

Primary school age children with oppositional defiant behaviour:
are they just being naughty?

Definitions

naughty: disobedient, badly behaved, **wicked?**
(Oxford Dictionary, 1996)

oppositional defiant disorder(ODD): negativistic, hostile towards
authority figures

conduct disorder(CD): basic rights and age appropriate societal
norms/rules violated

in both disorders, impairment evident in
developmental domains

(DSM-IV, 1994)

The answer is yes, but...

-categorical issues to consider in addition to a dimension of severity

-biological and environmental domains

-first, key phenomena associated with ODD and CD

-prevalence:

ODD - 2.5%-4.5%

CD - 1.3%-3.9%

ODD no different

CD 3-4x:1; male:female

-key co-occurring conditions:

ODD	ADHD-	14%
	Anxiety ds-	14%
	Depressive ds-	9%

the associations with ODD have not been reported

CD ↑	anxiety ds	‘behavioural inhibition’	↓	risk CD
		‘social withdrawal’	↑	risk CD

CD ↑ depressive ds depressive ds- CD ↑ :CD-depressive ds

-in summary, there is a need to systematically investigate specific types of anxiety ds and depressive ds associated with ODD and CD – confer risk? confer resilience?

-the following are new data from primary school age children with ADHD-combined type(ADHD-CT) investigating their association, along with ADHD-CT, with ODD

Standard multiple regression of ADHD-CT, dysthymic and anxiety disorder symptoms on the CBCL-externalising subscale in primary school age children with ADHD-CT (N=183)

	B (unique)	β	sr ²
ADHD-CT sx	.87*	.51	.45 (20%)
Dysthymic d sx	1.11*	.35	.29 (8%)
Anxiety d sx	-.22	-.08	

* $p < .0005$

$R^2 = .51$

Adjusted $R^2 = .50$

One –way ANOVA of parent-reported anxiety disorders in ADHD-CT, ADHD-CT and dysthymic disorder, and dysthymic disorder groups

post hoc SNK procedure for $p < .005$ (bonferroni correction)

	F	
SAD	8.07**	DYS, ADHD-CT-DYS > ADHD-CT
SoPh	5.98*	DYS, ADHD-CT-DYS > ADHD-CT
PD	9.94**	^DYS > ADHD-CT-DYS, ADHD-CT

* $p < .005$; ** $p < .0005$, ^cohen's $d = .48$; $\eta^2 = .09$

One –way ANOVA of child-reported anxiety disorders in ADHD-CT, ADHD-CT and dysthymic disorder, and dysthymic disorder groups

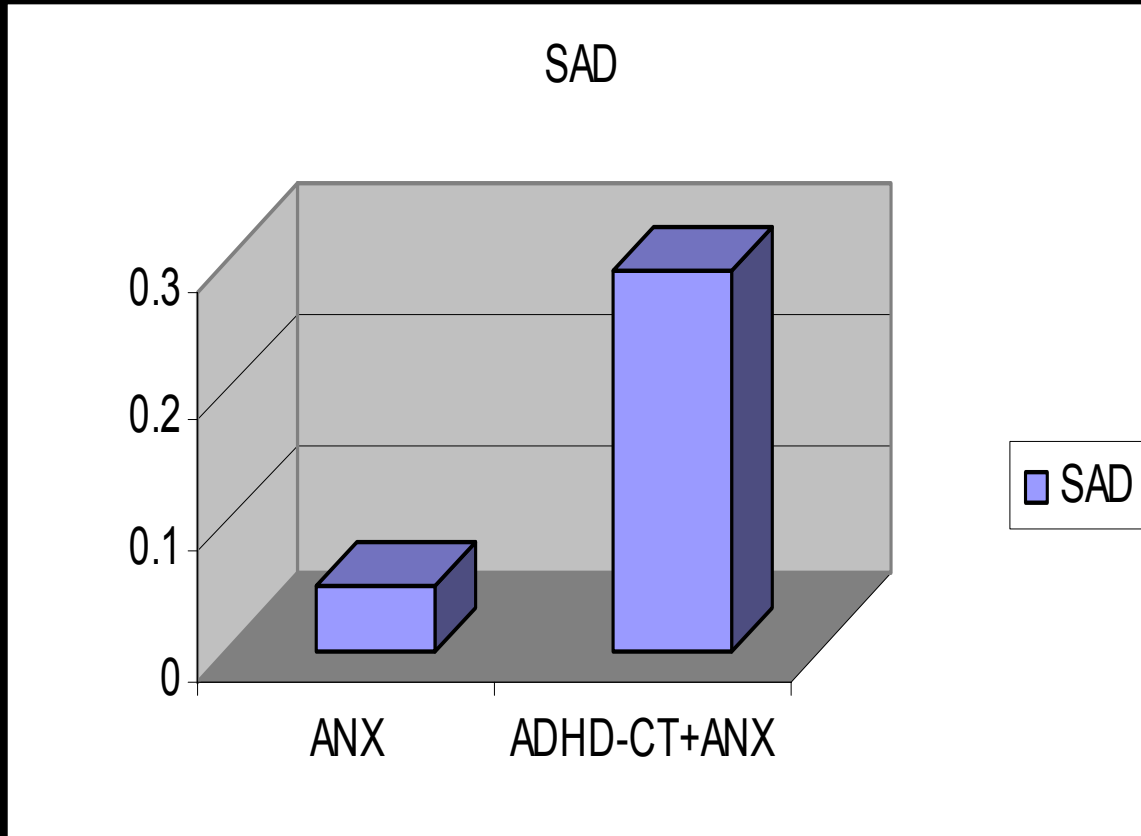
post hoc SNK procedure for $p < .005$ (bonferroni correction)

	F	
SoPh	10.39**	[^] DYS > ADHD-CT-DYS, ADHD-CT
PD	11.55**	^{^^} DYS > ADHD-CT-DYS > ADHD-CT
GAD	8.50**	^{^^^} DYS > ADHD-CT-DYS , ADHD-CT

• $p < .005$; ** $p < .0005$, [^]cohen's $d = .26$; partial $\eta^2 = .09$

^{^^}cohen's $d = .37$; partial $\eta^2 = .10$

^{^^^}cohen's $d = .28$; partial $\eta^2 = .08$



SAD $t(81)$ **ADHD-CT+ANX > ANX**
2.33*

*** $p < .05$, cohen's $d = .58$; partial $\eta^2 = .12$**

Increased brain plasticity during childhood – video demonstration

One –way ANOVA of parent reported motor and language delay in ADHD-CT, ADHD-CT and dysthymic disorder, and dysthymic disorder groups

post hoc SNK procedure for $p < .05$

	F	<i>p</i>
Motor	1.74	.18
Language	1.77	.17

One –way ANOVA of parent reported motor and language delay in ADHD-CT, ADHD-CT and anxiety disorders, and anxiety disorders groups

post hoc SNK procedure for $p < .05$

	F	<i>p</i>
Motor	.28	.75
^Language	2.62	.08

^ADHD-CT+ANX: ANX, cohen's $d = .58$

One-way MANOVA investigating ADHD-CT, ADHD-CT and dysthymic disorder, and dysthymic disorder group differences in neurological subtle signs

Wilks' $\lambda = .82$, $F(12,404)=2.88$, $p=.001$, partial $\eta^2 = .09$

Total score:	ADHD-CT	ADHD-CT DYS	DYS
	32.37(18.47)	34.02(13.54)	25.42(10.72)

$F(2,207)=2.62$, $p=.08$, partial $\eta^2 = .03$, \hat{c} ohen's $d = .71$

Eye:

$F(2,118)=5.39$, $p=.005$, partial $\eta^2 = .06$, \hat{c} ohen's $d = .44$

DYS, \hat{c} ADHD-CT-DYS > ADHD-CT

One-way MANOVA investigating ADHD-CT, ADHD-CT and anxiety disorders, and anxiety disorders group differences in neurological subtle signs

Wilks' $\lambda = .76$, $F(12,226)=2.50$, $p=.004$, partial $\eta^2 = .13$

Total score:

	ADHD-CT	^ADHD-CT	ANX
	30.35(15.62)	33.34(10.07)	17.33(12.93)

$F(2,118)=4.80$, $p=.01$, partial $\eta^2 = .08$, ^cohen's d = .85

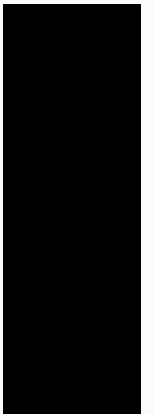
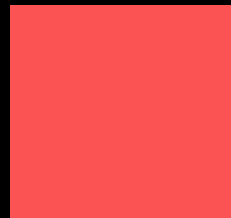
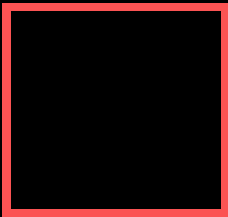
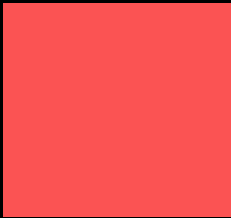
Smoothness Accuracy:

$F(2,118)=4.80$, $p=.01$, partial $\eta^2 = .08$, ^cohen's d = .50

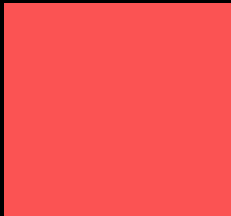
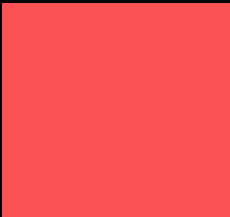
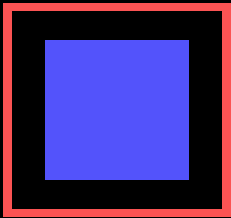
Cerebellar:

$F(2,118)=7.00$, $p=.001$, partial $\eta^2 = .12$, ^cohen's d = 1.83

ADHD-CT, ^ADHD-CT-ANX > ANX



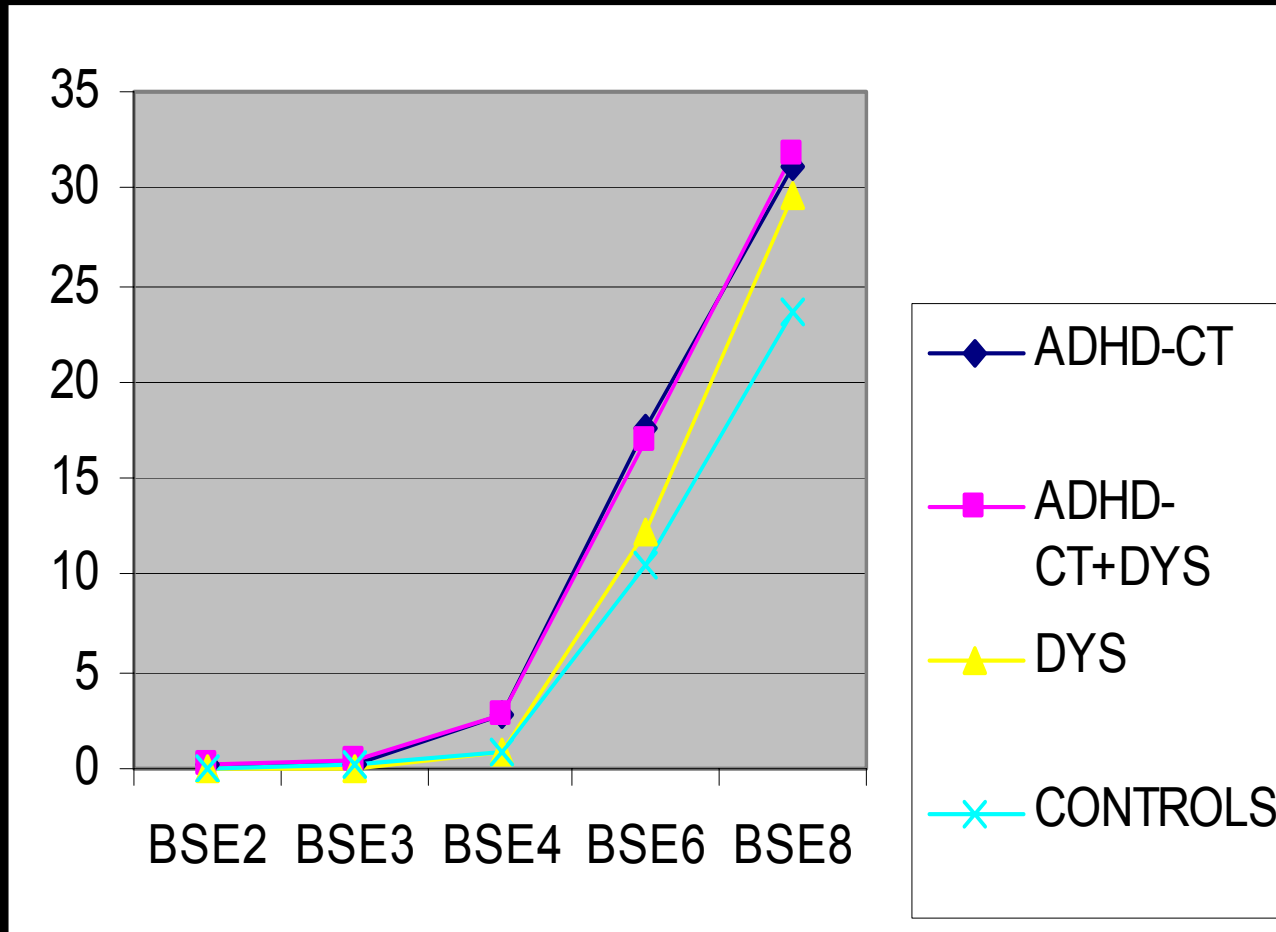
Spatial working memory
(manipulate)



Spatial working memory
(manipulate)

Between Search Errors(BSE) (mean) at each level of difficulty across the four groups

BSE
(mean)



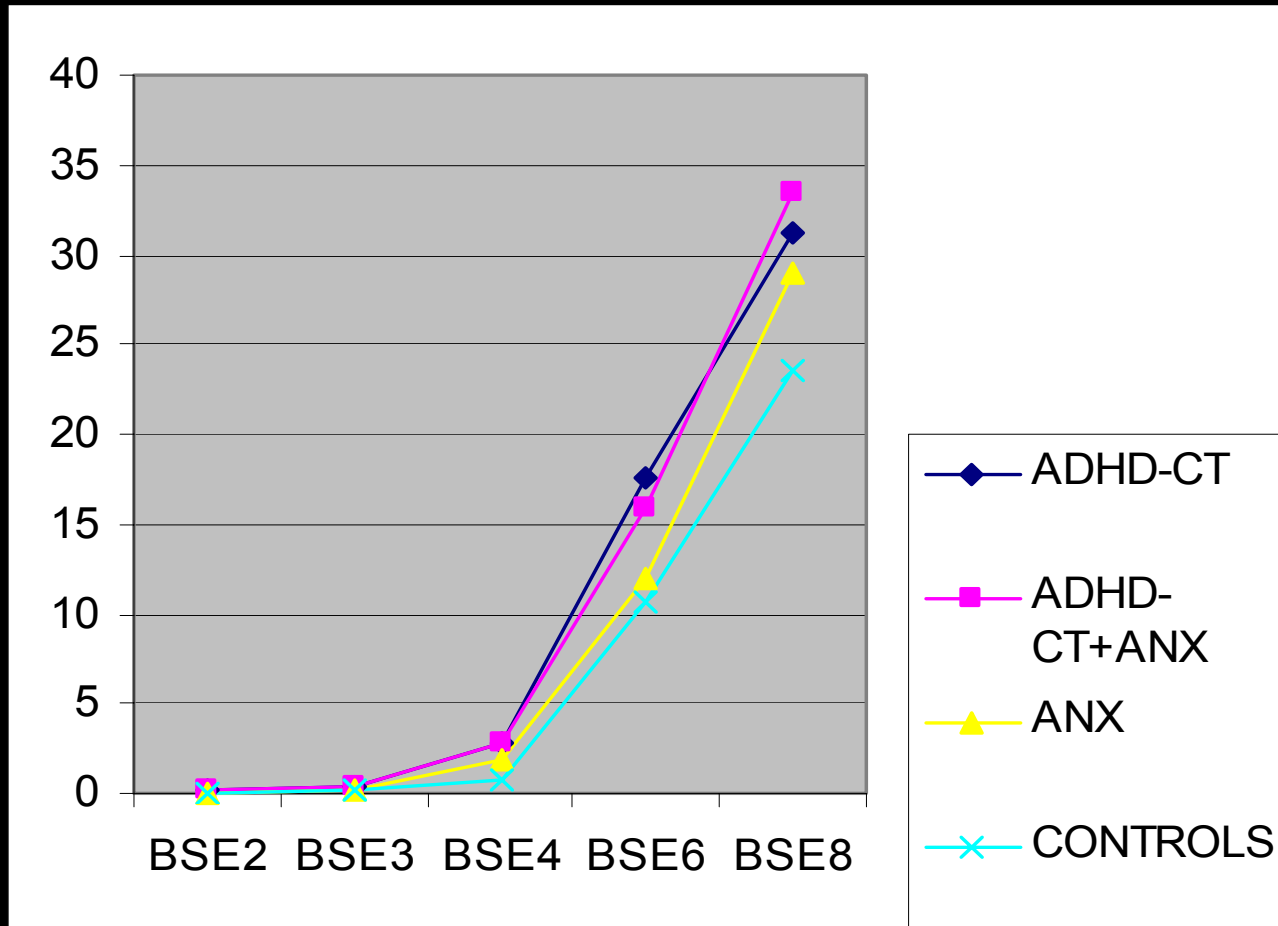
Level of difficulty (number of boxes)

[a] Wilks' $\lambda = .80$, $F(12, 363) = 1.77$, $p = .05$, partial $\eta^2 = .07$

[b] ADHD-CT+DYS, ADHD-CT > controls $F(3, 122) = 5.27$, $p = .002$, partial $\eta^2 = .14$

Between Search Errors(BSE) (mean) at each level of difficulty across the four groups

BSE
(mean)

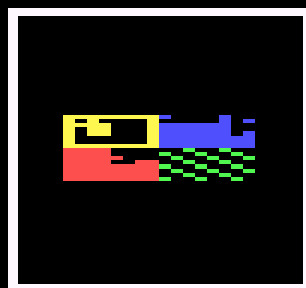
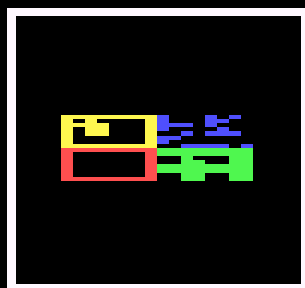
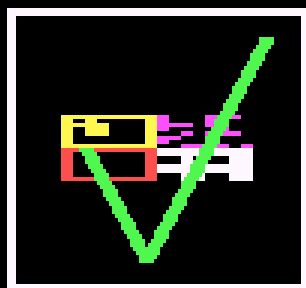
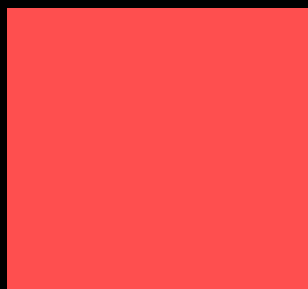


Level of difficulty (number of boxes)

[a] Wilks' $\lambda = .79$, $F(12, 375) = 1.73$, $p = .06$, partial $\eta^2 = .08$

[b] ADHD-CT+ANX, ADHD-CT > controls $F(3, 126) = 4.73$, $p = .004$, partial $\eta^2 = .14$

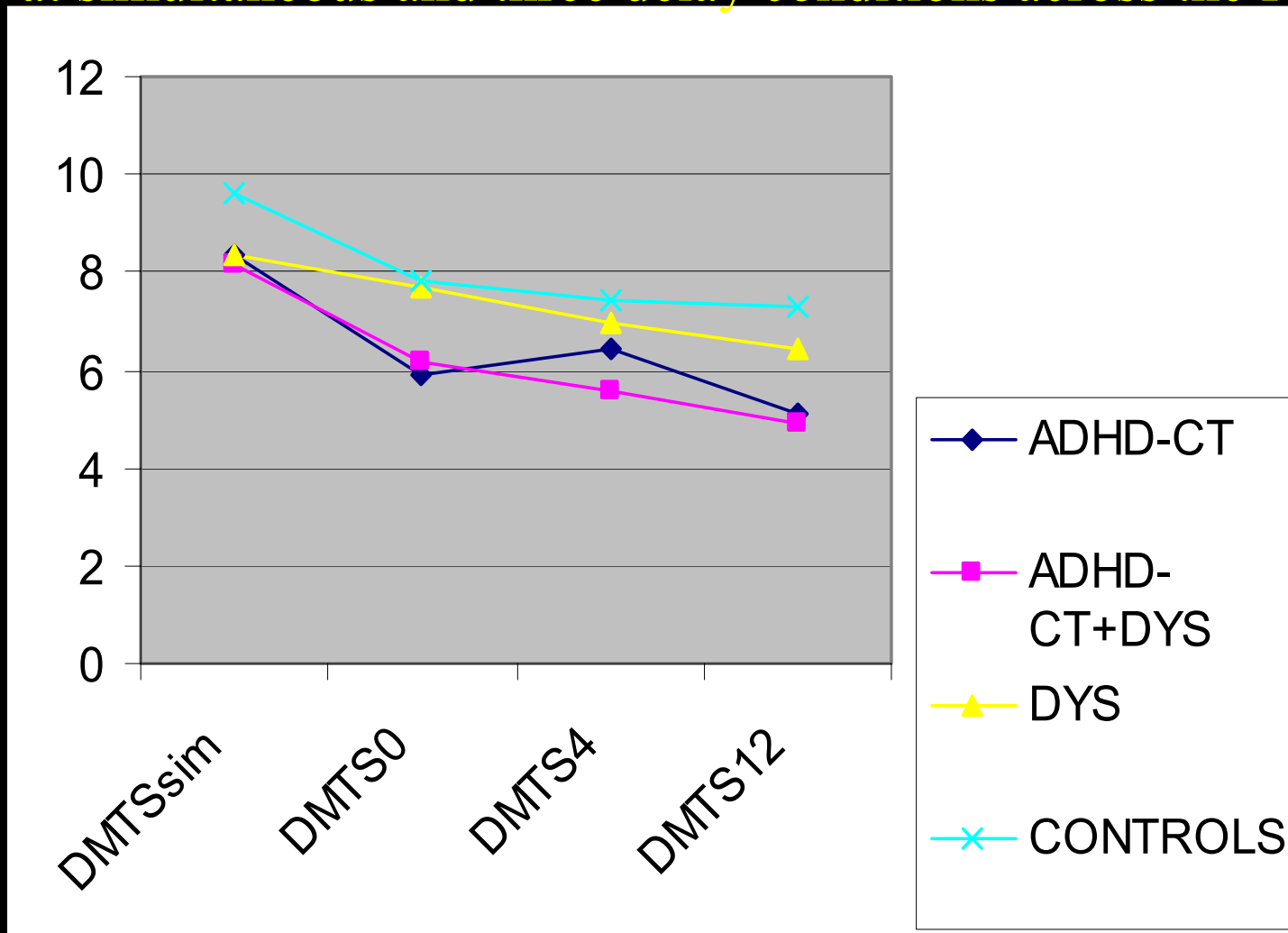
CORRECT



Delayed recognition memory

Delayed Matching To Sample(DMTS) (mean correct responses) at simultaneous and three delay conditions across the four groups

DMTS
(mean)



Level of delay (simultaneous, 0,4,12 seconds)

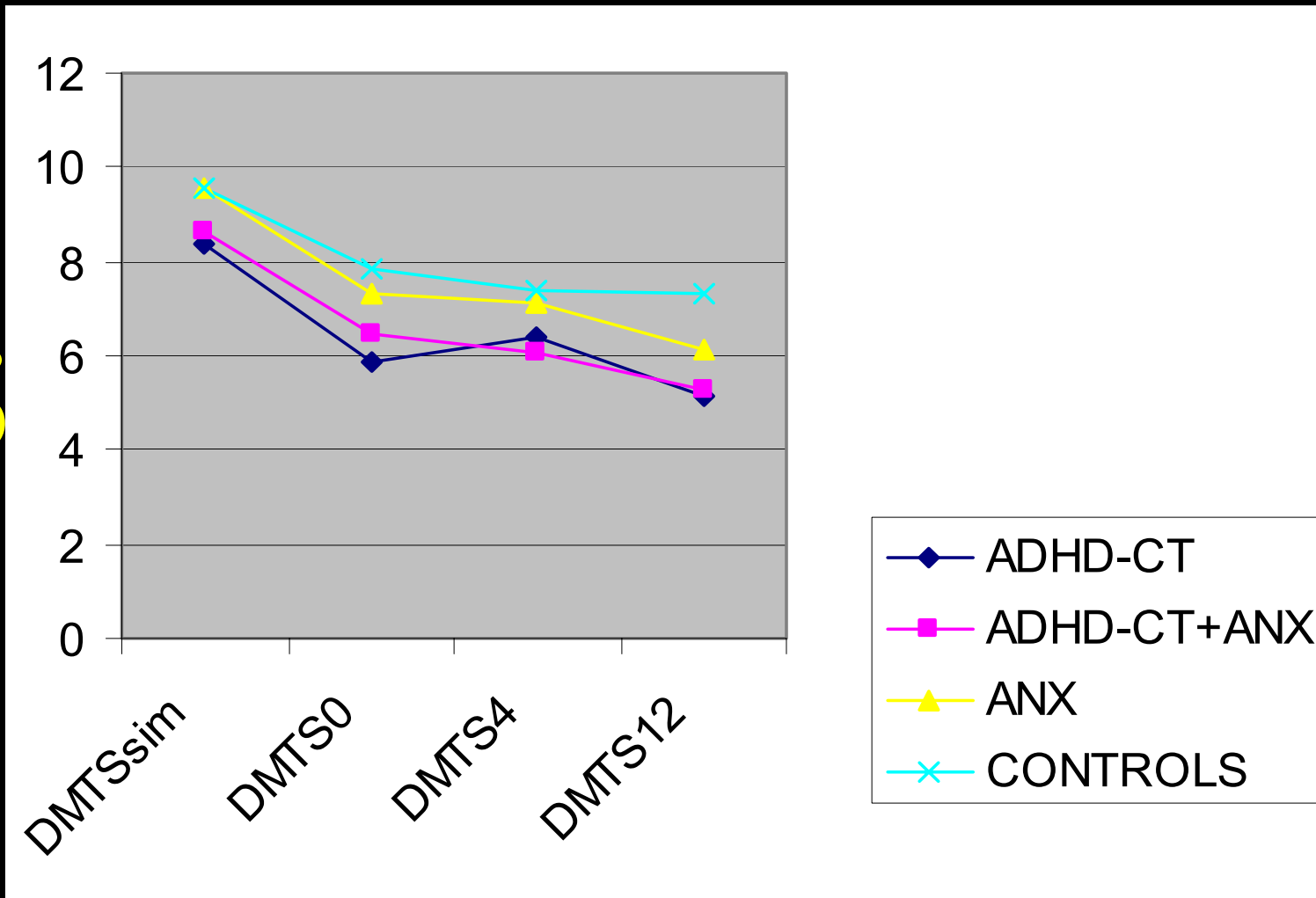
[a] Wilks' $\lambda = .83$, $F(9, 366) = 1.94$, $p = .05$, partial $\eta^2 = .06$

[b] controls > ADHD-CT, ADHD-CT+DYS, DYS > ADHD-CT+DYS

$F(3, 122) = 6.31$, $p = .001$, partial $\eta^2 = .17$ (controls > DYS, cohen's $d = .79$)

Delayed Matching To Sample(DMTS) (mean correct responses) at simultaneous and three delay conditions across the four groups

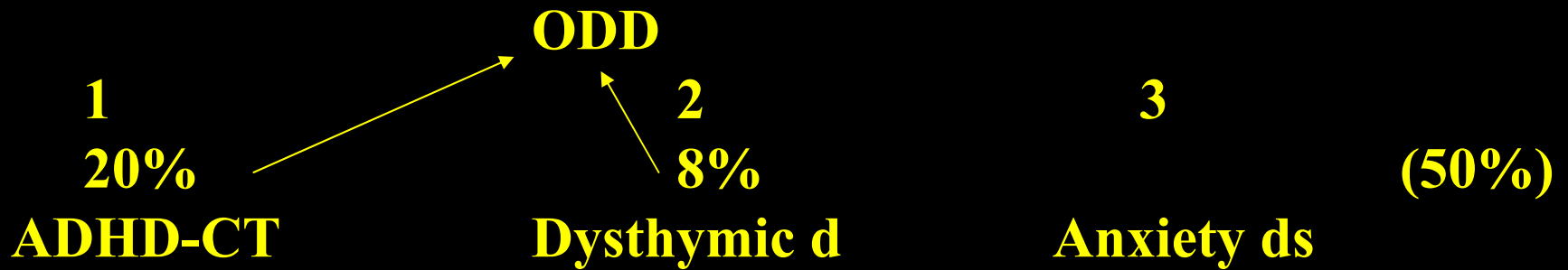
DMTS
(mean)



Level of delay (simultaneous, 0,4,12 seconds)

[a] Wilks' $\lambda = .91$, $F(9, 378) = .94$, $p = .49$, partial $\eta^2 = .03$

[b] controls, ANX > ADHD-CT+ANX, $ADHD-CTF(3, 126) = 5.81$, $p = .001$, partial $\eta^2 = .17$



- language** ↓ **(1>3)**
- NSS** ↑ **(1>2>3)**
- Eye** ↓ **(2>1,3)**
- SWM** ↓ **(1>controls)**
- DMTS** ↓ **(1>3)**
- DMTS-O** ↓ **(1,2>3)**

22% -combined ADHD-CT, dysthymic d and anxiety ds

What neurobiological factors confer risk and what neurobiological factors confer resilience for ODD?

Subject characteristics

	ADHD-CT	ADHD-CT DYS	DYS	F	<i>p</i>
	N=95	N=56	N=26		
Age	104.57 (24.52)	108.11 (24.35)	115.19 (20.70)	2.00	.13
Gender				1.83	.17
Verbal IQ	95.44 (14.74)	94.83 (14.33)	99.25 (13.56)	.70	.50
Perf IQ				.01	.99
FSIQ	97.17 (13.34)	96.82 (13.08)	98.93 (13.58)	.21	.81
Par psychopath	90.19# (21.26)	105.73* (28.07)	93.21# (22.82)	6.55	.002
Family fn				.87	.42
Social adver				.12	.88

Subject characteristics

	ADHD-CT N=37	ADHD-CT ANX N=59	ANX N=17	F	<i>p</i>
Age	109.49 (27.64)	101.86# (27.05)	117.12* (21.67)	3.06	.05
Gender				.69	.51
Verbal IQ	93.41 (13.73)	96.54 (15.23)	107.43 (12.44)	2.28	.19
Perf IQ				.56	.57
FSIQ	94.88 (12.94)	98.36 (13.49)	104.45 (8.41)	2.82	.06
Par psychopath				.82	.44
Family fn	2.26* (.31)	2.18* (.46)	1.88# (.34)	4.02	.02
Social adver				1.46	.24



family dysfunction (1>3)
Parental psychopathology (1,2>3)
Social adversity (1=2=3)

22% -combined ADHD-CT, dysthymic d and anxiety ds

What environmental factors confer risk and what environmental factors confer resilience for ODD?

-oppositional defiant children mindfully naughty?

-yes... and... no

**-because of the above co-occurring disorders,
biological and environmental factors affecting mindfulness
these children may have little choice to be oppositional
and defiant or not**

**-oppositional defiant disorder as a maladaptive strategy to
a particular admixture of biological and environmental
risk (and resilience) factors**

**-risk and resilience associations of the above factors yet to
be elucidated**

thankyou

calvin and HOBBS

by WATSON

