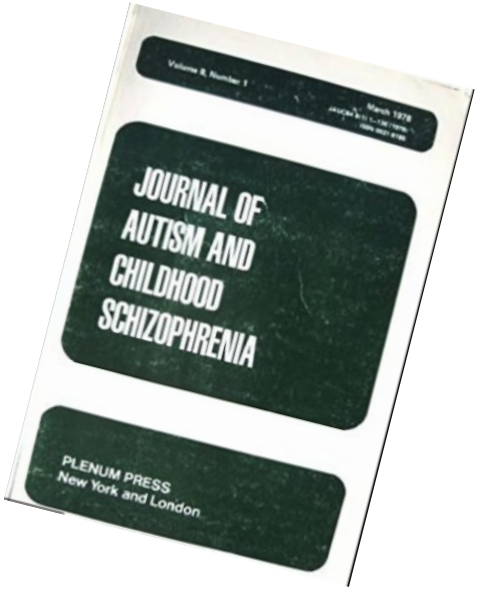
History of the Diagnosis of Autism:

Evidence-Based Treatment for a Changing Diagnosis



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Autism: Pre-DSM

Eugen Blueler - 1911

Leo Kanner - 1943

Hans Asperger - 1944

Am Spiegelgrund Clinic, Vienna

DSM I - 1952

000-x28 Schizophrenic reaction, childhood type

*"Here will be classified those schizophrenic reactions occurring before puberty. The clinical picture may differ from schizophrenic reactions occurring in other age periods because of the immaturity and plasticity of the patient at the time of onset of the reaction. Psychotic reactions in children, manifesting primarily **autism**, will be classified here."*

DSM II - 1968

295.8 Schizophrenia, childhood type

This category is for cases in which schizophrenic symptoms appear before puberty. The condition may be manifested by **autistic**, atypical and withdrawn behavior; failure to develop identity separate from the mother's; and general unevenness, gross immaturity and inadequacy of development. These developmental defects may result in mental retardation, which should also be diagnosed.

DSM-II	DSM-III	DSM-III-R	DSM-IV	DSM-V

(1968)

Schizophrenia

Childhood Type

Twin Concordance Studies

	Monozygotic (Identical)	Dizygotic (Fraternal)
Schizophrenia[1]	48%	4%
Autism[2]	88%	31%

1 Onstad, Skre, Torgersen, Kringlen (1991)
2 Rosenberg, Law, Yenokyan, McGready, Kaufmann, Law (2009)

DSM-II	DSM-III	DSM-III-R	DSM-IV	DSM-V
(1968)	**(1980)**			
Schizophrenia Childhood Type	**Pervasive Developmental Disorders**			
	Infantile Autism 			
	Childhood-Onset Pervasive Developmental Disorder			
	Atypical Pervasive Developmental Disorder			

DSM III - 1980

Diagnostic criteria for **Infantile Autism**

A. Onset before 30 months of age

B. Pervasive lack of responsiveness to other people (autism)

C. Gross deficits in language development

D. If speech is present, peculiar speech patterns such as immediate and delayed echolalia, metaphorical language, pronominal reversal.

E. Bizarre responses to various aspects of the environment, e.g., resistance to change, peculiar interest in or attachments to animate or inanimate objects.

F. Absence of delusions, hallucinations, loosening of associations, and incoherence as in Schizophrenia.

DSM-II	DSM-III	DSM-III-R	DSM-IV	DSM-V
(1968)	(1980)			
Schizophrenia	**Pervasive Developmental Disorders**			
Childhood Type				
	Infantile Autism			
	Childhood-Onset Pervasive Developmental Disorder ⇦			
	Atypical Pervasive Developmental Disorder ⇦			

DSM-II	DSM-III	DSM-III-R	DSM-IV	DSM-V
(1968)	**(1980)**	**(1987)**		
Schizophrenia Childhood Type	**Pervasive Developmental Disorders** Infantile Autism Childhood-Onset Pervasive Developmental Disorder Atypical Pervasive Developmental Disorder	**Pervasive Developmental Disorders** Autistic Disorder PDD-NOS		

DSM-II	DSM-III	DSM-III-R	DSM-IV	DSM-V
(1968)	(1980)	(1987)	(1994)	
Schizophrenia Childhood Type	**Pervasive Developmental Disorders** Infantile Autism Childhood-Onset Pervasive Developmental Disorder Atypical Pervasive Developmental Disorder	**Pervasive Developmental Disorders** Autistic Disorder PDD-NOS	**Pervasive Developmental Disorders** Autistic Disorder PDD-NOS Asperger's Rett's Childhood Disintegrative Disorder	

"A single spectrum disorder is a better reflection of the state of knowledge about pathology and clinical presentation; previously, the criteria were equivalent to trying to "cleave meatloaf at the joints."

DSM V Neurodevelopmental Disorders Workgroup

"This is not science – this is a committee"

Catherine Lord

DSM-II	DSM-III	DSM-III-R	DSM-IV	DSM-V
(1968)	(1980)	(1987)	(1994)	(2013)
Schizophrenia Childhood Type	**Pervasive Developmental Disorders** Infantile Autism Childhood-Onset Pervasive Developmental Disorder Atypical Pervasive Developmental Disorder	**Pervasive Developmental Disorders** Autistic Disorder PDD-NOS	**Pervasive Developmental Disorders** Autistic Disorder PDD-NOS Asperger's Rett's Childhood Disintegrative Disorder	**Autism Spectrum Disorder** Level 1 Level 2 Level 3

DSM-II	DSM-III	DSM-III-R	DSM-IV	DSM-V
(1968)	(1980)	(1987)	(1994)	(2013)
Schizophrenia Childhood Type	**Pervasive Developmental Disorders**	**Pervasive Developmental Disorders**	**Pervasive Developmental Disorders**	**Autism Spectrum Disorder**
	Infantile Autism	Autistic Disorder	Autistic Disorder	Level 1
	Childhood-Onset Pervasive Developmental Disorder	PDD-NOS	PDD-NOS	Level 2
	Atypical Pervasive Developmental Disorder		Asperger's	Level 3
			Rett's	**Social Communication Disorder**
			Childhood Disintegrative Disorder	

Behavioral Interventions:
Comprehensive vs. Focused

	Comprehensive	Focused
Disorders	Autism Spectrum	Non-Specific
Typical Intensity	20-40 hours per week	1-5 hours per week
Typical Duration	12-36 Months	5-20 Weeks
Behaviors Addressed	Multiple Targets	Single Targets
Age	Under Six Years	Non-Specific

DSM Changes?

Comprehensive Studies

Lovaas, 1987 (DSM II)

Smith, Groen & Wynn, 2000 (DSM III-R)

Dawson & Rogers, et al., 2010 (DSM IV)

Lovaas, 1987

(1968)

Schizophrenia

Childhood Type

Comprehensive Studies

Lovaas, 1987

"Behavioral Treatment and Normal Educational and Intellectual Functioning in Young Autistic Children"

Design: 40 hours ABA (n = 19) vs. 10 Hours ABA (n = 19)

Subject Diagnoses: "Autism"

Subject Ages: < 46 months

Tx Duration: Minimum, 2 years

Comprehensive Studies

Lovaas, 1987 - Selected Findings

- 40-hour group showed 20-point increase in IQ
- 10-hour group showed minor *decrease* in IQ
- Change in 40-hour group was due to 9 subjects
- IQ at intake was correlated with responsiveness to treatment

So...

DSM III - 1980

Diagnostic criteria for **Infantile Autism**

A. Onset before 30 months of age

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D. If speech is present, peculiar speech patterns such as immediate and delayed echolalia, metaphorical language, pronominal reversal.

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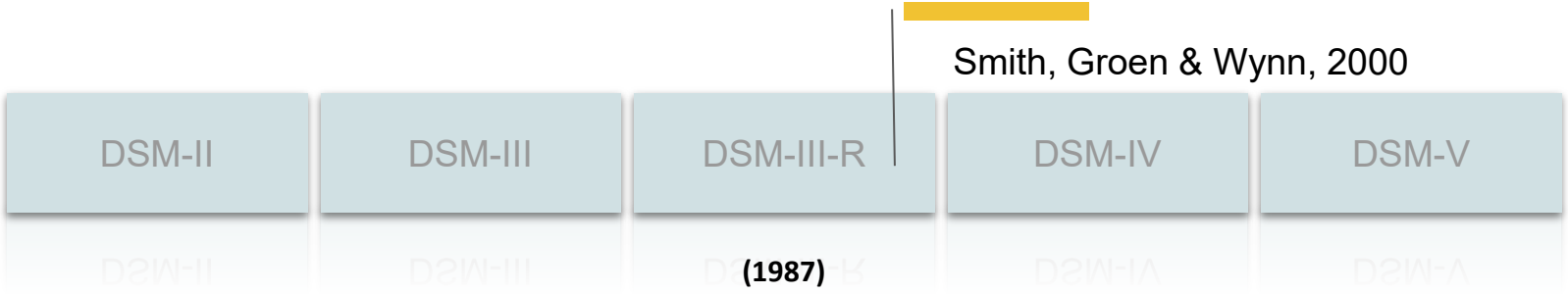

(1987)

Pervasive Developmental Disorders

Autistic Disorder

PDD-NOS

Comprehensive Studies

Smith, Groen & Wynn, 2000

"Randomized Trial of Intensive Early Intervention for Children With Pervasive Developmental Disorder"

Design: 25 hours ABA (n = 15) vs. Parent Training (n = 13)

Subject Diagnoses: Autism: n = 14 / PDD-NOS: N = 14 (sequential referrals)

Subject Ages: $\bar{x}$ = 36 months

Tx Duration: ABA: 2-3 years / Parent Training: 6 months

Comprehensive Studies

Smith, Groen & Wynn, 2000 - Selected Findings

- ABA group showed significant gains over control group
- Gains were less than in Lovaas, 1987 study
- Average IQ change as a function of intensive treatment:

Autism	PDD-NOS
+4	+26

So...

DSM-II	DSM-III	DSM-III-R	DSM-IV	DSM-V
(1968)	(1980)	**(1987)**	(1994)	**(2013)**
Schizophrenia	**Pervasive Developmental Disorders**	**Pervasive Developmental Disorders**	**Pervasive Developmental Disorders**	**Autism Spectrum Disorder**
Childhood Type	Infantile Autism	Autistic Disorder	Autistic Disorder	Level 1
	Childhood-Onset Pervasive Developmental Disorder	PDD-NOS	PDD-NOS	Level 2
	Atypical Pervasive Developmental Disorder		Asperger's	Level 3
			Rett's	
			Childhood Disintegrative Disorder	

Dawson & Rogers et al., 2010

DSM-II | DSM-III | DSM-III-R | DSM-IV | DSM-V

(1994)

Autistic Disorder

PDD-NOS

Asperger's

Rett's

Childhood Disintegrative Disorder

Comprehensive Studies

Dawson & Rogers, et al., 2010

"Randomized, Controlled of an Intervention for Toddlers with Autism: The Early Start Denver Model"

Design: 20 hours ESDM (n = 24) vs. Referral to Community Resources (n = 24)

Subject Diagnoses: Autism: n = 39 / PDD-NOS: N = 9

Subject Ages: $\bar{x}$ = 24 months

Tx Duration: 2 years

Comprehensive Studies

Dawson & Rogers, et al., 2010 - Selected Findings

- **ESDM group showed significant gains over control group**
- **Vineland standard scores at follow-up**

ESDM	Control
Maintained	-11.2

- **Average IQ change (Mullen):**

ESDM	Control
+17.6	+7

So...

Comprehensive Studies

Dawson & Rogers, et al., 2010

"Randomized, Controlled of an Intervention for Toddlers with Autism: The Early Start Denver Model"

Design: 20 hours ESDM (n = 24) vs. Referral to Community Resources (n = 24)

Subject Diagnoses: Autism: n = 39 / PDD-NOS: N = 9

Subject Ages: $\bar{x}$ = 24 months

Tx Duration: 2 years

Do Differing DSM Criteria Matter When Interpreting Evidence?

- Maybe not, if you are looking at meatloaf.
- Instead, look at subject characteristics, and compare them to your client:

  Age/Cognitive Skills/Communication Skills/Adaptive Skills

Final Thoughts

- Empirical support for comprehensive interventions is limited to children under six.
- In most studies, higher-functioning subjects have been the most responsive to comprehensive behavioral programs.
- Don’t make diagnoses that preclude evidence-based interventions.
- Particularly in high-functioning teens and adults, assess for comorbid conditions.

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Surveillance Year	Birth Year	This is about 1 in X children…
2000	1992	1 in 150
2002	1994	1 in 150
2004	1996	1 in 125
2006	1998	1 in 110
2008	2000	1 in 88
2010	2002	1 in 68
2012	2004	1 in 69
2014	2006	1 in 59
2016	2008	1 in 54

CDC Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

https://www.cdc.gov/ncbddd/autism/data.html