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Perspectives of eating disorders from the Charité Hospital in Berlin

■ **Abstract** Eating disorders have attracted steadily expanding clinical and scientific attention since second half of the 19th century and, particularly, after the core descriptions of anorexia nervosa had been delivered by Gull and Lasègue. In this review, we attempt to illustrate

perspectives on eating disorders that have emerged since then from the work at the Charité Hospital in Berlin. It is shown that the professional fate of care for eating disorders has been tied closely to the maturation of the specialty of child and adolescent psychiatry and psychotherapy in the 20th century. From the early beginnings of Theodor Ziehen (1862–1950) heading the Psychiatric and Neurological University Clinic of the Charité Hospital in Berlin and being devoted to child psychiatry and psychology, the issue of eating disorders has been pursued at the Charité throughout the vicissitudes of time. After a ward for children suffering from mental illnesses was instituted by Karl Bonhoeffer (1868–1948) in 1921, child and adolescent psychiatry and psychotherapy has constituted itself first in

terms of a division and finally as a separate department at the Charité Hospital. Over the years, quite a remarkable body of work on eating disorders has accumulated in this institution. It is emphasised that the value of contributions inherited appears not just of historical interest. The past has addressed psychotherapeutic, anthropological, biological, psychometric, neuropsychological, and transcultural aspects which continue to yield insights into the nature of eating disorders. Tasks and prospects ahead are based upon this background, and some of these are outlined briefly.

■ **Key words** anorexia nervosa – eating disorders – German psychiatry – history

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Introduction: 80 years of the Department of Child and Adolescent Psychiatry and Psychotherapy at the Charité

On March 16, 2001, the Department of Child and Adolescent Psychiatry and Psychotherapy at the Charité, Middle Campus, of the Humboldt-University in Berlin celebrated its 80th anniversary. On that very day, the Department hosted an international symposium entitled “Eating disorders in the 21st century”. On behalf of the occasion, woodcuts from 1874 depicting Sir W. W. Gull’s patient “Miss A.” during the anorexic crisis and after her

recovery were used to provide an artistic epitome of the subject (Fig. 1).

Considering the relevance of the topic as well as the tradition of the Department of Child and Adolescent Psychiatry and Psychotherapy at the Charité of dealing with eating disorders on the clinical and scientific level, the plan arose to edit a supplement to the journal of European Child and Adolescent Psychiatry. The contributions of internationally well-known experts have made this possible. Drawing on a wealth of references, the cultural history of eating disorders and anorexia nervosa, in particular, has been discussed comprehensively by Vandereycken, van Deth and Meermann [87]. First of all,

Fig. 1 Science and art in eating disorders: Sir W. W. Gull's "Miss A" (1874), on the left suffering from anorexia nervosa and on the right at her remission, in an image designed by A. J. Bartsch and G. Homola (indicating by a spreading calliper that proper weight depends on the anthropometry of somatotypes; see Bartsch et al. in this supplement)



we want to elaborate on the historical context of child and adolescent psychiatry at the Charité in Berlin.

At the Psychiatric and Neurological Clinic of the Charité Hospital in Berlin, a ward dedicated to the observation of children suffering from mental disorders was instituted by Karl Bonhoeffer (1868–1948) on March 16, 1921. Founded shortly after those in Heidelberg 1917 and in Tübingen 1920, it became the third such institute in Germany. At that time, the clinic was under the direction of Professor Karl Bonhoeffer. Holding the position from 1912–1938, he was the undisputed leader of his generation in the neuropsychiatric speciality. His sons were Dietrich (1906–1945) and Klaus (1901–1945) Bonhoeffer. Both as well as his two sons-in-law, Hans von Dohnanyi (1902–1945) and Rüdiger Schleicher (1895–1945), were executed by the Nazis due to their active opposition to Hitler's regime.

In the beginning, the Department of Child and Adolescent Psychiatry at the Charité was responsible for children and adolescents afflicted by so-called psychopathic constitutions, neurotic problems, psychoses, and epilepsy. The year 1932 saw the publication by Franz Kramer (1878–1967) and Hans Pollnow "Über eine hyperkinetische Erkrankung im Kindesalter" [37]. Their article can be regarded as the prolific origin of today's

worldwide research into hyperkinetic disorders (Kramer-Pollnow syndrome), i. e. children with over-active behaviour, attention deficit disorder, and lack of concentration due to either functional brain disturbances, developmental problems, or both. Kramer was forced to leave the Charité during the exodus of Jewish scientists in the Nazi period which was also the era of "Aktion T 4", so-called after the number of the house in the Tiergartenstrasse which was the headquarters of the euthanasia programme. One of the perpetrators of the "T4" campaign was Maximilian de Crinis (1889–1945) who had succeeded Bonhoeffer as the director of the clinic in 1938.

Jürg Zutt (1893–1980), Heinrich Christel Roggenbau (1896–1970), and Rudolf Thiele (1888–1960) were the three men responsible mainly for rebuilding and reorganising the Department for Child and Adolescent Psychiatry after 1945. A period of intensive activity in both the research and clinical fields followed, particularly in the years after 1957. Then, Karl Leonhard (1904–1988) had become the Director of both the Psychiatric and Neurological Clinics. Working together with B. Bergmann and other colleagues, he initiated and led the research on the site of the Charité. During these years a stream of publications appeared, particularly covering

the following fields: personality and temperament typology, behavioural disorders, neuroses, and different forms of childhood schizophrenias, among them the first comprehensive descriptions of childhood catatonias.

At the same time as this work was progressing, Dagobert Müller (1921–1992) was systematically expanding both clinical work and research in the field of child neurology.

When Karl Leonhard retired and became Emeritus Professor in 1970, the Departments for Child and Adolescent Psychiatry and Child Neurology were brought together into one full professorial chair under Müller. Allowing for a unified approach to clinical work, teaching, and research, neurological and psychiatric diseases of children and adolescents were both addressed under the jurisdiction of child and adolescent neuropsychiatry. In 1976, the direction of the fate of the Department for Child and Adolescent Psychiatry was given to K.-J. Neumärker. Throughout the ups and downs of the recent decades, this clinic of the Humboldt-University maintained and established itself as one of the recognised providers for child and adolescent psychiatry and psychotherapy in Berlin.

The epoch from 1865 to 1904: W. Griesinger, C. Westphal, F. Jolly

Wilhelm Griesinger (1817–1868) deserves the credit for establishing the Psychiatric and Neurological Clinic of the Charité. Before accepting his nomination for the chair position in succession of the father of the neurological speciality in Germany, Moritz Heinrich Romberg (1795–1873), Griesinger had set the pre-condition that the Departments for Mental and Nervous Diseases be unified in Berlin. On that very condition, Griesinger took up his office at the “Klinik für Nerven- und Geisteskrankheiten in der Königlichen Charité” in Berlin on April 1, 1865. Three years later, he founded the “Archiv für Psychiatrie und Nervenkrankheiten” as the core journal of German neuropsychiatry [76]. Over many decades, the journal served as a common ground for publications of both specialties, psychiatry and neurology. From his taking office to his death on October 26, 1868 at an age of just 51 years, Griesinger himself had only short but quite effective period of time to spend at the Charité.

A couple of contributions pointing the way ahead go back to this period of time, such as the paper “Über einen wenig bekannten psychopathischen Zustand” [22]. In this article, Griesinger reported about three patients whose “psychopathic mental condition... had not yet been observed in a mental asylum, ever, (by Griesinger) but only among patients still being able to proceed with their daily life”. In the case of a 21-year-old

man, whose suffering had started 3 years ago, the matter of affliction was “some sort of morbid precision”. He compulsively checked that cabinets were locked, for errors in a letter written previously, was always met pondering and kept asking “why” for all things of daily life. The condition was described as a “horrible” one; the patient felt “torn apart” but kept his problems secret for the respect of others.

Chairing the direction of the Department of Mental and Nervous Diseases at the Charité from 1869 to 1889, Carl Westphal (1833–1890) became Griesinger’s successor. On the occasion of his lecture “On obsessions” (“Über Zwangsvorstellungen” [88]), Westphal elaborated further on the semiology of the clinical issue mentioned above. This lecture was held on March 15, 1877 in front of Berlin’s Medical and Psychological Society (“Berliner Medizinisch-Psychologische Gesellschaft”) which evolved later into Berlin’s Society for Psychiatry and Nervous Diseases (i.e. “Berliner Gesellschaft für Psychiatrie und Nervenkrankheiten”). Westphal regarded the conditions under dispute which were called “pondering obsession” (“Grübel sucht”) by Griesinger “a variety of an entire spectrum of obsessions”. Notably, he emphasised the pathognomonic feature that the obsessions intrude upon the patients’ minds involuntarily against their will.

Westphal reported in detail about “a young, 14³/₄-year-old graceful girl with a variety of obsessions and compulsions” and a “boy aged 13” who would, for instance, “never touch with his hands any door-handle made of some sort of metal but always used his elbow... (because) there could be verdigris on it”. Westphal was able to demonstrate that the “disorder can be traced to a very early age”. Most importantly, he concluded that transitions of the disorder into “true madness (delusions) has not to be apprehended” and, thus, “the mental asylum is in general not the appropriate location for patients with obsessions to lead towards their recovery”. According to Westphal, however, the patients were afflicted by “an ill condition not to be underestimated”. Westphal seems to have been aware of the relevance of these catamnoses because, in November 1877, another paper was published in the “Berliner Klinische Wochenschrift”, the “Journal for Medical Practitioners” [91]. Even to the modern reader, his descriptions are sound and comprehensive. They still stand on their own and are not in need of any further explanation.

In this context, it is our intention to point out that the relation of obsessive-compulsive disorders to childhood and adolescence was particularly acknowledged. This seems quite noteworthy to us since at that time there was neither a separate professional speciality nor any department for child and adolescent psychiatry, yet. In addition, there were not yet any formal psychotherapies, psychotherapists, nor psychotherapeutic in- or outpatient facilities available. However, patients suffering from ob-

sessions were not felt to benefit from the treatment at mental asylums either. Thus, an obvious lack of specialised treatment for mentally ill children and adolescents had become apparent. This was also emphasised by Westphal's first description of "Agoraphobia, a neuropathic condition" which he delivered in addition to his numerous neurological and neuropathological inquiries in 1872. Representing the clinical-psychiatric traditions of the Charité, Westphal went into the specific psychopathological details of agoraphobia (i.e., "fear of open spaces" or "Platzfurcht" in German) presenting with anxious apprehension, trembling, and palpitations which occurred in the three patients he observed. In the case of a 26-year-old male, Westphal was able to trace the disturbance back to the age of 15. Taken together, Westphal considered similar "mental symptoms" as indicative of a "general neurosis" striking the patients mostly during adolescence.

There seems to be no particular reference to eating disorders in the work inherited from Westphal. Nevertheless, "pondering" about one's body, related obsessions, and compulsions are an integral part of the psychopathology of eating disorders. Holding the post from 1890 to 1904, Friedrich Jolly (1844–1904) was called to chair the Department in Westphal's succession. Jolly was the author of numerous papers of mainly neurological orientation. He planned and realised the new erection of the Clinic for Mental and Nervous Diseases at the Charité campus. In 1904, the Clinic opened its doors in the appearance essentially retained until today [32].

Stages of the 20th century

From 1904 to 1912, Theodor Ziehen (1862–1950) had been in charge of chairing the Department of Mental and Nervous Diseases at the Charité. As a psychiatrist, neurologist, and psychologist, Ziehen became an influential representative not only of the neuropsychiatric specialty but as well of Ernst Mach's (1838–1916) empiriocriticism in Germany. At a more advanced age he dedicated himself increasingly to philosophical topics. However, he was also possessed by a passionate clinical and scientific interest in issues of child and adolescent psychiatry. Thus, he is recognised as one of the founders of German child and adolescent psychiatry. His authorship of a variety of books such as "The Mental Illnesses of Childhood" ("Die Geisteskrankheiten des Kindesalters" [95]) and the "Handbook of Nervous Diseases in Childhood" ("Handbuch der Nervenkrankheiten im Kindesalter" [94]) published together with L. Bruns and A. Cramer testify to his engagement.

In the chapter "Hysterical Psychopathic Constitution" of his book "Mental Illnesses of Childhood", Ziehen elaborated under the heading of "Psychoses without intellectual defects" on the "so-called general

sensations" ("Gemeingefühle"). Hunger and appetite were seen as examples of these, and their increase was indicated by bulimia and hyperorexia "which can lead to the excessive intake of unbelievable amounts of food". A profound decrease or even total cessation of hunger (alimia) and appetite (anorexia), on the other hand, was considered to occur more often than the opposite. Notably, Ziehen had already described this behaviour as a "psychic condition... attached to the conscious imagination to become lean and slender". At the same time, Ziehen indicates that it is often difficult to discern "whether this was the initial consciously held idea" or whether this in fact arose out of the "latent imaginations of the anorexia". Rather sooner than later in the course of the illness, the desire "to become thin is not further justified" by the patient. Ziehen illustrated the psychopathology of "Anorexie nerveuse", as it was called in those days, by the catamnestic description of an 11-year-old girl C. A. [95, p. 419] who had wasted to 20 pounds and claimed that she would like to emaciate to the thickness of her finger, that she could only sympathise with lean people and would feel no hunger at all. Ziehen emphasised that C. A. was just one among many similar cases he had seen. Thus, he was precisely aware of anorexia nervosa as it is known today. Both anorexia and bulimia were indexed in his book. In addition, Ziehen reviewed references to the subject which were still rather sparsely available. In particular, he referred to the paper "Anorexia cerebri and central nutritional neuroses" published by Soltmann in 1894 [73]. Soltmann reported on a 12-year-old boy who "had been observed to progressively refute the intake of food for three years and thereby emaciated markedly". The clinical case and the body of knowledge held at the time were discussed extensively.

In this context, previously published reports on such disorders (e.g. those provided by Lasègue, Gull, and Charcot) were considered. However, Soltmann complained that German textbooks did not yet take much notice of these writings and their mounting evidence. He had no doubts that the "source of the (anorexic) illness" would be originated by the "central organ, in the brain". Therefore, he coined the term "anorexia cerebri" or "corticalis". Ziehen considered Soltmann's tentative designation "central nutritional neurosis" as not particularly appropriate. Even from today's viewpoint, however many of Soltmann's insights still appear relevant: the frequent incidence of the illness, the lethal risk of most pronounced food refusal, the advice to insist on the intake of the prescribed amount of food, and the warning that any concession to abstain from it would be "dangerous". Tube feeding was only suggested for those cases requiring it in order to preserve the life of the respective patient.

To the current reader, it may however sound somehow peculiar that Soltmann favoured the propagation of

daily “electrifications” of the afflicted patients. According to Ziehen’s opinion, their therapeutic effect was of a suggestive nature. Later, Habermas repeatedly pointed out how Ziehen referred to Soltmann in detail [23–25]. After the initial description of anorexia nervosa by Lasègue in 1873 [86], the disorder was largely neglected in the German literature of the 19th century. Habermas found just 22 mostly casuistic publications like Soltmann’s report on the subject between 1874 and 1898. The general response in the United States was not overwhelming either. The situation was different in France and the United Kingdom where anorexia nervosa attracted more medical and scientific attention from the late 1880s on.

It is apparent, however, that the psychopathological and behavioural manifestations of anorexia nervosa, which were quite meticulously described, must have been very much like its modern appearance. From around the turn of the century, the accumulation of various case reports stirred up a broader debate of issues pertaining to eating disorders. Consequently to divergent perspectives, the subsequent diagnostic interpretations retained an uncomfortable but stimulating ambiguity. Emerging trends in adult psychiatry and the rising speciality of child and adolescent psychiatry led to a variety of theoretical constructs. Furthermore, the representatives of general and internal medicine, in particular, took their articulated stand on the subject.

For the following period of almost 50 years, the discussion of the phenomenon of anorexia nervosa was not restricted but often centred on its relation to the established neuroses and Simmonds’ disease or Simmonds’ syndrome in childhood and adolescence, respectively. The description of the latter caused much confusion with regard to the pathogenesis and differential diagnosis. It triggered speculations about putative endocrine origins of the mental disorder anorexia nervosa which have been reiterated ever since. By the same token, anorexia nervosa and eating disorders, in general, were enforced to be approached on a multidisciplinary level. Paediatricians further facilitated the recognition and understanding of anorexic wasting during puberty. In his core paper published in 1941 under the auspices of the Department of Paediatrics headed by Fanconi at the University of Zurich, Wissler reported on 11 girls who had become ill at an age between 12.5 to 15 years and had been observed consecutively since 1930 [92]. Again, the clinical semiology and the mental alterations, in particular, corresponded quite well to our experiences today. Wissler adverted to the coherency of prognosis and severity of the mental disorder. He also called attention to the fact that most patients were of a slender-bodied, asthenic somatotype with a “gracile skeleton, narrow thorax, acute epigastric angle”.

Recently, compelling evidence has been presented that this propensity to leaner types of physique may not

just result from emaciation but also indicate a biased detection and classification of eating disorders and anorexia nervosa, in particular (see Bartsch et al. in this supplement). On the other hand, cases of bulimic eating disorders observed, i. e. bulimic anorexia and proper bulimia nervosa, have apparently rather belonged to heavier somatotypes (see, for example, the famous case of Ellen West described by Binswanger [3]) raising the question whether purging and/or bingeing may relate to their frustration about a rather stout and sturdy body build. In any case, the promising success of “pure psychotherapy, supplemented only by some simple adjuncts” (“Roborantien”) were unequivocally resumed.

Wissler’s first case was particularly striking: The anorexia started at an age of 13.5 years, the menarche at 13 years, and her lowest weight was measured at 23.9 kg with a presumed deficit to the reference value of 17.2 kg at a height of 149 cm (corresponding to a body-mass index of 10.8 kg/m²). At an age of 19 years, the patient developed a “typical schizophrenia”. Wissler considered the possibility but did not feel able to decide whether “what happened (to the patient) at the age of 14 years might have been already an initial schizophrenic episode or just a prequel”. Notably, his report nudged professionals to mind putative connections between anorexia nervosa and schizophrenias which has later been discussed on repeated occasions and in much more detail until today [10, 12, 17, 26, 29, 30, 33, 47, 49].

During Karl Bonhoeffer’s tenure of office from 1912 to 1938, papers solely dedicated to eating disorders had not been published by staff working at the Charité. The representatives of the Division of Child and Adolescent Psychiatry established in 1921, such as Kramer and Thiele, did not separately address the issue of eating disorders. It was well-known, however, that children and adolescents suffering from psychoses such as catatonias or hebephrenias may in fact exhibit very profound disturbances in their eating behaviour. The catatonic refusal of food intake due to negativism, for example, could cause an extensive loss of weight. In those cases, charting the patient’s body weight was common not only at the Charité Hospital but at most peer institutions.

One of Bonhoeffer’s pupils, Jürg Zutt, who was promoted by Bonhoeffer himself to a university lecturer with a postdoctoral thesis on the inner stance [97], did in fact deal extensively with anorexia nervosa. Initially, he described the mental and physical characteristics of the disorder. Later, he was impressed by the profound vicissitudes within the patients’ “experience of bodily existence” (“gelebter Leib”). Thus, Zutt emphasised the anthropological phenomenology of anorexia nervosa. His evolving perspectives on the disorder are illustrated by three of his papers published in 1946 [98], 1948 [99], and 1962 [101]. In his attempts to understand anorexia nervosa, Zutt deserves credit for strengthening the psy-

chiatric epistemology and heuristics during the 1940s by calling it firmly “a particular psychiatric problem”. At first, he was convinced that anorexia nervosa was not of a psychogenic origin but would represent a “vegetative-endocrine disorder”, i. e. “something organic”, instead. Concurring depression, obsessions, compulsions, and hypochondriac (quasi-)delusional ideas led Zutt to presume that anorexia nervosa might be somehow related to manic-depressive illnesses.

However, the demanding and quite self-centred appearances of the patients particularly towards their parents as well as rather chronic courses were not necessarily supporting this assumption. One of Zutt’s patients, for instance, was described to have remained severely afflicted from the very same condition even after 12 years had passed. Zutt pointed out that various psychiatrists would consider “the presence of schizophrenia in some cases” but that hardly any males were suffering from anorexia nervosa. In 1948, Zutt reported in detail about 6 out of 20 patients whom he had seen during the preceding years and whose illness had set in during their childhood and adolescence [99]. The typical behavioural characteristics observed on the occasion of the patients’ inpatient treatments at the Charité mostly during World War II and the often protracted course of the eating disorder prompted Zutt to aspire to the following interpretation: “In this way, we are not inquiring for the cause of the deviation of the disorder but for the nature of the alteration and, thus, for the being capable of such a change. Thereby, steps to a psychiatric anthropology are approached, i. e. a contribution of psychiatry to a general anthropology” [99; p. 831].

A few years earlier, Ludwig Binswanger (1881–1966) had published his famous and existentialistic report on “The case of Ellen West. An anthropologic-clinical study” which was in some way also a precedent for later observations of bulimic anorexia nervosa (referenced in [3]). According to Zutt’s early impressions, the process of anorexia nervosa seemed quite similar to “manic-depressive psychoses, schizophrenia, and obsessive-compulsive disorders”. Recognising this opinion, it is instructive to recognise Zutt’s further thoughts based upon this deliberate position: “One is reminded of the besetting of a functional system and may therefore speak of a system disorder” [99; p. 841] because, according to Zutt, “one cannot simply consider the illness to represent a response to experience” (“Erlebnisreaktion”). Historically, there seem to be no indicators to explain what had indeed led Zutt to completely revise his impression as originally stated in 1948 and why he had decided to publish this very revision in the journal “Acta Neurovegetativa” as a part of his contribution “On the anthropology of pubertal anorexic wasting” in 1962 [101].

By that time, Zutt felt much less inclined to compare anorexia nervosa or even endogenous psychoses to pri-

mary organic afflictions. To quote Zutt himself: “With regards to these psychoses, others were and I was myself previously of the opinion that they would originate from an organic-pathological malfunctioning. According to this stance, anything indicating the dependence from a particular life-story would hardly be considered relevant and, at most, cause an earlier or later manifestation of the disease. In that respect, my own opinion has changed under the impression of further experience and after its continuous reconsideration. I believe that even a vast amount of the endogenous psychoses – i. e. the so-called schizophrenias and manic-depressive illnesses – are not at all brain processes similar to the progressive paralysis as it has been thought and thought for decades without being able to prove this view despite the assiduous search and research” [101, pp. 617/618]. Was this primarily an attempt in the search for the prospects of psychiatry to include other insights than just those accessible to strict scientific methods? Or was it just a clinically driven process of cognition which finally attempted to understand the causative conditions of anorexia nervosa and of the so-called endogenous psychoses based upon the situational life-story of a human being? It definitely contradicted the teachings of Karl Kleist (1879–1960) who headed the “In- and Outpatient University-Clinic for Mental and Nervous Diseases” in Frankfurt/Main from 1920 to 1950. It was Kleist [35] who had already presented his conception of schizophrenias as “mental system disorders” in 1923. Notably, Zutt became Kleist’s successor from 1950 until his retirement as an emeritus professor in 1964.

Did Zutt’s hermeneutic anthropology constructively contribute to the further development of the psychiatric and psychopathological understanding, e. g. of anorexia nervosa? Embedded in the historical context, this can definitely be affirmed. It seems crucial that Zutt’s dynamic views have provided new impulses and broadened the horizons for understanding the complex illness of anorexia nervosa. Recently, Bräutigam redrew our attention to the role of the “aesthetic disturbance” for the psychotherapy of anorexia nervosa [8] and to the “aesthetic province of experience” emphasised already by Zutt. This can be taken as indicating actual recollections of previous thoughts.

Shortly after 1945, Zutt and Roggenbau had acted as heads of the Psychiatric and Clinic for Nervous Diseases of the Charité (“Psychiatrische und Nervenlinik”). Anemarie Dührssen (1916–1998) was in charge of both the Division of Child Psychiatry as well as the “Locked Women’s Division” of the Clinic. Her efforts to diagnose and treat a pair of female twins suffering from a “psychogenic eating disorder” introduced a psychoanalytic dimension into the discussion centring around anorexia nervosa in Germany. Both girls born as identical twins in 1933 became ill in spring 1948 with loss of appetite, nausea, and vomiting. Because of serious emaciation,

one of them was admitted for inpatient and “depth psychological treatment” at the Clinic for Mental and Nervous Diseases of the Charité in September 1948. Most notably, the other patient was scheduled for a transplantation of hypophyseal tissue by the Department of Surgery at the Charité. Board certified in internal medicine as well as in psychiatry and neurology, Dührssen was a psychoanalyst. She presented her therapeutic concept for the treatment of these twins and their parents in 1950 on the 6 pages of her contribution to the journal *Psyche* which was subtitled “A Journal for Depth Psychology and Anthropology in Research and Practice” [14]. The very same issue published, for instance, papers written by Viktor von Weizsäcker (1886–1957) and René Arpad Spitz (1887–1974).

In her publication, Dührssen introduced and discussed terms such as structural image, texture of neuroses, experiential constellation, expanse of fate, individual development and blossoming of personality, relinquishing achievements, ambivalent conflict, oral impulses, and dictatorial regression in order to describe and interpret the behaviour and inner life of her twin patients. At the time of discharge, a “restitutio ad integrum” was achieved with no persistent anorexia but sufficient food intake and bodily well-being, instead. Even one year later, the condition was described to have remained stable. However, there was no record or charting of body weights available to us. In a letter addressed to the corresponding author of this paper on January 20, 1996 [16], Dührssen explained that her publishing the case history intended to “present the psychodynamic factors, which were disputed by a circle of a few physicians during those years, in as much detail as possible”. According to Dührssen, Roggenbau was, on the other hand, “not in favour of publishing this manuscript under the auspices of the Psychiatric Clinic of the Charité Berlin”! In October 1948, Dührssen left the Charité and took up her work at “Berlin’s Central Institute for Psychogenic Illnesses”. Later, she headed this institution from 1965 to 1984 and wrote a prolific amount of original publications and monographs [e. g. 15] during that time. In particular, Dührssen deserves credit for empirically demonstrating effects of psychotherapy.

During the first half of the 20th century, descriptions of eating disorders accumulated gradually but at quite divergent perspectives regarding their aetiology and treatment which seemed quite typical for the emerging speciality of child and adolescent psychiatry. The report of the Swiss Child and Adolescent Psychiatrist Jules Robert Corboz (1919–1987) on the state and experiences of child and adolescent psychiatry between 1939–1946 collected for the renowned German journal “Zentralblatt für die gesamte Neurologie und Psychiatrie” did not contain any particular reference on anorexia nervosa. Just the chapter “Bodily conditioned mental maldevelopments and abnormal reactions” almost casu-

ally mentioned obesity as one of the most important affections in childhood and directs some attention to “its opposite . . . the Morbus Simmonds” [11].

Undoubtedly, the years from 1933 to 1945 have belonged to the darkest chapters in the history of German psychiatry and neurology. Medical doctors representing these specialities at various institutions throughout Germany as well as at the Clinic of Mental and Nervous Diseases of the Charité involved themselves in different ways. Bonhoeffer’s successor in office, Maximilian de Crinis, may be considered as a personification and historical example. Müller-Küppers [48] has extensively covered the position and development of child and adolescent psychiatry during the Third Reich, and previous publications by Neumärker [52, 53, 67, 68] were dedicated to the situation at the Clinic of Mental and Nervous Diseases of the Charité.

Rudolf Thiele (1888–1960) aspired to a university lecturer with a postdoctoral thesis approved under the auspices of Bonhoeffer in 1926 and, in 1948, was initially placed in charge of the outpatient department of the Clinic of Mental and Nervous Diseases at the Charité. In May 1949, he was called to chair the Department of Psychiatry and Neurology and took office to direct the fate of the clinic until 1957. Thiele’s impulses fostered a thorough reconsideration of the issue of anorexia nervosa at the Charité. In 1953, Geisler [20] reported on four female patients aged between 9 and 14 years exhibiting the typical psychopathology of anorexia nervosa which clearly dominated their illness. Another girl developed food refusal and weight loss at an age of 14 years which were considered to indicate a schizophrenic disorder of a catatonic type. In her interpretation of these cases, the author referred to the views of Zutt and Dührssen as well as to the popular conceptions of Iwan Petrowitsch Pawlow (1849–1936; Nobel Laureate in medicine 1904) on the effects of cerebral stimulation exerting their influence through the brainstem and the vegetative system. Her conclusions were quite informative: “The recognition of somatic fundamentals and corticovisceral relations does not at all exclude the analysis and interpretation of the inner experience but will, on the contrary, facilitate the understanding of important causative instances and remedial effects” [20, p. 231].

During the same year, a detailed and differentiated account of anorexia nervosa was published based upon 16 cases from the Department of Medicine of the Inselspital Bern [77]. These results were neither published in a psychiatric nor psychological journal but the Swiss Weekly Medical Journal. They established a further landmark because a primary (hypophyseal) aetiology was finally rejected, and anorexia nervosa was recognised as an “exquisitely psychosomatic disorder”. Furthermore, the “bodily characteristics” were seen in a “profound leptomorphy”, and “infantile, schizoid, or psychopathic traits” were believed to represent the men-

tal features of the disease. A “strong bridge” was assumed between anorexia nervosa and schizophrenic psychoses, catatonic states in particular. In the “exceptional” case of a “pyknic cyclothymic individual with an anorexia nervosa . . . and empathetically understandable depressive resentment”, a kinship to “cyclic psychoses” was proposed [77, p. 840]. In the light of the reactivated discussions about hypotheses of continuity and/or comorbidities of mental illnesses, these interconnections between anorexic psychopathology, psychosomatics, somatotypes, dual, and differential diagnoses have remained of relevance until today.

For the Department of Psychiatry of the Charité, eating disorders have steadily gained in importance since Karl Leonhard (1904–1988) started to head the Clinic for Mental and Nervous Diseases in 1957. Just two years earlier, he had been called on a similar post in Erfurt as the psychiatrist- and neurologist-in-chief. Leonhard continued to chair the Berlin office until his retirement in 1970 [54]. Based upon his postdoctoral lecturing thesis on defect-schizophrenic illnesses published in 1937 under the auspices of Kleist, Leonhard became primarily recognised at the international level for his categorial (sub-) division of endogenous psychoses [46]. Particularly during his Berlin term in office, he presented himself very receptive to child and adolescent psychiatry as a growing speciality and its topics of interest and concern [56]. Consequently, the respective Division at the Charité was systematically expanded by Leonhard. These efforts provided the prerequisite necessary for his clinical and scientific studies on the differentiated analysis of temperamental traits, the structuring of the personality, and the neuroses in childhood and adolescence.

According to Leonhard, any attempt to understand the development of neuroses and other mental disorders in childhood, adolescence as well as in adulthood must meticulously consider the personality characteristics of the developing child. In his book on child neuroses and personalities [45], he elaborated extensively on this concept. Additionally, Leonhard is well known for his notion of endogenous psychoses of childhood and adolescence and, with such regards, mainly for his clinical description of early childhood catatonias and related aetiologic assumptions. In that respect, he was devoted to distinguish autism from childhood catatonias. Kanner’s early infantile autism, for example, was considered to overlap to some extent with early childhood catatonias whereas Asperger’s autistic psychopathy was seen as representing a rather non-psychotic condition.

Leonhard, as broad-minded clinician and scientist, considered in depth the conceivable biological and psychological bases and influences on the human being in its various developmental stages and during the process of ageing. The issue of anorexia nervosa exemplifies this impressively. In 1960, Leonhard reported for the first time on its treatment in childhood [38]. Taking initial

experiences into particular consideration, an individual therapy (“Individualtherapie”) as devised and systematically practised by Leonhard had to be adjusted to suit the individuality of the patient, his personality, and the individuality of the neuroses or mental disorders, in general. Leonhard himself has repeatedly referred to common features of in vivo behaviour modifications and his own approach [39, 43, 44].

Leonard’s collaborator von Trostorff described in 1963 the indication and effectiveness of Leonhard’s individual therapy for anorexia nervosa and compulsive vomiting [84]. Six female and three male cases, whose illnesses began in their adolescence, served as paradigmatic examples. In terms of its core messages, this publication emphasised the necessity of a strictly prescribed but therapeutic food intake as well as of the relevance of body weight measured at admission and the establishment of a target weight for the inpatient treatment. Furthermore, the need for long-term psychotherapeutic outpatient care after discharge was pointed out. In addition, a propensity for ambitious, retentive, and/or infantile personality structures was noted, especially for cases previously admitted to various institutions for inpatient treatments. The systemic analysis of and intervention in profoundly disturbing interactions between the core family members such as parental conflicts was also considered.

Addressing the treatment of anorexia again in two identical contributions to a widespread general medical and a paediatric journal [40, 41]. In further case descriptions, Leonhard argued for the value of his individual therapy and illustrated this by instructive photographic documentations. In 1966, Leonhard and Zeller picked up the case of a 15-year-old female patient suffering from anorexia nervosa admitted at a body weight of 28 kg and a height of 159 cm which was complicated by an exogenous psychosis from the third day of inpatient treatment [42]. Aside from the typical signs and symptoms of anorexia, there was a clouding of consciousness, visual hallucinations, compulsive restlessness, rigid facial expressions, and perplexity. Psychopathologically, there was an alternation between hyperkinetic and akinetic, i. e. almost catatonic signs. The refusal of food intake seemed almost negativistic and was so profound that there was the need for tube feeding. After the 35th day of the treatment, the psychotic symptoms remitted rapidly. The target weight of 53.5 kg was established by the 51st treatment day. In the analysis of the rather complex manifestation of the anorexic illness, the authors forwarded two noteworthy aspects. Firstly, it was established that psychomotor manifestations of symptomatic psychoses resulting from malnutrition due to anorexia nervosa are characteristically common. Secondly, pneumoencephalography detected an enlargement of the lateral ventricles and, especially, of the ventriculus tertius indicating a diencephalic impairment.

Since the emeritus status was conferred on Leonhard in 1970, the interest for eating disorders has never ceased at the Departments of Psychiatry and Child and Adolescent Psychiatry of the Charité. The fact that Leonhard remained present at the clinic daily almost until he died has to be taken into account in order to fully appreciate that continuity. Particular attention has been paid to the catamnoses of patients previously treated at the Charité. Children and adolescents treated as inpatients for eating disorders have been studied systematically by the staff of the Division of Child Neuropsychiatry since the mid-1970s.

In the initial publication of 1982 [13], the efficiency of behaviour modification based upon Leonhard's concept of an individual therapy was re-assessed over the average hospitalisation period of 8.1 weeks of 18 girls and 3 boys with anorexia nervosa aged 12.10 to 16.11 years. At the time, the diagnoses were established according to Feighner's criteria [19]. Occasionally, patients with (sub)depressive or dysphoric moods were successfully treated by thymo- or/and neuroleptic medications to supplement the mainstay of the psychotherapeutic intervention. Again, the necessity of a long-term outpatient treatment to prevent relapse was stressed.

In 1985 [93], the first catamnestic results were presented on a sample of meanwhile more than 27 patients aged 12 to 17 and treated at the Division of Child and Adolescent Neuropsychiatry of the Charité between 1978 and 1983. There was a noticeable accumulation (i. e. 60%) of anorexic patients in families where parents were educated to hold a degree from a university or a technical college, and competitive models and values definitely prevailed in these families. Among these patients examined in East Berlin of the former German Democratic Republic, the most marked sociological factors and features were cramming for performance, dependability, and adaptability as well as the frequent up- per school grades.

Likewise in 1985 [85], von Trostorff forwarded her catamnoses of 15 adult patients (13 females, 2 males) who had been treated between 1959 and 1969 as inpatients at the Charité during their childhood. They were re-examined in 1981 and 1982 after an interval of 13 to 23 years. Among these patients, there was also the patient described by Leonhard and Zeller in 1966 who had been, at the time, 15 years old and was then re-evaluated after 15 years. Due to the recurrence of weight loss, she had been admitted to nine inpatient treatments in the meantime. In 1981, her condition seemed quite stable, and her menstruation occurred regularly. She continued to live with her parents and was occupied as a cook. The physical condition of the other patients was satisfactory as well, and they had maintained a body weight within the limits of the general average. In terms of their general level of psychological functioning, they seemed to present socially competent. One patient had already

died at the age of 31. It could not be proven, however, that her death had been a consequence of the anorexic illness treated in adolescence when she had been 15 years of age.

Trostorff compared the encouraging results of Leonhard's individual therapy with those of the study by Steinhausen und Glanville presented in 1984 for patients from West Berlin [78]. These were 21 female patients suffering from anorexia nervosa who had been treated at the Department for Psychiatry and Neurology of Childhood and Adolescence of the Free University Berlin chaired by Steinhausen. Their onset of the anorexic illness had been traced to the age between 11 and 17 years. The catamnestic outcome was obtained after 9.4 years on average. Just two patients were reportedly cured, and the majority still exhibited attenuated anorexic symptoms, felt psychosocially impaired, complained about depressive moods, and maintained a disturbed attitude toward the intake of food. They had been treated by psycho- and pharmacotherapy. The authors concluded that particular care is required when the long-term outcome of the therapeutic management of anorexia nervosa is addressed.

Despite their different methodological approach, these two studies came to put another issue on the agenda: the investigations at the Charité dealt mostly with children, adolescents, and adults living in the Eastern part of Germany and the city of Berlin, respectively, whereas the group of Steinhausen had patients under their care who had come to live in the Western part of the town divided by the erection of the Wall since August 13, 1961.

The erection of the Berlin Wall had been the final step in the process of attempted political separation and divided two German countries. Later on, differences in the formative influences on the individual became increasingly important. Independent of age, those factors affected people's biographies mainly on three levels:

- The notional level in the areas of ideology, science, contemporary culture, education, religion, and socialisation;
- The interpersonal level in the areas of politics, partisan structure, public organisations, welfare systems, and family structure;
- The material level in the areas of economy, technology, and ecology.

Determined by current sentiment, personality traits, and emotional reactions, the female image and self-concept within the society deviated in the two countries despite all the persistent similarities.

At the time of the studies mentioned above, further questions related to transcultural differences in the process of the development of eating disorders, their course, and the efficiency of therapeutic interventions arose and remained imposed on the mind of the principal investigators. On the occasion of Steinhausen's lec-

ture on eating disorders delivered for the Department of Child and Adolescent Psychiatry at the Charité on June 14, 1984, they were determined and agreed to pursue these questions together regardless of all political problems. Thus, the methodological design of further examinations of eating-disordered patients from East and West Berlin was unified with regard to the assessment of developmental, social, clinical, and psychopathological data (e. g. by the Eating Attitudes Test, EAT, and the Eating Disorder Inventory, EDI) – long before the reunification of the divided Germany on the political level. At that time and for the following years, it remained uncertain whether and to what extent it would be possible to compare the data obtained from the endeavour.

Parallel to these efforts forwarded by child and adolescent psychiatrists, the group around Ehle had systematically recruited eating-disordered adults (69 females, 3 males in total) at the Charité's Department of Psychiatry since 1975 and studied their catamneses. These results were presented in 1985 [inter alia, 18]. Based upon the combined figures, eating disorders had to be acknowledged to represent a significant health problem in Eastern Germany. Based upon the inpatient morbidity rates, it was estimated that the frequency of treated "psychogenic eating disorders" had risen from 3.4 to 5.3 per 100,000 female residents between 1980 and 1989. The frequency of males treated for eating disorders had, on the contrary, remained unchanged at less than 1 person per 100,000 male residents (Fig. 2, taken from reference [31]).

Within the realms of the "Psychiatry-Investigation East Berlin" by Sieber and Schulz [72], it was documented in 1988 that the prevalence of treatment of psychiatrically relevant events over a year reached a cumulative incidence of 3.9 cases per 100,000 among the 10- to 25-year-old population for psychogenic eating disorders. Since the cases seen by paediatricians were not gathered, the prevalence of eating disorders may even have been underestimated. After the fall of the Wall in

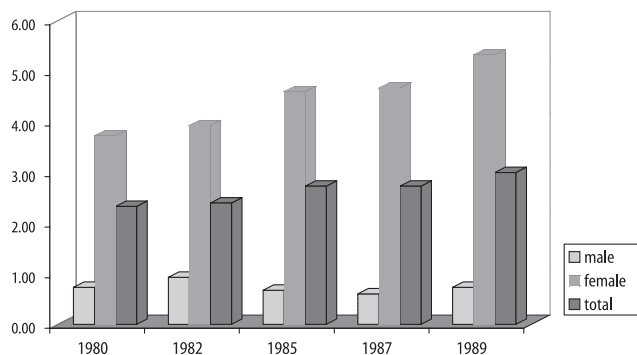


Fig. 2 Cases of inpatient treatments due to psychogenic eating disorders in the former German Democratic Republic between 1980 and 1989 (per 100,000 of the population)

1989, the groups of Steinhausen (West Berlin) and Neumärker (East Berlin) were able to compare their samples step-by-step [27, 57, 69, 79, 80], and the following main results emerged (see Tables 1–6):

The most remarkable differences were determined by that fact that the patients from East Berlin were significantly younger at the age of onset of their illness as well as at admission and that their menarche had started

Table 1 Comparison of quantitative clinical features

	East Berlin (N = 39)		West Berlin (N = 60)	
	Mean	SD	Mean	SD
Weight at admission (kg)	39.6	6.3	38.6	7.1
Height (cm)	163.0	6.8	164.6	6.1
BMI	14.8	1.8	14.2	2.3
Premorbid weight (kg)	53.7	12.1	53.4	7.8
Weight loss (kg)	14.2	8.5	14.8	7.4
Age at admission (p < 0.01)	14.8	1.4	15.7	1.6
Age at disease onset (p < 0.05)	13.9	1.6	14.6	1.6
Menarche (p = 0.09)	12.4	1.3	12.9	1.3
Duration of inpatient treatment (weeks)	14.1	11.2	14.0	9.8

Table 2 Diagnostic classification

Diagnoses	East Berlin (N = 39)		West Berlin (N = 60)	
	N	%	N	%
Anorexia nervosa	31	79.5	48	80.0
Anorexia nervosa with Bulimia	8	20.2	6	10.0
Bulimia nervosa	0	0	5	8.3
Atypical Anorexia nervosa	0	0	1	1.7
Atypical Bulimia nervosa	0	0	0	0

Table 3 Psychopathological features

	East Berlin (N = 39)		West Berlin (N = 60)	
	N	%	N	%
Introverted**	15	38	40	67
Anxious*	14	36	33	55
Depressive****	10	26	48	80
Obsessive-compulsive***	11	28	36	60
Somatic complaints**	4	10	19	32
Low self-esteem*	14	36	35	59
Passive-aggressive	27	69	46	79
Intelligence*				
High (IQ > 115)	25	64	23	38
Average (IQ 85–115)	14	36	36	61

* p < 0.05; ** p < 0.01; *** p < 0.001; **** p < 0.0001

earlier. On the other hand, weight loss and average duration of inpatient treatment were similar for the two samples recruited in East and West Berlin. In both institutions, the treatment consisted of a multidimensional eclectic approach and contained mainstays of behaviour

Table 4 Family characteristics

	East Berlin (N = 39)		West Berlin (N = 60)	
	N	%	N	%
Maternal education***				
Basic level	5	13	27	45
Medium level	20	51	20	33
High level	3	8	5	8
University	11	28	4	7
Paternal education**				
Basic level	6	15	27	45
Medium level	17	46	12	20
High level	0	0	5	8
University	14	36	14	23
Specific familiar problems				
Marriage problems	6	15	13	22
Divorce	3	8	9	15
Single parent	2	5	9	15
Pathological attachment with				
Mother	12	31	25	42
Father	5	13	5	8
Others	0	0	3	5

** $p < 0.01$; *** $p < 0.001$

Table 5 EAT scores

EAT scores	East Berlin (N = 37)		West Berlin (N = 52)		p
	Mean	SD	Mean	SD	
Total	28.4	20.6	40.5	22.8	0.01
Dieting	7.5	10.1	13.2	11.2	0.01
Bulimia	2.8	3.3	4.6	4.3	0.05
Oral control	6.8	5.5	9.8	5.8	0.02

Table 6 EDI scores of anorectic patients

	East Berlin (N = 38)		West Berlin (N = 44)		F	p
	Mean	SD	Mean	SD		
Drive for thinness	4.2	5.8	8.9	7.1	10.40	0.002
Bulimia	0.7	1.2	1.8	3.5	4.01	0.05
Body dissatisfaction	6.2	5.3	9.9	6.1	8.53	0.005
Ineffectiveness	3.8	3.5	6.4	6.9	3.99	0.05
Perfectionism	4.1	4.2	4.3	5.3	3.38	n. s.
Interpersonal distrust	3.4	2.9	3.5	2.8	0.04	n. s.
Interceptive awareness	1.8	2.4	5.9	5.8	16.05	0.0001
Maturity fears	7.9	4.2	6.3	5.3	2.16	n. s.

MANOVA (df = 8.70); Wilk's lambda = 0.631; F = 5.13; p = 0.0001

modifying therapy. Notably, there was only a very minor proportion of bulimia nervosa among the collected cases of eating disorders in West Berlin and none in the Eastern sample.

With regard to the transcultural comparison of psychopathological features, the patients from the East turned out to present significantly less introverted, anxious, depressive, obsessive-compulsive, and they had fewer somatic complaints. The level of inhibited aggression appeared quite high for both the "Eastern" and "Western" patients. The general intelligence level measured was, however, higher for the patients from East Berlin. Obviously, this was not to say that these individuals were smarter per se but may account for the confounding fact of the educational system since all of them were enrolled in the so-called unified comprehensive polytechnic schools for children aged 7–17 up to their 10th grade. The publication of these results was met by an encouraging echo [27, 57, 69, 79, 80]. A retrospective analysis entitled "Eating Disorders in East Germany (GDR) and West Germany (FRG): The Situation in East and West Berlin" in the context of divergent cultures and social structures was performed in 2001 in the book "Eating Disorders and Cultures in Transition" [50]. In this very supplement, the contribution "The Outcome of Adolescent Eating Disorders. Findings from an International Collaborative Study" by Steinhausen et al. reports in detail about the comparative results of 242 patients from former East and West Berlin, Zurich, Sofia, and Bucharest.

The increasing number of published long-term studies on eating disorders, which have come to address the mortality rates of anorexia nervosa and relevant "dual diagnoses" such as diabetes mellitus, Turner's, Wernicke-Korsakow's, and Barlow's syndrome (mitral valve prolapse) as well as Crohn's disease, testifies for the fact that eating disorders are complicated and dangerous, i. e. potentially life-threatening disorders. Within a total sample of 83 patients examined at the Charité, a 14-year-old girl and a boy of the same age, who both fulfilled DSM-III-R criteria for anorexia nervosa and presented

refractory to the inpatient treatment, revealed associated somatic illnesses upon a careful medical re-evaluation and work-up. The girl suffered from Turpin's syndrome (megaesophagus and bronchus deformations) with esophageal achalasia, and the boy was later diagnosed with Burkitt's disease, i.e. a malignant Non-Hodgkin lymphoma [55].

Unfortunately, the Charité in Berlin also had to face the sudden death of an anorexic among the children and adolescents under the inpatient care. The patient was a 13.5-year-old girl who met the classic criteria for anorexia nervosa and had been ill for about the past six months being emaciated to a body weight of 28.2 kg at a height of 1.55 m (corresponding to Quetelet's body-mass index of 11.75 kg/m^2). Her autopsy led to the first postmortem examination of the brain of a fatal case of anorexia nervosa by quantitative neurohistological methods. Here, the differentiation level of GOLGI-impregnated lamina-V/VI pyramidal neurons in the frontal cortex was analysed by comparing parameters such as the number of basal dendritic fields, the degree of ramification, the length of dendritic segments, and the spine density with similar data estimated from another case of a non-anorexic death but of the same gender and age. In the anorexia case, typical pyramidal as well as a slim neuron type with one extremely long basal dendritic field was found to occur more frequently. In all the neurons investigated, the ramification pattern of single basal dendritic fields was found to be reduced and changes of the spine morphology as well as a reduction in spine density were observed [59, 75]. These results offered the opportunity for juxtaposing them with a previous morphometric analysis of "schizophrenic" cortices [71]. In 1995, Selemon et al. had looked at the prefrontal area 9 and the occipital area 17 of Brodmann and detected a reduction of neurophil including dendritic arborisations and axons despite a significantly increased neuronal density.

Not only the clinically instructive cases of sudden death [58, 65] or just the elevated risk for suicidal acts, which had already been pointed out by Binswanger's case of Ellen West, but the entire spectrum of eating disorders have gained professional and public attention. Extreme types of activities, i.e. particular sports such as general and rhythmic gymnastics, figure skating, marathon, cycling, and certain bodily artistries such as ballet dancing, were recognised as placing the individuals involved at risk of developing eating disorders. Undoubtedly, this has further increased our awareness for the continuum of eating disorders and their subclinical manifestations but essentially, eating disorders among such high risk samples do not seem to present any differently. Thus, the term "anorexia athletica", for instance, is rather a misnomer [60]. Usually, these types of activities are limited to low indices of body weight and/or fat.

High risk groups have been studied repeatedly in

terms of their clinical, psychological, and psychopathological features. In several investigations of adolescent ballet dancers at the renowned Public Ballet School of Berlin, we examined a total of 90 ballet school students (58 females aged between 11 and 17 at a mean of 14.1 and a standard deviation SD of 2.1 years, and 32 male ballet students aged between 11 and 16, mean 14.0/SD 1.7) as well as controls consisting of 95 female students at a Berlin high school aged 13–17 (mean 15.5/SD 1.4) and 61 male high school students aged 13–16 (mean 15.0/SD 1.3). Among other items, they were assessed for their weight status and body image as well as their EAT- and EDI-ratings [5, 6, 61, 64]. In our sample, none of the ballet dancers met ICD-10 criteria for clinical anorexia nervosa.

However, the slender-bodied but not eating-disordered ballet dancers testified for the fact that an objective assessment of nutritional status by weight ought to account not only for gender, age, and height but for body build as well. In an attempt to improve the determination of target weights and, potentially, stipulated diagnostic cut-offs, we have advanced the anthropometry of physique to supplement established measurements of body weight, height, and Quetelet's body-mass index (BMI) derived from these rather crude indicators (see also the contribution by Bartsch et al. in this issue). Initially, we just noted a significant propensity to slender-bodied somatotypes among our eating-disordered inpatients [60]. At that time, we did not entirely understand and appreciate the relevance of this finding.

In the Berlin Anorexia-Study, we continued to investigate a total of 133 adolescent inpatients cross-sectionally as well as longitudinally during their treatment. According to ICD-10 and DSM-IV criteria, 104 cases qualified for anorexia, 19 for bulimia nervosa, and 10 for eating disorders not otherwise specified. Their anthropometric data confirmed our initial analysis, and we decided to forward the preliminary triad of Strömberg's Metrik-Index, age-specific BMI percentiles, and target weight to put body build on the agenda for eating disorders [62]. Later, we progressed to the physiological impact of somatotypes on the regulation of body weight. It is reflected by the fact that heavy-bodied somatotypes exhibit less lipostatic leptin feedback at a given BMI level than slender-bodied individuals [4]. Furthermore, this very basic phenomenon and a wealth of clinical evidence forced us to assume that the preponderance of slender-bodied somatotypes among eating-disordered inpatients may indeed indicate a diagnostic and therapeutic bias of current criteria and guidelines unduly penalising the detection and treatment of heavy-bodied somatotypes suffering from eating disorders below the general weight average [3, 66].

A meticulous allocation of the psychopathology of eating disorders has also warranted rethinking the heuristic notion of the body image. In 1997, a meta-

analysis of 66 studies conducted between 1974 and 1993 by Cash and Deagle [9] had pointed to the conceptual and textual haziness of this remarkable epitheme mentioned by most publications on eating disorders and its problematic terms of usage. Our group systematically considered designations and interpretations of various “body images” and “body schemata” described in the neuropsychiatric literature over the past 140 years [2]. In search for the essence of the metaconcepts on body schema and body image, the following clarifications appeared most reasonable to us: the body schema should be regarded and studied in terms of the perceptive awareness and perceptual experience of one’s own body as substance in space whereas the body image actually represents an attitudinal component attached to the self-evaluation of the body schema.

Last but not least, we wish to mention another topic our eating disorders research has covered and focussed upon. It concerns cerebral effects of weight loss in anorexia nervosa – the so called “pseudotrophy” of the brain. In that context, it was the correlation of morphometric changes with cognitive deficits that yielded further insights. In particular, disorders of number processing in adolescent patients with anorexia nervosa were of interest to us [63]. At three different points of time (T_{1-3} : admission to treatment, after 50% restoration to target weight, and when the target weight was reached), we examined 18 anorexic inpatients (mean age at admission 14.5 years/SD 1.59; BMI 14.9/SD 1.36 kg/m²) who were diagnosed according to ICD-10 criteria. At each time point, a cerebral MRI scan was obtained.

Based upon the MRI, we determined the volume of the external and internal cerebrospinal fluid cavities, the extent of the Sylvian fissures, the surface of mesencephalon and pons, and surface and length of the corpus callosum. At T_1 and T_3 , a neuropsychological examination was conducted including tests of the general fluidity and the crystallised ability of intelligence (CFT-20), as well as tests of vocabulary and number processing. The same instruments were given to a group of matched controls (mean age 15.8/SD 1.57 years; mean BMI 20.5/SD 2.3 kg/m²) at one point in time. We were able to show a significant volumetric difference of lateral ventricles and the Sylvian fissures between patients at T_1 and controls which abated with the patient’s weight restoration. Nevertheless, a significant surface deficit of the mesencephalon, less pronounced but also detectable in the pons, persisted to T_3 in patients when compared to controls suggesting some regional persistence of cerebral pseudotrophy in anorexia nervosa after weight restoration. The neuropsychological examinations revealed significant changes in test performance for both the general intelligence test and number processing. At T_1 , the number processing performance was significantly lower in patients when compared to controls. However, when the patients had restored their body

weight, we found 2.02% with a ‘severe disorder of arithmetic skills’ and 4.45% with a ‘functional disorder of arithmetic skills’. The combined prevalence of 6.47% of patients affected by subnormal arithmetic performance amounts to that in the normal population.

The research on eating disorders conducted within the course of the past 80 years at the Department of Child and Adolescent Psychiatry at the Charité illuminates the variety, sophistication, and complexities of problems associated with these illnesses. Despite all the progress that has been made worldwide, many questions still remain open or even not yet touched upon and are awaiting further clinical and scientific clarification [1, 34]. Our own specific efforts will be directed towards introducing standard measures of skeletal frame size for the assessment of somatotypes and nutritional status in eating disorders and, hopefully, to employ computational methods of morphometry for assessing cerebral pseudotrophy in relation to weight loss, neuropsychological performance, and psychometric ratings. Eventually, further insight may guide our understanding and ability to detect, treat, and prevent eating disorders beyond the vicissitudes of time.

Prospects for the 21st century

The longer eating disorders are observed and studied, the more reliable the figures of their incidence and prevalence, their classification, and the results of therapeutic interventions have emerged. In order to improve their prognoses, early treatment seems mandatory and the task to face [74]. The advent and rise of managed care and related approaches will continue to have a substantial impact on the care offered and delivered to eating-disordered patients since it puts a challenge on the professionals involved to elaborate not only on the medical and ethical obligations but also the financial benefits of the in- and outpatient treatment [21]. This has, for example, become strikingly apparent in the publications by Steinhausen et al. [81, 82], Wentz et al. [88], and Zipfel et al. [96]. Furthermore, there is sufficient evidence from the reviews on the outcome of anorexia nervosa in the 20th century provided by Steinhausen [83] and on mortality provided by Neumärker [65] that anorexia nervosa is still a very serious disorder. Considering these facts, the demand for the prevention of eating disorders is unambiguous and features goals such as those declared by Pearson et al. in 2002 [70]:

- develop common definitions of symptoms, syndromes, risk factors, and outcomes to better assess progress in epidemiology and prevention trials;
- encourage the integration of basic social science research in prevention approaches, such as assessing the effects of social norms marketing to reduce risk factors;

- encourage research on neural mechanisms of eating disorders at the animal level. Foster cross-discipline interactions among animal experimentalists, clinicians, and other researchers in the field;
 - develop guidelines for assessing the scientific merit of eating disorders prevention trials, using guidelines developed for clinical trials for other disorders, such as substance abuse, as a model;
 - develop approaches to assess and minimise iatrogenic effects. Research that determines whether certain approaches are iatrogenic for certain subgroups may diminish unwarranted concerns and/or determine that some approaches are indeed harmful;
 - encourage research in biology, personality traits, family and social groups, and societal norms and values, all of which influence the development of eating disorders. These could include “downstream” interventions at an individual level, “midstream” interventions aimed at organisations, worksites, health care settings and communities, and “upstream” interventions that involve social norms and policies;
 - increase awareness that eating disorders are a public health problem and that prevention efforts are warranted. It may be helpful to develop common goals with advocates with similar interests. For example, the goal to improve healthy eating behaviour may be shared by eating disorders prevention advocates as well as advocates promoting improved physical fitness and the prevention of obesity;
 - adopt an approach that considers the public health impact of these disorders. Analyse perceptions, attitudes and policies that contribute to the stigmatisation of eating disorders.
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