Phenomenological Overlap Between the Obsessive-Compulsive and Autism Spectrums

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WHAT IS OCSD

- Linked because of similar
  - Genetic and family risk factors
  - Neurocognitive profiles (e.g., local processing)
  - Response to behavioral and pharmacological interventions
  - Pathophysiology (e.g., Striatum)
  - Symptom function and presentation (e.g., compulsive behavior)
  - Traits (e.g., perfectionism)
**OBSESSIVE-COMPULSIVE DISORDER (OCD)**

- Obsessions = repetitive thoughts, impulses, or images
  - Intrusive
  - Inconsistent with values and self-image (i.e., ego-dystonic)
  - Distressing → fear, disgust, guilt, etc.

- Compulsions = repetitive responses to obsessions
  - Serve to decrease distress elicited by obsessions
  - Can be mental or behavioral
  - Can manifest as ritualistic, avoidance, or escape behaviors

**Symptom themes:**

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Vocal tic examples: sniffing, coughing, throat clearing, repeating words or statements, animal noises, coprolalia.

Body Dysmorphic Disorder (BDD) *(APA, 2000)*
- Preoccupation with body part(s); > 1 hr/day
  - Imagined defect, or if real, negligible to others
  - Distressing → fear, disgust, guilt, etc.
  - Common body parts: skin, nose, lips, hair, stomach, and size of breasts, penis, or muscles
- Compulsions = repetitive responses to preoccupations
  - Serve to decrease distress elicited by preoccupations
  - Can manifest as ritualistic, avoidance, or escape behaviors
  - Examples: touching, checking, grooming, camouflaging, reassurance seeking, seclusion, etc.

Tourettes Syndrome and Tic Disorders *(APA, 2000)*
- Tic = seemingly involuntary movement or vocalization
  - Motor tic examples: nose crunch, facial grimace, mouth movement, eye movement, head turn, shoulder shrug
  - Vocal tic examples: sniffing, coughing, throat clearing, repeating words or statements, animal noises, coprolalia.
- Premonitory Urge
  - Tics preceded by the build-up of an urge, often in the bodily location of the tic
  - For vocal tics, the urge often occurs in the throat or mouth
  - Commonly reported as a tension or burning

Examples: touching, checking, grooming, camouflaging, reassurance seeking, seclusion, etc.
Trichotillomania, Dermatillomania, and other Habits (APA, 2000)

- Trichotillomania (TTM) = pathological hair pulling habit
- Dermatillomania (DTM) = pathological skin picking habit
- Common features of habits
  - Often prompted by stress, boredom, or tactile sensations (e.g., feeling the texture of the hair)
  - Often, but not always, preceded by an urge
  - Often, but not always, followed by a sense of relief
  - Not uncommon for patients to eat or save pulled hair or picked skin

Hoarding Disorder (Mataix-Cols et al., 2010)

- Excessive saving of items that most would consider valueless
  - Examples: bottle caps, newspapers and magazines, string, junk mail
- Difficulty discarding the valueless items
  - Various beliefs, such as 1) the item may be needed later, 2) it has sentimental value, 3) it's aesthetically pleasing and shouldn't be discarded
  - The pathological acquisition and difficulty discarding often lead to substantial clutter
**WHAT IS OCSD**

Hypochondriasis *(APA, 2000)*
- Preoccupation with the belief that one *has* a disease, despite disconfirming evidence
  - Misinterprets normal bodily signs as markers of the disease
  - Compulsions to gain disconfirmation or verification of disease
  - Seek physician reassurance and testing, scan and check body for signs and symptoms, explore internet resources endlessly

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**WHAT OF ASD & OCSD?**

Diagnostically
- For comorbid OCD diagnoses in samples with ASD, rate has ranged widely between 1.5% and 81% *(Leyfer et al., 2006)*
  - Likely due to methodological variability
- Conversely, between 3% and 7% of individuals diagnosed with OCD also meet diagnosis for Asperger’s *(LaSalle et al., 2004)*
  - Thus, 6 to 14 times the prevalence rate of Asperger’s Disorder in those with OCD compared to the general population (i.e., .48% prevalence) *(Fombonne & Tidmarsh, 2003)*
**WHAT OF ASD & OCSD?**

**Subthreshold**
- OCD symptoms are among the most common anxiety manifestations in ASD (Gillott, Furniss, & Walter, 2001; Russell & Sofronoff, 2005)
- As many as 20% of individuals with OCD may have autistic features (Bejerot, 2006; Bejerot, Nylander, & Lindstrom, 2001)

**STATE OF THEORY**
- Unclear if overlap between ASD and OCSD is best characterized as (Chasson et al., 2011)
  - An illusion of resemblance
  - An *autistic subtype* of OCD (Bejerot, 2007)
  - A specific *autistic-compulsive syndrome* (Gross-Isseroff et al., 2001)
  - The convergence of different clusters of features within OCSD (Hollander, 2005)
  - None, some, or all of the above.
At this time, language deficiencies not a huge target of research on OCSD/ASD overlap
- It’s not a universal characteristic of ASD (e.g., Aspergers), and not a common problem in OCSD
- Social impairment, perhaps the cardinal feature of ASD, has only recently received attention in the OCSD literature.
- Repetitive and restricted behavior is the obvious area of overlap
  - So let’s start there

But first, a caveat...
REPETITIVE PHENOMENA

- Research on repetitive phenomena is riddled with methodological problems
  - Poorly characterized samples
  - Conflation of ego-syntonic and ego-dystonic thoughts
  - Disregard for the function of repetitive behavior
  - Failure to consider insight, IQ, communication deficits
  - Measurement challenges
  - Thoughtless comparison groups
  - Disregard for Type I error

REPETITIVE PHENOMENA

- Bodfish (2011) has been the most accurate in characterizing the difference in OCD and ASD repetitive phenomenon
  - The function of repetitive behavior in ASD is heterogeneous
    - Functions to provide pleasure
    - Functions to reduce overall or specific stress
    - Not necessarily ego-syntonic or elicited by an ego-syntonic thought, image or impulse
According to Bodfish (2011), the function of repetitive behavior in OCD is more homogenous:

- Functions to reduce specific stress from an ego-dystonic thought, image or impulse, or
- The behavior itself is perceived as ego-dystonic
- Functionally, behavior in OCD and autism are similar only when they serve to decrease specific stress associated with an ego-dystonic thought

Most studies do not account for the function of the repetitive behavior, or they do not discuss it at all, leaving the reader to guess if it was addressed.

Evidence from the best available research suggests:

- Obsessions in ASD tend to involve folk physics, or an ego-syntonic interest in how objects and machines work (Baron-Cohen and Wheelwright, 1999)
  - Compulsions elicited by ego-syntonic obsessions are often pleasurable
- However, individuals with ASD can still present with clinically significant ego-dystonic obsessions and compulsions (Russell, Mataix-Cols, Anson, and Murphy, 2005)
REPETITIVE PHENOMENA

- Not everything fits neatly into Bodfish’s (2011) conceptualization
  - His conceptualization is elegant but generally only distinguishes between OCD and ASD, not OCSD and ASD
    - OCSD with functional pleasure: Trichotillomania, Dermatillomania, Hoarding
  - Ego-syntonicity might not be a categorical phenomenon
  - Not Just Right Experiences
  - Similar pathophysiology—striatum
  - Tics = ego-dystonic, but considered distinct from an OCD repetitive behavior
  - Similar purported mechanisms of behavioral treatment—extinction
    - Habit Reversal Training, Direct Reinforcement of Other, Exposure and Response Prevention

REPETITIVE PHENOMENA

- So, the jury is still out. There is no universal rule to differentiate repetitive phenomena in OCSD versus ASD
- Best bet is to ask,
  - “What is the function of the behavior?”
  - “To what degree is the patient’s experience ego-dystonic?”
  - “To what degree is the patient obtaining pleasure from the behavior?”
  - “Is this a behavioral response to a specific distressing thought, image, or impulse?”
- The best-guess differentiation lies in the pattern of answers to these questions, rather than the answer to any one question
Social competence impairment is not specific to ASD

- This is a common clinical correlate or presentation in multiple psychiatric conditions (e.g., Schizophrenia) (Pousa et al., 2008)
- Social competence may reflect multiple underlying endophenotypes that transcend traditional nosological boundaries (Chasson et al., 2011)
- Evidence for social competence impairment is just starting to emerge in the literature on OCSD

Pousa et al., 2008

Chasson et al., 2011

Geschwind DH. 2009.

OCD probands and relatives exhibit more difficulties with pragmatic social rules (e.g., exchanging pleasantries) compared to healthy control counterparts (Cullen et al., 2008).

Parental-report suggests that children with OCD have more difficulty with social self-control (e.g., spontaneous initiation of social behaviors) (Adams, 1995).

Individuals with OCD have demonstrated elevated rates of shyness (Ivarsson & Wing-Weisinger, 2004) and social anxiety disorder (Angst et al., 2004). Individuals with BDD have shown pronounced elevations in social anxiety severity (Wilhelm, Otto, Zucker, & Pollack, 1997).
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**SOCIAL COMPETENCE**

- Individuals with OCD may have difficulty processing emotions displayed by faces (Corcoran, Woody, and Tolin, 2008; Sprengelmeyer et al., 1997)
- According to work by Feusner et al. (2007), individuals with BDD process faces similar to those with ASD (Deruelle et al., 2004). They use brain pathways associated with high-spatial frequency perception to process low- and normal-spatial frequency faces
  - Individuals with BDD and ASD visually process faces using brain pathways designed for visually processing inanimate objects (Schultz et al., 2000)

**SOCIAL COMPETENCE**

- Much like in ASD (Happe & Frith, 2006), individuals with OCD and BDD present with local processing biases and set-shifting difficulties (Deckersbach et al., 2000; Savage et al., 1999)
  - These neuropsychological tendencies may be related to social competence impairments (Aigner et al., 2007)
- Local processing tendencies may cause individuals with OCD and BDD to miss global features when processing faces, and set-shifting difficulties could hinder their ability to transition visually from one facial feature to another
Social competence abnormalities may be particularly heritable (Bolton, Pickles, Murphy, & Rutter, 1998) and genetically independent of other facets of autism (Ronald et al., 2006).

A rare missense I425V mutation in the SERT gene may be associated with psychiatric disorders with social dysfunction (e.g., ASD, social phobia, OCD) (Wendland et al., 2008).

The mutation is an A to G transversion substituting Val425 for Ile425 that results in a gain-of-function of SERT (Chasson et al., 2011).

Serotonin and dopamine have both been implicated in social processing in OCSD and ASD populations.

Based on pharmacotherapy studies (Jenike, 2004; McGougle et al., 1996).

Glutamate has been implicated in social processing impairment (Montag, Schubert, Henz, & Gallinat, 2008), as well as the pathophysiology of OCD (Chasson et al., 2010) and ASD (Jamain et al., 2002; Shuang et al., 2004).

Oxytocin facilitates social connectedness and may play a role in both OCD (e.g., Altemus et al., 1999) and ASD (e.g., Bartz & Hollander, 2006, 2008; Bejerot, 2006; Insel, O'Brien, & Leckman, 1999).
SOCIAL COMPETENCE

The amygdala has been proposed to play a critical role in early-stage processing of facial emotion (Chasson et al., 2011), and is hypothesized to play an important role in a proposed social processing neural circuit (Brothers, Ring, and Kling, 1990).

Irregularities in structure and function of the amygdala have been demonstrated in individuals with OCD (Britton et al., 2010; Cannistraro et al., 2004) and ASD (Baron-Cohen et al., 2000; Mosconi et al., 2009).

SOCIAL COMPETENCE

Concluding thoughts on OCSD/ASD and social competence impairment

Remains unknown if any social competence impairments observed in ASD and OCSD mostly arise before, during, or after onset of the disorder.

However, subtle abnormal social functioning is associated with genetic risk.

Thus, it’s unlikely that social competence impairments are solely caused by inadequate or missed social development.
SOCIAL COMPETENCE

Concluding thoughts on OCSD/ASD and social competence impairment

- Formulating a theoretical framework for understanding the overlap between OCSD and ASD may require integration of candidate endophenotypes
- Corroborating a link between OCSD and ASD may facilitate development of new diagnostic, prevention, and intervention techniques.
  - Because individuals who present with features of both disorders may be more clinically severe (Bejerot, 2007) and resistant to treatment (Humble, Bejerot, Bergqvist, & Bengtsson, 2001)

CONCLUSION

- OCSD and ASD share many features, some in obvious ways (e.g., repetitive behaviors) and some in not so obvious ways (e.g., social competence impairment
  - Future research would benefit from sampling that transcends codified diagnostic categories. NIH seems to agree (see RDoC)
- Differentiating ASD and OCSD can be quite challenging in some cases.
  - In some cases, there is a legitimate comorbidity between ASD and OCSD
  - In some cases, comorbidity is superficial or inaccurate
  - Sometimes, all you can do is provide an educated guess and treat the patient as an \( n = 1 \) experiment
    - Test different treatment approaches to see what works best


REFERENCES


