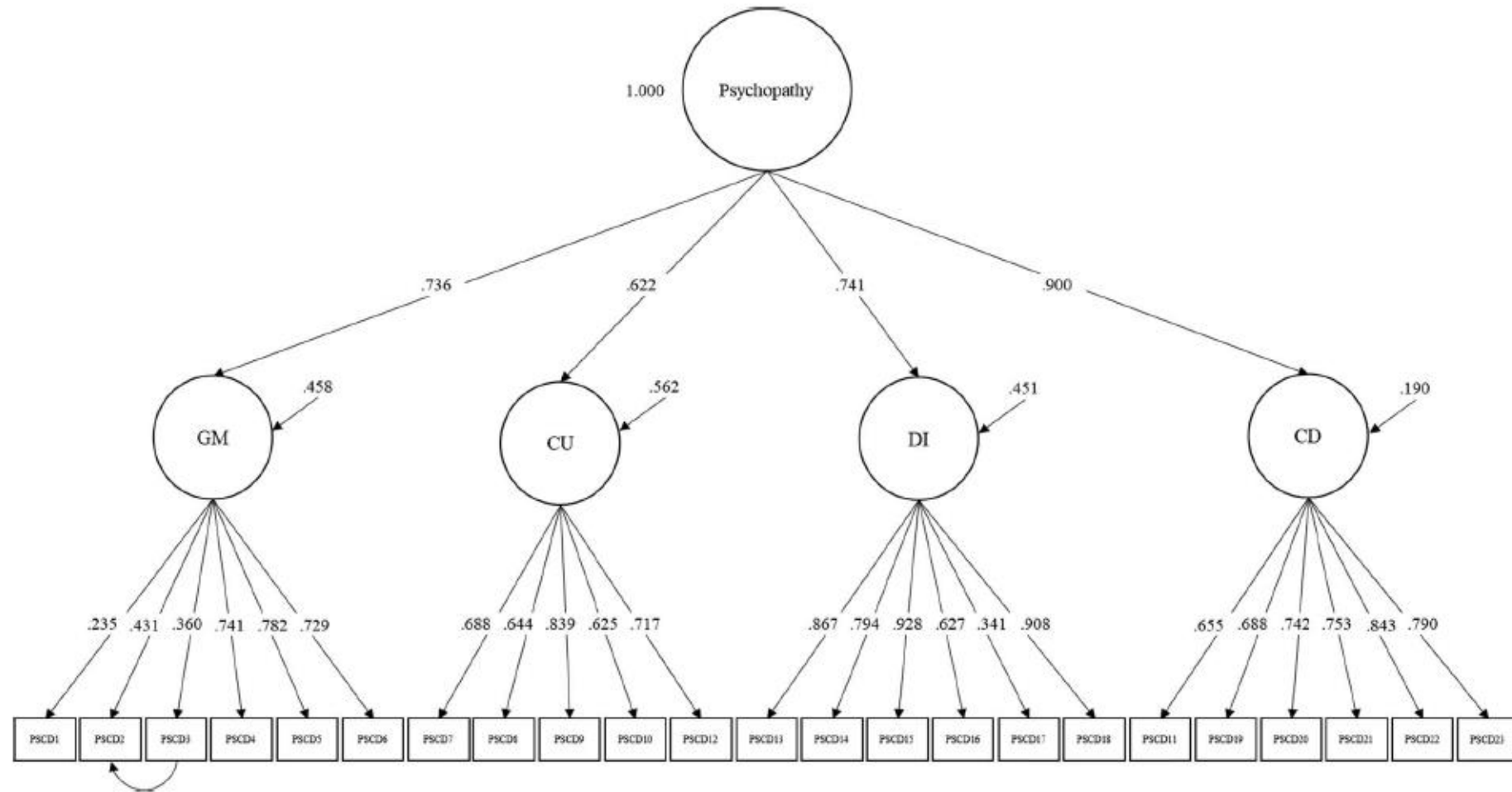



Figure 1. Standardized model parameters for the confirmatory factor analysis: Four-factor superordinate model.



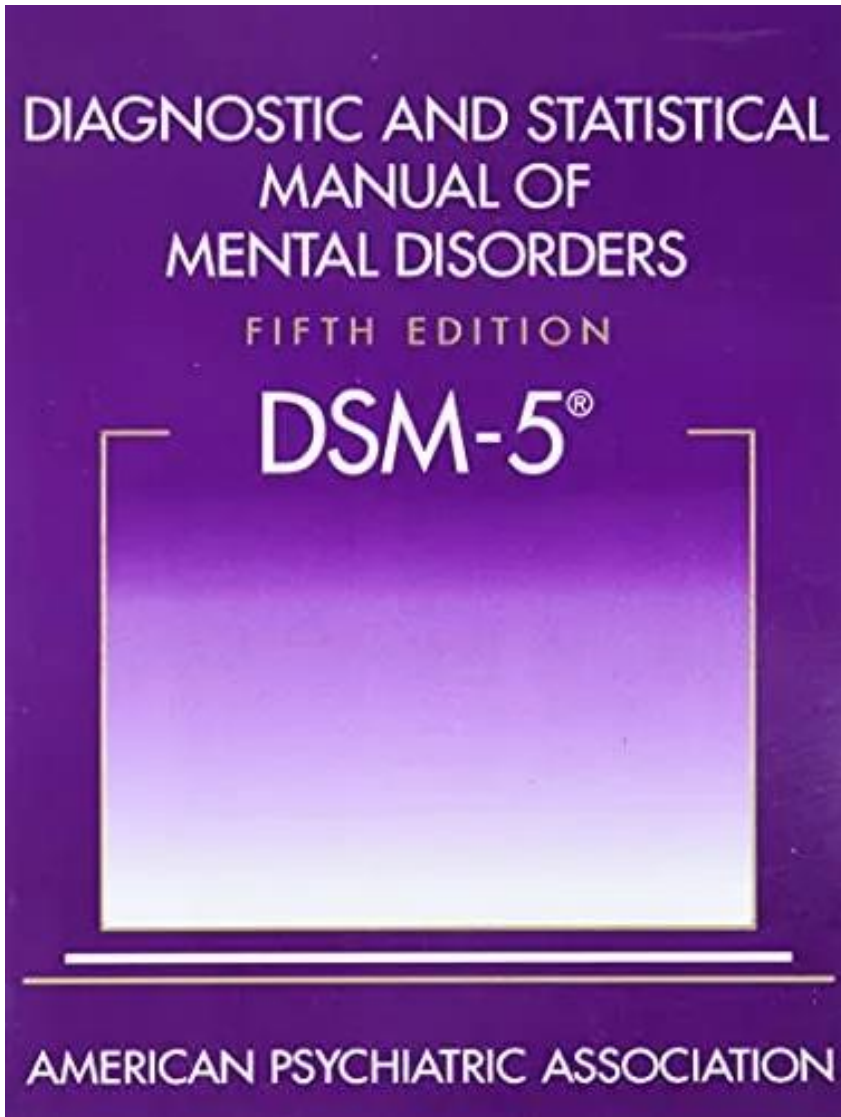
Popular Media

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A group of people are gathered in a meeting room, looking at a whiteboard. The whiteboard has handwritten notes: "hotel", "alcohol", "pool", and "Shopping". The people are dressed in business casual attire. A woman in the foreground is looking at the whiteboard. Another woman is standing next to her, also looking at the whiteboard. A man is standing in the background, looking at the whiteboard. A woman is standing on the right side of the frame, looking at the whiteboard. The text "Disorders currently in the DSM-5-TR" is overlaid on the image.

Disorders currently in the DSM-5-TR



DSM-5 Disorders

Oppositional Defiant Disorder (ODD)

Conduct Disorder (CD)

- Early onset
- Limited Prosocial Emotion

Attention Deficit Hyperactivity Disorder (ADHD)

Conduct Disorder symptoms (≥ 3 of 15)

1.Often bullies threatens and intimidates others

2.Often initiates physical fights

3.Has used a weapon that can cause serious harm

4.Has been physically cruel to people

5.Has been physically cruel to animals

6.Has stolen while confronting victim

7.Has forced someone into sexual activity

8.Has deliberately engaged in fire setting

9.Has deliberately destroyed property

10.Has broken into someone else's house, building or car

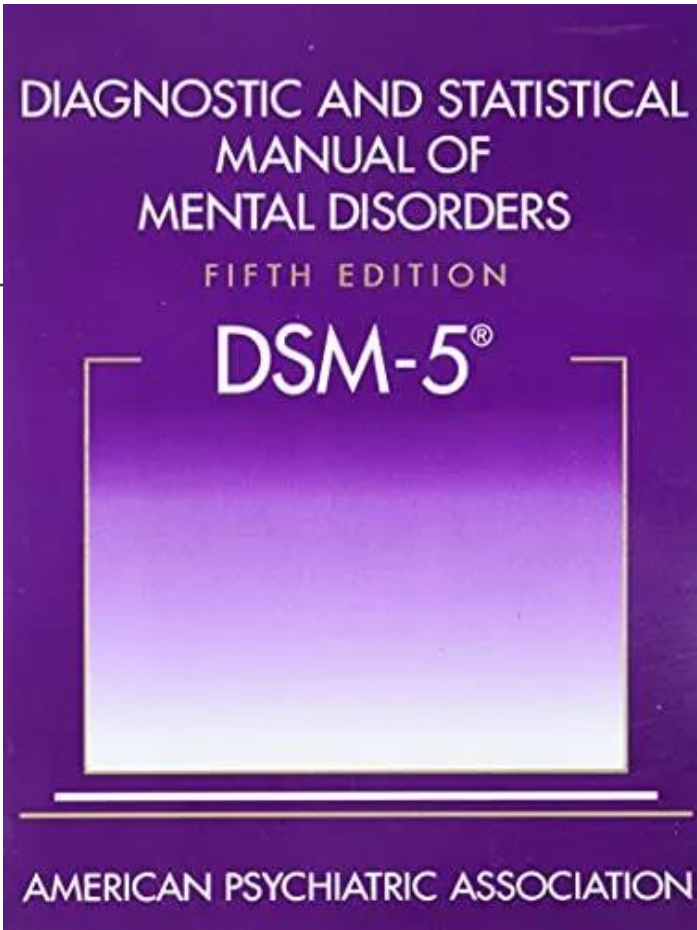
11.Often lies to obtain goods/favors

12.Has stolen items of nontrivial value

13.Often stays out at night despite parent

14.Has run away from home overnight

15.Is often truant from school (beginning age 13)



Diagnostic Criteria

- A. A repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated, as manifested by the presence of at least three of the following 15 criteria in the past 12 months from any of the categories below, with at least one criterion present in the past 6 months:

Aggression to People and Animals

1. Often bullies, threatens, or intimidates others.
2. Often initiates physical fights.
3. Has used a weapon that can cause serious physical harm to others (e.g., a bat, brick, broken bottle, knife, gun).
4. Has been physically cruel to people.
5. Has been physically cruel to animals.
6. Has stolen while confronting a victim (e.g., mugging, purse snatching, extortion, armed robbery).
7. Has forced someone into sexual activity.

Destruction of Property

8. Has deliberately engaged in fire setting with the intention of causing serious damage.
9. Has deliberately destroyed others' property (other than by fire setting).

Deceitfulness or Theft

10. Has broken into someone else's house, building, or car.
11. Often lies to obtain goods or favors or to avoid obligations (i.e., "cons" others).
12. Has stolen items of nontrivial value without confronting a victim (e.g., shoplifting, but without breaking and entering; forgery).

Serious Violations of Rules

13. Often stays out at night despite parental prohibitions, beginning before age 13 years.
14. Has run away from home overnight at least twice while living in the parental or parental surrogate home, or once without returning for a lengthy period.
15. Is often truant from school, beginning before age 13 years.



Specify Limited Prosocial Emotion (LPE):

- 1) Lack of remorse or guilt
- 2) Callous-lack of empathy
- 3) Unconcerned about performance
- 4) Shallow or deficient affect

Further Specify Conduct Disorder

Severe,
moderate,
mild

Early onset
(moffitt)

Still, CD is very heterogeneous. This creates an obstacle for better understanding CD

- Over 32,000 distinct symptom profiles can be identified
- CD and LPE does not always show the most stable or worst outcomes (Bégin et al., 2024; Sakai et al.)
- Difficult to determine the cause (etiology) for the development of the disorder and sometimes etiological theories run counter to one another. Perhaps because CD has many permutations and is primarily made up of behaviors.




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FUTURE DIRECTIONS



Future Directions for Conduct Disorder and Psychopathic Trait Specifiers

Randall T. Salekin ^a, Nicholas A. Bellamy ^a, Harriet R. DeGroot ^a, Jenson J. Avellan^a, Isabella G. Butler^a, and Jessica C. Grant^b

^aDepartment of Psychology, University of Alabama; ^bDepartment of Psychology, University of British Columbia

ABSTRACT

Conduct disorder (CD) is a psychiatric diagnosis characterized by a repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate social norms or rules are violated. This article presents information on CD with an emphasis on a new multispecifier personality model that could offer a valuable new perspective on CD by refining the way we specify CD. The multispecifier model may have the potential to clarify the considerable confusion that has occurred over past decades and improve our understanding of prevalence, etiology, course, and treatment of youth with conduct problems. In this paper, we present a new structure for CD designed to inspire new lines of research that may be needed to help the field more fully capitalize on this innovation. With additional research, it is hoped that the new multispecifier model will eventually buy clinicians additional information that cannot be gleaned from current diagnostic criteria and will help clinicians and researchers further uncover the factors that promote or protect against the development of CD. This paper delineates the areas of research that will be needed to fully realize the potential of a multispecifier model and ultimately to improve clinical care for children and adolescents with CD.

Conduct Disorder (CD) is a psychiatric diagnosis characterized by a repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate social norms or rules are violated (American Psychiatric Association [APA] 2013). CD is among the most frequent clinical conditions in child and adolescent mental health with a host of social, emotional, and behavioral problems with high costs to society (e.g., Fairchild et al., 2019; Goulter et al., 2024;


guilt, ii) callous lack of empathy, iii) shallow or deficient affect, and iv) unconcerned about performance (APA, 2013). Evidence for the DSM-5 LPE specifier among children and adolescents with CD is still somewhat limited and mixed (Colins et al., 2020; Déry et al., 2019; Elhami Athar, 2024; Sakai et al., 2016).

While the LPE specifier has been added to the DSM-5, it has already been proposed that the DSM and *International Classification of Disease* (ICD; Word

EDITORIAL



Editorial: Conduct Disorder and Its 70-Year History: Lessons From Hervey Cleckley and Lee Robins

Randall T. Salekin, PhD 

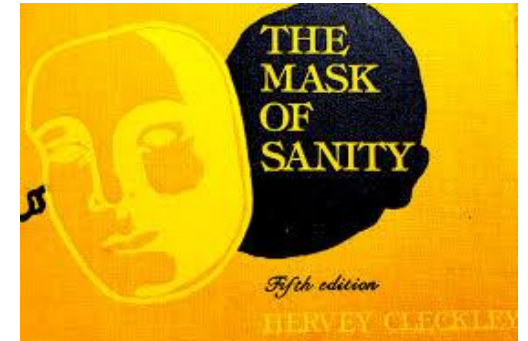
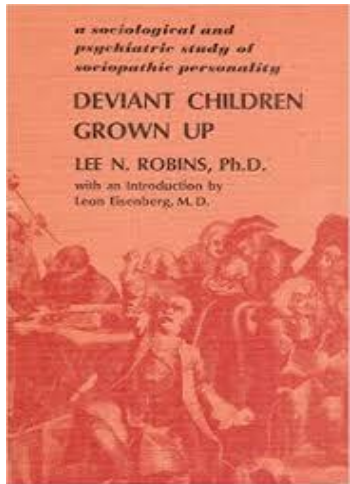
If Hervey Cleckley^{1,2} and Lee Robins³ were alive today, it is conceivable that they may argue about whether conduct disorder (CD) should be measured primarily with personality traits or behavioral characteristics. However, these strict demarcations may not be needed, or most helpful, for understanding youth with conduct problems. Recently, I proposed that CD might be best specified with 3 personality dimensions including grandiose-manipulative (GM), callous-unemotional (CU), and daring-impulsive (DI) traits.⁴ These traits are observable from an early age, appear to have a genetic basis, and have distinct correlates suggesting potentially differing etiologies relevant to understanding CD. Importantly, each domain is also related to conduct problems and delinquency.⁵

While there is considerable research to acknowledge that GM, CU, and DI personality trait domains are relevant to CD, Colins *et al.*⁶ correctly note that the proposition of specifying CD with 3 trait domains requires further testing. In their article, they initiate this process with a large-scale study aimed to test the clinical value of adding personality specifiers to conduct problems. Specifically, Colins *et al.* use 2 large samples with multiple informants to address their hypotheses. Their results demonstrate that the separable personality dimensions differ in their respective outcomes showing that GM and DI traits are predictive of not only

was introduced in *DSM-III* in 1980; however, conduct disturbance appeared in *DSM-I* in 1952. Although the *DSM* has at times interwoven personality traits into CD criteria, it has done so in an incomplete and unsystematic fashion. With these new findings, there is much more hope that CD might eventually be better understood and that more consistent results may be obtained regarding the correlates, mechanisms, and outcomes for CD. The multispecifier model, if replicated, would help clinicians understand the personality configuration for individual youth, which would help with crucial clinical decision-making tasks such as forecasting behavior, planning treatment, evaluating treatment, and estimating prognosis. The multispecifier model would also provide increased opportunities to learn a more complete etiology for CD and properly innovate and tailor interventions. In this editorial, I briefly highlight several areas that could benefit from additional research, including research on prevalence, biomarkers, outcomes, treatment innovation, comorbidity, and investigations related to labeling and communication.

With respect to prevalence, a next step for research on CD is to investigate the prevalence rates of psychopathic traits and component parts to understand the degree to which these characteristics are present in youth with CD. Colins *et al.*⁶ offer some initial insights on this topic,

These models suggest some combination of Robins and Cleckley (and Hare) enhances the clinical picture



Psychopathy PCL-R Items

Table 1
PCL-R Items Classified According to Factors and Facets (Hare, 2003)

Factor 1	Factor 2
Facet 1: Interpersonal	Facet 3: Lifestyle
1. Glibness/superficial charm 2. Grandiose sense of self-worth 4. Pathological lying 5. Conning/manipulative	3. Need of stimulation/proneness to boredom 9. Parasitic lifestyle 13. Lack of realistic, long-term goals 14. Impulsivity 15. Irresponsibility
Facet 2: Affective	Facet 4: Antisocial
6. Lack of remorse or guilt 7. Emotionally shallow 8. Callous / lack of empathy 16. Failure to accept responsibility for own actions	10. Poor behavioural control 12. Early behavioural problems 18. Juvenile delinquency 19. Revocation of conditional release 20. Criminal versatility
Items that did not saturate any factor	
11. Promiscuous sexual behaviour 17. Many short-term marital relationships	



FUTURE DIRECTIONS

Future Directions for Conduct Disorder and Psychopathic Trait Specifiers

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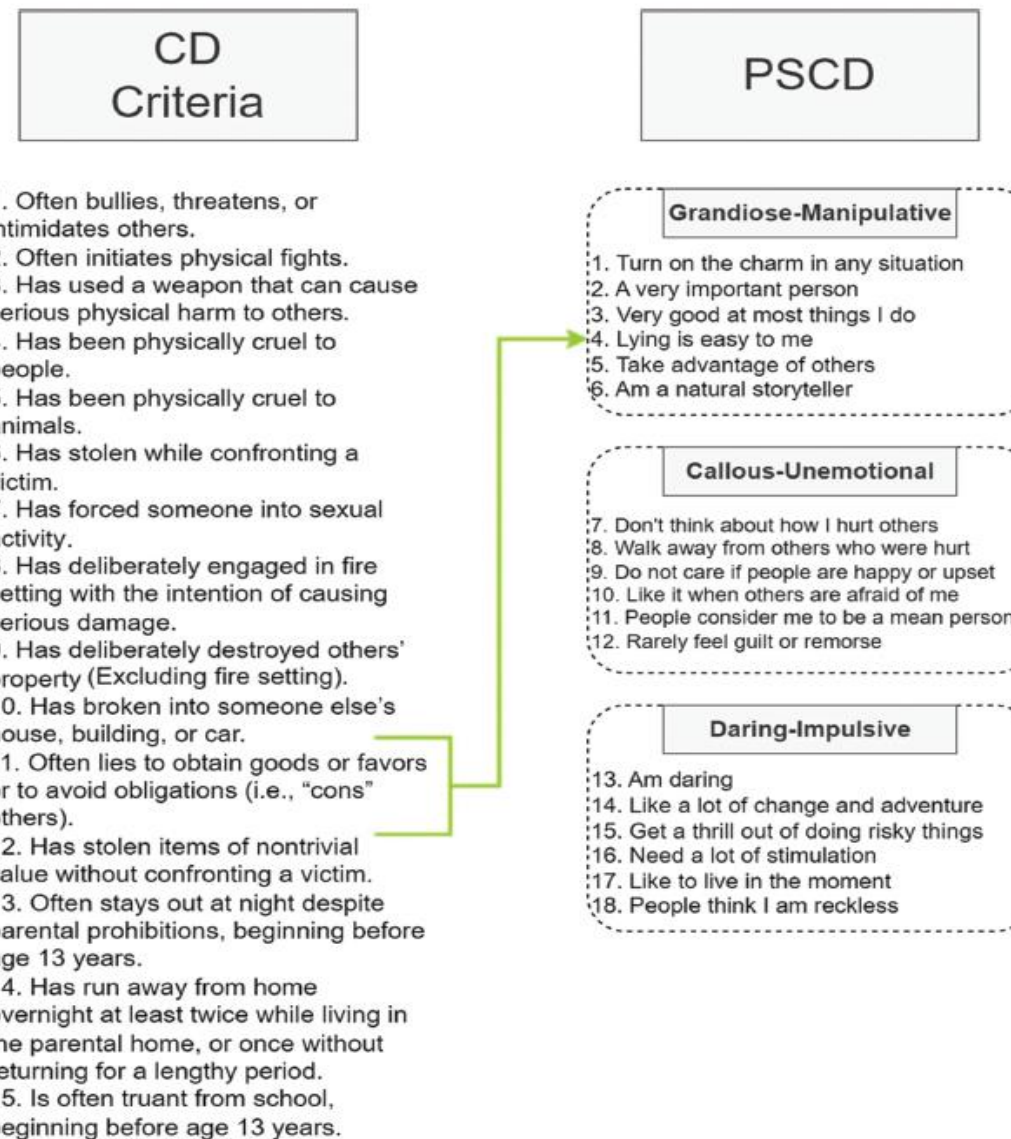


Figure 1. Conduct Disorder and the Multispecifier Model to include Three Personality Specifiers (plus early onset). Note. CD = Conduct Disorder; PSCD = Proposed Specifiers for Conduct Disorder. A refinement to reduce the overlap between the GM specifier and the "deceitfulness or theft" category of CD, we suggest that the item "lies to obtain goods or favors" would shift to the GM traits specifier where the item is already captured. *Relational aggression* in its various forms (aggressive rumor milling, stalking, smart phone aggression) could be considered as a replacement behavioral item for the theft and deceit subtype, which might be renamed theft and/or relational aggression.

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Low-Fear

Low levels of fear lead to conduct problems and reduce the ability to socialize children.

David Lykken

PSYCHOPATHIC PERSONALITY AS PATHOLOGICAL STIMULATION-SEEKING

HERBERT C. QUAY, Ph.D.

Theories about the nature and etiology of psychopathic personality¹ have had a wide range and, as might be expected, have reflected the pendulum swings from the organic to the psychodynamic and back again that have characterized theorizing about psychopathological conditions in general. The early theories emphasized "moral imbecility" (24) and constitutional inferiority (14). With the popularization of depth psychology came a variety of suggestions as to the psychodynamics of the disorder (1, 3, 12). A more recent return to the organic viewpoint has been bolstered mainly by EEG studies purporting to show a high percentage of abnormalities among psychopaths (5, 13).

It is the impulsivity and the lack of even minimal tolerance for sameness which appear to be the primary and distinctive features of the disorder. In accounting for these and related features of the disorder this paper will attempt an explanation of psychopathic behavior in terms of the concepts of need for varied sensory stimulation, adaptation to sensory inputs, and the relationship of these to affect and motivation. The basic hypothesis is that psychopathic behavior represents an extreme of stimulation-seeking behavior and that the psychopath's primary abnormality lies in the realm of basal reactivity and/or adaptation to sensory inputs of all types.

A brief review of current motivational

Herbert Quay - Stimulation-Seeking (low arousal)

- ▶ Quay (1965) described the psychopathic disorder as a manifestation of excessive sensation-seeking behavior.
- ▶ Quay's theory consists of two facets: (a) psychopaths are characterized by an abnormality in their physiological reaction to sensory input, which requires a higher degree of sensory stimulation in order to obtain satisfaction and (b) because of psychopaths' higher optimal level of stimulation, an extremely high degree of motivation is required in order to compensate for their under-arousal.

Sensation seeking – pathway 1

1) children's sensation seeking behavior becomes aversive to parents resulting in parent-child interactions that are hostile, inconsistent, and rejecting. These negative reactions result in delinquency, which leads to more hostile parenting. Endless cycle of poor interpersonal patterns results. Distancing of parents and decrease in the likelihood of socialization.

Gerald Patterson's child is the architect of their environment

Sensation seeking- pathway 2

- ▶ 2. Psychopathic children are less able to anticipate physical pain due to an underactive nervous system. Thus, punishment by parents must be at a high level to produce avoidance. However, because of habituation, the child's ability to resist the effects of punishment tends to increase. At the same time parents withdraw from the child who seems beyond control
- ▶ Net result – undersocialized, sensation-seeking children.

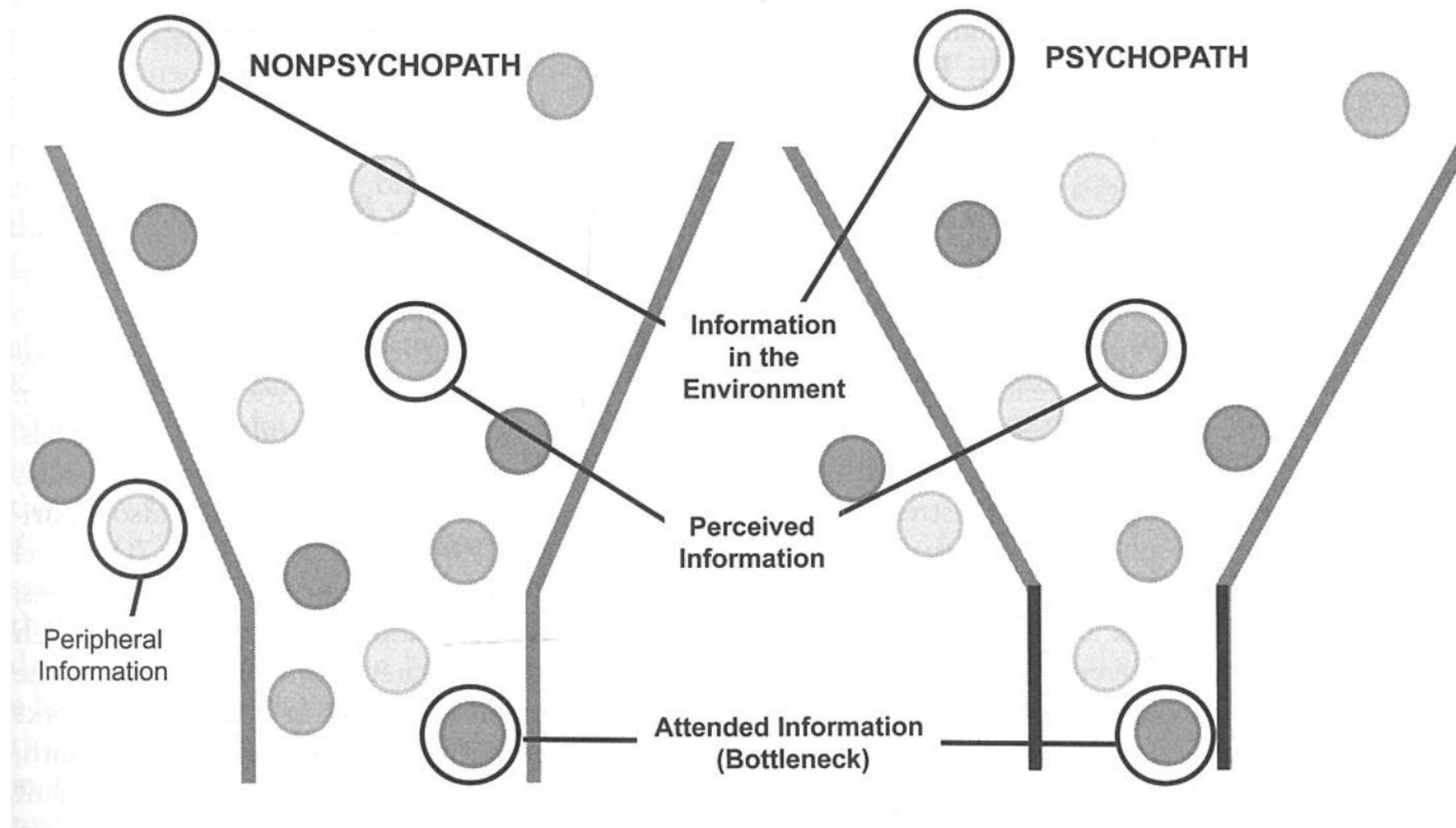


Newman, Baskin-Sommers, et al. (2010) Biological Psychiatry

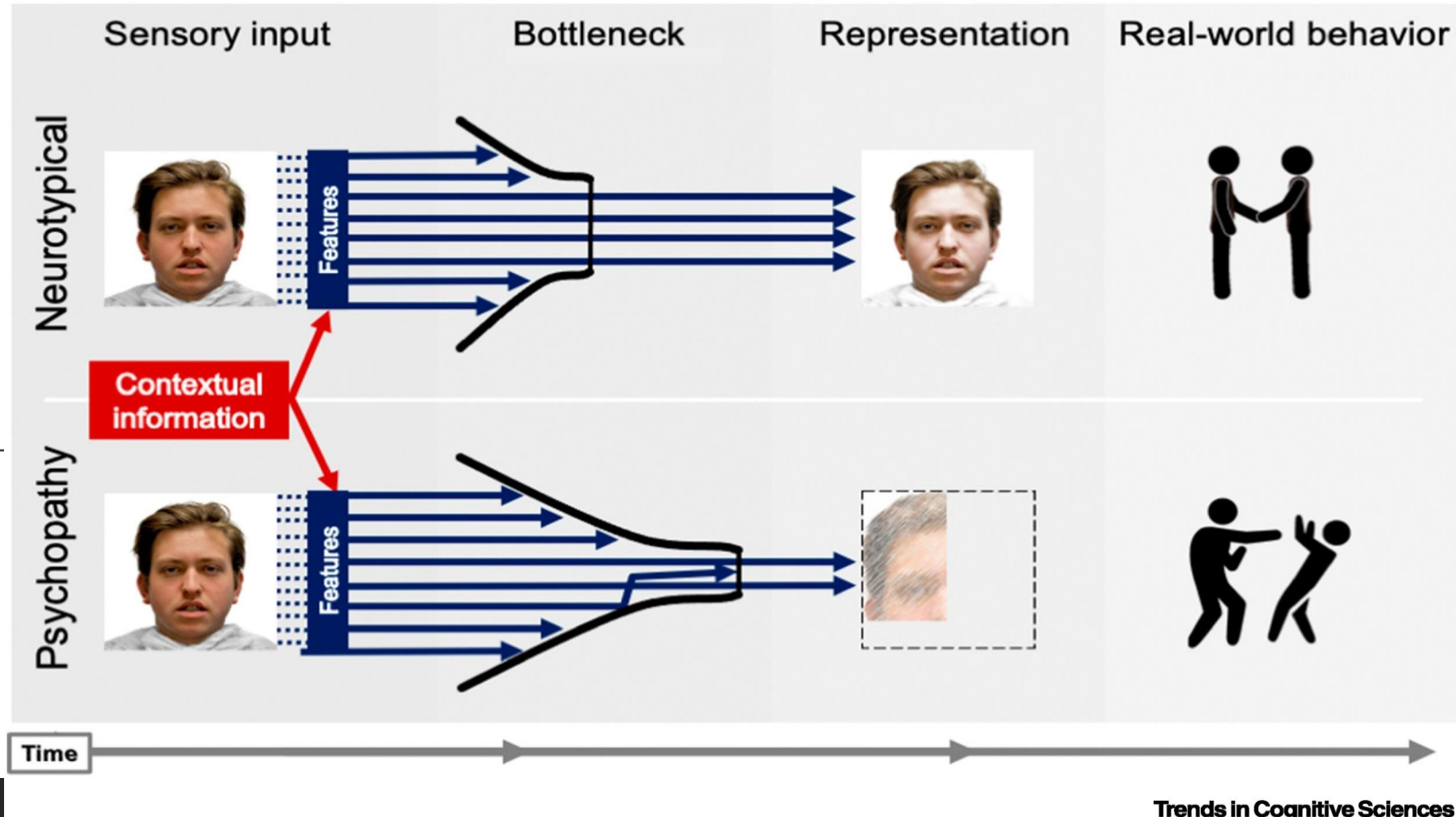
Response Modulation Hypothesis

Less about fear, arousal, and parenting practices and more about how children are primed for a dominant goal

Less likely to pay attention to salient peripheral information.

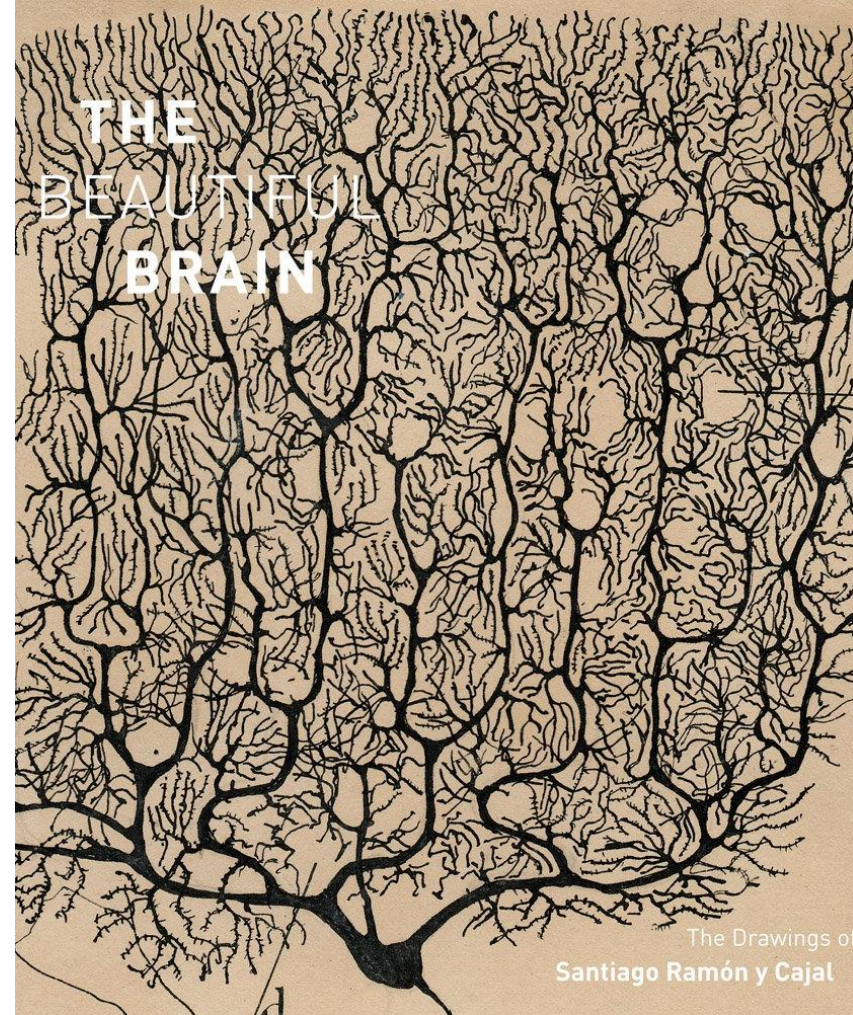
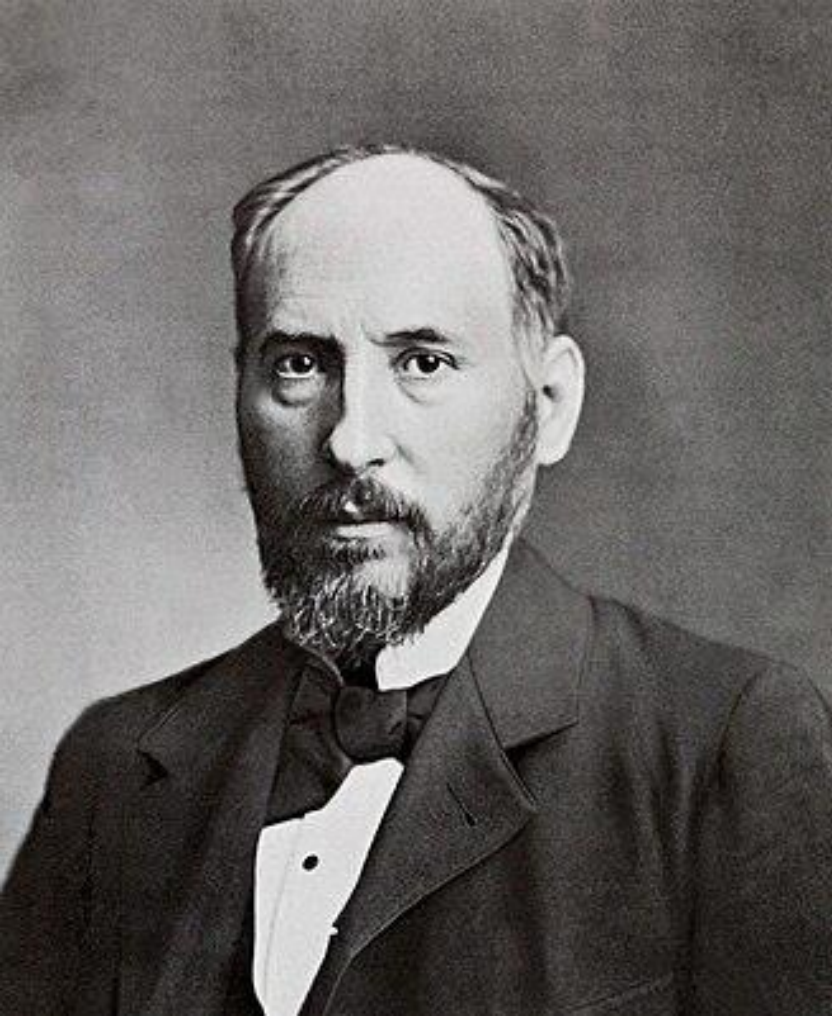


Newman et al. (2010; Biological Psychiatry) - RMH





Neuroscience



Santiago Ramon y Cajol

Eli Robins and Samual Guze

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Research Example 1- Unfamiliar Peers

Mixed Clinic sample

Research on Child and Adolescent Psychopathology (2023) 51:1097–1113
<https://doi.org/10.1007/s10802-023-01056-x>



The Proposed Specifiers for Conduct Disorder – Parent (PSCD-P): Convergent Validity, Incremental Validity, and Reactions to Unfamiliar Peer Confederates

Nicholas A. Bellamy¹ · Randall T. Salekin² · Bridget A. Makol¹ · Tara M. Augenstein³ · Andres De Los Reyes¹

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Abstract

Youth who experience psychopathy display multiple impairments across interpersonal (grandiose-manipulative [GM]), affective (callous-unemotional [CU]), lifestyle (daring-impulsive [DI]), and potentially antisocial and behavioral features. Recently, it has been acknowledged that the inclusion of psychopathic features can offer valuable information in relation to the etiology of Conduct Disorder (CD). Yet, prior work largely focuses on the affective component of psychopathy, namely CU. This focus creates uncertainty in the literature on the incremental value of a multicomponent approach to understanding CD-linked domains. Consequently, researchers developed the Proposed Specifiers for Conduct Disorder (PSCD; Salekin & Hare, 2016) as a multicomponent approach to assess GM, CU, and DI features in combination with CD symptoms. The notion of considering the wider set of psychopathic features for CD specification requires testing whether multiple personality dimensions predict domain-relevant criterion outcomes above-and-beyond a CU-based approach. Thus, we tested the psychometric properties of parents' reports on the PSCD (PSCD-P) in a mixed clinical/community sample of 134 adolescents ($M_{age} = 14.49$, 66.4% female). Confirmatory factor analyses resulted in a 19-item PSCD-P displaying acceptable reliability estimates and a bifactor solution consisting of GM, CU, DI, and CD factors. Findings supported the incremental validity of scores taken from the PSCD-P across multiple criterion variables, including (a) an established survey measure of parent-adolescent conflict; and (b) trained independent observers' ratings of adolescents' behavioral reactions to laboratory controlled tasks designed to simulate social interactions with unfamiliar peers. These findings have important implications for future research on the PSCD and links to adolescents' interpersonal functioning.

Keywords Psychopathy · Conduct Disorder (CD) · GM traits · PSCD · Psychometric properties · Adolescents

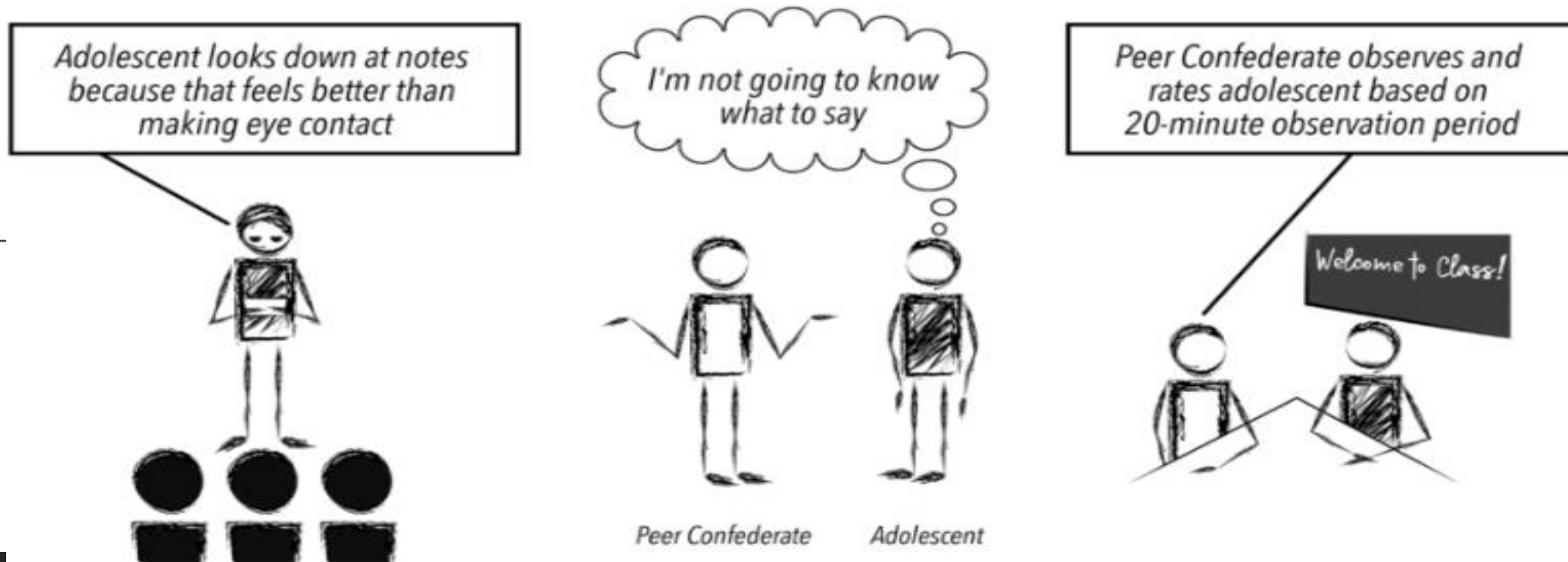
Introduction

Considerable evidence supports the occurrence of psychopathy among children and adolescents (Salekin & Lynam, 2010). Prior work largely focuses on assessing the affective

components of psychopathy – namely callous unemotional traits (CU) – examples of which include lack of guilt or remorse about wrongdoing, failure to put forth effort in important activities, diminished empathy for others' welfare, and shallow emotions (Cleckley, 1941; Hare, 1999, 2003). The presence of elevated CU appears to characterize

Unfamiliar Peer Paradigm (Cannon et al. 2020)

- During adolescence, interactions with unfamiliar peers is highly anxiety provoking, particularly for those with social anxiety concerns



Unfamiliar Peer Paradigm

- In response to these social interactions, adolescents typically experience:
 - ***Higher*** levels of arousal/anxiousness
 - ***Lower*** social skills
-

DV #1: parent-child conflict (above and beyond CU)

- Significant **positive** correlation with
 - GM traits,
 - CU traits, and
 - DI traits

- As psychopathic traits ***increase***, parent-child conflict ***increases***

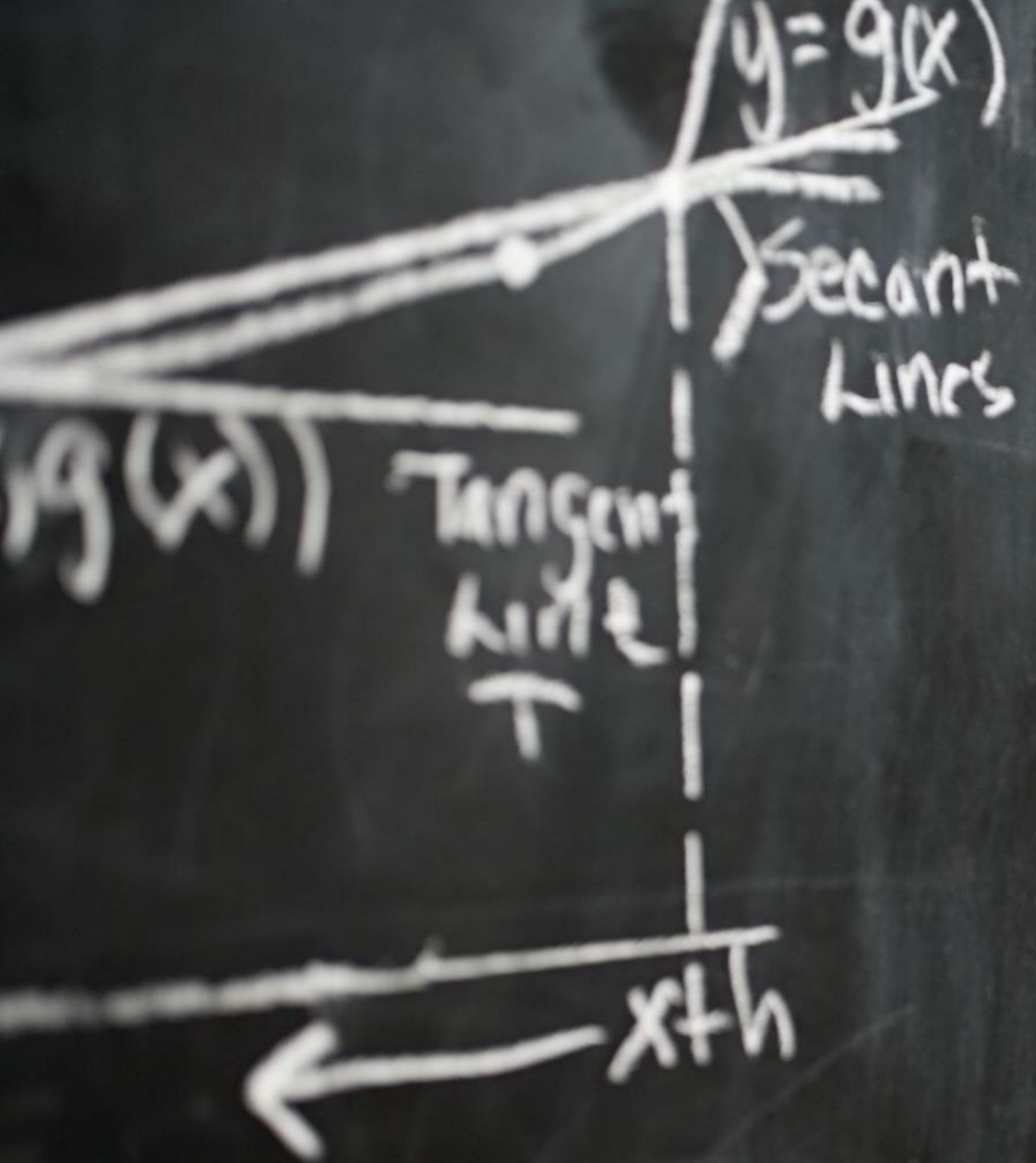
DV #2: adolescent self-report arousal after each social interaction task

- Significant **negative** correlation with
 - GM traits,
 - CU traits, and
 - DI traits

- As psychopathic traits *increase*, self-reported arousal *decreases*

DV #3: adolescents' social skills while interacting with unfamiliar peer

- Significant **positive** correlation with
 - GM traits
- No significant association with
 - CU traits or
 - DI traits
- As GM traits *increase*, social skills *increase*, arousal level *low*
-













$$f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$$
$$f(x) = \lim_{h \rightarrow 0} (x+h)^2 - x^2$$
$$= \lim_{h \rightarrow 0} \frac{x^2 + 2xh + h^2 - x^2}{h}$$
$$= \lim_{h \rightarrow 0} \frac{2xh + h^2}{h}$$

Research example 2:
processing emotion

ORIGINAL ARTICLE

Psychopathy traits and their link to emotion recognition impairments in conduct disorder

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Abstract

Background: Neurocognitive models suggest that callous-unemotional (CU) traits in youths with conduct disorder (CD) are linked to emotion recognition impairments,

TABLE 1 Main demographic information and clinical characteristics per psychopathy subgroup (overall $N = 538$).

	CD-only ($n = 281$, 52.2%)	CD + CU ($n = 45$, 8.4%)	CD + GM ($n = 42$, 7.8%)	CD + II ($n = 49$, 9.1%)	CD + CU + GM ($n = 26$, 4.8%)	CD + CU + II ($n = 18$, 3.3%)	CD + GM + II ($n = 27$, 5.0%)	CD + CU + GM + II ($n = 50$, 9.3%)	Group effect p value, ES
Girls (%)	57.3 ^a	40.0 ^a	61.9 ^{a,b}	81.6 ^b	61.5 ^{a,b}	55.6 ^{a,b}	74.1 ^{a,b}	48.0 ^a	0.002, Cramer's $V = 0.21$
Age (years) M(SD)	14.1 (2.3) ^a	14.4 (2.3) ^{a,b}	14.3 (2.2) ^{a,b}	15.3 (1.8) ^b	14.5 (2.4) ^{a,b}	14.3 (2.2) ^{a,b}	15.1 (2.7) ^{a,b}	14.8 (2.0) ^{a,b}	0.025, $\Omega^2 = 0.038$
Estimated total IQ M(SD)	94.7 (12.0)	93.0 (12.0)	97.8 (13.6)	94.0 (10.6)	97.7 (14.4)	95.4 (14.1)	94.8 (16.4)	93.9 (11.3)	ns, $\Omega^2 = 0.005$
Socioeconomic status M(SD)	-0.32 (0.92)	-0.15 (0.67)	-0.05 (0.67)	-0.48 (1.13)	-0.23 (0.86)	-0.64 (0.99)	-0.03 (0.75)	-0.39 (1.36)	ns, $\Omega^2 = 0.021$
Current CD symptoms M(SD)	5.0 (2.1) ^a	5.6 (2.4) ^{a,b}	5.3 (2.6) ^{a,b}	6.1 (2.3) ^{a,b}	5.7 (2.4) ^{a,b}	6.4 (2.2) ^{a,b}	6.4 (2.8) ^b	6.3 (2.7) ^b	<0.001, $\Omega^2 = 0.044$
YPI M(SD):									
CU traits	28.4 (4.7) ^a	42.3 (4.3) ^b	32.0 (4.1) ^c	27.9 (5.6) ^a	41.7 (3.6) ^b	45.1 (6.2) ^b	32.8 (3.1) ^c	43.0 (3.9) ^b	<0.001, $\Omega^2 = 0.68$
GM traits	31.7 (7.2) ^a	36.1 (6.1) ^b	51.5 (4.5) ^c	36.2 (6.3) ^b	53.9 (6.1) ^c	38.5 (7.4) ^b	52.7 (5.6) ^c	55.9 (5.9) ^c	<0.001, $\Omega^2 = 0.69$
II traits	34.4 (6.8) ^a	39.4 (5.2) ^b	38.6 (4.1) ^b	48.9 (2.9) ^c	40.9 (3.0) ^b	49.1 (2.8) ^c	50.1 (3.9) ^c	50.2 (3.2) ^c	<0.001, $\Omega^2 = 0.61$
Current comorbidities (%):									
ODD	74.0	68.9	81.0	83.7	92.3	94.4	77.8	86.0	ns, Cramer's $V = 0.16$
ADHD	37.0	28.9	38.1	40.8	30.8	66.7	25.9	40.0	ns, Cramer's $V = 0.14$
SUD	12.1 ^a	11.1 ^{a,b}	16.7 ^{a,b}	36.7 ^b	11.5 ^{a,b}	27.8 ^{a,b}	33.3 ^{a,b}	26.0 ^{a,b}	<0.001, Cramer's $V = 0.23$
MDD	17.4	22.2	9.5	18.4	11.5	44.4	22.2	14.0	ns, Cramer's $V = 0.16$
PTSD	6.8 ^a	2.2 ^a	4.8 ^{a,b}	4.1 ^{a,b}	11.5 ^{a,b}	27.8 ^b	18.5 ^{a,b}	4.0 ^{a,b}	0.004, Cramer's $V = 0.19$
GAD	13.9 ^{a,b}	13.3 ^{a,b}	14.3 ^{a,b}	10.2 ^{a,b}	11.5 ^{a,b}	33.3 ^b	11.1 ^{a,b}	0.0 ^a	0.035, Cramer's $V = 0.17$

Note: Diagnoses were based on the Schedule for Affective Disorders and Schizophrenia for School-Age Children–Present and Lifetime version (K-SADS-PL). CU, GM, and II traits were assessed with the Youth Psychopathic Traits Inventory (YPI). Note though that we only report post hoc results if there were in fact significant between-group main effects. Information on race and/or ethnicity was not collected in accordance with governmental and ethical guidelines in Germany. It should also be noted that we did not assess the gender identity of the participants, but assigned them to the girls or boys sample based on their sex at birth. p values are based on F tests or χ^2 tests. Cramer's V : 0.1 = weak; 0.3 = moderate; 0.5 = strong. Ω^2 : 0.01 = weak; 0.06 = moderate; 0.14 = strong. Subgroups with different superscript indices differed significantly in post-hoc comparisons ($p \leq 0.05$, Bonferroni-corrected, i.e., $p \leq 0.05/28 \leq 0.002$), those with the same index did not.

Abbreviations: ADHD, attention deficit hyperactivity disorder; CD, conduct disorder; CU, callous-unemotional; ES, effect size; GAD, generalized anxiety disorder; GM, grandiose-manipulative; II, impulsive-irresponsible; IQ, estimated intelligence quotient; MDD, major depressive disorder; ODD, oppositional defiant disorder; PTSD, post-traumatic stress disorder; SES, socioeconomic status; SUD, substance use disorder.

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Age (years) M(SD)	14.1 (2.3) ^a	14.4 (2.3) ^{a,b}	14.3 (2.2) ^{a,b}	15.3 (1.8) ^b	14.5 (2.4) ^{a,b}	14.3 (2.2) ^{a,b}	15.1 (2.7) ^{a,b}	14.8 (2.0) ^{a,b}	0.025, $\Omega^2 = 0.038$
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Abbreviations: ADHD, attention deficit hyperactivity disorder; CD, conduct disorder; CU, callous-unemotional; ES, effect size; GAD, generalized anxiety disorder; GM, grandiose-manipulative; II, impulsive-irresponsible; IQ, estimated intelligence quotient; MDD, major depressive disorder; ODD, oppositional defiant disorder; PTSD, post-traumatic stress disorder; SES, socioeconomic status; SUD, substance use disorder.

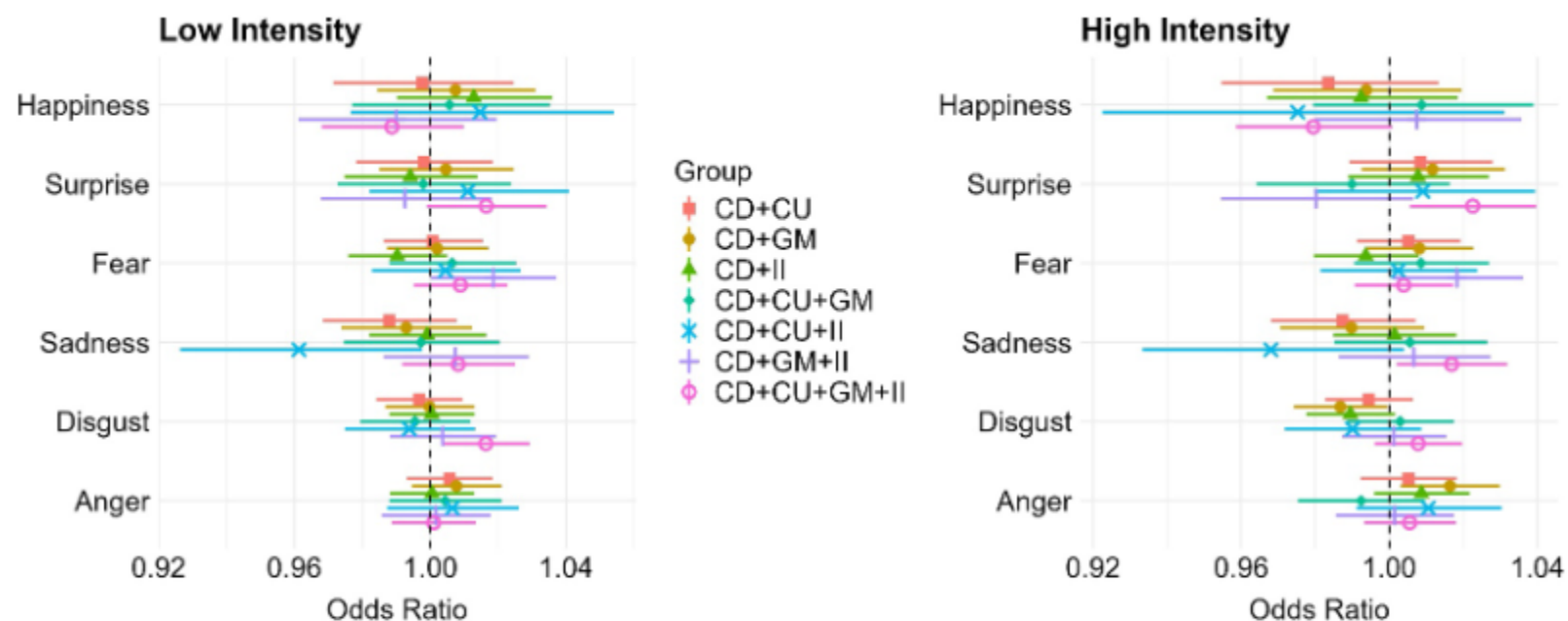


FIGURE 1 Forest plots illustrate ORs with 95% confidence intervals (adjusted for age, sex, IQ, SES, site, and major co-occurring psychiatric disorders) from the two separate multinomial regression models per emotion and psychopathy subgroup at the two different intensities in which each emotion was presented—low intensity equals 70%, whereas high intensity equals 90%. ORs greater than 1 indicate a higher error rate and less than 1 indicate a lower error rate compared to the CD-only subgroup. CD, conduct disorder; IQ, intelligence quotient; ORs, odds ratios; SES, socioeconomic status.

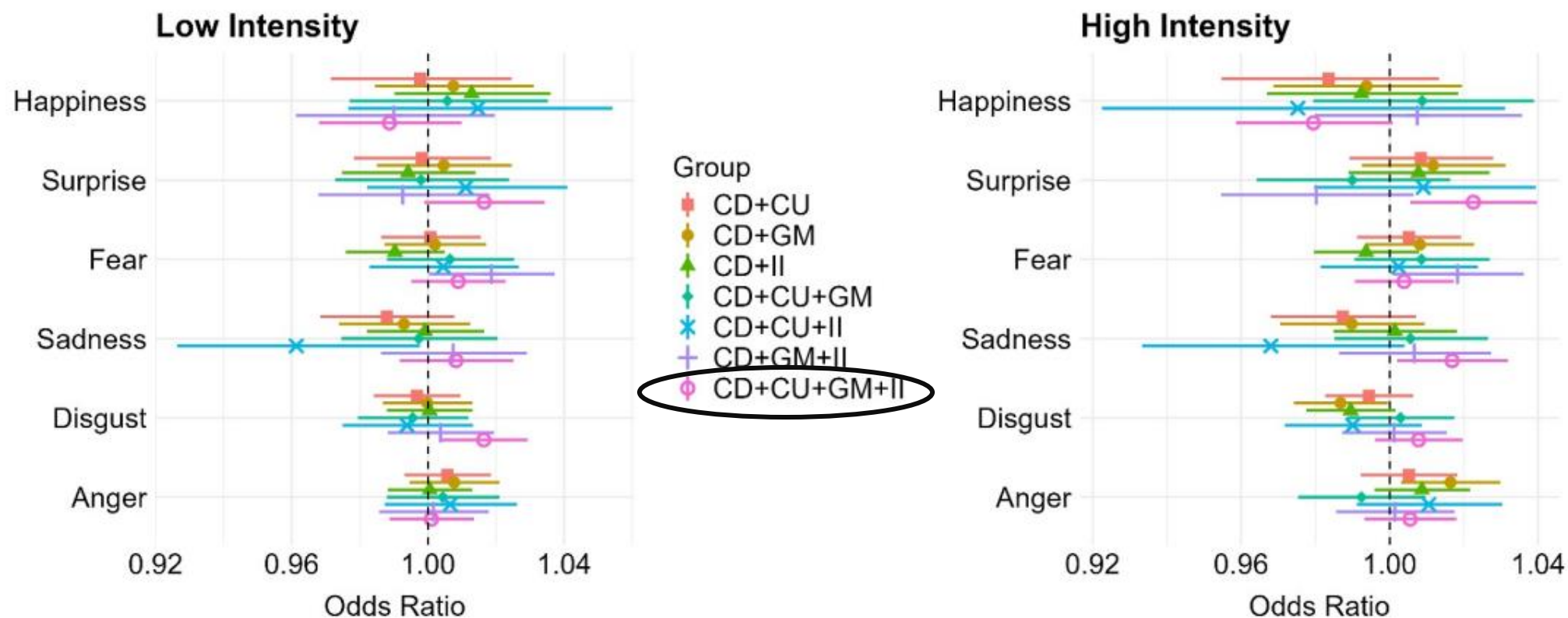


FIGURE 1 Forest plots illustrate ORs with 95% confidence intervals (adjusted for age, sex, IQ, SES, site, and major co-occurring psychiatric disorders) from the two separate multinomial regression models per emotion and psychopathy subgroup at the two different intensities in which each emotion was presented—low intensity equals 70%, whereas high intensity equals 90%. ORs greater than 1 indicate a higher error rate and less than 1 indicate a lower error rate compared to the CD-only subgroup. CD, conduct disorder; IQ, intelligence quotient; ORs, odds ratios; SES, socioeconomic status.

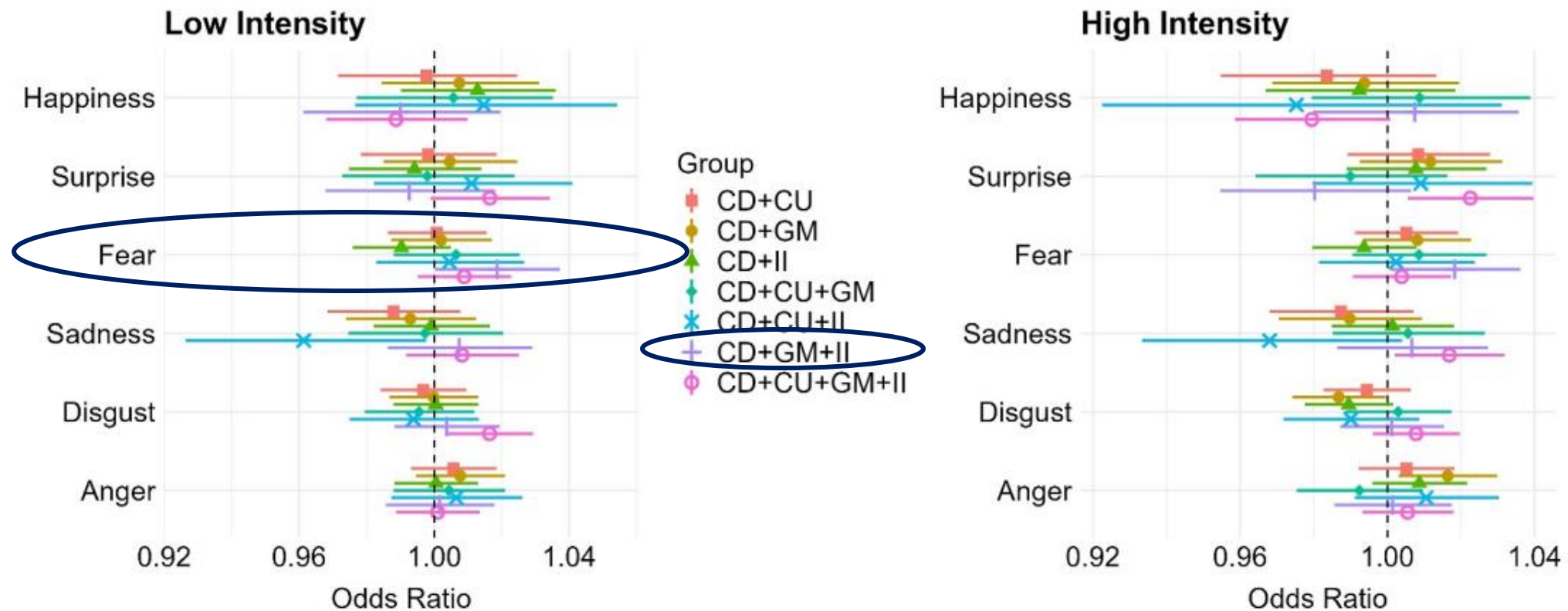


FIGURE 1 Forest plots illustrate ORs with 95% confidence intervals (adjusted for age, sex, IQ, SES, site, and major co-occurring psychiatric disorders) from the two separate multinomial regression models per emotion and psychopathy subgroup at the two different intensities in which each emotion was presented—low intensity equals 70%, whereas high intensity equals 90%. ORs greater than 1 indicate a higher error rate and less than 1 indicate a lower error rate compared to the CD-only subgroup. CD, conduct disorder; IQ, intelligence quotient; ORs, odds ratios; SES, socioeconomic status.

Daring Impulsive Traits (DI) v. ADHD



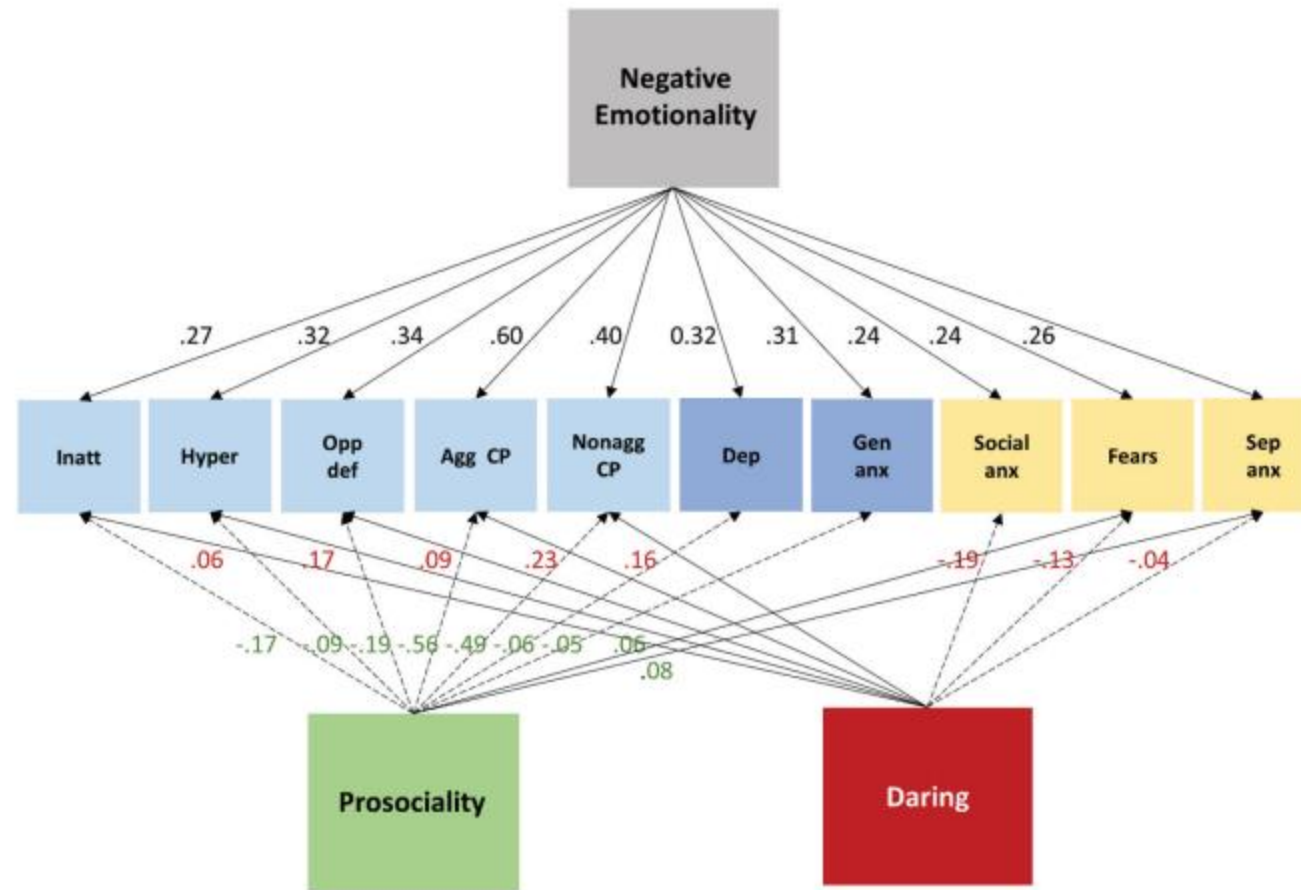


Figure 1. Cross-cutting associations between 10 dimensions of parent-rated psychological problems and three parent-rated CADS dispositional dimensions, adjusting for age, sex, family income, and race-ethnicity in 9–17 year old participants in the Tennessee twin study. Dimensions of dispositions were standardized to mean of 0 and standard deviation of 1. Arrows between dispositions and problem dimensions are quantified as standardized regression coefficients that were significant after 5% FDR correction for the 30 tests of associations (dashed lines represent significant inverse associations).

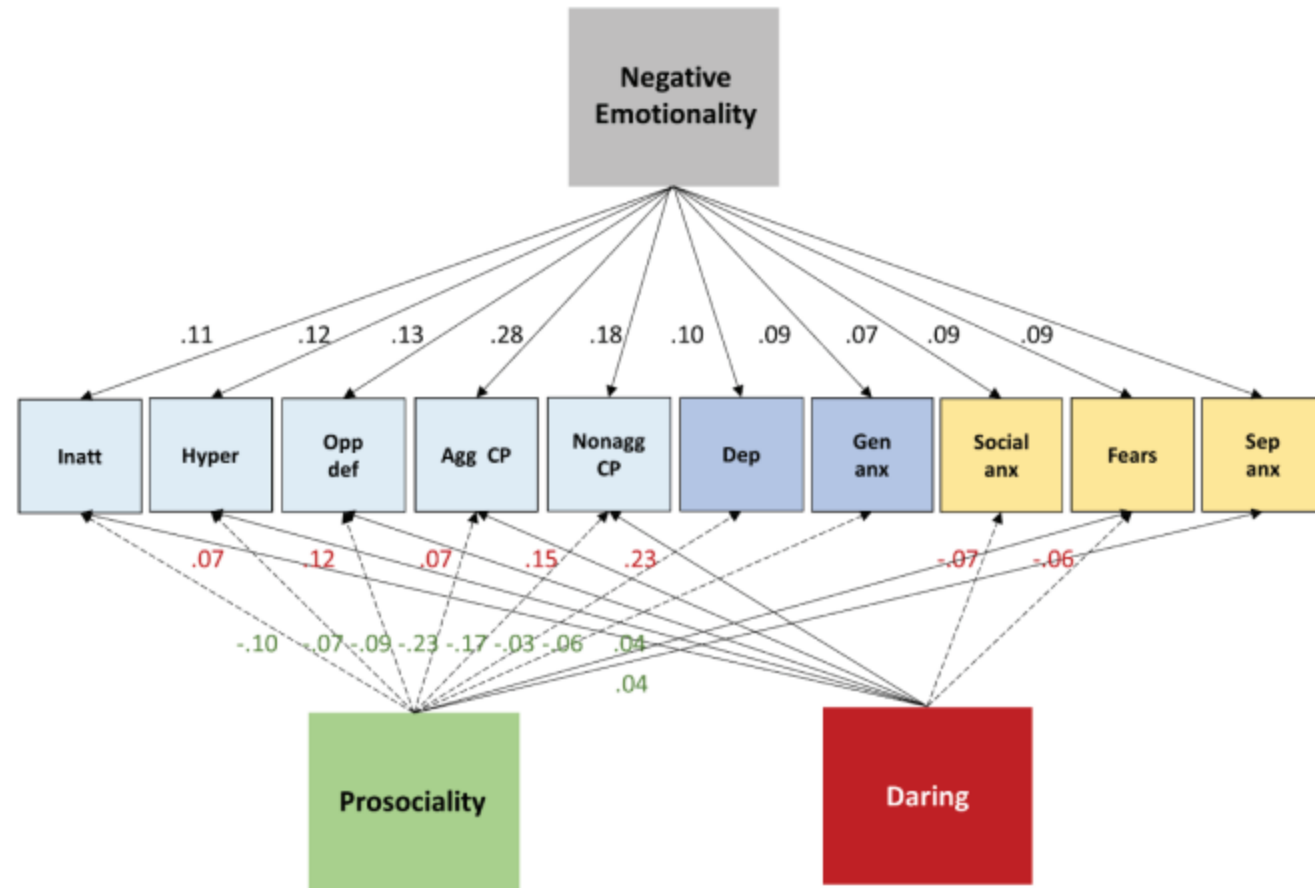


Figure 2. Cross-cutting associations between 10 dimensions of parent-rated psychological problems and three youth self-rated CADS dispositional dimensions, adjusting for age, sex, family income, and race-ethnicity in 9–17 year old participants in the Tennessee twin study. Dimensions of dispositions were standardized to mean of 0 and standard deviation of 1. Arrows between dispositions and problem dimensions are quantified as standardized regression coefficients that were significant after 5% FDR correction for the 30 tests of associations (dashed lines represent significant inverse associations).

Table 1.
Correlations Between Study Variables

	DI	ADHD
DSM-oriented ADHD problems	0.26***	
Attention problems	0.17**	0.84***
Hyperactivity-impulsivity problems	0.27***	0.90***
Diagnosis of CD (current)	0.21***	0.07
Number of CD symptoms (current)		
Total	0.36***	0.14*
Aggression to people and animals	0.25***	0.03
Destruction of property	0.14*	0.16*
Deceitfulness or theft	0.34***	0.15*
Serious violation of rules	0.23**	0.11
Externalizing psychopathology		
Reactive aggression	0.40***	0.29***
Proactive aggression	0.44***	0.19***
Number of substances	0.35***	0.19***
Internalizing psychopathology		
DSM-oriented anxiety problems	0.02	0.31***
DSM-oriented depression problems	0.08	0.33***
Domains of impulsivity		
Negative urgency	0.18**	0.31***
Positive urgency	0.40***	0.33***
Sensation seeking	0.39***	0.12*
Lack of premeditation	0.21***	0.40***
Lack of perseverance	0.03	0.25***

Note. ADHD = attention-deficit/hyperactivity disorder; CD = conduct disorder; DI = daring-impulsive; DSM = Diagnostic and Statistical Manual. * $p < .05$; ** $p < .01$; *** $p < .001$

PSCD DI scale, and
BASC-3 ADHD problems

Evidence of “small” overlap

Table 1.
Correlations Between Study Variables

	DI	ADHD
DSM-oriented ADHD problems	0.26***	-
Attention problems	0.17**	0.84***
Hyperactivity-impulsivity problems	0.27***	0.90***
Diagnosis of CD (current)	0.21***	0.07
Number of CD symptoms (current)		
Total	0.36***	0.14*
Aggression to people and animals	0.25***	0.03
Destruction of property	0.14*	0.16*
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Externalizing psychopathology		
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DSM-oriented anxiety problems	0.02	0.31***
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Negative urgency	0.18**	0.31***
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Sensation seeking	0.39***	0.12*
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Note. ADHD = attention-deficit/hyperactivity disorder; CD = conduct disorder; DI = daring-impulsive; DSM = Diagnostic and Statistical Manual. * $p < .05$; ** $p < .01$; *** $p < .001$

PSCD DI scale,
BASC-3 ADHD problems, and
K-SADS diagnostic interview

DI sig. related to diagnosis of CD
ADHD non-sig.

DI = all sig. related to CD symptoms

ADHD = sig. related to 3 of 5

DI stronger effects to CD symptoms
than ADHD

Table 1.
Correlations Between Study Variables

	DI	ADHD
DSM-oriented ADHD problems	0.26***	-
Attention problems	0.17**	0.84***
Hyperactivity-impulsivity problems	0.27***	0.90***
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Note. ADHD = attention-deficit/hyperactivity disorder; CD = conduct disorder; DI = daring-impulsive; DSM = Diagnostic and Statistical Manual. * $p < .05$; ** $p < .01$; *** $p < .001$

PSCD DI scale,
BASC-3 ADHD problems,
RPQ scale, and
of substances used prior to arrest
(lysergic acid diethylamide, magic
mushrooms, or heroin)

DI = all sig. related to EXB

ADHD = all sig. related to EXB

DI stronger effects to EXB than ADHD

Table 1.
Correlations Between Study Variables

	DI	ADHD
DSM-oriented ADHD problems	0.26***	-
Attention problems	0.17**	0.84***
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Note. ADHD = attention-deficit/hyperactivity disorder; CD = conduct disorder; DI = daring-impulsive; DSM = Diagnostic and Statistical Manual. * $p < .05$; ** $p < .01$; *** $p < .001$

PSCD DI scale,
BASC-3 ADHD problems, and
BASC-3 internalizing problems

DI = non-sig. related to INT

ADHD = all sig. related to INT

Consistent with Lahey (2024)

Table 1.
Correlations Between Study Variables

	DI	ADHD
DSM-oriented ADHD problems	0.26***	-
Attention problems	0.17**	0.84***
Hyperactivity-impulsivity problems	0.27***	0.90***
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Note. ADHD = attention-deficit/hyperactivity disorder; CD = conduct disorder; DI = daring-impulsive; DSM = Diagnostic and Statistical Manual. * $p < .05$; ** $p < .01$; *** $p < .001$

PSCD DI scale,
BASC-3 ADHD problems, and
Lynam's SUPPS-P Impulsivity Scale

DI = sig. related to impulsivity domains
except lack of perseverance

ADHD = all sig. related to impulsivity

DI traits stronger effect with sensation
seeking and positive urgency

Table 5.

Mean Comparisons of the Comparison ($n = 25$), CD-only ($n = 138$), CD + DI ($n = 67$), CD + ADHD ($n = 34$) Groups for 0.5 SD

Variable(s)	1. Comparison		2. CD-only		3. CD + DI		4. CD + ADHD		$F; df = 3$	Eta^2
	M	SE	M	SE	M	SE	M	SE		
Total number of CD symptoms (current)	1.48 ^a	0.15	5.82 ^b	0.18	7.27 ^c	0.29	6.24 ^{b,c}	0.45	44.51***	0.34
Aggression to people and animals	1.12 ^a	0.16	3.17 ^b	0.11	3.72 ^c	0.17	3.00 ^b	0.09	25.82***	0.23
Destruction of property	0.04 ^a	0.04	0.51 ^b	0.50	0.64 ^b	0.07	0.74 ^b	0.11	8.66***	0.09
Deceitfulness or theft	0.28 ^a	0.11	1.43 ^b	0.08	1.94 ^c	0.11	1.65 ^{b,c}	0.95	19.86***	0.19
Serious violation of rules	0.04 ^a	0.04	0.71 ^b	0.06	0.97 ^b	0.09	0.85 ^b	0.12	10.76***	0.11
DI	4.60 ^a	0.44	5.57 ^{a,b}	0.16	10.24 ^c	0.14	6.06 ^b	0.26	126.12***	0.59
DSM-oriented ADHD problems	3.96 ^a	0.38	4.30 ^a	0.17	4.58 ^a	0.23	9.50 ^b	0.23	72.07***	0.45
Attention problems	1.92 ^a	0.24	2.04 ^a	0.11	2.10 ^a	0.16	4.32 ^b	0.17	33.81***	0.28
Hyperactivity-impulsivity	2.04 ^a	0.29	2.26 ^a	0.11	2.48 ^a	0.16	5.18 ^b	0.21	47.85***	0.36

Note. The mean differences reflect the group creation process. Row means with different superscripts differ significantly. ADHD = attention-deficit/hyperactivity disorder; CD = conduct disorder; DI = daring-impulsive; DSM = Diagnostic and Statistical Manual; M = mean; SE = standard error. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 5.

Mean Comparisons of the Comparison ($n = 25$), CD-only ($n = 138$), CD + DI ($n = 67$), CD + ADHD ($n = 34$) Groups for 0.5 SD

Variable(s)	1. Comparison		2. CD-only		3. CD + DI		4. CD + ADHD		$F; df = 3$	Eta^2
	M	SE	M	SE	M	SE	M	SE		
Total number of CD symptoms (current)	1.48 ^a	0.15	5.82 ^b	0.18	7.27 ^c	0.29	6.24 ^{b,c}	0.45	44.51***	0.34
Aggression to people and animals	1.12 ^a	0.16	3.17 ^b	0.11	3.72 ^c	0.17	3.00 ^b	0.09	25.82***	0.23
Destruction of property	0.04 ^a	0.04	0.51 ^b	0.50	0.64 ^b	0.07	0.74 ^b	0.11	8.66***	0.09
Deceitfulness or theft	0.28 ^a	0.11	1.43 ^b	0.08	1.94 ^c	0.11	1.65 ^{b,c}	0.95	19.86***	0.19
Serious violation of rules	0.04 ^a	0.04	0.71 ^b	0.06	0.97 ^b	0.09	0.85 ^b	0.12	10.76***	0.11
DI	4.60 ^a	0.44	5.57 ^{a,b}	0.16	10.24 ^c	0.14	6.06 ^b	0.26	126.12***	0.59
DSM-oriented ADHD problems	3.96 ^a	0.38	4.30 ^a	0.17	4.58 ^a	0.23	9.50 ^b	0.23	72.07***	0.45
Attention problems	1.92 ^a	0.24	2.04 ^a	0.11	2.10 ^a	0.16	4.32 ^b	0.17	33.81***	0.28
Hyperactivity-impulsivity	2.04 ^a	0.29	2.26 ^a	0.11	2.48 ^a	0.16	5.18 ^b	0.21	47.85***	0.36

Note. The mean differences reflect the group creation process. Row means with different superscripts differ significantly. ADHD = attention-deficit/hyperactivity disorder; CD = conduct disorder; DI = daring-impulsive; DSM = Diagnostic and Statistical Manual; M = mean; SE = standard error. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 5.

Mean Comparisons of the Comparison ($n = 25$), CD-only ($n = 138$), CD + DI ($n = 67$), CD + ADHD ($n = 34$) Groups for 0.5 SD

Variable(s)	1. Comparison		2. CD-only		3. CD + DI		4. CD + ADHD		$F; df = 3$	Eta^2
	M	SE	M	SE	M	SE	M	SE		
Total number of CD symptoms (current)	1.48 ^a	0.15	5.82 ^b	0.18	7.27 ^c	0.29	6.24 ^{b,c}	0.45	44.51***	0.34
Aggression to people and animals	1.12 ^a	0.16	3.17 ^b	0.11	3.72 ^c	0.17	3.00 ^b	0.09	25.82***	0.23
Destruction of property	0.04 ^a	0.04	0.51 ^b	0.50	0.64 ^b	0.07	0.74 ^b	0.11	8.66***	0.09
Deceitfulness or theft	0.28 ^a	0.11	1.43 ^b	0.08	1.94 ^c	0.11	1.65 ^{b,c}	0.95	19.86***	0.19
Serious violation of rules	0.04 ^a	0.04	0.71 ^b	0.06	0.97 ^b	0.09	0.85 ^b	0.12	10.76***	0.11
DI	4.60 ^a	0.44	5.57 ^{a,b}	0.16	10.24 ^c	0.14	6.06 ^b	0.26	126.12***	0.59
DSM-oriented ADHD problems	3.96 ^a	0.38	4.30 ^a	0.17	4.58 ^a	0.23	9.50 ^b	0.23	72.07***	0.45
Attention problems	1.92 ^a	0.24	2.04 ^a	0.11	2.10 ^a	0.16	4.32 ^b	0.17	33.81***	0.28
Hyperactivity-impulsivity	2.04 ^a	0.29	2.26 ^a	0.11	2.48 ^a	0.16	5.18 ^b	0.21	47.85***	0.36

Note. The mean differences reflect the group creation process. Row means with different superscripts differ significantly. ADHD = attention-deficit/hyperactivity disorder; CD = conduct disorder; DI = daring-impulsive; DSM = Diagnostic and Statistical Manual; M = mean; SE = standard error. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 5.

Mean Comparisons of the Comparison ($n = 25$), CD-only ($n = 138$), CD + DI ($n = 67$) **CD + ADHD ($n = 34$)** Groups for 0.5 SD

Variable(s)	1. Comparison		2. CD-only		3. CD + DI		4. CD + ADHD		$F; df = 3$	Eta^2
	M	SE	M	SE	M	SE	M	SE		
Total number of CD symptoms (current)	1.48 ^a	0.15	5.82 ^b	0.18	7.27 ^c	0.29	6.24 ^{b,c}	0.45	44.51***	0.34
Aggression to people and animals	1.12 ^a	0.16	3.17 ^b	0.11	3.72 ^c	0.17	3.00 ^b	0.09	25.82***	0.23
Destruction of property	0.04 ^a	0.04	0.51 ^b	0.50	0.64 ^b	0.07	0.74 ^b	0.11	8.66***	0.09
Deceitfulness or theft	0.28 ^a	0.11	1.43 ^b	0.08	1.94 ^c	0.11	1.65 ^{b,c}	0.95	19.86***	0.19
Serious violation of rules	0.04 ^a	0.04	0.71 ^b	0.06	0.97 ^b	0.09	0.85 ^b	0.12	10.76***	0.11
DI	4.60 ^a	0.44	5.57 ^{a,b}	0.16	10.24 ^c	0.14	6.06 ^b	0.26	126.12***	0.59
DSM-oriented ADHD problems	3.96 ^a	0.38	4.30 ^a	0.17	4.58 ^a	0.23	9.50 ^b	0.23	72.07***	0.45
Attention problems	1.92 ^a	0.24	2.04 ^a	0.11	2.10 ^a	0.16	4.32 ^b	0.17	33.81***	0.28
Hyperactivity-impulsivity	2.04 ^a	0.29	2.26 ^a	0.11	2.48 ^a	0.16	5.18 ^b	0.21	47.85***	0.36

Note. The mean differences reflect the group creation process. Row means with different superscripts differ significantly. ADHD = attention-deficit/hyperactivity disorder; CD = conduct disorder; DI = daring-impulsive; DSM = Diagnostic and Statistical Manual; M = mean; SE = standard error. * $p < .05$; ** $p < .01$; *** $p < .001$

Table 6.*External Correlate Differences Between the Comparison (n = 25), CD-only (n = 138), CD + DI (n = 67), CD + ADHD (n = 34) Groups for 0.5 SD*

	1. Comparison		2. CD-only		3. CD + DI		4. CD + ADHD			
Variable(s)	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>M</i>	<i>SE</i>	<i>F</i> ; <i>df</i> = 3	<i>Eta</i> ²
Externalizing psychopathology										
Reactive aggression	8.24 ^a	0.79	11.45 ^b	0.39	13.53 ^c	0.50	14.06 ^c	0.86	11.62***	0.12
Proactive aggression	2.52 ^a	0.57	7.69 ^b	0.44	10.88 ^c	0.56	8.10 ^c	0.33	19.09***	0.18
Substance use	1.63 ^a	0.26	2.07 ^a	0.09	2.54 ^b	0.15	2.41 ^{a, b}	0.17	4.97**	0.05
Internalizing psychopathology										
DSM-oriented anxiety problems	3.64 ^a	0.61	3.67 ^a	0.24	3.18 ^a	0.29	6.35 ^b	0.62	10.07***	0.10
DSM-oriented depression problems	5.24 ^a	0.75	5.49 ^a	0.33	5.70 ^a	0.34	8.79 ^b	0.97	6.46***	0.07
Domains of impulsivity										
Negative urgency	8.28 ^a	0.49	9.28 ^a	0.26	9.79 ^{a, b}	0.32	10.74 ^b	0.45	9.05***	0.05
Positive urgency	7.68 ^a	0.55	8.74 ^a	0.25	10.64 ^b	0.32	10.41 ^b	0.46	11.15***	0.12
Sensation seeking	10.48 ^a	0.56	10.80 ^a	0.22	12.38 ^b	0.32	10.76 ^{a, b}	0.55	5.38**	0.06
Lack of premeditation	7.48 ^a	0.47	8.24 ^a	0.20	8.79 ^a	0.31	10.62 ^b	0.38	10.97***	0.11
Lack of perseverance	7.16 ^a	0.55	7.89 ^a	0.21	7.67 ^a	0.29	9.82 ^b	0.43	7.24***	0.08

Note. The mean differences reflect the group creation process. Row means with different superscripts differ significantly. ADHD = attention-deficit/hyperactivity disorder; CD = conduct disorder; DI = daring-impulsive; DSM = Diagnostic and Statistical Manual; *M* = mean; PSCD = Proposed Specifiers for Conduct Disorder scale; *SE* = standard error. * $p < .05$; ** $p < .01$; *** $p < .001$

Glenn et al.
(2010).
Increased
volume in the
striatum.
Biological
Psychiatry.

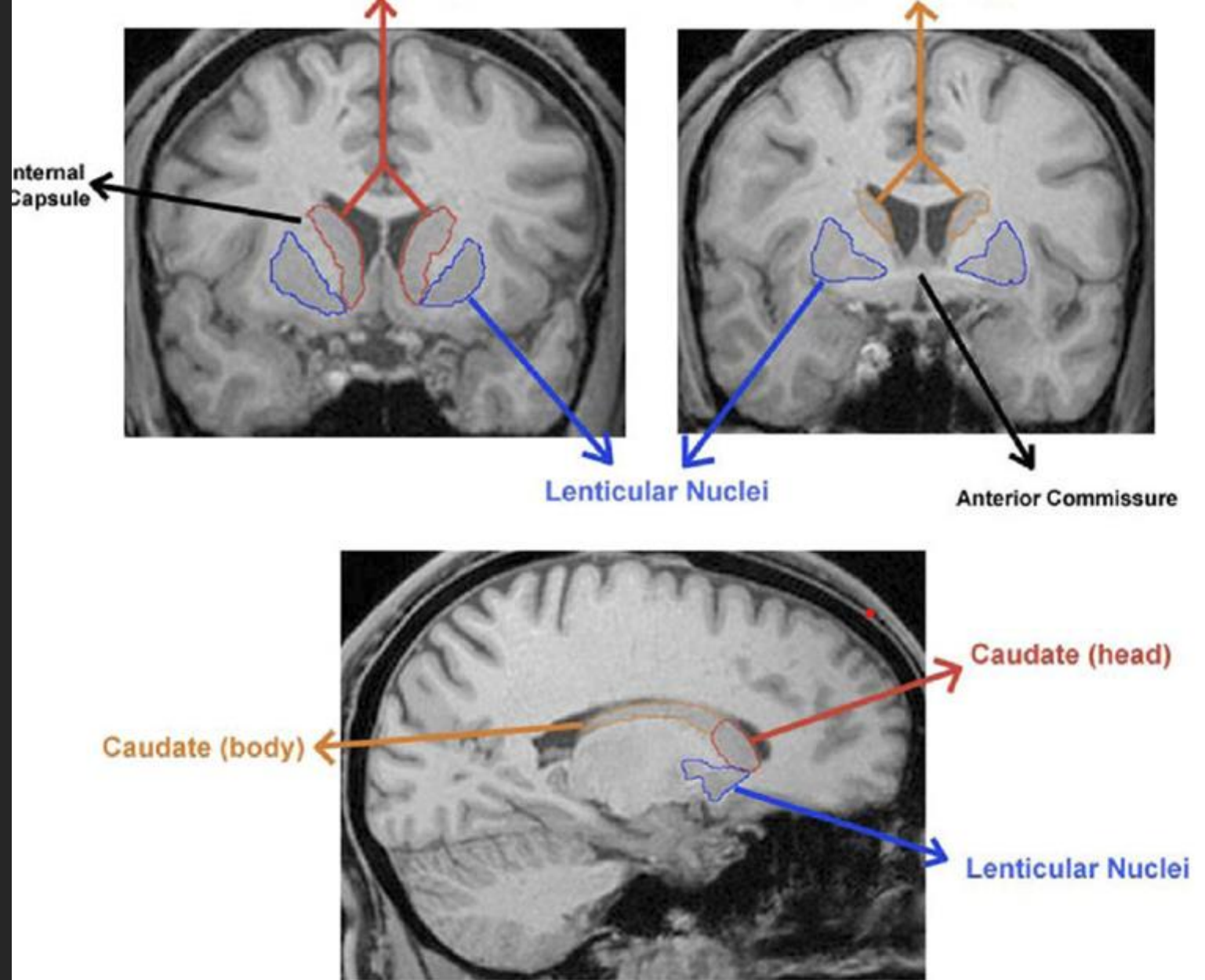
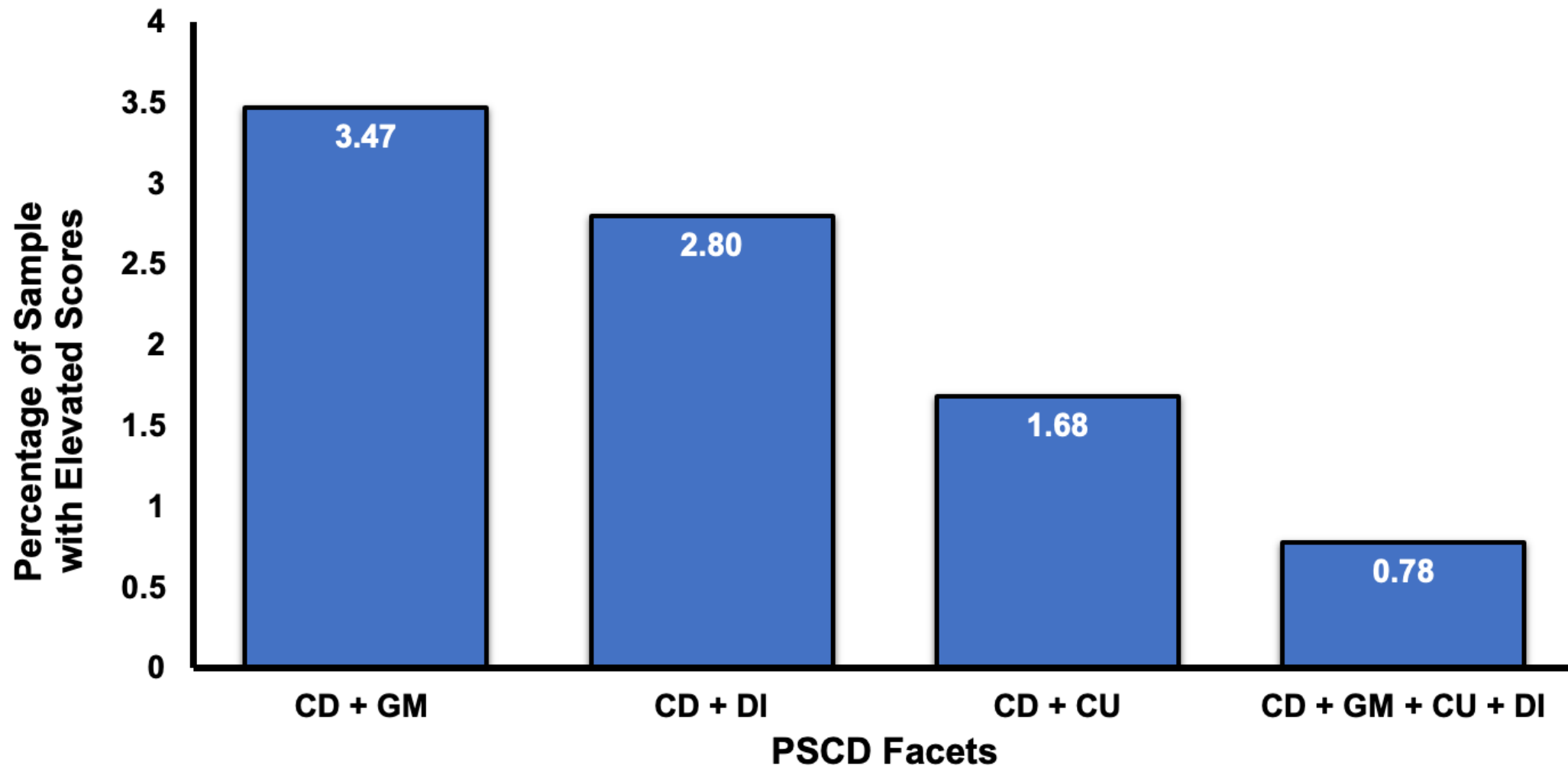


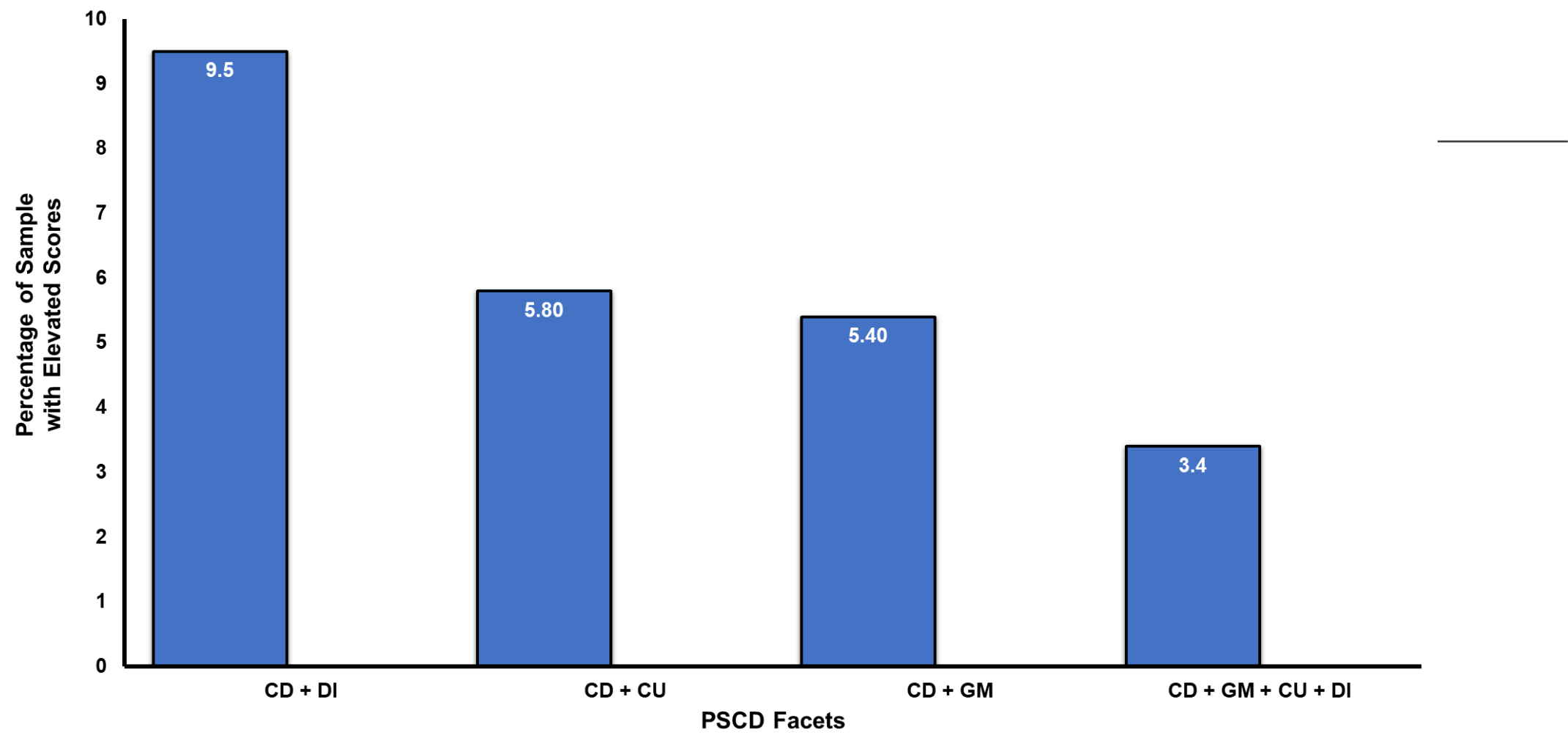
Figure 1.

Top: Coronal slices of the striatum illustrating the delineation of the caudate and lenticular nuclei. Bottom: Sagittal slice depicting the distinction between the head and body of the caudate.

Prevalence







Outline

- 1.Disruptive behavior disorders
- 2.Science based definition of psychopathy
- 3.Conduct disorder and psychopathy
- 4.Psychopathy and Conduct Disorder
- 5.Causal mechanisms
- 6.Research examples 1 and 2
- 7.Daring-impulsive [DI] v. ADHD
- 8.Prevalence
- 9.**Clinical Utility**

Clinical Utility: Prototypical Example

Multispecifier model

More complete but also allows flexibility.

Would reduce false positives.

Would greatly help with differential diagnoses

1. 12-year-old white youth
2. Came in for “behavioral problems”
3. Was treated for ADHD (provided stimulant)
4. Eventually had a considerable amount of juvenile court contact. Dropped out of treatment



Maybe Conduct disorder but also with personality perturbations?



Conduct Disorder plus personality vulnerabilities

CD has a 9.5% lifetime prevalence
(Nock, 2007)

Considered to be analogous to
adult APD (Robins, 1978)

Conduct disorder- specify with personality

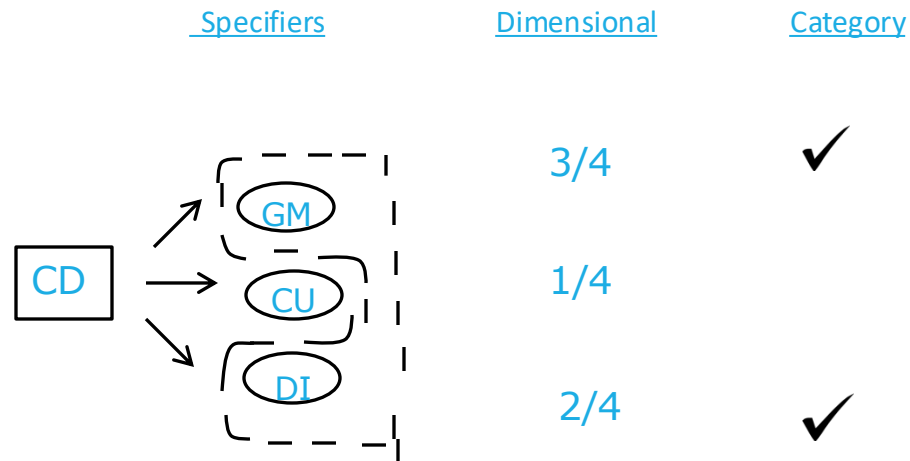
->Conduct Disorder


Specifiers

Early onset

LPE (CU traits)

Multispecifier Model for Incorporating Child Psychopathy Traits and Specifying CD



The image is a composite of two photographs of a modern office. The left side shows a meeting room with wood-paneled walls and two black pendant lights. Three people are seated around a table, engaged in conversation. A semi-transparent white box with text is overlaid on this scene. The right side shows another meeting room with wood-paneled walls and a large screen displaying data. Two people are seated at a table, looking at the screen. The overall atmosphere is professional and collaborative.

Eventually arrive at a
decision and
recommendations

Final tips & takeaways

Consider measuring personality perturbations when assessing conduct disorder

Personality could provide clinicians with much richer and comprehensive clinical information

May help with differential diagnosis: Many conduct problems are often caused by other factors (e.g., depression, anxiety, being ostracized, but sometimes it is personality)

Personality traits may help us better understand the mechanisms for conduct problems and innovate treatment.



Thank you

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