

# Autism Spectrum Disorder (ASD) and Anorexia Nervosa (AN) is there link?

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# Different approaches/similarities:

**Are autism and  
anorexia nervosa  
related?**

**Prof C. Gillberg  
1983 Sweden**



**Is anorexia  
female  
Version of  
autism?**

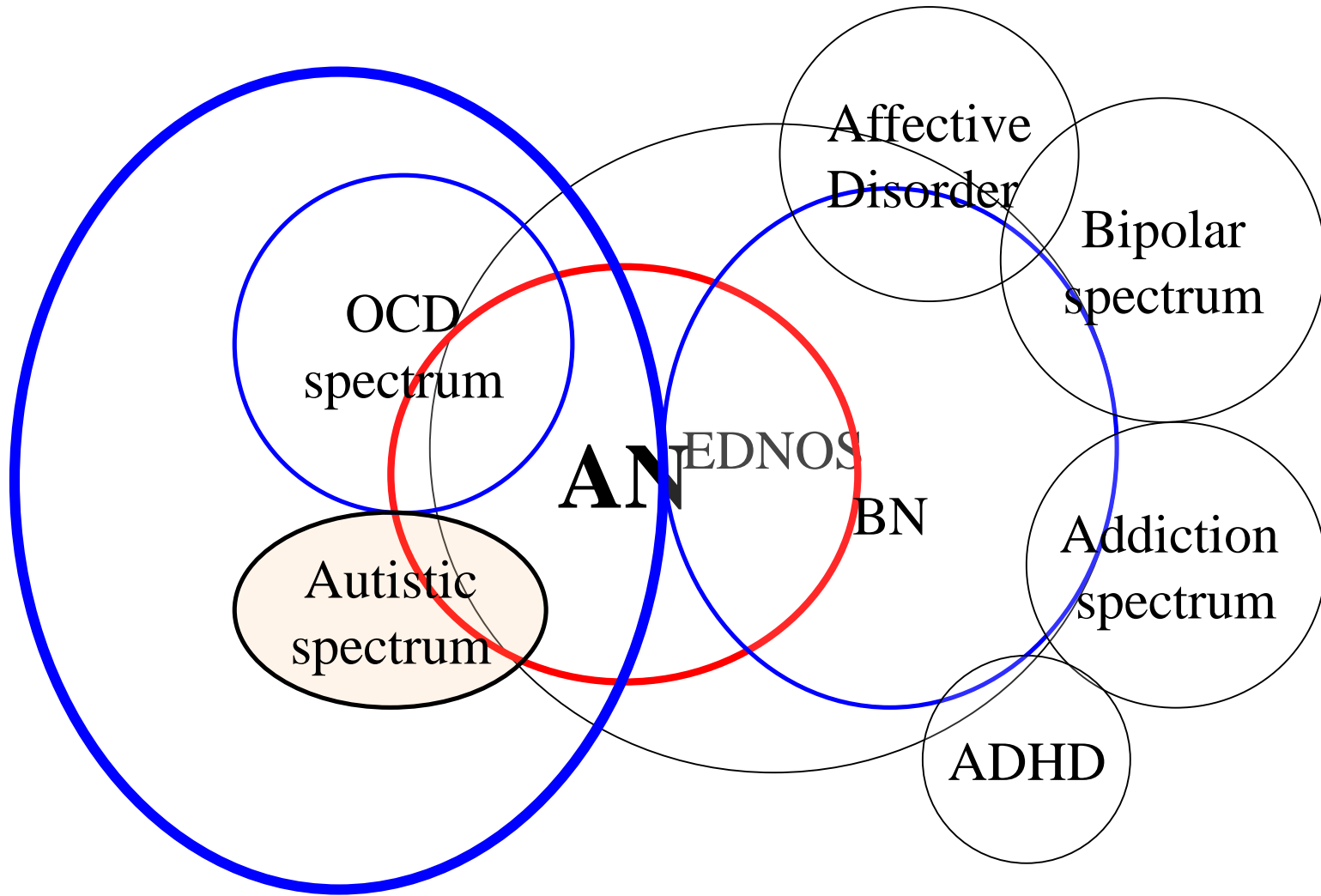
**Prof J. Treasure  
2009 UK**



Overlap?

What we know from research:

# The comorbidity of Eating Disorders



# Why we were not noticing the problem?

Few points:

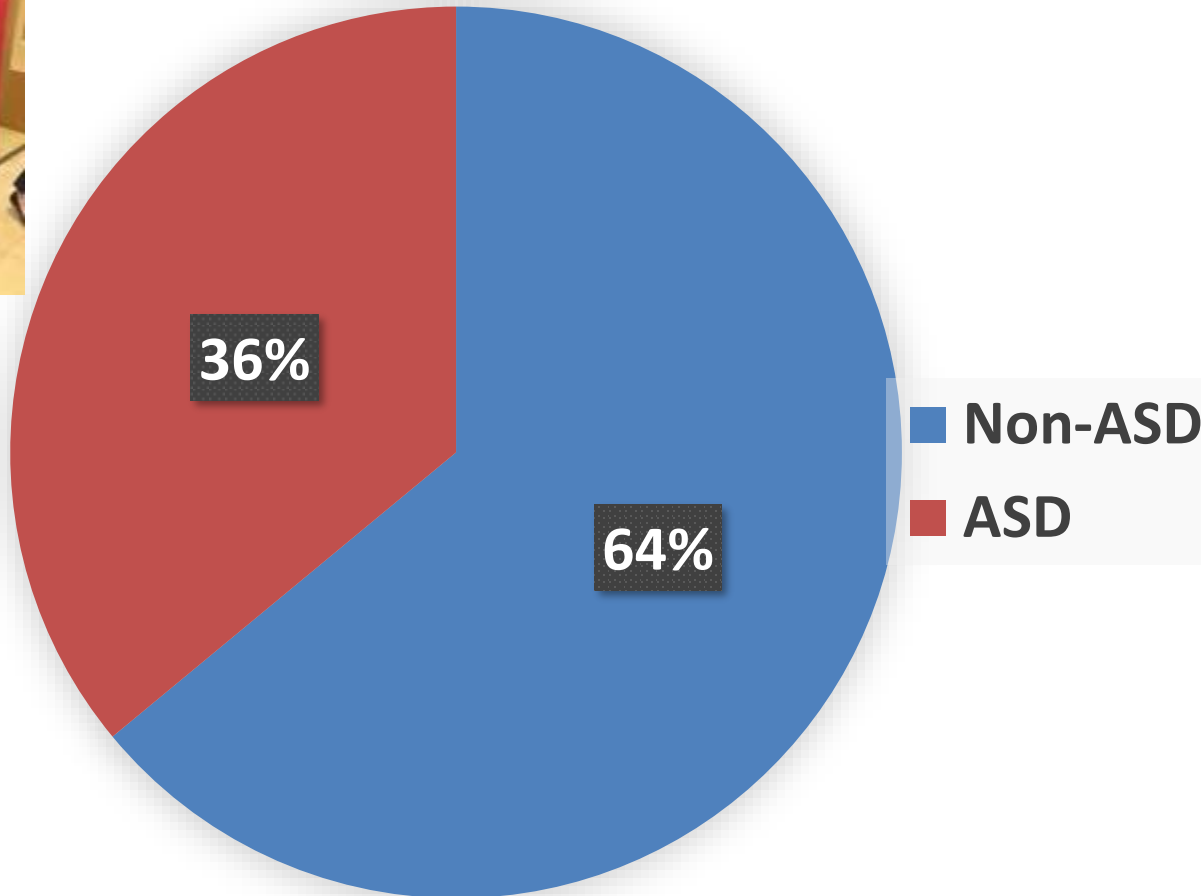
Gender bias

Extreme male brain hypothesis

How ASD is captured in media

# Proportion of low AQ vs high AQ at admission

Autism Quotient step up programme



**Cut off = 6. Higher scores indicating higher autistic symptomology**  
(Tchanturia et al 2013, 2016)

# Characteristics of autism spectrum disorder in anorexia nervosa: A naturalistic study in an inpatient treatment programme

Autism  
1–8

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Kate Tchanturia<sup>1,2,3</sup>, James Adamson<sup>2</sup>, Jenni Leppanen<sup>1</sup>  
and Heather Westwood<sup>1</sup>

## Abstract

Previous research has demonstrated links between anorexia nervosa and autism spectrum disorder however, few studies have examined the possible impact of symptoms of autism spectrum disorder on clinical outcomes in anorexia nervosa. The aim of this study was to examine the association between symptoms of autism spectrum disorder and eating disorders, and other psychopathology during the course of inpatient treatment in individuals with anorexia nervosa. Participants with anorexia nervosa ( $n = 171$ ) completed questionnaires exploring eating disorder psychopathology, symptoms of depression and anxiety, and everyday functioning at both admission and discharge. Characteristics associated with autism spectrum disorder were assessed using the Autism Spectrum Quotient, short version. Autism spectrum disorder symptoms were significantly positively correlated with eating disorder psychopathology, work and social functioning, and symptoms of depression and anxiety, but not with body mass index. Autism Spectrum Quotient, short version scores remained relatively stable from admission to discharge but there was a small, significant reduction

# High ASD features more clinical severity

## “Anorexia nervosa ASD on steroids”

Measures	Low scoring autism traits			High scoring autism traits			T	p	d
	n	Mean	SD	n	Mean	SD			
<b>Demographics</b>									
Age	124	27.2	9.9	50	27.2	7.7	0.22	.98	0.00
Age of onset	115	16.4	6.6	44	15.5	3.8	0.88	.38	0.15
Illness duration	115	10.6	8.7	44	10.9	7.8	0.22	.82	0.04
Length of treatment (weeks)	122	15.8	10.4	47	18.2	12.5	1.25	.22	0.22
BMI admission	124	14.1	1.9	50	14.4	1.6	0.76	.45	0.17
<b>Self-report measures</b>									
EDE-Q Global	122	3.6	1.7	50	4.4	1.7	2.85	.005**	0.47
HADS Anxiety	105	13.2	5.0	39	16.9	3.1	5.38	<.001**	0.82
HADS Depression	105	10.3	5.3	39	13.2	4.2	3.05	.003**	0.58
WSAS	120	25.2	10.2	48	29.0	6.9	2.80	.006**	0.41
MR Importance	122	8.1	2.5	48	7.1	2.7	2.16	.03*	0.39
MR Ability	122	5.1	3.1	50	3.9	2.7	2.45	.015*	0.40

\*\*=Significant at .01. \*=Significant at .05.

Tchanturia\*, Adamson\*, Leppanen & Westwood, 2017, Autism.



# To address shortcomings of self report pilot study with observation based interview



Mandy and Tchanturia *Molecular Autism* 2015, 6:6  
<http://www.molecularautism.com/content/6/1/6>



**RESEARCH** **Open Access**

## Do women with eating disorders who have social and flexibility difficulties really have autism? A case series

Will Mandy<sup>1\*</sup> and Kate Tchanturia<sup>2,3,4</sup>

**Abstract**  
**Background:** Many women with eating disorders (EDs) have social impairments and difficulties with flexibility. It is unclear to what extent these are manifestations of an underlying autism spectrum disorder (ASD); or whether they are instead the consequence of starvation, anxiety, low mood or obsessive compulsive disorder, all of which are highly prevalent in EDs. The resolution of this clinically and theoretically important uncertainty will require the use of gold-standard ASD assessment measures. To date these have not been employed in ED research. This case series



*Curr Psychiatry Rep* (2017) 19: 41  
DOI 10.1007/s11920-017-0791-9

# Anorexia and Autism Spectrum Conditions

Curr Psychiatry Rep (2017) 19: 41  
DOI 10.1007/s11920-017-0791-9



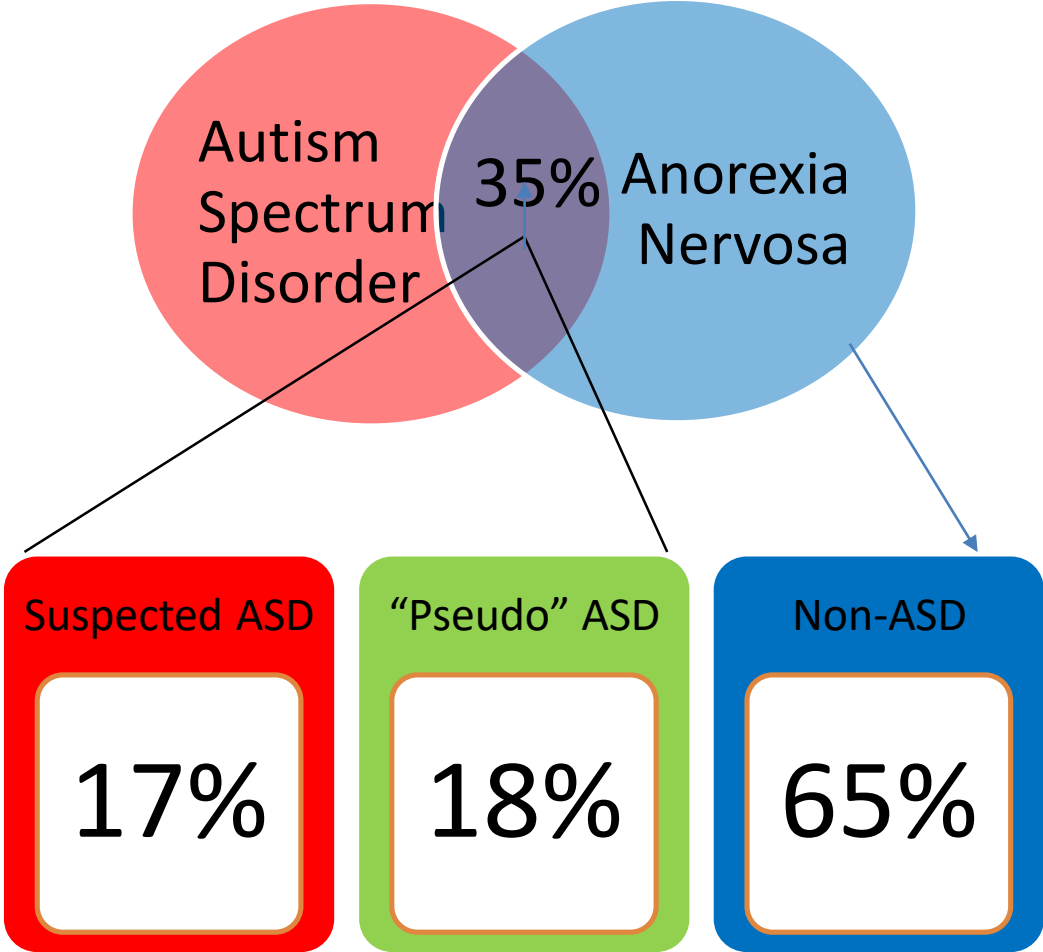
EATING DISORDERS (S WONDERLICH AND JM LAVENDER, SECTION EDITORS)

## Autism Spectrum Disorder in Anorexia Nervosa: An Updated Literature Review

Heather Westwood<sup>1</sup> · Kate Tchanturia<sup>1,2,3</sup>

- Over-representation of ASD in AN
- Poorer treatment outcomes, higher illness severity, longer illness duration
- Need for treatment adaptations

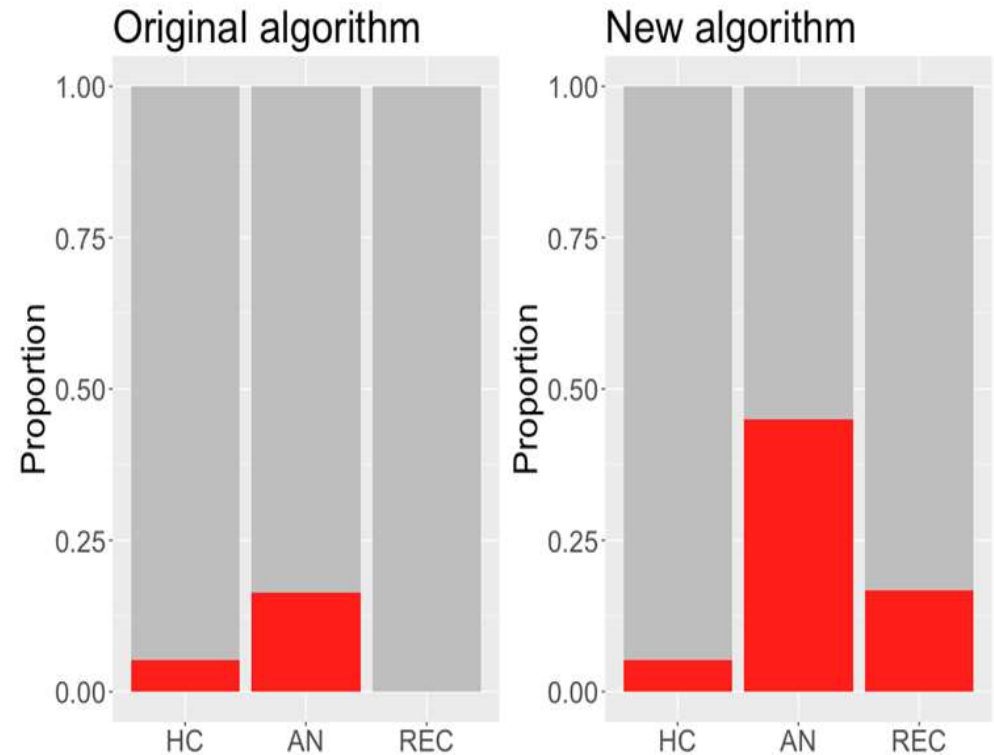
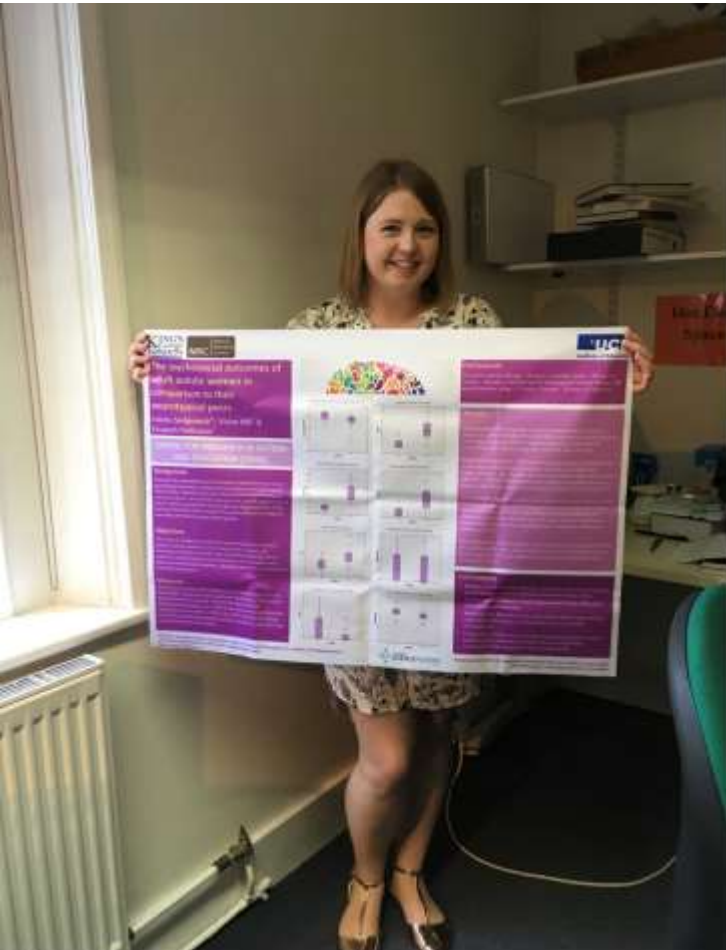
After interviewing (ADOS) 100 patients with AN (60 adults; 40 young people) we found:



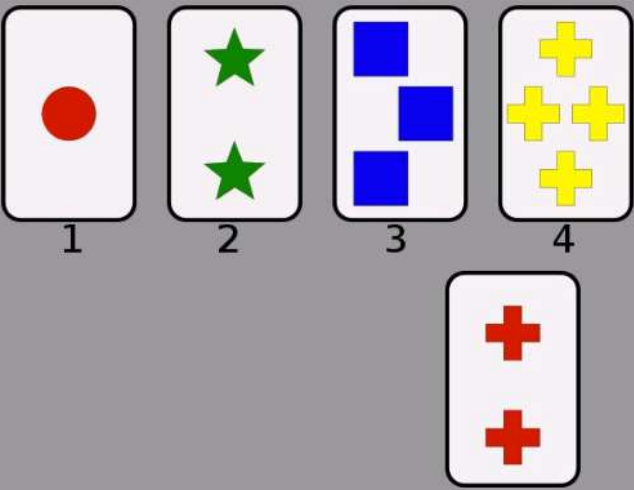
Westwood et al 2017; Similar findings Betz et al 2016; Vagni et al 2016

# Sensitivity of measures need further research

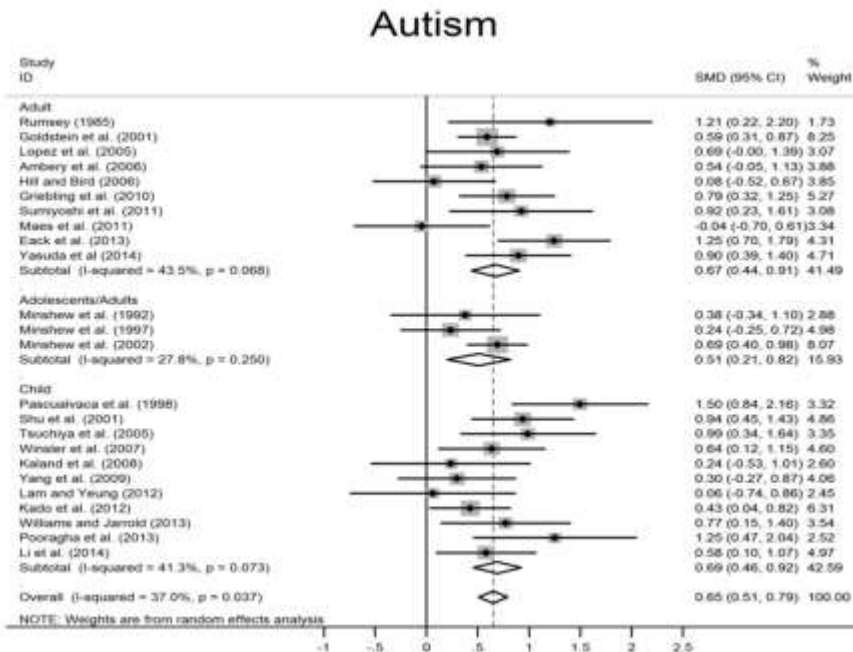
Sedgewick et al 2019 Plos one



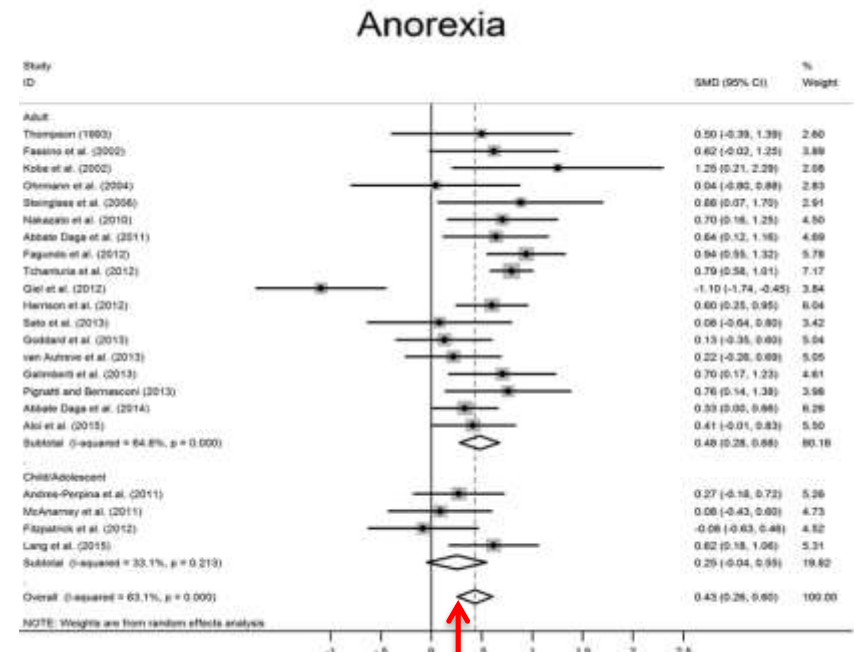
New algorithm- more weight to the sensory sensitivities and sensory-motivated behaviours of autistic people....



**Westwood H, Stahl D, Mandy W, Tchanturia K (2016)**  
 The set-shifting profiles of Anorexia Nervosa and Autism Spectrum Disorder using the Wisconsin Card Sorting Test: A systematic review and meta-analysis. *Psychological Medicine* p. 1809–1827 doi:10.1017/S0033291716000581



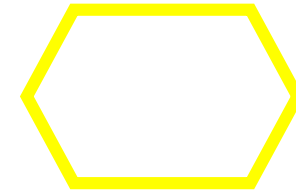
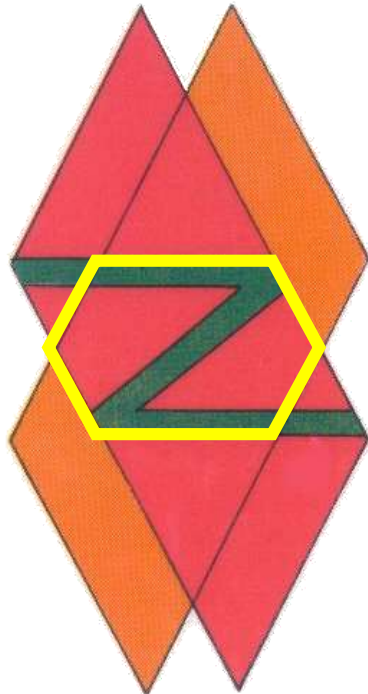
**Overall effect size of meta-analysis, d = 0.6**



**Overall effect size of meta-analysis, d = 0.4**



## Attention to detail/Bigger picture: Embedded Figures Test



(Lopez et al 2008, 2009;  
Lang et al 2014, 2015,2016)

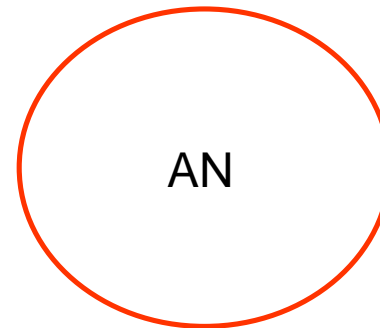


# Thinking Style Spectrum

Global

Flexible

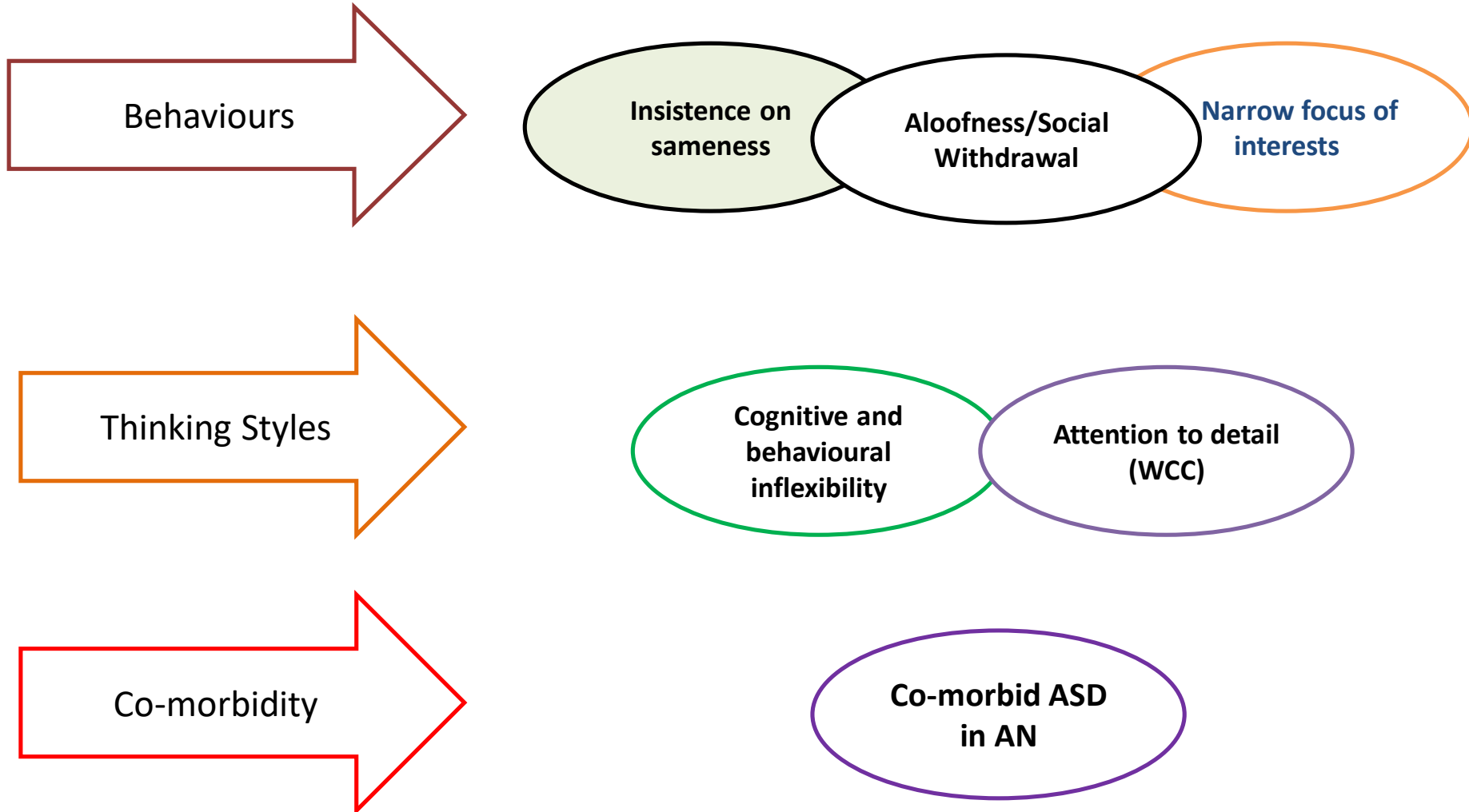
Focused



AN

Detailed

# AN & ASD: similarities

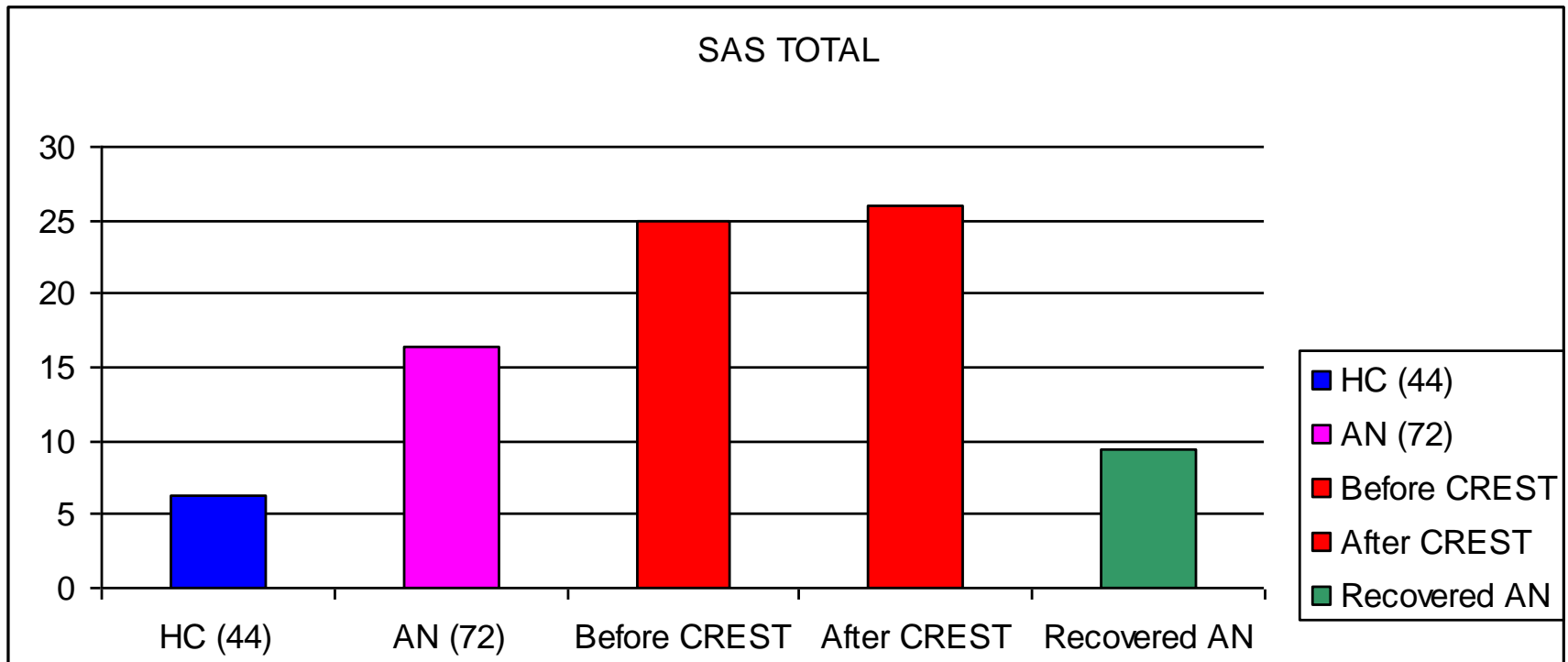




# Social Anhedonia Scale

Chapman LJ, Chapman JP, Roulin ML, Scales for physical and social anhedonia. *J Abnormal Psychology*

1976;85:374-382



Tchanturia et al 2012, Harrison et al 2014

# Friendship

*Westwood H, Lawrence V, Fleming C, Tchanturia K (2016)  
PLoS One. 27;11(9):e0163528*

“When you’re very ill you have no time to think about that kind of thing”  
[friendship]

“I’ve distanced myself, it’s hard because of my controlling attitude”

“I didn’t care what they thought, I was protected by this [AN] so I don’t need to worry”

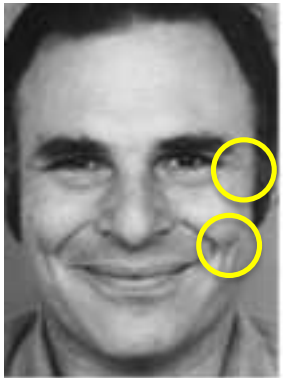
“I didn’t realise what I was losing until I came to hospital”

“I put myself in more of those situations. . .in groups, I did get out more because I wasn’t as scared, because I had other [AN] thoughts on my mind”



Marin Dapelo M, Hart S, Hale C, Lynch T, Morris R, Tchanturia K  
(2015)

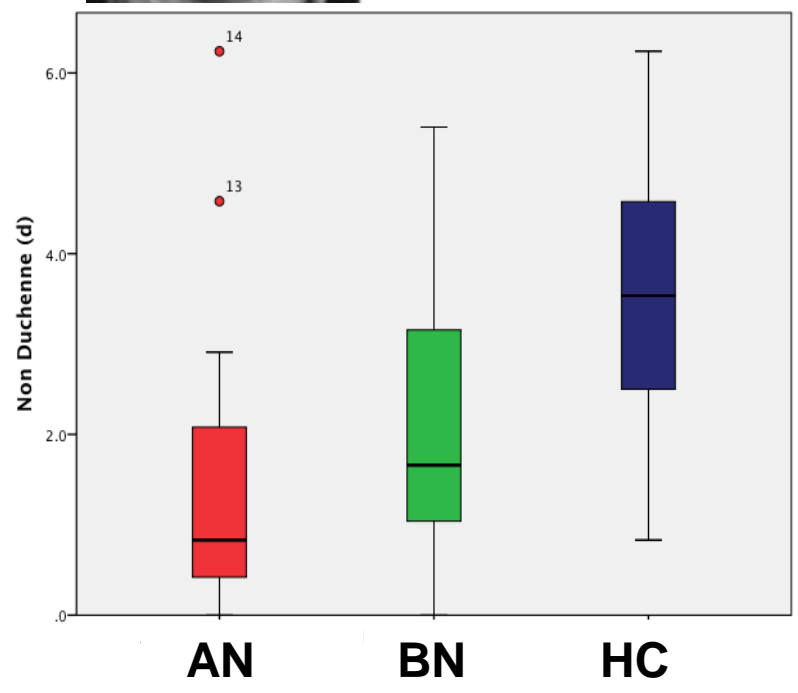
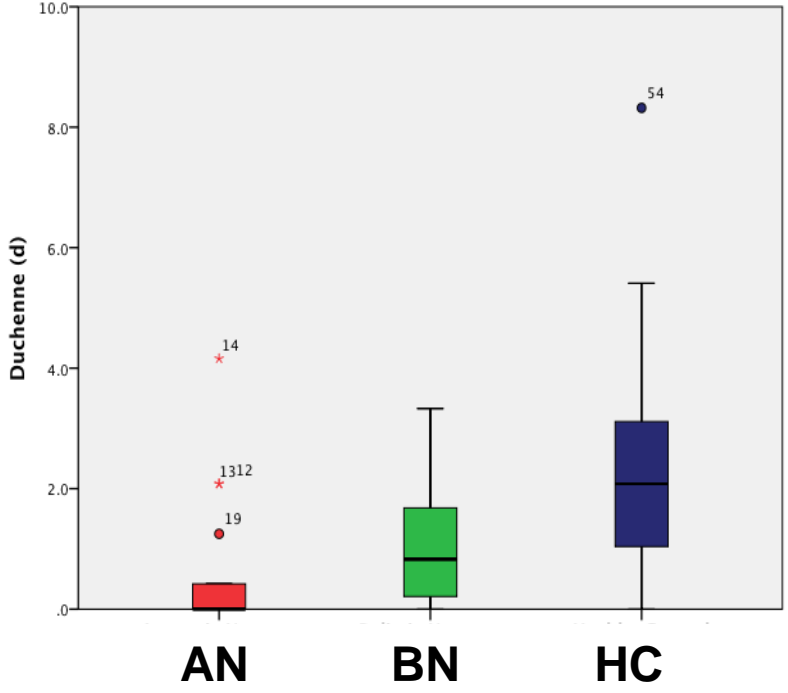
Expressing positive emotions...  
*Psychiatry Research*



**Duchenne smile**

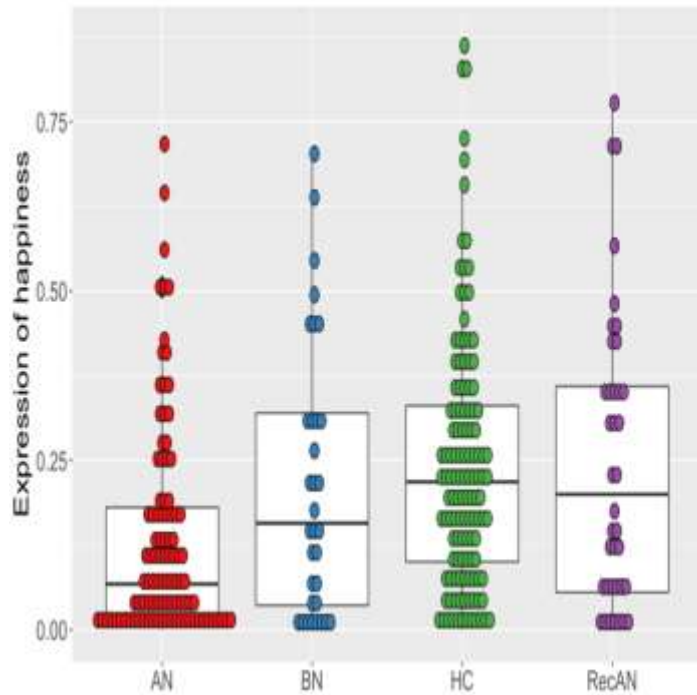


**Non Duchenne smile**



# Computerised analysis of facial emotion expression in eating disorders

297 participants with AN (100), BN (33), HC (126), Rec AN(38)



# Why it matters in the context of AN

- Patients with AN have difficulties in present and past with social communication  
(Tchanturia 2012,2013, Harrison 2014)
- Communication, building up relationships is important for recovery, well being
- Current treatment only starts to address it and more specificity is needed to define where we need to focus

# Why smile

- Smiles- not just cheerful expressions, smiles are social acts with serious consequences  
(M. LaFrance 2011)
- Most rewarding for other people to be with us
- Most welcoming and giving permission to open conversation



45% BODY LANGUAGE

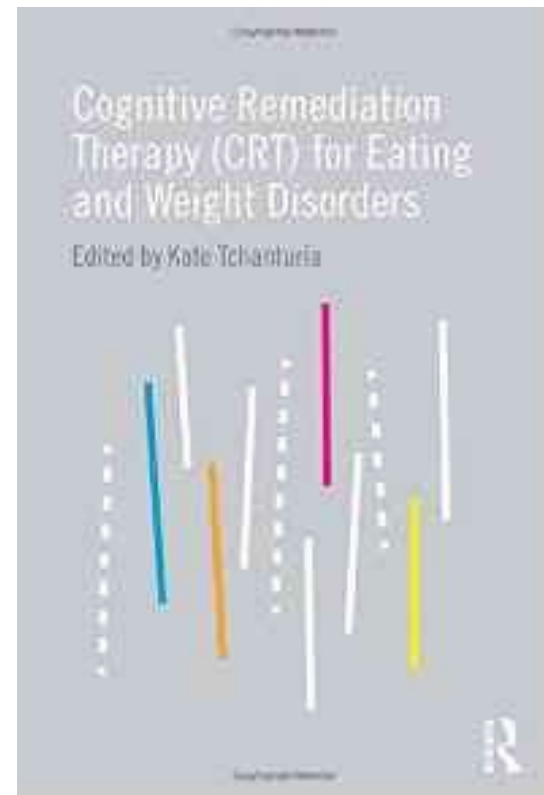
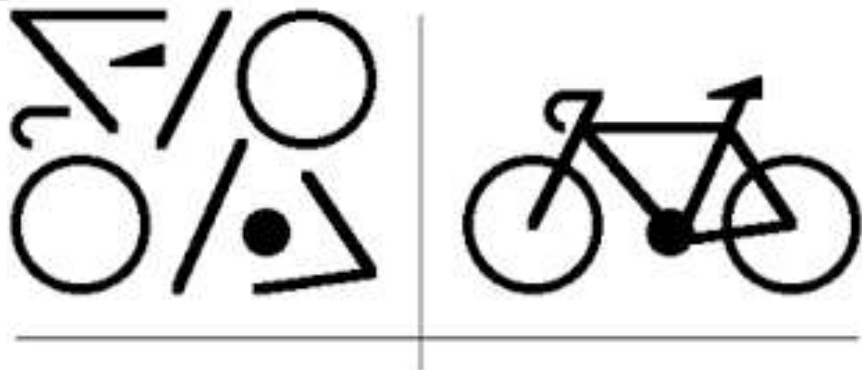
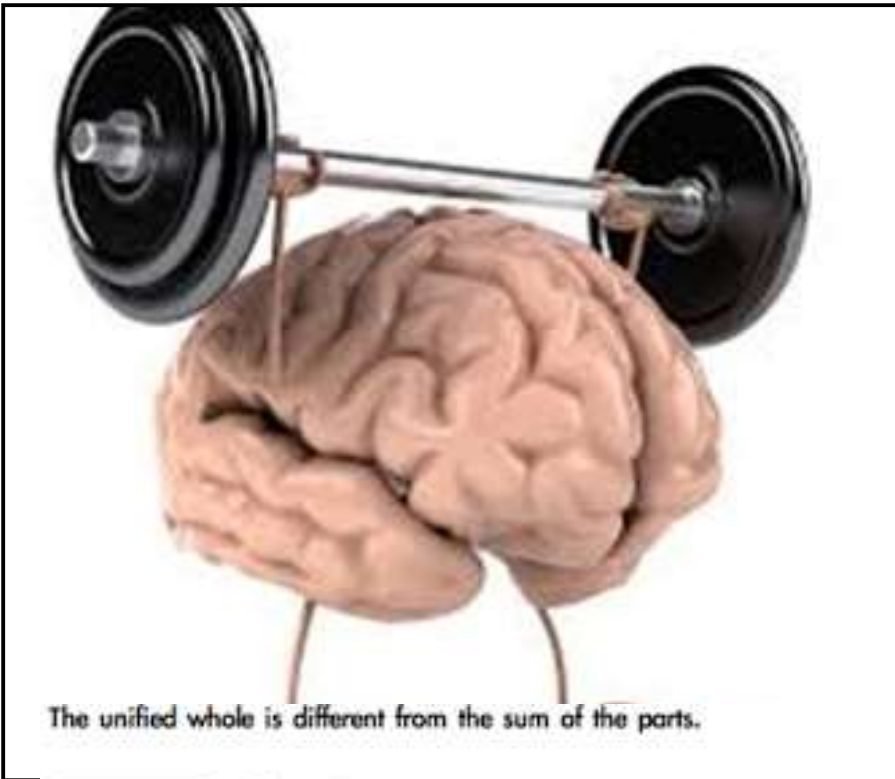


38% TONE OF VOICE



17% WORDS

# How people with ED think?

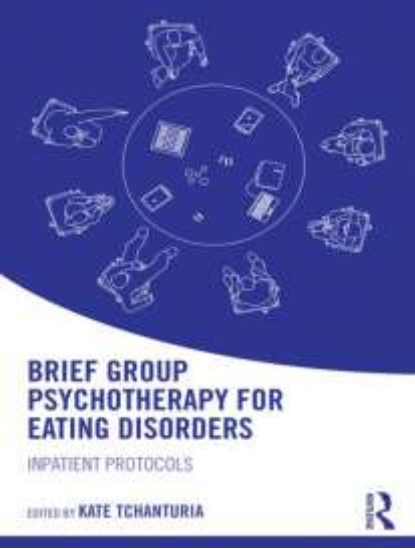
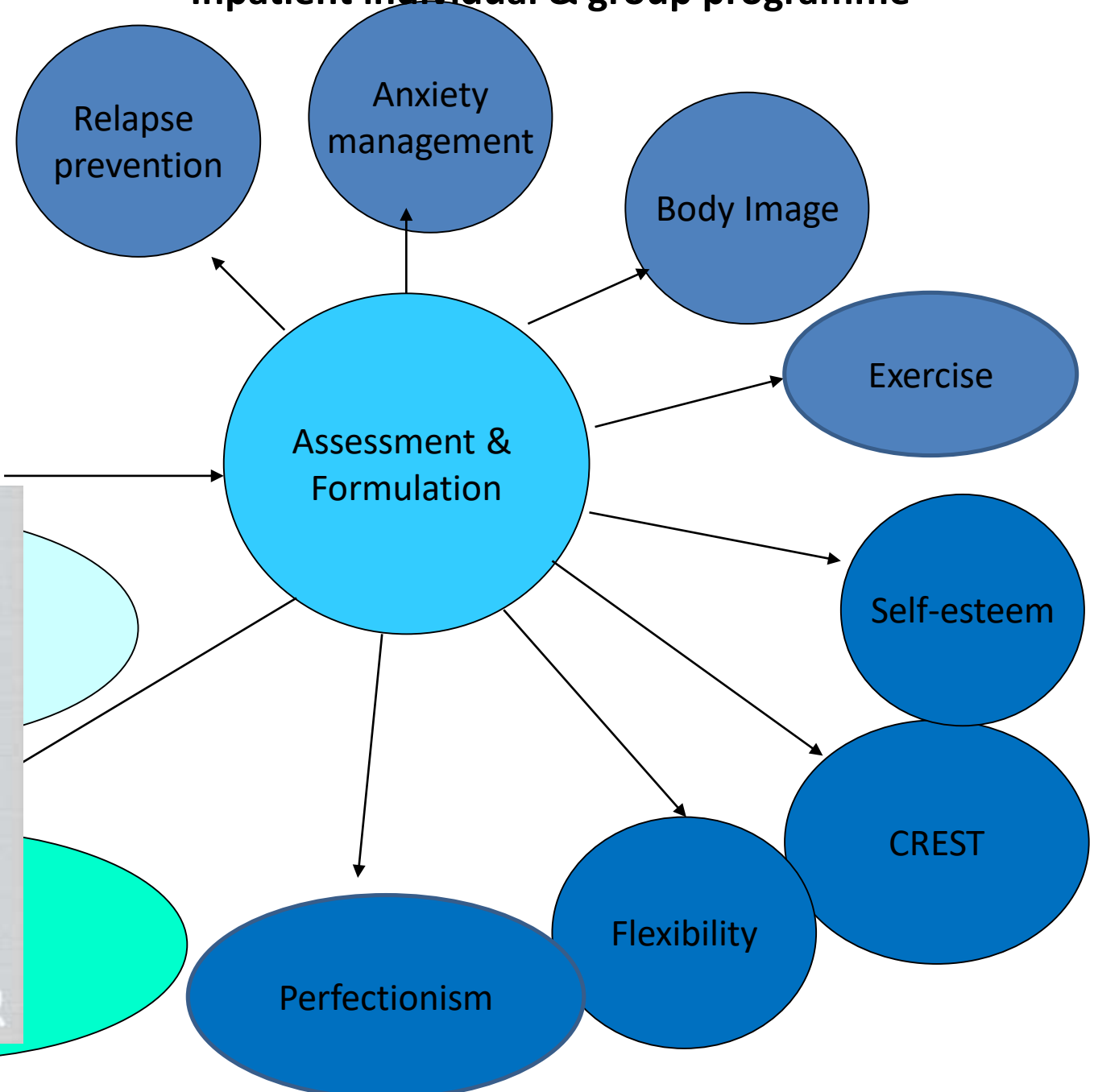


# What we learned from our translational research?

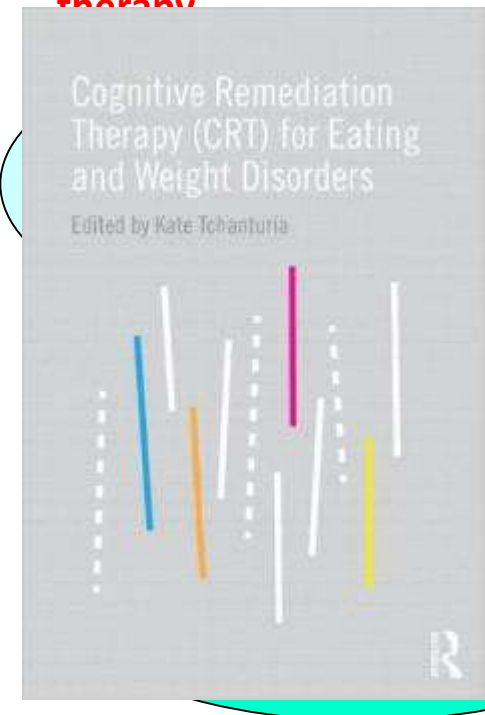
- Research in cognitive and emotional processing gave important foundation for psychoeducation materials specifically for ED.
- Research results led to explore innovations targeting “bigger picture” of recovery.
- Some areas of communication difficulties could be addressed more effectively in treatment.
- Research based evidence is solid, more work is needed in clinical implications/adaptation and quantitative and qualitative evaluation of presented findings....



# Inpatient individual & group programme



**CRT & CREST**  
Individual forms of therapy



# Sadly some clinicians don't hear voices from patients who experience both ASD and ED

- “As someone who is on the ASD spectrum and has recovered from a decade-long AN, I am particularly familiar with the complexities of EDs and how difficult they are to treat, especially atypical cases”.
- “Last year my mum, across an Aspergers article and said it sounded like me. I went to the GP and got a referral for an NHS ASD assessment for 8 months later. I had assessment earlier this year, it was very brief and I was dismissed because I had already been diagnosed with Anorexia.

I then aid for a private assessment from a psychologist and spent 5 hours being assessed. I was then diagnosed with Aspergers. I then with this in mind started outpatient treatment.

- I have always been highly anxious and obsessive and now with my low weight my Autistic traits have been exacerbated.”

# What can we do about it?

Patients (AN/ASD)



Qualitative  
interviews



Carers



Clinicians

RESEARCH ARTICLE

Open Access

Clinicians' views on working with anorexia nervosa and autism spectrum disorder comorbidity: a qualitative study



Emma Kinnead<sup>1</sup>, Caroline Norton<sup>2</sup> and Kate Tchantalova<sup>1,3\*</sup>

# PEACE pathway implementation in the clinical work



- “In the past couple of months it has really gained momentum and it has really helped at bringing the MDT together”
- “I am now thinking about things I might not have thought about”
- “Looking back at previous patients, I wish I had known then what I knew now”
- “I have now included questions around ASD in my standardised assessment”

# PEACE

Pathway for Eating disorders and Autism  
developed from Clinical Experience



South London and Maudsley   
NHS Foundation Trust

# Treatment Adaptations

**“The combination of autism and starvation is like autism on steroids”**

01

Literal language

02

Longer processing time

03

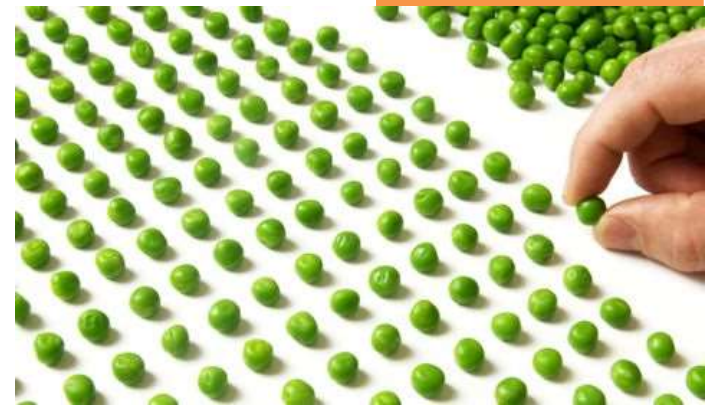
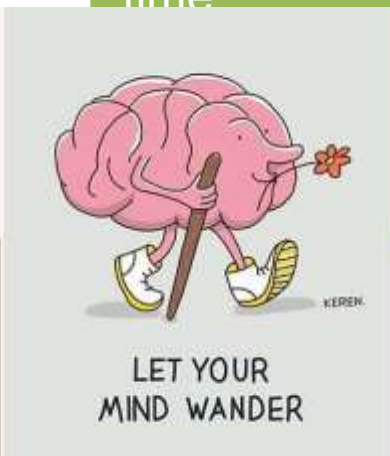
Written communication

04

Focus on thinking styles, not thoughts

05

Separate autism from the MH condition



# Thanks to

MRC

Medical  
Research  
Council

Schweizerische Anorexia Nervosa Stiftung  
Fondation Suisse d'Anorexie Nerveuse  
Fondazione Svizzera d'Anoressia Nervosa



 @PEACE\_Pathway

Maudsley  
Charity

For manuals and more information visit:  
[www.katetchanturia.com](http://www.katetchanturia.com)

Research gate  
If we have time for questions?  
If not email me:  
[Kate.Tchanturia@kcl.ac.uk](mailto:Kate.Tchanturia@kcl.ac.uk)

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Medical  
Research  
Foundation

# Recent publications from our group:

- Dandil Y, Smith K, Adamson J, Tchanturia K (2019) Individual Cognitive Remediation Therapy Benefits for patients with Anorexia Nervosa and High Autistic features European Eating Disorder Review.
- Kinnaird E, Norton C, Pimblett C, Stewart C, Tchanturia K (2019) Eating as an autistic adult: an exploratory qualitative study Plos one; 29;14(8):e0221937. doi: 10.1371/journal.pone.0221937
- Sedgewick F, Kerr- Gaffney J, Leppanen J, Tchanturia K (2019) Anorexia nervosa, autism, and the ADOS: how appropriate is the new algorithm in identifying cases? Front Psychiatry Doi: 10.3389/fpsy.2019.00507
- Sedgewick F, Leppanen J, Gog F, Hayward H, Happe F, Tchanturia K (2019) Tricky triangles: similarities and differences in Theory of Mind responses of patients with anorexia nervosa with and without autistic features. Frontiers in Psychiatry. doi: 10.3389/fpsy.2019.00318
- Sedgewick F, Leppanen J, Tchanturia K (2019) Autistic adult outcomes on weight and Body Mass Index: a large-scale online study; Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity. EAWD-D-19-00098R2doi: 10.1007/s40519-019-00695-8.
- Kerr-Gaffney J, Harrison A, Tchanturia K (2019) Cognitive and Affective Empathy in Eating Disorders: A Systematic Review and Meta-analysis. Frontiers in Psychiatry <https://doi.org/10.3389/fpsy.2019.00102>
- Adamson J, Ozenc C, Baillie C, **Tchanturia K** (2019) Efficacy of a Self-Esteem Group for Inpatients with Anorexia Nervosa Special Issue "Psychotherapeutic Treatment for Anorexia Nervosa" in Brain Sciences doi: 10.3390/brainsci9010012
- Kinnaird E, Stewart C, **Tchanturia K** (2019) Investigating alexithymia in autism: a systematic review and meta-analysis; European Psychiatry; 3;55 :80-89 doi: 10.1016/j.eurpsy.2018.09.004.
- Kinnaird E, Norton C, Stewart C, **Tchanturia K** (2019) Same behaviours, different reasons: what do patients with co-occurring anorexia and autism want from treatment? International Review of Psychiatry, 31(4):308-317 10.1080/09540261.2018.1531831



# References

- Kerr- Gaffney J, Harrison A, **Tchanturia K** (2018) Social anxiety in the eating disorders: A systematic review and meta-analysis. *Psychological Medicine*
- Adamson J, Leppanen J, Murin M, **Tchanturia K**. (2018) Effectiveness of Emotional Skills Training for Patients with Anorexia Nervosa with Autistic Symptoms, Group or Individual Format *European Eating Disorder Review*.
- Adamson J, Leppanen J, **Tchanturia K**. (2018) Impact of cognitive remediation therapy on neurocognitive processing in anorexia nervosa. *Frontiers in Psychiatry-Psychopathology*
- Cardi V, **Tchanturia K**, Treasure J (2018) Premorbid and illness-related social difficulties in eating disorders: an overview of the literature and treatment developments. *Current Neuropharmacology*;
- Tchanturia K, Larsson E, Adamson J**. (2016) How anorexia nervosa patients with high and low autistic traits with respond to group Cognitive Remediation Therapy; *BMC Psychiatry*;
- Tchanturia K, Larsson E, Adamson J (2016)** Brief group intervention targeting perfectionism in adults with anorexia nervosa: empirically informed protocol; *European Eating Disorders Review* DOI: 10.1002/erv.2467
- Westwood H, Stahl D, Mandy W, Tchanturia K (2016)** The set-shifting profiles of Anorexia Nervosa and Autism Spectrum Disorder using the Wisconsin Card Sorting Test: A systematic review and meta-analysis. *Psychological Medicine* p. 1809–1827doi:10.1017/S0033291716000581
- Sparrow K, Tchanturia K (2016)** Inpatient brief group therapy for anorexia nervosa: Patient experience. *International Journal of Group Psychotherapy*. DOI:10.1080/00207284.2016.1156406 ISSN- 0020-7284 print/1943-2836 online
- Davies H, Wolz I, Leppanen, F Fernandez Aranda, U Schmidt, Tchanturia K (2016)** Facial expression to emotional stimuli in non-psychotic disorders: A systematic review and meta-analysis. *Neuroscience & Biobehavioral Reviews*; S0149-7634(15)30237-210.1016/j.neubiorev.2016.02.015
- Westwood H, Eisler I, Mandy W, Leppanen J, Treasure J, Tchanturia K (2016)** Using the Autism-Spectrum Quotient to measure Autistic Traits in Anorexia Nervosa: A systematic review and meta-analysis. *Journal of Autism and Developmental Disorders* 46(3):964-77; 10.1007/s10803-015-2641-0 13:1-23
- Dapelo M, Bodas S, Morris R, Tchanturia K. (2016)** Deliberately generated and Imitated Facial Expressions of Emotions in people with Eating Disorders. *Journal of Affective Disorders*. 191; 1–7 10.1016/j.jad.2015.10.044 191:1-7

# References (cont)

## Selected references used in the presentation

**Tchanturia K, Lounes N, Holtum S** (2014) Cognitive remediation in anorexia nervosa and related conditions: A systematic review. *European Eating Disorders Review* 22(6):454-62; DOI: 10.1002/erv.2326

**Mandy W, Tchanturia K** (2015) Do women with eating disorders who have social and flexibility difficulties really have autism? A case series. *Molecular Autism*.6 (6) doi: 10.1186/2040-2392-6-6

**Lang K, Roberts M, Lopez C, Goddard E, Khondoker M, Treasure J, Tchanturia K;**

An investigation of central coherence in eating disorders: A synthesis of studies using the Rey Osterrieth Complex Figure Test; Plos one

**Kyriacou O, Easter A, Tchanturia K** (2009) Comparing views of patients, parents and clinicians on emotions in anorexia: A qualitative study. *Journal of Health Psychology*. 14(7) 843–854

**Whitney J. Easter, A. Tchanturia K** (2008) Service users' feedback on cognitive training in the treatment of anorexia nervosa: a qualitative study. *International Journal of Eating Disorders*; 41(6):542-50

**Lang K, Marin Dapelo M, Khondoker M, Morris R, Treasure J, Tchanturia K** (2015) Exploring emotion recognition in adolescents and adults with anorexia nervosa using a body motion paradigm. *Eur Eat Disord Rev*. 22. 23(4):262-8 doi: 10.1002/erv.2358

**Doris E, Westwood H, Mandy W, Tchanturia K (2014)** Patients with Anorexia Nervosa show similar friendships difficulties to people with Autism Spectrum Disorders: A Qualitative Study. *Psychology Special issue Autism*. 5, 1338-1349

**Hambrook D, Schmidt U, Russell T, Treasure J, Tchanturia K** (2008) Empathy, Systemizing, and Autistic Traits in Anorexia Nervosa: A Pilot Study *British Journal of Clinical Psychology* 47, 335-339

**Tchanturia K, Happe F, Godley J, Bara – Carill N, Treasure J, Schmidt U.** (2004) Theory of Mind in AN. *European Eating Disorders Review* 12, 361-366