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Psychiatric Diagnoses in Infancy: A Comparison

MARGUERITE DUNITZ, PETER J. SCHEER, ERICH KVAS, AND SUZANNE MACARI
Karl Franzens University
Graz, Austria

ABSTRACT: This study investigated the specificity of diagnostic classification in two standardized systems: DSM-IV and Diagnostic Classification: Zero to Three. A sample of 82 infants aged 1–24 months suffering from various psychogenic and functional pediatric symptoms was diagnosed applying both systems. For DC: 0-3 (the Diagnostic Classification on Mental Health and Developmental Disorders of Infancy and Early Childhood), this study presents results with respect to the specificity of symptom patterns. Twelve out of 27 symptoms, specific for disorders in early infancy, showed high specificity and were significantly discriminative for the diagnostic entities. These symptoms were differentiated for frequency and severity of occurrence for each diagnosis. In the sample, DSM-IV and DC: 0-3 diagnoses were compared. Additionally, 13 items of biographical-biological data were collected (e.g., low SES combined with very young or older mothers resulted in an increased risk for psychiatric disorders in early infancy). The data provide support for the idea that the use of DC: 0-3 in early infancy may be helpful in relation to daily routines and research by increasing the range of clearly defined diagnostic entities.

RÉSUMÉ: Cette étude a examiné la spécificité de la classification diagnostique de deux systèmes standardisés: DSM-IV et la Classification Diagnostique: Zéro à Trois. Un échantillon de 82 nourrissons âgés de 1 à 24 mois souffrant de divers symptômes infantiles psychogéniques et fonctionnels a été diagnostiqué en appliquant les deux systèmes. Pour DC: 0-3, (la Classification Diagnostique sur les Troubles en matière de Développement et de Santé Mentale de la Petite Enfance) cette étude présente des résultats pour ce qui concerne la spécificité des patterns de symptômes. Douze des 27 symptômes, spécifiques des troubles chez la petite enfance, ont présenté une haute spécificité et permettaient une nette distinction pour les entités diagnostiques. Ces symptômes étaient différenciés pour la fréquence et la sévérité de la fréquence pour chaque diagnostique. Dans l'échantillon, les diagnostiques DSM-IV et DC: 0-3 ont été comparés. De plus, 13 points de données biographiques-biologiques ont été recueillis, par exemple, un SES bas associé à de très jeunes mères ou à des mères plus âgées a abouti à un risque de troubles psychiatriques plus élevé dans la petite enfance. Les données confirment que l'utilisation de DC: 0-3 durant la petite enfance peut être utile par rapport aux routines journalières et à la recherche en augmentant la portée d'entités diagnostiques clairement définies.

RESUMEN: Este estudio investigó la especificidad de la clasificación de diagnóstico en dos sistemas estandarizados: DSM-IV y la Clasificación de Diagnóstico: de Cero a Tres. Como muestra, 82 infantes de edades entre 1 y 24 meses, los cuales sufrían de síntomas sicogénicos y síntomas pediátricos funcionales, fueron diagnosticados aplicando ambos sistemas. Para DC: 0-3, (la Clasificación de Diagnóstico sobre

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Dr. Dunitz is head of the outpatient clinic for early infancy and assistant professor at the Div. of Pediatric Psychosomatics and Psychotherapy, where Dr. Peter J. Scheer is associate professor for pediatrics and head of this Division at the Department for General Paediatrics of the University Children's Hospital at the Karl Franzen's University, Graz, Austria. Erich Kvas is Research Fellow for Biostatistics at the Physiological Institute of the Karl Franzens University, Graz. Suzanne Macari was Research Fellow (1992-93) at the Institute of Psychology of the Karl Franzens University, Graz.

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la Salud Mental y los Trastornos en el Desarrollo Infantil y en los Primeros Años de Niñez) este estudio presenta resultados con respecto a la especificidad de los patrones sintomáticos. Doce de los 27 síntomas, específicamente para los trastornos en los primeros años de la niñez, mostraron especificidad y fueron significativamente discriminatorios para las entidades de diagnóstico. Estos síntomas se diferenciaron por la frecuencia y la severidad con que cada diagnosis sucedió. En la muestra, se compararon las diagnosis de DSM-IV y DC: 0-3. Adicionalmente, 13 piezas de información bibliográfica-biológica se recogieron; e.g. bajos SES combinados con madres o muy jóvenes o más viejas resultaron en un incremento de riesgo para trastornos siquiátricos en los primeros años de la niñez. La información proveyó apoyo para la idea de que usar DC: 0-3 en los primeros años de la niñez pudiera ser de ayuda en relación con las rutinas diarias y la investigación en cuanto al aumento del espectro de entidades de diagnóstico claramente definidas.

抄録：この論文は、DSM-IVと診断分類：0から 3という 2つの標準化されたシステムにおける、診断分類の特異性を検索する。月齢1-24カ月で、各種心理的・機能的小児科的問題のある乳幼児82名を対象に、両システムを適用した。

DC:0-3(the Diagnostic Classification on Mental Health and Development Disorders of Infancy and Early Childhood)に関しては、症状パターンの特異性について報告する。27の症状のうち12は、初期乳幼児期に特異的で、診断単位として有意に弁別的で、高い特異性を示した。それぞれの診断によって、それらの症状の頻度・重篤度が異なった。

DSM-IVとDC:0-3とで、診断を比較した。加えて、生育歴・生物学的データを13項目収集した：母親の年齢が非常に若いか高齢で、しかも、社会経済階層が低い場合、初期乳幼児期における精神科疾患のリスクが高かった。こうしたデータから、初期乳幼児期におけるDC:0-3の使用は、境界が明瞭な診断単位の幅を広げ、日常の臨床や研究に役立つと結論できる。

Psychic disorders in babies are a diagnostic challenge. Because many disorders during the first 2 years of life carry a significant developmental risk, correct diagnosis is an important prerequisite of any early intervention and treatment (Glaser, Heagerty, Bullard, & Pirchik, 1968; Woolston, 1988). As Irene Chatoor states, children with substantial developmental problems and emotional difficulties are sometimes not assessed and treated until nursery school age. Unfortunately, by the age of 3, the time of optimal therapeutic leverage may have passed (Chatoor, Schaeffer, Dickson, & Egan, 1984). Skuse (Skuse, Wolke, & Mathisen, 1987), in a community survey, found a lack of detection of disorders in infancy and attributed this fact partially to the insufficiency of diagnostic classification systems for this age group. The lack of development of specific and adequate diagnostic systems for this age group may also be related to the psychoanalytical convention of interpreting problems of infancy from the perspective of adulthood. The newly developed system of Diagnostic Classification of Mental Health and Developmental Disorders of Infancy and Early Childhood: "Zero To Three: 0-3" (DC: 0-3; Zero to Three, 1994) attempts to integrate psychodynamic, developmental, interactional, neurological, and psychiatric aspects into a new diagnostic system. The use of this assessment tool requires a comprehensive pediatric exam or information, an interview with the primary caretakers, and observation of the parents interacting with their baby.

The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 1994), the American standardized psychiatric diagnostic system, also provides new diagnostic categories for infancy. Nevertheless, the plasticity and flexibility of the infant's development as well as environmental influences introduce questions as to whether and which diagnostic systems can be applied to this age group. In discussing these topics and possible limitations of DSM-IV for research and clinical application within the European WHO Study-Group for Standardization of Diagnosis in Child Psychiatry (Head: MH Schmidt, Mannheim; H. Remschmidt, Marburg)

at a conference in Graz, Austria, in Fall 1992, we were asked to design and carry out a prospective study using the DC: 0-3 system in its latest revision. During the Regional Meeting of the World Association for Infant Mental Health, which we organized in Graz, Austria, in May 1993, we were encouraged to incorporate the DC: 0-3 into a first comparative European pilot study. This paper presents the results of this study restricted to Axis I (i.e., to psychiatric diagnosis).

DESCRIPTION OF SITE AND RATERS

The team in the Division of Pediatric Psychotherapy and Pediatric Psychosomatics of the Department of General Pediatrics who conducted the study includes 3 psychotherapeutically trained pediatricians, 1 resident, 1 research fellow, 1 clinical psychologist, 2 psychotherapeutically trained schoolteachers, 1 child-psychiatric nurse, 3 pediatric nurses, and 6 psychotherapists in training. This team is in charge of an inpatient section for psychosomatics and psychotherapy in the second largest European University Children's Hospital (211 pediatric beds, 103 beds for child surgery and pediatric orthopedics). The University Children's Hospital serves an area of 4,000 square miles and 2.5 million people. Our inpatient unit has 14 beds, 4 of which can be adapted as separate units for mother and child. In these units, we can treat infants under 4 years of age with the luxury of having their mothers in attendance. About 70–80 infants are referred each year as inpatients with one of their parents staying with them. Additionally, an Early Infancy Clinic is held once a week on an outpatient basis and handles approximately 200 infants per year.

Two of the authors (M.D. and P.J.S.) have been ongoing participants of the Diagnostic Classification Task Force developing the DC: 0-3 system since 1989 and are working with a committee to study and promote the introduction of DC: 0-3 in Europe.

METHOD

Subjects

The study sample of 82 infants was selected from 104 infants referred concurrently to our unit in the course of 8 months (July 1993–February 1994) for so-called interactionally triggered pediatric problems. Criteria for inclusion were: age at referral 1–24 months, Apgar after 1 minute of at least 8, full term, first born. Criteria for exclusion were: acute and chronic infectious conditions or diseases, congenital malformations, complicated perinatal period.

All infants suffered from so-called "functional problems," for example, feeding difficulties, sleep disturbances, and/or excessive screaming. One common reason for referral was the impression of interactional disturbances by the referring colleagues or by the parents themselves. Referral occurred directly from general practitioners (12%), pediatricians in private practice (53%), or by other hospitals (35%).

The age of the infants ranged from 9 days to 24 months (mean = 11.67 months) and the sample included 38 boys (46.%) and 44 girls (54%). In 70 cases, both parents were available, in 12 cases we could only contact the mother; in 3 of those 12 cases the fathers were unknown; 64 children had parents who were married, another 6 were living with both parents, 12 children were brought up by single mothers. Seventy-nine

infants were of Caucasian origin, 2 were racially mixed (one Filipino-Caucasian, one Hamite-Caucasian), 1 was African. Thirty-eight patients were assessed on an outpatient basis, 44 patients were inpatients, of whom 17 stayed in the general baby ward 3–67 days (mean 21.2 days) and 27 with their mothers in the psychosomatic ward 2–54 days (mean 14.2 days). All parents had given informed consent to the study and to the use of videotaped material for clinical rating and research according to the declarations of Tokyo and Helsinki.

Procedure

The assessment was organized as follows:

- A first encounter with the baby and its parents consisted of a pediatric-neurological examination. This included measurement of weight, length, developmental performance, physical screening, and serologic parameters when necessary. The complaints and symptoms were listed according to DC: 0-3 table 6 in 3 degrees of severity.
- Biological-biographical data were assessed: prenatal complications, birth complications, sex, Apgar 5 min., birthweight, gestational age, father's age, mother's age.
- A play-interaction with the parents was videotaped for a sequence lasting 10–15 minutes.
- A feeding interaction was videotaped for 10–15 minutes, both play and feeding interactions according to the guidelines of Chatoor (1986).

Socioeconomic status (SES) and marital status were assessed (see Tables 1a and 1b). This information was obtained by the medical staff and/or the social worker.

The diagnosis of each infant was assigned by the entire clinical team of pediatricians, psychotherapists, and psychologists according to the respective manuals in DSM-IV and DC: 0-3 at the end of a 3- to 6-hour assessment period, for the most part completed within 1 week after referral.

Measures and Analysis

The 13 items of biological-biographical data and the list of pediatric symptoms were gathered in three grades of severity. In our sample, 10 different diagnostic categories were found. Concurrently, 10 groups arose in both diagnostic systems. For the correlation of symptoms assessed in the 2×10 groups, we used the Spearman coefficient of rank correlation for estimating linear dependence between two variables. Because of the ordinal characteristic of the symptoms using three degrees of severity, the nonparametrical Kruskal-Wallis H-test (Miller, 1980) was applied. This test investigates distribution in the whole reference group and allows statistical comparability. (This means, for example, that sleep problems occurred in many children in 8 groups but were found to be greater—degree of severity 2 or 3—only in 3 groups.) Biological/biographical data were tested for normal distribution applying the nonparametrical Kruskal-Wallis H-test (Tables 2a and 2b).

RESULTS

Tables

Table 2a shows the analysis for the 10 diagnostic groups of DSM-IV. Table 2b shows the 10 diagnostic groups of the DC: 0-3 system in their respective specific symptom patterns. The values listed following the symptoms indicate the relative frequency

Table 1a.
DSM-IV Groups

Group	Mean (std. deviation)[a]	1 $n=6$	3 $n=10$	4 $n=6$	6 $n=6$	7 $n=16$	8.1 $n=20$	8.2 $n=7$	8.3 $n=5$	p^b
Family income	2.35 ± 1.05	2.00[c]	1.30	2.83	2.67	2.75	2.45	2.57	2.40	0.02
Father's ed.	3.70 ± 1.79	4.17	2.11	3.60	5.17	3.81	3.70	4.00	5.00	0.02
Apgar 5	8.12 ± 1.46	7.83	8.00	9.50	8.17	7.12	8.35	9.00	7.60	0.02
Age	11.67 ± 7.56	12.58	11.56	21.00	15.17	17.50	8.30	5.14	4.80	$<10^a$

[a]Mean of sample ± standard deviation.
[b]*p*-value of a Kruskal-Wallis H Test (DF: 7).
[c]Mean in group.
1. Father's education and mother's education in 7 grades: 1 = Under 7 years; 2 = 7–11 years; 3 = 12 years (high school grade); 4 = 1–3 years college; 5 = 4 years college (graduated); 6 = Master's level; 7 = Doctoral level.
2. Annual Family Income in 5 grades: 1 = <US$10,000; 2 = >US$10,000; 3 = > US$20,000; 4 = >US$30,000; 5 = >US$50,000.
3. Marital status.
4. In Tables 1a and 1b only those items that were shown to be statistically significant are mentioned.

Table 1b.
DC: 0-3 Groups

Group	Mean ± std deviation	1 $n=8$	2 $n=11$	4 $n=8$	5 $n=5$	6 $n=9$	7 $n=7$	8 $n=10$	9 $n=10$	10 $n=17$	p^a
Family income	2.35 ± 1.05	3.25[b]	1.27	2.25	2.2	2.44	2.28	2.6	2.4	2.64	0.01
Father's ed.	3.70 ± 1.79	4.25	2.1	3.62	3.75	4.0	4.71	4.4	3.4	3.75	0.01
Birthweight	6.67 ± 1.34	6.38	5.98	6.88	6.70	6.78	7.43	5.5	6.6	7.47	$<10^{-2}$
Apgar 5	8.12 ± 1.46	6.75	8.09	7.12	7.6	7.88	8.14	8.7	8.2	9.23	$<10^{-2}$
Age	12.67 ± 7.67	19.75	9.68	5.94	7.1	8.11	10.21	10.3	20.6	18.53	$<10^{-4}$

[a]*p*-value of a Kruskal-Wallis H Test (DF: 8).
[b]Mean in group.
1. Father's education and mother's education in 7 grades: 1 = Under 7 years; 2 = 7–11 years; 3 = 12 years (high school grade); 4 = 1–3 years college; 5 = 4 years college (graduated); 6 = Master's level; 7 = Doctoral level.
2. Annual Family Income in 5 grades: 1 = <US$10,000; 2 = >US$10,000; 3 = > US$20,000; 4 = >US$30,000; 5 = >US$50,000.
3. Marital status.
4. In Tables 1a and 1b only those items that were shown to be statistically significant are mentioned.

of the symptom appearance in the sample in percent. Entering the individual group columns, the upper value indicates the relative frequency of the appearance of the symptom in the group in percent. The lower value gives the mean of the degree of severity (0 = none, 3 = extreme) in the group. The rightmost column gives the *p*-value of the applied Kruskal-Wallis H-test.

Graphs

A graphic design was implemented to visually demostrate the "diagnostic destiny" of each patient in the two different diagnostic systems. Whereas some entities are stable (for example, post-traumatic stress disorder), others were shown to be very different in a nonpredictable way. For example, children with developmental disorders in DSM-IV are found in DC: 0-3 in four different groups: reactive attachment disorder,

Table 2a.
DSM-IV Groups

Group	1 $n = 6$	3 $n = 10$	4 $n = 6$	6 $n = 6$	7 $n = 16$	8.1 $n = 20$	8.2 $n = 7$	8.3 $n = 5$	p^d
Sleep (42.68[a])	100.00[b] 3.0[c]	50.00 1.1	33.33 0.5	50.00 1.0	43.75 1.06	25.00 0.35	57.14 1.57	60.00 1.2	$<10^{-2}$
Feeding/eating (70.73)	16.67 0.33	100.0 2.22	83.33 1.5	50.0 1.16	75.0 2.0	95.0 2.35	100.0 2.42	0.00 0.0	$<10^{-3}$
Poor attachment (41.46)	33.33 0.5	90.0 2.1	16.67 0.16	16.67 0.33	75.00 2.0	10.0 0.15	42.85 0.42	20.0 0.2	$<10^{-4}$
Oppositional (26.82)	0.00 0.0	20.00 0.4	66.67 1.5	50.00 0.66	31.25 0.56	20.0 0.35	0.00 0.0	0.00 0.0	0.03
Attention diff. (41.46)	33.33 0.5	70.00 0.8	0.00 0.0	66.67 0.83	81.25 1.5	20.00 0.25	28.57 0.28	0.00 0.0	$<10^{-3}$
Separation anxiety (41.46)	66.67 1.16	10.00 0.2	50.00 1.33	100.0 2.66	31.25 0.68	50.0 1.0	14.28 0.28	20.00 0.4	$<10^{-2}$
Fearfulness (39.02)	66.67 1.16	50.0 0.8	16.67 0.5	100.0 2.33	12.5 0.25	55.0 0.8	28.57 0.42	0.00 0.0	$<10^{-3}$
Depressed affect (20.73)	16.67 0.16	100.0 2.1	16.67 0.33	33.33 0.33	12.5 0.25	5.00 0.05	0.00 0.0	0.00 0.0	$<10^{-4}$
Unrelated autistic (29.26)	16.67 0.16	90.0 1.2	0.00 0.0	0.00 0.0	81.2 2.12	5.00 0.05	0.00 0.0	0.00 0.0	$<10^{-4}$
Motor developm. delay (30.48)	16.67 0.33	50.0 0.7	0.00 0.0	33.33 0.5	81.25 1.68	15.00 0.3	0.00 0.0	0.00 0.0	$<10^{-3}$
Others (24.39)	16.67 0.16	60.00 1.8	0.00 0.0	0.00 0.0	12.5 0.37	10.00 0.2	0.00 0.0	100.0 3.0	$<10^{-4}$

[a] *p*-value of a Kruskal-Wallis H Test (DF:7).
[b] Relative frequency in the sample of the appearance of symptom in %.
[c] Mean of degree of severity in group (0 = none to 3 = extreme).
[d] Relative frequency in group of the appearance of symptom in %.

anxiety disorder, disorders of relating and communicating, and regulatory disorders types III–IV. This is due to a different hierarchy and different emphasis on topics of attachment and bonding within the decision tree of DSM-IV and DC: 0-3, respectively.

Figures 1 and 2 show the shift of infants within the two comparative diagnostic systems. Figure 1 is based on the DSM-IV diagnosis (left column) and shows the distribution of the same infants in DC: 0-3 (right column). Figure 2 is based on the DC: 0-3 (left column) diagnosis and shows the distribution of the same infants in DSM-IV (right column).

What is demonstrated on first sight is the relative stability of infants in the two comparative systems in the various categories: adjustment disorders, post-traumatic stress disorder (PTSD), and reactive attachment disorder. This finding contrasts, for example, to the regulatory disorders—a basically new concept for standardized diagnosis used in DC: 0-3—which categorize infants subsequently from four other categories in the DSM-IV. For example, the 6 infants diagnosed as sleep disorders in Figure 1 (left column) divide up into 5 of the 7 sleep disorders of DC: 0-3 (right column) and one infant who ended up as a regulatory disorder type I, because its sleeping problem was assessed as a single symptom combined with others as part of a problem of regulation. In Figure 2, 1 of the 7 sleep behavior disorders (upper left column, group #1) in DC: 0-3 was diagnosed as separation anxiety disorders (group #6)

Table 2b.
DC: 0-3 Groups

Group	1 $n = 8$	2 $n = 18$	4 $n = 8$	5 $n = 5$	6 $n = 9$	7 $n = 7$	8 $n = 10$	9 $n = 5$	10 $n = 17$	p^d
Sleep (42.68)[a]	37.50[b]	45.45	50.00	20.00	33.33	100.0	40.00	60.00	29.41	$<10^{-2}$
	1.0[c]	1.0	1.5	0.2	0.66	3.0	0.8	1.0	0.41	
Feeding/eating	87.50	90.90	75.00	60.00	77.77	14.28	100.0	40.00	70.58	$<10^{-3}$
(70.73)	2.25	1.9	1.87	1.4	2.0	0.28	0.8	0.8	1.41	
Poor attachment	87.50	81.81	12.50	0.00	33.33	28.57	40.00	60.00	17.64	$<10^{-4}$
(41.46)	2.5	2.0	0.25	0.0	0.66	0.28	0.6	1.2	0.23	
Exc. tantrums	37.50	9.09	37.50	0.00	0.00	14.28	30.00	60.00	47.50	0.03
(26.82)	1.12	0.09	0.75	0.0	0.0	0.14	0.5	1.6	1.11	
Oppositional	37.50	9.09	12.50	0.00	0.00	0.00	40.00	80.00	52.94	$<10^{-2}$
(26.82)	0.87	0.18	0.25	0.0	0.0	0.0	0.7	1.0	1.29	
Attention diff.	87.50	54.54	25.00	20.00	55.55	42.85	30.00	80.00	11.76	$<10^{-2}$
(41.46)	1.87	0.63	0.37	0.4	0.88	0.42	0.3	1.0	0.11	
Separation	25.00	9.09	12.50	40.00	11.11	71.42	70.00	100.0	47.05	$<10^{-3}$
anxiety (41.46)	0.5	0.18	0.25	1.0	0.11	1.42	1.6	2.8	1.0	
Fearfulness	25.00	36.36	62.50	40.0	0.00	57.14	70.00	60.00	23.52	0.03
(39.02)	0.5	0.54	1.34	0.8	0.0	1.14	1.0	1.2	0.35	
Depressed affect	25.00	81.81	12.50	20.00	0.00	14.28	20.00	0.00	5.88	$<10^{-4}$
(20.73)	0.5	1.72	0.12	0.2	0.0	0.14	0.3	0.0	0.11	
Unrelated,	100.00	81.81	12.50	20.00	44.44	0.00	10.00	0.00	0.00	$<10^{-4}$
autistic (29.26)	2.75	1.27	0.12	0.2	1.0	0.0	0.1	0.0	0.0	
Motor developm.	100.00	54.54	12.50	40.00	44.44	14.28	10.00	20.00	0.00	$<10^{-4}$
delay (30.48)	2.0	0.81	0.25	0.8	1.0	0.14	0.2	0.4	0.0	
Developm. delay	100.00	63.63	12.50	0.00	44.44	14.28	10.00	40.00	0.00	$<10^{-4}$
language (30.48)	2.62	1.0	0.37	0.0	0.88	0.14	0.1	1.2	0.0	

[a] p-value of a Kruskal-Wallis H Test (DF: 7).
[b] Relative frequency in Sample of the appearance of symptom in %.
[c] Mean of degree of severity in group (0 = none to 3 = extreme).
[d] Relative frequency in group of the appearance of symptom in %.

in DSM-IV because this problem was predominant. The seventh infant was diagnosed as feeding disorder (group #8.2, right column) because the feeding problem had been given priority above the sleeping problem. Every child was given only one single diagnosis.

DISCUSSION

The specificity of symptom patterns for diagnostic entities was the main focus of this pilot study. Pattern specificity was shown to be reliable and significant for nearly all groups. The study was done on a relatively small clinical population in terms of statistical relevance, but adequately large in terms of the occurrence of these disorders in early childhood. DC: 0-3 offered some completely new categories that were incompatible with DSM-IV as they came from a different background.

A comparison of two basically different systems has certain scientific limitations that must be considered:

- Both systems are dealing with psychological problems in babies, but they are using different approaches so that the comparison can only be based on observations.
- The classification items are different and so are their manuals. Therefore, the comparison of the systems has to look first at the relation of diagnosable vs. undiagnosable children and second, at the appearance of a disordered child in each system. A scientific comparison of the quality of the two manuals with respect to each other is not considered by the authors with the help of the presented study design.

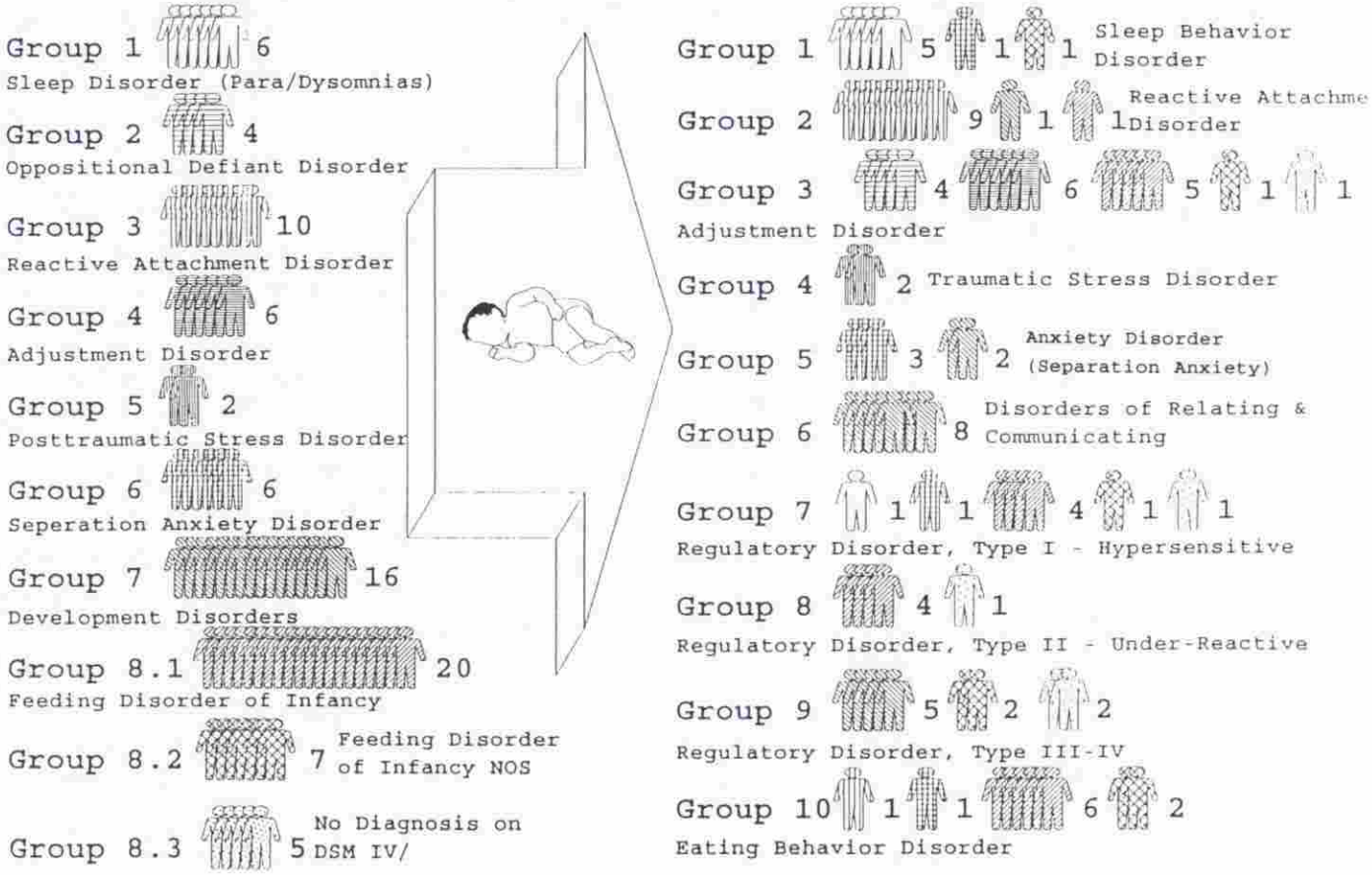
DSM-IV
Group 1 6
Sleep Disorder (Para/Dysomnias)
Group 2 4
Oppositional Defiant Disorder
Group 3 10
Reactive Attachment Disorder
Group 4 6
Adjustment Disorder
Group 5 2
Posttraumatic Stress Disorder
Group 6 6
Seperation Anxiety Disorder
Group 7 16
Development Disorders
Group 8.1 20
Feeding Disorder of Infancy
Group 8.2 7 Feeding Disorder of Infancy NOS
Group 8.3 5 No Diagnosis on DSM IV/
DC: 0-3
Group 1 5 1 1 Sleep Behavior Disorder
Group 2 9 1 1 Reactive Attachme Disorder
Group 3 4 6 5 1 1
Adjustment Disorder
Group 4 2 Traumatic Stress Disorder
Group 5 3 2 Anxiety Disorder (Separation Anxiety)
Group 6 8 Disorders of Relating & Communicating
Group 7 1 1 4 1 1
Regulatory Disorder, Type I - Hypersensitive
Group 8 4 1
Regulatory Disorder, Type II - Under-Reactive
Group 9 5 2 2
Regulatory Disorder, Type III-IV
Group 10 1 1 6 2
Eating Behavior Disorder

FIGURE 1.

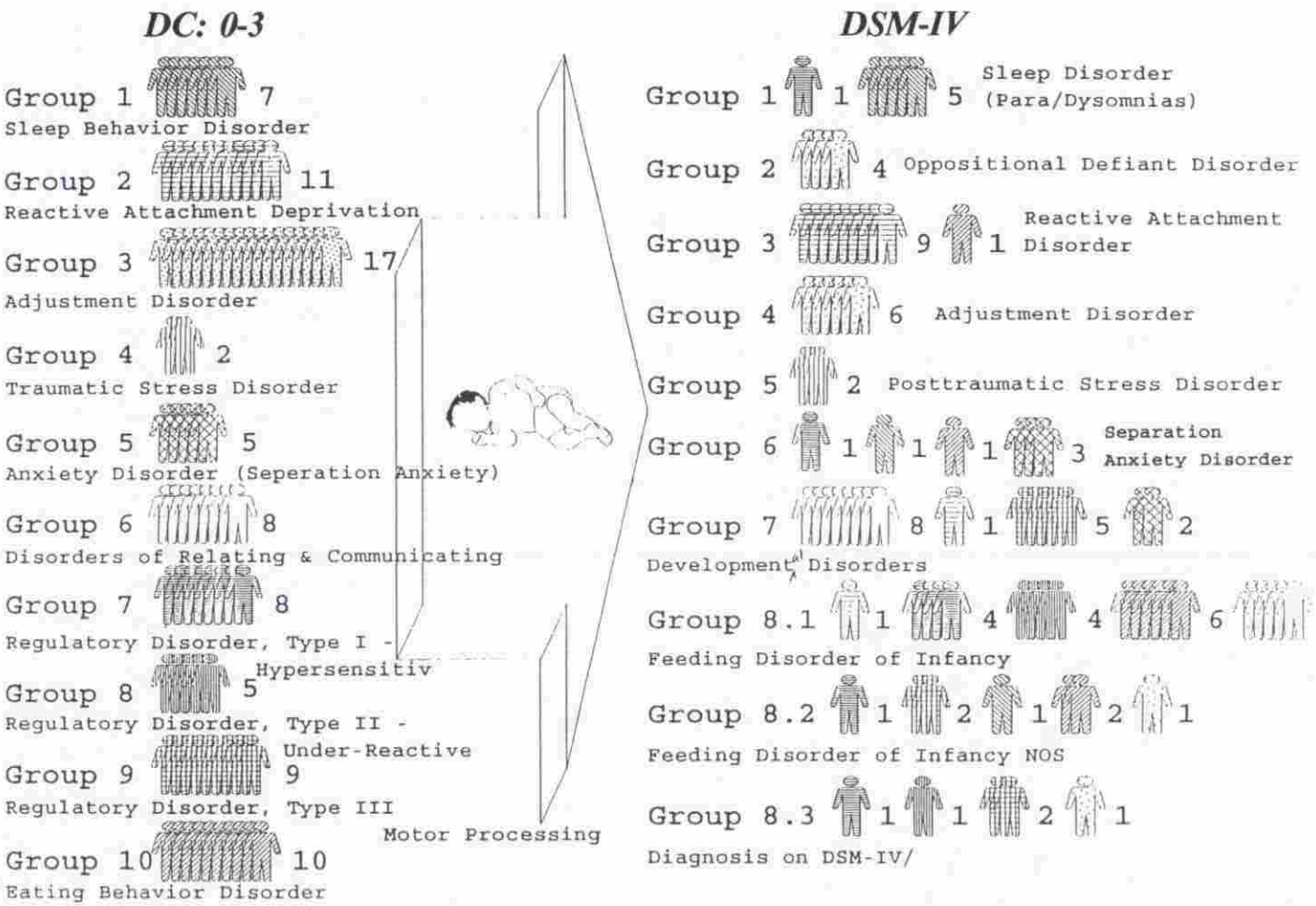
DC: 0-3
Group 1 7
Sleep Behavior Disorder
Group 2 11
Reactive Attachment Deprivation
Group 3 17
Adjustment Disorder
Group 4 2
Traumatic Stress Disorder
Group 5 5
Anxiety Disorder (Seperation Anxiety)
Group 6 8
Disorders of Relating & Communicating
Group 7 8
Regulatory Disorder, Type I -
Hypersensitiv
Group 8 5
Regulatory Disorder, Type II -
Under-Reactive
Group 9 9
Regulatory Disorder, Type III
Motor Processing
Group 10 10
Eating Behavior Disorder
DSM-IV
Group 1 1 5 Sleep Disorder (Para/Dysomnias)
Group 2 4 Oppositional Defiant Disorder
Group 3 9 1 Reactive Attachment Disorder
Group 4 6 Adjustment Disorder
Group 5 2 Posttraumatic Stress Disorder
Group 6 1 1 1 3 Separation Anxiety Disorder
Group 7 8 1 5 2
Development Disorders
Group 8.1 1 4 4 6
Feeding Disorder of Infancy
Group 8.2 1 2 1 2 1
Feeding Disorder of Infancy NOS
Group 8.3 1 1 2 1
Diagnosis on DSM-IV/

FIGURE 2.

- A comparison of diagnostic systems usually refers to construct validity, sensitivity, and other implicit factors of psychological methodology. We have investigated the clinical practicability and the impact on scientific communication of the tools more than their internal validity.
- Our work-up is based on a clinical population referred mostly for feeding, eating, and sleeping problems. A control group of healthy children has not been used, in order to exclude the possibility of diagnosing pathology in a "healthy" population.

Our examination of this clinical sample has revealed a clear diagnostic "fit" for some classification groups: developmental disorders (mental, pervasive, and specific) are defined clearly by symptoms in both systems and appears to be suitable for infants with disorders in this domain. The subgroups #1 – #6 DSM-IV are also well defined and show symptom specificity.

The introduction of the DC: 0-3 category "regulatory disorder" is useful especially for pediatricians. Quoting the DC: 0-3 manual: "They are characterized by difficulties the infant has in regulating physiological, sensory, attentional, motor or affective processes, and organizing a calm, alert, or affectively positive state." Whereas one could argue that this category is at risk to combine children with many different diseases, resulting in a false impression of interpreting these infants as a homogeneous group, the manual argues: "There is a longstanding assumption and growing evidence that fussy or difficult infants are, at least in part, the way they are due to constitutional and early maturational patterns. However, it is also recognized that the early caregiving patterns can exert considerable influence on how these constitutional and maturational patterns develop and become part of the evolving personality of the child." The background paragraph is concluded by: "As interest in these children increases, it is important to systematize the descriptions of the presumed involved sensory, motor, and integrative patterns."

As pediatricians, we have found these new diagnostic opportunities with DC: 0-3 intriguingly well matched for very young infants for whom a diagnosis in DSM-IV had not been assignable at all. For example, Robert, a small boy 5 weeks old, was described by his already distressed parents as being very awkward, fussy, hard to please, hypersensitive to tactile stimulation, and having very short periods of sleep. He was quite normal in development, focusing and relating well when examined in a "good moment." This picture matches well for regulatory disorder, type I. Robert could not be categorized sufficiently in the DSM-IV. Another positive advantage is offered by DC: 0-3 for the common circumstance of feeding problems. Focusing only on the feeding disorder as the cardinal problem, one might overlook infants whose problems may also include difficulty in eating, together with other problems of temperament, including variability, conduct, or regulating capacity.

As to the regulatory disorders type II, we can see that, especially in the first months of life, the term "mental retardation" or "developmental disorder" can in some cases by described by the less negative term of underreactive or motor processing regulation. In this way, the physician is forced to provide a differentiated rating of the infant's abilities in various sensory systems. Also, the term offers a more positive perspective. If, supported with therapeutic interventions, for example, a specific program of sensory activation is offered, the result may be an improvement in prognosis. As the infant grows older, the term mental retardation or developmental disorder will become a less common alternative to regulatory imbalances and will need to be described separately in

DC: 0-3. It may well be that many children suffering from different diseases may be covered within this group.

A trend can be found within the regulatory disorders types III–IV: These split up mainly into the developmental disorders group of DSM—IV, whereas the regulatory disorders types I and II divide up mostly into the feeding disorders of DSM-IV. Because the DC: 0-3 manual demands priority for regulatory disorder above eating behavior disorder, the large group ($n = 27$) of feeding disorders in DSM-IV is largely diminished to only ten cases. We can see that the group identified as "disorder of relating and communication" (group #6, DC: 0-3) is incorporated completely in "developmental disorders" (group #7, DSM-IV) with the addition of the group of regulatory disorders types III and IV. The specification of pervasive developmental disorders, especially the identification of PDD-autism, has not been a main focus in the comparative study design and, therefore, potentially will be diagnosed too often because DC: 0-3 regulatory disorders can distinguish children having severe processing difficulties who are fine on relating and cognition in contrast to the PDD-NOS group.

The issue of which classification system does a better job at predicting etiology, outcome, or response to treatment has not been addressed in this study design. Additional research is needed to investigate such differentiated, but important, dimensions of diagnostic classification systems.

CONCLUSION AND CLINICAL IMPLICATIONS

Multiaxial diagnosis in any system forces us to consider different kinds of findings:

- a closer look at presenting symptoms, their pattern, their possible specificity;
- a closer look at the infant's personality, style of temperament, and regulatory patterns;
- a closer look at the infant's level of functioning and of relating;
- a closer look at the infant's immediate caregivers and their mutual relationship to the infant and with each other; and
- a closer look at the psychosocial situation characterizing the baby's environment.

Applying standardized rating systems such as DSM-IV and new systems such as the DC: 0-3 teaches us to think in organized and systematic ways on different levels and in different "realities" in our daily work. We saw infants whose presenting problem was matched better in one system or described and explained better in the other.

Correct standardized codability for psychodyamically related disturbances in infancy is an important condition for comprehensive understanding of the complex and multidimensional background of many disorders of infancy presenting as functional pediatric problems. The relevance for all therapeutic interventions must be based on reliable diagnostic classification systems, for which DSM-IV and the DC: 0-3 systems open new pathways.

REFERENCES

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.

Chatoor, I. (1986). *Mother-Infant/Toddler Feeding Scale.* Copyright with the Children's Hospital, National Medical Center, 11 Michigan Ave. N.W., Washington, DC 20010.

Chatoor, I., Schaeffer, S., Dickson, L., & Egan, J. (1984). Non-organic failure to thrive: A developmental perspective. *Pediatric Annals, 13*, 829-842.

Glazer, H. H., Heagerty, M. C., Bullard, D. M., & Pirchick, E. C. (1968). Physical and psychosocial development of children with early failure to thrive. *Journal of Pediatrics, 73*, 690-698.

Miller, R. G., Jr. (1980). *Beyond ANOVA – Basics of applied statistics*. New York: John Wiley & Sons.

Skuse, D., Wolke, D., & Mathisen, B. (1987). A community survey of individual and environmental variables associated with nonorganic failure to thrive among inner city infants. In L. J. Dooren, J. D. Mulder, and D. A. Treffers, (Eds.), *Op de Grens von Soma en Psyche: Psychosomatische aandeoningen op de Kinderlieiftijd*. Netherlands: Boerhave.

Woolston, J. L. (1988). Diagnostic classification: The current challenge in failure to thrive syndrome research. In D. Drotar (Ed.), *New directions in failure to thrive – Implications for research and practice* (pp. 225-233). New York: Plenum Press.

Zero To Three. (1994). *Diagnostic classification: 0-3. Diagnostic classification of mental health and developmental disorders of infancy and early childhood*. Arlington, VA: Author.

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