Research Review: Child psychiatric diagnosis and classification: concepts, findings, challenges and potential

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The conceptual issues are briefly noted with respect to the distinctions between classification and diagnosis; the question of whether mental disorders can be considered to be ‘diseases’; and whether descriptive psychiatry is outmoded. The criteria for diagnosis are reviewed, with the conclusion that, at present, there are far too many diagnoses, and a ridiculously high rate of supposed comorbidity. It is concluded that a separate grouping of disorders with an onset specific to childhood should be deleted, the various specific disorders being placed in appropriate places, and the addition for all diagnoses of the ways in which manifestations vary by age. A new group should be formed of disorders that are known to occur but for which further testing for validity is needed. The overall number of diagnoses should be drastically reduced. Categorical and dimensional approaches to diagnosis should be combined. The requirement of impairment should be removed from all diagnoses. Research and clinical classifications should be kept separate. Finally, there is a need to develop a primary care classification for causes of referral to both medical and non-medical primary care. Keywords: Comorbidity, classification, diagnoses, validity development, primary care.

The literature tends to deal with classification and diagnosis as if they involved the same issues, but they do not. The World Health Organization (WHO) International Classification of Diseases (e.g., ICD-10–1992) is clear that it concerns a restrictive classification – namely that of diseases and disorders. Of course, that is implicit in its origin in causes of mortality. However, that is only one possible purpose of classification. In essence, classification is simply a tool for communication so that when researchers or clinicians or policy-makers refer to some feature they mean the same thing (Taylor & Rutter, 2008). Note that this need has nothing necessarily to do with diseases. Thus, there is a WHO classification of psychosocial circumstances – such as physical abuse or family discord (WHO, 1998). These are coded as present or not, as the case may be; and not in terms of any clinical judgment that they have caused some disease state. In exactly the same way, classificatory rules are needed for assignation of male or female sex – as the controversy over the unfortunate South African athlete with the contested claim that s/he is female illustrates. Should this be decided on the basis of chromosomal sex, or gonadal sex, or hormonal sex, or personal identification or some other grounds? In this case, it is clear that there can be no single ‘correct’ answer in the rare instances when these various classifications do not agree with one another. Similar problems arise with respect to the classification of substances used for recreational purposes or the groupings of psychoactive drugs. This essay is not concerned with any of these non-disease classifications but they are noted here as a reminder that we need classifications for all forms of communication and not just for the grouping of disease states.

Are psychiatric syndromes ‘diseases’?
Much heat, and not a lot of light, has been produced by discussions of whether or not psychiatric syndromes can be considered diseases (Kendell, 1975; Wakefield, 1992, 1997). It has been suggested that mortality that is increased relative to the general population should be a criterion, but that does not help very much. On the one hand, there are numerous diseases that are not associated with an
Increased mortality; dental caries and the common cold are obvious examples. On the other hand, mortality may be increased as a result of secondary features (e.g., liver failure due to heavy alcohol consumption associated with, say, depression).

Alternatively, as in DSM-IV (APA, 2000), there must be an associated distress or disability. Although that helps in the differentiation from normality, it clearly does not work in relation to many medical disorders. Should atheromatous narrowing of the coronary arteries (demonstrated by cardiac catheterization) be excluded because it is not as yet associated with distress or disability? That would make no sense. Similar issues apply with respect to hypertension or diabetes. It would seem decidedly perverse to make a requirement for mental disorders that does not apply across the rest of medicine.

DSM-IV also specifies that the abnormality must reside in the individual. In other words, a dysfunction that was manifest only in some relationship would be excluded. It might be argued that this requirement would be problematic in the case of patterns manifest in the preschool years because children’s functioning then is so closely intertwined with family relationships, but the expectation (or requirement) could be that the pattern is manifest outside (as well as inside) the family. The same would apply to oppositional/defiant disorder in older children. The within-individual specification appears reasonable in relation to the ‘disease’ criterion; even though severe relationship difficulties may constitute a reasonable justification for intervention. A related alternative approach is to require a demonstrated pathophysiology. Note that this makes no assumption that this is causal. Thus, infectious diseases lead to an identifiable pathophysiology that is a consequence of the infection, rather than its cause. In relation to psychopathology, the parallel is seen in the case of institutional deprivation, which leads to impaired brain growth and other biological sequelae (Rutter & Sonuga-Barke, 2010). Similarly, child abuse leads to important physiological changes. Autism, schizophrenia and attention disorder with hyperactivity (ADHD), as neurodevelopmental disorders with a strong heritability, have also been associated (at a group level) with important pathophysiological changes. The problem is that these biological changes are not sufficiently distinctive at an individual level to be used for individual diagnosis (Rutter, 2010). It may be concluded that it is likely that, ultimately, research may demonstrate diagnostic pathology. Nevertheless, that is not done because psychiatrists and psychologists, rather than neurologists, are usually the ones providing clinical care. They could be termed psychiatric disorders were it not for the fact that that would seem to imply a necessary psychiatric (rather than psychological) involvement in care. Psychopathological disorders would be more accurate, but that is a bit of a mouthful, so the generally accepted terminology ‘mental’ seems reasonable provided it is used as a general description rather than a term that has a specific meaning.

Descriptive psychiatry

Can diagnoses be based on specific symptoms – as has been done in DSM-IV and in the research version of ICD-10? Kupfer, Kuhl, Narrow, and Reiger (2009) recognized that symptom-based approaches (such as in DSM-IV) fail to represent the complex nature of psychiatric disorders and that a reorganization is needed and not just a revision of diagnostic criteria. McHugh (2009) concluded that DSM has reached a dead-end and that it was essential to reintroduce concepts of cause and mechanism. Frances (2009) concluded that: ‘it would be wise for us all to accept that descriptive psychiatry is a tired old creature’ and that a paradigm shift is essential. Neither ICD-10 nor DSM-IV is fit for purpose. Accordingly, the criterion that any proposed changes must include justifications is misleadingly one-sided. It is equally necessary to justify why an outmoded system should be retained.

Criteria for diagnosis

Undoubtedly a reliance on symptoms has helped in providing comparability across samples and centers, but many of the criteria lack validity. A crucial requirement is that the validation must be based on criteria external to the defining symptoms (Cantwell, 1975; Rutter, 1978). In many cases, such validation is lacking; moreover, it is doubtful whether diagno-
ses are in truth made accordingly to algorithm rules. There are a huge number of diagnoses in both DSM-IV and ICD-10 and it is extremely unlikely that any individual can remember all the rules. This is reflected in the finding that 'not otherwise specified' (NOS) diagnoses often predominate. It may be inferred that clinicians and researchers do not recognize any meaning in the subcategories and therefore opt for the NOS option. This probably applies in the case of autism spectrum disorders (ASD). A further concern is that the existing algorithm rules result in a ridiculously high rate of co-occurring disorders – supposed 'comorbidity'. This seems to apply, for example, to the huge overlap among the different anxiety disorders.

It may be concluded that the first need in producing DSM-V and ICD-11 is a radical reduction in the number of diagnoses. In the case of both autism spectrum disorders and anxiety disorders, there is something to be said in favor of eliminating all subcategories. Of course, that means that a clear unambiguous specification (or definition) of the concept of the broad grouping must be developed. Note that this suggestion does not imply that there is homogeneity of the broad grouping. To the contrary, it is highly likely that there will be pathophysiological heterogeneity, and that this should be reflected in meaningful subcategories. The problem is that the ICD-10 criteria for the subcategories of ASD manifestly do not work and there is a paucity of evidence on which to base a better subcategorization (but see Szatmari et al., 2009, for evidence that diagnosing Asperger syndrome on the basis of an absence of structural language impairment does have value). Similarly, the very high level of co-occurrence among the various anxiety disorders suggests that, however desirable subcategorization is in principle, in practice it is not working well.

It may well be argued that genetic findings suggest that there are two anxiety groupings – first, panic disorder and generalized anxiety disorder and, second, specific phobias (Hettema et al., 2005). Possibly, too, although not genetically distinct, blood phobia warrants a separate category because it leads to a fall, rather than a rise, in blood pressure. Possibly similar clinical considerations may apply to selective mutism. Nevertheless, even if few subcategories are retained, a drastic simplification would seem essential.

That might seem to imply the need to return to a 'prototype' approach to diagnosis. At first sight, that sounds reasonable; after all, that is how many clinicians do actually make diagnoses. The practical problem is that, even with Mendelian disorders, there can be an astounding range of manifestations. Tuberose sclerosis constitutes an obvious example (Huson & Korf, 2002). At one extreme it constitutes an extremely handicapping condition with severe intellectual disability, epilepsy and multiple brain tubers. At the other extreme, it is manifest only in subtle skin lesions diagnosable only through a Wood's light used by an expert. We do not understand the mechanisms underlying this enormous variability in expression, but it is well established that it exists.

Similarly, monozygotic co-twins who are concordant for autism have been shown to vary by over 50 points in IQ and to exhibit a similar range of symptom variation (Le Couteur et al., 1996). Of course autism is a multifactorial, rather than a Mendelian, disorder so that there is no current means of validating the diagnosis on a pathophysiological basis, but the fact remains that even with a very strong genetically influenced disorder, the details of manifestations are very varied.

A further complication arises from the finding that many disorders arise on the basis of a multiphase causal pathway. Thus, substance abuse begins with occasional recreational usage, develops (in some individuals) into regular heavy use, finally turning into a pattern of abuse/dependence. The pathway course would not matter were it not for the fact that the pattern of genetic and environmental influences varies across different points on the pathway. In addition, with medical diseases, it is quite common for a single endpoint to derive from several different pathways (Rutter, 1997). Thus, obstructive brain disease can begin with heavy smoking, lung infections, or allergy. Each pathway shows a rather different pathophysiological pattern even though there is a common pattern at the endpoint. Whatever defining criteria are used, there must be some means of accommodating pathway implications.

Both DSM-IV and ICD-10 have a separate grouping for disorders with an onset specific to childhood. Some of these are neurodevelopmental disorders (such as ADHD and autism), and the neurodevelopmental 'umbrella' would seem to provide a better rationale for grouping than the childhood onset one (Bishop & Rutter, 2008). In other instances, such as the various anxiety disorders, although there are minor differences in criteria compared with their apparent adult equivalent, it seems most unlikely that the two differ fundamentally. The logic would seem to be the complete removal of the grouping of disorders with an onset specific to childhood. The conditions would remain but they would be merged with the adult categories. Of course, for this to work, it would be essential for all diagnoses to provide a lifetime perspective with an explicit set of instructions for the ways in which manifestations vary with age (see Pine et al., 2011). It is clear that, in many instances, the data needed to do this are sparse. Nevertheless, in spite of the difficulties, the move seems preferable to continuing with an outmoded unvalidated grouping.

One practical problem is that in both DSM-IV and ICD-10, subclassification differs between childhood and adulthood. For example, conduct disorder in childhood involves a key subclassification, whereas
antisocial personality disorder does not. Moreover, the criteria for the latter include psychopathic features whereas conduct disorder in childhood does not. It is also apparent that, whereas conduct disorder is treated as an axis I clinical disorder, antisocial personality disorder is treated as an axis II personality disorder. Given the extensive evidence for continuity over time between the two, that makes no sense. That is particularly so because the diagnosis of antisocial personality disorder in DSM-IV requires evidence of conduct disorder in childhood. It is obvious that a lifespan approach that brings conduct disorders and antisocial personality disorder together is much needed. The subclassification of conduct disorder in ICD-10 has not proved satisfactory and should be abandoned. That in DSM-IV according to age of onset has more empirical support (Moffitt et al., 2008) but suffers from the evidence that over half the cases of childhood onset do not persist into adult life (Oders et al., 2007a). Such persistence is, however, much more likely if the onset of conduct disorder in childhood is accompanied by either overactivity or a positive family history (Oders et al., 2007b). It is recommended, therefore, that the criteria for conduct disorder should include both components.

Tremblay (2003) has argued that the most important subdivision should be that between physical aggression and other antisocial behavior. Given that this is particularly based on findings in the preschool period, it would seem that it should be applied to oppositional defiant disorder rather than to conduct disorders.

The evidence on psychopathy is based on research questionnaire scores and it has yet to be established whether these can be translated into clinical ratings. Second, there is weak agreement between self-reports and parent-reports; how should this be dealt with? Third, the DSM-V proposal for psychopathy to be treated as a modifier of a conduct disorder (Frick & Moffitt, 2010) presupposes that psychopathy cannot occur independently of conduct disturbance. Findings from the follow-up study of Romanian adoptees initially reared in profoundly depriving institutions showed that, to the contrary, most occurrences of psychopathy were not associated with either conduct disturbances or oppositional defiant disorder (Kumsta, Sonuga-Barke, & Rutter, 2010). The problem is that this was a very unusual population in which the psychopathy was likely to have been environmentally generated. Nevertheless, the findings from an epidemiological sample representative of the general population (Rowe et al., 2010) also showed that most instances of psychopathy were not associated with ODD or CD (see also Hare & Neumann, 2010; Skeem & Cooke, 2010a, 2010b for a critical discussion of the misleading assumption that antisocial behavior is a central component of psychopathy). It may be concluded that any satisfactory classification should not require such an association.

In summary, there are sound grounds for including psychopathy in a classification, but uncertainty on how best to do it. This provides a prototype of why this sort of research-need diagnosis has to have a place. But, there are several others. Quasi-autism as a sequel of profound institutional deprivation is another. The UK study (Rutter & Sonuga-Barke, 2010) provides justification for the deprivation-specific concept but there is rather scanty evidence from other studies and uncertainty remains over the possible generalization to the effects of abuse and neglect in non-institutional groups. Another example would be the DSM proposal for a category of ‘temper regulation disorder with dysphoria’ (DSM-V Childhood & Adolescent Disorders Work Group, 2010). It was proposed as a possible way of preventing the over-diagnosis of bipolar disorder in young children. This seems a reasonable concern but the solution needs to be tested, especially as most the evidence stems from the United States. Similar needs apply to the diagnosis of disintegrative disorder (Volkmar, Koenig, & State, 2005) which would otherwise be lost by the elimination of subcategories of autism spectrum disorder. Whether it is meaningfully different from autism spectrum disorders is unknown because it has been the subject of so little research. A few of the Zero to Three diagnoses for very young children (Postert et al., 2009; Skovgaard, Houman, Landorph, & Christiansen, 2004; Zero to Three, 2005) pose a similar need. It is clear that the patterns exist, but their validation has yet to be established. While some of the Zero to Three diagnoses can be accommodated in existing ICD categories, ‘regulatory disorder’ cannot. It would be reasonable to include this in a grouping of disorders that require testing. Neither DSM-IV nor ICD-10 had any adequate provision of this kind and it is suggested that the next editions should do so.

Availability of scientific evidence

The planning of both DSM-V and ICD-11 involved an attempt to bring together the scientific evidence that was relevant for nosology. This began in 2003 with a 5-year series of 13 international conferences co-sponsored by the APA and WHO and funded by NIMH (Kupfer, Regier, & Kuhl, 2008). Each conference was intended to lead to a monograph. In addition, the various working parties set up for DSM-V have produced papers systematically reviewing the evidence relevant for diagnosis and classification and putting forward the justification for possible key changes. The working parties included world leaders – with experts spanning different disciplines and representing different parts of the world, and most reviews have been very good. It is a definite strength that they have been made generally available on the DSM-V website. In my view, there has been a much better attempt to review the science than was the case with either DSM-IV or ICD-10.
Nevertheless, as Frances (2009) pointed out, the DSM-V revision process got off to a thoroughly bad start by requiring all members of the Task Force and of Working Groups to sign confidentiality agreements. Even worse, there was far too little free flow of information out of, or into, working groups. In principle, there was cross-membership across working groups but, so far as can be judged, that has not worked particularly well. In addition, the fact that the working groups were created on the basis of the old structure of DSM-IV carries the danger that this may make restructuring more controversial than it need have been. Furthermore, the timetable was impossible, with the inevitable consequence that the DSM-V process has fallen behind what was expected.

The ICD-11 process had also involved working parties (with a similar set of pluses and minuses) but because the timetable for ICD-11 is much longer than that for DSM-V, the working parties are at an earlier phase of working. Also, the WHO lacks the resources to produce the systematic reviews of evidence that, at their best, are such a strength of the DSM-V process. However, although there have been various bureaucratic hurdles to surmount, there has been the beginnings of constructive cooperative working between the DSM-V and the ICD-11 groups, at least in the case of child and adolescent psychiatry. Nevertheless, by the middle of 2010, there had not been a single meeting to discuss harmonization between ICD-11 and DSM-V. As First (2009) pointed out, the task is a challenging one. Unless the goal of harmonization is prioritized early it is most unlikely to become a reality.

**Associated problems**

When considering the classification of mental disorders, it is crucial to include provision for coding problems requiring clinical attention that are closely associated with mental disorders even though they may not be considered as a mental disorder as such. Two features stand out as a particularly important: drug-induced Parkinsonism and dystonia, and attempted suicide. ICD-10 codes the former in the diseases of the nervous system chapter (codings of G21, G24 and G250) and the latter in the injury and poisoning chapter (XIX) (codings of T36-T50) and in the external causes of morbidity chapter XX (codings X60-X84). DSM IV has parallel codes for medication-induced movement disorders but it does not have separate provision for attempted suicide. Such a coding should be provided in DSM-V. Although it may be reasonable to have the relevant codings in ICD chapters separate from the chapter on mental disorders, it constitutes a practical limitation and it is suggested that they be included as an appendix (or equivalent) in any printed publication or electronic form of the mental disorders classification.

The DSM working party on child psychiatric disorders has put forward a proposal (Shaffer & Jacobson, 2010) that a new category to cover non-suicidal self-injury (NSSI) be included under the broader rubric of mood disorders. NSSI is a relatively common problem in adolescence and it differs from attempted suicide in numerous respects, including the fact that typically it is a recurrent or chronic problem rather than an acute act. For this reason, probably, it should be placed in the overall field of mood disorders, rather than among antisocial problems.

Similar issues arise with stereotyped movements and with trichotillomania (hair pulling). The former is coded as a distinct mental disorder in both DSM-IV and ICD-10, as is trichotillomania. Both tend to be chronic or recurrent, and stereotyped movements are not infrequently a cause for clinical referral. Trichotillomania, by contrast, is not. In some respects, the two problems seem similar but stereotyped movements are strongly associated with intellectual disability, whereas trichotillomania is not. Logically, it seems that stereotyped movements ought to be coded as it is now but it is not so obvious that that is warranted for trichotillomania and, because of its limited clinical importance, perhaps it should be dropped.

**Issues in relation to subclassification**

The issues arising from a very extensive use of subclassification are most clearly evident in the field of substance abuse disorders for which DSM-IV has over 120 codings and ICD-10 much the same. This has come about through a wish to recognize disorders due to some dozen different substances that differ somewhat in their pharmacological properties and to make distinctions according to clinical features (such as dependence vs. abuse, withdrawal syndromes, drug-induced psychoses, etc). With respect to the variety of substances, it is relevant that most substance use disorders involve multiple substances and not just one. Accordingly, clinical use classifications may reasonably rely on broader groups of drug type (although this necessitates agreement on which substances should go in which groups – not a straightforward matter!). Research classifications, by contrast, would probably want rather more information. The distinction between ‘dependence’ and ‘abuse’ is unclear and it may be preferable to pool the two. It cannot possibly be sensible to have over 120 codings for substances use disorders in a clinical classification – whether this is used for young people or adults. Further work is required to obtain generally acceptable solutions.

A further issue arises with respect to likely parallels between social behaviors leading to dependence/abuse and drugs that do so. Thus, possibly, this could apply to the relatively new feature of internet...
addiction (Aboujaoude, 2010), which in some parts of the world is increasingly giving rise to the clinical referral of young people. The research on these problems is limited and it may be that they should be included in the group of problems that are recognizable and clinically important, but where validating evidence is not yet sufficient for their inclusion in the main listing of mental disorders.

There are many other specifics regarding diagnostic criteria that require attention. Thus, for example, in DSM-IV, there is an overall category of reactive attachment disorder with subcategorization into inhibited and disinhibited types. By contrast, ICD-10 treats these as two separate categories. In their working party paper for DSM-V, Zeanah and Gleason (2010) clearly present the evidence that, in line with the ICD-10 approach, the two should be separated on the basis of their quite different set of correlates (see also Rutter, Kreppner, & Sonuga-Barke, 2009). Bögels et al. (2010) reviewed the evidence on whether selective mutism should be regarded as a variant of social anxiety disorder. They concluded that the two are strongly related but wondered whether selective mutism should be treated as an avoidant behavior (comparable to school refusal) rather than a diagnosis as such. Stringaris and Goodman (2009a & b), using longitudinal data from two British national surveys, plus findings from other studies, have noted that oppositional defiant disorder (ODD) includes both irritability which is the only element that is predictive of later emotional disorder, and also hurtful and headstrong elements. It is unclear whether, therefore, irritability should be taken out of ODD to form a separate category of its own. It might be reasonable to try this out as part of a broad group of disorders requiring testing but the problem would be uncertainty, on the one hand, how that would leave the concept of ODD and, on the other hand, how irritability on its own would work as an independent diagnosis. The preferred solution might be to keep ODD as it is (APA Working Party Report, in preparation) but to undertake further studies with a focus on the pros and cons of taking irritability out of ODD.

The increasing attention over the years to the diagnosis of ADHD in adults has led to a consideration in the DSM-V working party reports of the implications for the diagnostic criteria as used in all age groups (see Kieling et al., 2010; Mannuzza & Kline, 2008; Todd, Huang, & Henderson, 2008). The proposals have included deletion of the age of onset before 7 years requirement. The proposal serves to highlight the contrast between using clinical guidelines as the starting point (as in ICD) and focusing instead on research usage rules (as in DSM). The DSM-V working party reports, in following the latter path, emphasize the lack of evidence that late onset cases differ from early onset ones. This is especially so with clinical cases first referred in adult life (with all the problems of retrospective recall). Nevertheless, ADHD is generally recognized as an early onset neurodevelopmental disorder (see Taylor & Sonuga-Barke, 2008) and may well be placed in such a grouping. In keeping with this concept are the findings showing reduced total brain volume (Seidman et al., 2005), accompanying cognitive impairment, and possible genetic overlap with autism (Williams et al., 2010). A follow-up study of controls in a comparison with ADHD probands diagnosed in childhood (Mannuzza & Kline, 2008) showed that the two groups did not differ with respect to ADHD not otherwise specified. Findings may also differ according to whether the ADHD is confined to school and whether it is predominantly inattentive in type. The ICD-11 group has much work to do in order to delineate the varying manifestations of ADHD in different age groups (see also Mannuzza et al., 2010) and it would seem premature and unhelpful to place particular weight on the remembered age of onset. Numerous other features require equal consideration and it needs to be asked whether a neurodevelopmental disorder involving small head size and cognitive impairment can truly have no manifestations until adolescence.

Subthreshold disorders

During recent years, there has been much interest in disorders that have symptom patterns or levels that fall outside the limits specified for diagnoses in DSM-IV, but yet which nevertheless involve impaired social functioning and which may result in appropriate clinical referral and the need for services. Angold et al. (1999) drew attention to the general problem of “impaired but undiagnosed” disorders; Stice, Ng, and Shaw (2010) noted the importance of subthreshold eating disorders (with body dissatisfaction, negative affect, and pressure to be thin) and other studies have done the same with respect to depression (Klein, Shankman, Lewinsohn, & Seeley, 2009; Kovacs & Lopez-Duran, 2010). Follow-up studies have shown that a substantial proportion go on to show overt above-threshold disorders (i.e., anorexia or bulimia nervosa or major depression), but this applies to a subgroup only. The implication would seem to be to express the diagnostic criteria for “not otherwise specified” (NOS) more fully without the need to add a new diagnostic category. Some commentators have expressed concern that this more explicit recognition of NOS patterns may represent an inadvertent broadening of the diagnostic concept that could lead drug companies to market treatments for the distressed but not really impaired individuals, but carefully crafted criteria (focusing on what features must be present rather than those that are not present) should diminish this risk.

The issues are somewhat different with respect to “prodromal” schizophrenia in that this diagnosis does not appear in either DSM-IV or ICD-10. The adjective “prodromal” is not really justified in that a sub-
stantial proportion do not go on to manifest schizophrenia ‘proper’, but there is a much increased risk that they will (see Drake & Lewis, 2005; Johnstone et al., 2005; McGorry et al., 2002). Clinics have been set up to provide treatments for these individuals and they do present with recognizable symptoms. Accordingly, the pattern is equivalent to the sub-threshold disorders. The main concern here is the possible risks of using preventive psychotropic drugs with important side-effects in individuals who, in effect, represent ‘false positive’ diagnoses (Corcoran, Malaspina, & Hercher, 2005). That concern would markedly lessen if the observed efficacy of polyunsaturated fatty acids in one randomized controlled trial (RCT) (Amminger et al., 2010) is confirmed. For the moment, it is suggested that a category for this high-risk pattern should be added because it has definable features and because already it is leading to the use of clinical services.

Somewhat similar issues arise with respect to the so-called ‘broader phenotype’ of autism (Bailey et al., 1998; Yirmiya & Charman, 2010), with the exception that clear diagnostic criteria have still to be established. Because preventive studies are already beginning, it may be justified to include this in the group of disorders requiring further testing but it would be premature to go further than that.

Restructuring of classification organization

The organization of the classification of mental disorders in both ICD-10 and DSM-IV is unsatisfactory in several respects (including a structure that differs between the two classifications). To begin with, DSM-IV treats both mental retardation and personality disorders as separate, and different, from clinical disorders. Apparently, it has already been decided that this split will not apply in DSM-V. If, as now seems likely, both DSM-V and ICD-11 drop an ‘onset in childhood’ grouping, then a decision will be needed on where to place conditions previously in that cluster. Similarly, if there is to be a grouping of disorders that are included in order to facilitate testing of their validity, a place would have to be found for this cluster.

So far as the ‘need for testing’ group is concerned, this might include the Zero to Three diagnosis of ‘regulatory disorder’, ‘temper regulation disorder with dysphoria’, psychopathy, childhood disintegrative disorder (which would otherwise be lost if there is to be subclassification of autism spectrum patterns), the autism broader phenotype, ‘prodromal schizophrenia’, and ‘quasi-autism’ following institutional deprivation.

Some of the ‘childhood onset’ disorders, such as autism spectrum patterns, ADHD, developmental disorders of speech and language, and learning disorders, would seem to fit into a neurodevelopmental grouping. The same would apply to mental retardation (which should be relabeled as ‘intellectual disability’). It is appreciated that such a grouping puts together syndromes that involve important differences but, nevertheless, they have more commonalities than differences. Thus, there is a male preponderance (apart from dyscalculia), substantial co-occurrence, and some sharing of genetic liability.

There is a document, currently under discussion in both the DSM-V and ICD-11 committees, that etiological and neural circuit hypotheses should be introduced into the classifications in a systematic fashion. In principle, it seems highly desirable for classification to be based on pathophysiology but, at the present time, there is a lack of solid evidence to justify such a meta-structure. Instead, decisions will have to be taken on the more uncertain grounds of genetic evidence, other validating criteria, and logic.

With this in mind, a few comments are possible with respect to groupings of particular relevance for disorders in childhood and adolescence. Currently, in DSM-IV the group of anxiety disorders includes both obsessive–compulsive disorder (OCD) and post-traumatic stress disorders (PTSD) and acute stress disorder, all of which would seem to be better placed elsewhere. The clinical and genetic findings argue for OCD to be grouped with Tourette disorder and multiple tics, rather than anxiety disorders. PTSD and acute stress disorder would seem to fit better into some kind of stress disorder grouping. This might also include the inhibited and disinhibited varieties of attachment disorders. Anxiety disorders pose a problem in that the high degree of co-occurrence with depression plus the twin study findings suggest that generalized anxiety disorder and depressive disorders share the same high genetic liability (Kendler, 1996; Kendler et al., 2006). The association between depression and phobias is weaker. One possible compromise would be to have generalized anxiety disorder in the depression grouping but to keep phobias in a separate anxiety grouping.

Childhood conduct disorders and antisocial personality disorders were on different axes in DSM-IV but obviously they reflect the same basic construct and should be in some form of antisocial grouping. Currently schizotypal disorder is grouped with personality disorders in DSM-IV (but not ICD-10) but the genetic evidence suggests that instead it should be grouped with schizophrenia (Kendler et al. 1994).

Psychopathy presents another dilemma. In DSM-IV it has no separate diagnostic category but its features are listed as part of the criteria for antisocial personality disorder. That seems unsatisfactory in view of the extensive evidence of the differences between psychopathy and other forms of antisocial behavior (Blair, 2008; Patrick, 2008). One solution would be to give a diagnostic category in a personality disorders grouping, but the lack of evidence of validity of this diagnosis as assessed clinically, the weak agreement among questionnaire measures, and the uncertainties of using the diagnosis in
Classifications for use in primary care

In many respects, the most revolutionary change in ICD-11 will be having a classification that is planned from the outset for primary care use (Goldberg, 2010). There was a primary care classification in relation to ICD-10 but it derived out of the full classification; also it covered only 4 diagnoses in childhood, which is obviously quite inadequate. In addition, although it is hoped that ICD-11 will adopt a lifespan perspective, it may be that there should be a primary care classification designed specifically for use with children and adolescents. That is because, in the case of young people, care is often provided by professionals who have neither medical nor nursing training. Thus, a primary care classification for young people must be one that could be used by psychologists, social workers, and speech pathologists and also it must be expressed in terms that are meaningful to pediatricians. Finally, the classification must include problems that do form part of the referrals to primary care professionals even though they are clearly not mental disorders. Epilepsy is the most obvious example, but enuresis and encopresis and developmental delay would also not be viewed as mental disorders by most pediatricians. Nevertheless, they commonly constitute the basis for primary care. It is suggested that this simplified classification should not be titled as dealing with ‘mental disorders’ but rather should be described as a classification for causes of referral to both medical and non-medical primary care.

What criteria should be used to decide on the codings for such a classification? It is suggested that five criteria might be appropriate: i) the coding has clinical (and therefore scientific) meaning; ii) the diagnoses do not require medical or nursing training (because other professionals are so frequently involved in the primary care of disorders in young people in); iii) the differential diagnosis must be possible on the basis of a 10- to 15-minute consultation (because that is the maximum time likely to be available); iv) the language used must be understandable and meaningful to those using the classifications; and v) the classifications must be usable internationally in developing as well as industrialized countries. Further work will be required to develop such a classification but some examples may serve to illustrate the approach.

Because of their frequency, clearly there must be codings for emotional disturbances and for disruptive behavior disorders. At a specialist tertiary care level, it would be important in the case of the former to differentiate between the anxiety disorders and depressive disorders because there are treatment implications, but it is unrealistic to suppose that this could be done at a primary care level. Similarly, in a specialist clinic it would be important to differentiate between oppositional defiant disorder, conduct disorder, attention deficit disorder with hyperactivity, and psychopathy. Again, this would be unrealistic at a primary care level and therefore single codings for ‘emotional disturbances’ and for ‘disruptive behavior disorders’ might suffice.

To move on to less common disorders, a coding for autism spectrum disorders and a separate coding for psychotic disorders would be needed.

It has been suggested that, as with the ICD-10 primary care classification, it would be helpful to accompany the coding with advice on treatment implications. This does, indeed, seem highly desirable but, because this would have to be changed whenever any improved treatments became available, it would be better to keep the clinical implications separate from the coding in order to avoid the need to change the classification system at any time. Nevertheless, certain clinical implications are likely to continue to apply. Thus, the presence of a psychotic disorder should trigger referral to some form of more specialized service. Probably the same applies in the case of autism spectrum disorders.

Multiaxial classification systems

Because the rest of ICD has always been uniaxial, the WHO has decided that the ICD-11 mental disorders chapter will not be a multiaxial system. Nevertheless, with ICD-10, it was possible to have an ‘unofficial’ version of that chapter (WHO, 1996) and presumably the same will apply to ICD-11. DSM-IV was multiaxial (although not in precisely the same way) and decisions have yet to be taken with respect to DSM-V.

Taylor and Rutter (2008) succinctly summarized both why a multiaxial system was proposed for child and adolescent psychiatric disorders and why the approach has remained popular. In the course of seminars including case history exercises to guide planning for ICD-9, there was a case of a child presenting with the clinical picture of autism (then termed ‘infantile psychosis’) associated with intellectual disability (then termed ‘mental retardation’) and epilepsy. A third of the participants diagnosed ‘infantile psychosis’, a third ‘mental retardation’, and a third ‘organic brain syndrome’. In the course of
discussion it was clear that all agreed that the three diagnoses applied, but they had chosen differently with respect to which was given priority (Rutter et al., 1969). In short, the disagreements were entirely artifactual because they resulted from a perceived need to choose between diagnoses that could not sensibly be considered as alternatives. The same issue arose in later a seminar focusing on mental retardation. Separate axes were proposed for psychiatric syndromes, somatic conditions, psychosocial stresses and adversities, specific developmental disabilities, and severity of functional impairment.

Multiaxial systems became the norm in childhood and adolescent psychiatry for six main reasons (Taylor & Rutter, 2008). First, they avoided false dichotomies resulting from having to choose between two diagnoses that do not in any meaningful sense constitute alternatives. Second, because the multiaxial system requires a coding on each and every axis (including '0' if there is no abnormality on that axis), there is no ambiguity on the meaning of no coding on any axis. Third, it avoids artifactual unreliability resulting from different theoretical assumptions. Thus, psychosocial adversity would be coded as present both by clinicians who saw it as a main cause and by those who regarded it as a minor contribution. Fourth, it provides a means not only to record the main clinical picture, but also makes it possible to include dimensional features (as with intellectual level and degree of functional impairment). Sixth, because of these features, it represented a style of thinking much closer to most clinicians' preferred style of working than a traditional categorical system that forces everything into a Procrustean bed of a diagnosis based only on symptom patterns. It is, therefore, to be hoped that DSM-V and ICD-11 will provide for a multiaxial approach.

Dimensions or categories

It has long been recognized that there are many advantages to combining dimensions and categories (Kendell, 1975). Dimensions assume continuity between normality and psychopathology whereas categories suppose discontinuity. It would seem to follow that empirical research should be able to determine which approach is correct or valid, but that is not so (Rutter, 2003). Thus, IQ works best as a dimension if the criterion is predicting later scholastic attainment or social functioning, but it works better as a category if the interest is biological causes. That is because serious intellectual disability associated with pathological causes (such as single gene conditions) is associated with reduced fecundity and a decreased life expectancy, whereas variations in IQ within the normal range are not. Empirical findings indicate that most risk factors for mental disorders operate dimensionally and most mental disorders are also dimensional in their operation. This is well demonstrated in the case of conduct disorder and of depression or anxiety disorders, but there is increasing evidence that it probably also applies in the case of schizophrenia and of autism spectrum disorders (and other conditions).

It needs to be appreciated that the combination of categorical and dimensional classifications has become the norm in most areas of medicine. Thus, oncologists regularly grade the degree of malignancy of tumors, cardiologists measure the degree of occlusion of coronary arteries and the degree of exercise tolerance, and pulmonary physicians quantify lung function as well as diagnosing emphysema or chronic bronchitis. In much the same way, psychiatrists need to measure both the level of communicative language functioning and the level of IQ as well as diagnosing an autism spectrum disorder. In principle, the use of dimensions could reduce the extent of misleading supposed comorbidity. Thus, instead of coding a major depressive disorder and a generalized anxiety disorder and an obsessive-compulsive disorder, there would be a profile of 'scores' on dimensions that represent these symptom features. This would serve to portray the true picture of a clinical presentation that involves multiple facets or straddles the boundary between two adjacent categories, without landing up with spurious comorbidity and without the necessity of forcing symptom patterns into a predetermined stereotype. A real danger of prototype approaches to diagnosis is that they fail to convey the mixed patterns of symptomatology that are so common.

An alternative solution involves the use of hierarchies (which currently have some limited place in both DSD-IV and ICD-10). Thus, based on rating scale data, Foulds (1976) argued that the symptoms of people with schizophrenia usually included depression and anxiety, whereas the symptoms of people with depression rarely included schizophrenic phenomena but commonly included anxiety. There is much to be said in favor of some hierarchies but the supporting empirical data are often rather thin on the ground.

It is suggested that dimensional approaches are already available in a few instances – such as in the measurement of intellectual level and of functional impairment – and they should constitute a useful part of ICD-11 and of DSM-V. In addition, the further exploration of dimensional measurement of symptoms is warranted as a research endeavor, but it would be premature to include this in the next classification revision. Clinicians are not used to dealing with profiles and both training and experience would be needed to make them work effectively (see Frances, 2009). Nevertheless, there are statistical advantages to the use of dimensions rather than categories when making clinical predictions (see Fergusson, Horwood, & Lynskey, 1993). Moreover, despite the arbitrariness (and sometimes silliness) of cut-offs used in setting the criteria for specific diag-
noses, categories have both a direct clinical reference and practical advantages (see Klein & Riso, 1996). To begin with, many clinical decisions have to be categorical (e.g., whether to admit someone to hospital or put them on some medication). It would make no sense, for example, to prescribe a lower dose of antidepressants if a depression score was only moderately raised. Also, a well-chosen categorical diagnosis provides a great deal of meaning conveniently and succinctly – making it more tractable than a large set of dimensional scores for use in communicating with either other professionals or families (Taylor & Rutter, 2008). It would not, therefore, be sensible to get rid of categorical diagnoses, although it would be useful to explore the greater use of dimensions for some purposes.

**Impairment**

In DSM-IV, impairment is a required criterion for diagnosis (whereas it is not in ICD-10). The apparent need for this requirement was most evident in the case of specific phobias which, in epidemiological surveys (e.g., Simonoff et al., 1997), have been very common if diagnosed in the absence of impairment but much less common if impairment is required. This is not, however, a general feature because this was not found in the case of depression (Pickles et al., 2001). The measurement of impairment as recommended in DSM-IV (i.e., to use the Global Assessment of Functioning (GAF) scale) is extremely problematic because the descriptions are a hopeless muddle of symptoms and functional impairment. This makes it impossible to examine the interconnections between the two. In order to deal with the ‘over-diagnosis’ of phobias problem, a simple remedy would be to treat avoidance as a symptom rather than an impairment.

Nevertheless, that would not necessarily get rid of the issue with respect to other diagnoses. It may be accepted that it is obviously clinically useful to measure impairment, but the question is whether it is better to do so as part of diagnosis or, rather, separately from it (as in ICD-10). It has already been noted that it would be absurd not to diagnose diabetes that is well controlled by treatment, just because there was not impairment at the moment. The same would apply to schizophrenia that is well controlled by appropriate medication. Also, more than half a century ago, Wootton (1959) pointed to the ridiculousness of rates of disorder going up or down as a result in changes in the employment rate because of people with a disorder finding it more difficult to obtain work. All the evidence seems to point to the desirability of coding impairment separately from diagnosis. One further issue needs to be noted. Angold et al. (1999) found that quite a few children showed psychosocial impairment associated with psychopathology but without the required number of symptoms to fulfill the criteria for any specific diagnosis. It will be important to be able to code this but the solution must lie in the criteria for diagnosis and not in requiring impairment (because that still would not meet the symptom criteria for diagnosis).

**Research and clinical classification**

One of the big differences between ICD and DSM classifications is that the former has separate classifications for research and for clinical usage whereas the DSM has just the one that is supposed to meet both needs. Some clinicians seem to prefer the DSM algorithm system because it is easier to use. The diagnosis automatically follows if there are, say, 4 symptoms in list A and 3 in list B. It seems that there is then no need to think. But is this desirable? I think not – for several different reasons. To begin with, a research classification may well reasonably adopt a restrictive approach in order to avoid false positives. It may be acceptable in this circumstance to have some individuals without a diagnosis. That would not be acceptable in clinical usage. So far as possible, all individuals with a clinically significant mental disorder should be able to receive a diagnosis. The second point is that it is not desirable to have a system that negates the need to think (see also the section below on structured interviews). Clinical assessment is not just about diagnosis (see Rutter & Taylor, 2008); it must also involve consideration re treatment and prognosis, leading to an individualized diagnostic formulation. The ICD system of having separate research and clinical classifications seems the best way forward.

**Structured interviews and observations**

There can be no doubt that the development of structured interviews – both respondent-based such as the DISC (Shaffer et al., 2000) and investigator-based such as the CAPA (Angold et al., 1995) – have been hugely important in research. Similarly, the use of the ADI-R (Rutter et al., 2003) and the ADOS (Lord et al., 2001) has made comparability across studies of autism spectrum disorders much greater. Given that symptom algorithms are really comparable only when the same diagnostic instruments are used, it is tempting to argue that the classification should specify which instruments should be employed. Nevertheless, in my opinion, that would be a mistake. Thus, although there might be a majority agreement on which instruments are best now, there is no guarantee that these will still be the best in, say, 10 years’ time. In addition, it seems to be potentially damaging for the developers of particular instruments to have an interest in classification recommendations on which diagnostic instruments should be employed.

Nevertheless, there are both important gains and some losses in using structured interviews and
observations in clinical practice as well as in research. The chief gain is the guidance provided on the essential information to obtain and on the best way to gain that information. Research (both naturalistic and experimental) into different types of clinical interviews has been consistent in showing that focused systematic questioning is much the best way of eliciting factual information (Cox, Rutter, & Holbrook, 1981a; Cox, Hopkinson, & Rutter, 1981b). However, the same research shows that there is a very high frequency of clinically significant findings which would be most unlikely to have been picked up by confining questioning to predetermined topics. This constitutes a major loss if clinical assessment only involves a structured diagnostic interview. Much more is needed in any acceptable initial assessment (see references above).

**Culture-specificity of mental disorders**

Over the years, it has become apparent that mental disorders may manifest themselves in different ways in different cultures. Thus, Kleinman (1977, 1987) noted that in some societies emotional disturbances are most often reported in terms of somatic symptoms rather than altered mood. Of course, this occurs also in Western societies, albeit less frequently. Much research since the 1970s has documented important, and sometime substantial, differences among societies and cultures in rates of particular types of mental disorder in both children and adults, or in the details of their manifestation (see Rutter & Tienda, 2005; Nikapota & Rutter, 2008). It is necessary that both DSM-V and ICD-11 use descriptions and coding that take account of that variation. What has been more controversial is the notion of culture-bound syndromes. DSM-IV has a useful glossary of such syndromes together with guidance on how they might be coded. There has been a prevailing assumption that they are a feature of so-called ‘exotic’ non-industrialized societies, but dissociative identity disorders (formerly multiple personality disorder) constitutes a diagnosis largely confined to North America. It seems rather unlikely that mental disorders are fundamentally different in different cultures, and hence it is dubious whether there should be separate codings for culture-based syndromes in either DSM-V or ICD-11. On the other hand, it will be essential that both classifications accommodate the wide variations in the details of the manifestation of mental disorder, and accept that there may be some true variations across cultures in the rates of particular disorders.

**Change and continuity in classification systems**

In the past, there has been a reluctance to make major changes in classification systems because clinicians and researchers will need to learn many new rules and because of difficulties in making comparisons across time periods involving different versions of the classifications. As noted, the numerous problems with DSM-IV and ICD-10 make major changes essential; also it is highly desirable that the alterations to both schemes succeed in synchronizing the two. Nevertheless, it will be important when making changes that these be implemented in ways that ensure maximum continuities in key features between the last versions and the next ones. Thus, eliminating the subcategories of autism spectrum disorders (ASD) would still allow comparisons at the broad level; as would elimination of some of the subcategories of anxiety disorders.. What would not be possible is the contrast between autism and Asperger syndrome, but it is already clear that that does not work anyway within DSM-IV or ICD-10.

Nevertheless, if the Asperger diagnosis is to be dropped, it would be crucial to change the title from autism spectrum disorders (ASD) to autism spectrum patterns (ASP). Some individuals with Asperger syndrome do not view themselves as having a ‘disorder’ and, if they are coping well, intervention would not be justified. The specification of the overall criteria for ASP will need careful attention to ensure that individuals who need services are not inadvertently excluded. Equally, care needs to be taken not to imply service needs that may not be present.

In summary, minor tinkering is likely to cause more trouble than well-planned major changes. Somewhat similar issues arise with respect to the concept of ‘double depression’ if a dysthyemic disorder is followed by an episode of major depressive disorder. This is not allowed if the major depressive disorder occurs during the dysthyemic disorder, and it is not clear what should be done if the major depressive episodes precede the dysthyemia. The implication, however, is that a prior history of major depression should be coded. The problem is that there is no convincing evidence that major depression and dysthyemia constitute separate disorders; rather, the likelihood is that they constitute variations of the same condition. So far as children are concerned, there is the additional complication that the dysthyemia need last only 1 year (instead of the 2 years required for adults) and that the mood can be irritable rather than depressed. If the DSM-V proposal that there be a ‘temper regulation disorders with dysphoria’ is accepted, it would seem sensible to no longer allow irritability without depression as a criterion for dysthyemia.

Throughout DSM-IV there are umpteen rules on the duration required for diagnoses and, insofar as it can be judged, few of these rules have any empirical justification. Given that both DSM and ICD expect diagnoses to have clinical implications, a duration of just 2 weeks (as specified for major depression) seems ridiculous. To begin with, it must be very uncommon for referrals to be made after such a short duration, and waiting lists are likely to mean that, even if referred, they are unlikely to be seen so
early. In addition, few clinicians would want to embark on a course of treatment for a depressive disorder that had lasted, say, just 2 or 3 weeks. The implication is that a standard time frame be applied to all disorders unless there is a strong reason for an exception to be made. Thus, why require only 2 weeks for major depression but 6 months for generalized anxiety disorder in young people, but no duration requirement for anxiety in adults? Whether the standard duration should be 1 month or 3 months is uncertain but the current ragbag of durations seems unacceptable. The two most obvious needs for exception are ‘delirium’ and ‘hypomania’, both of which are typically quite short lived. Nevertheless, it is not clear why no duration is specified for ‘delirium’ or why it is 4 days for ‘hypomania’ but 1 week for an episode with both depression and hypomania.

Conclusions
More well thought through work is going into revisions necessary for DSM-V and ICD-11 than was the case with any of the previous changes (i.e., between DSM-III and DSM-IV and between ICD-9 and ICD-10, etc.). In particular, there has been much more effort to sort out where neuroscience stands in relation to classification and, in the case if ICD-11, their implications are reviewed and various changes in diagnosis and classification that seem desirable are put forward as the basis for further discussion. The most important of these are 1) the removal of a separate grouping of disorders with an onset specific to childhood, the various specific disorders being placed in appropriate places in the overall classification structure, and the ways in which manifestations vary with age being specified for all disorders; 2) the addition of a grouping for disorders that are known to occur, but for which further testing is needed to assess their validity; 3) a major reduction in the number of diagnoses, many of which are rarely used and with the major problem for some disorders of ridiculously high levels of co-occurrence; 4) the use of a combination of categorical and dimensional approaches; 5) the exclusion of a criterion of impairment; 6) the separation of research and clinical classifications; and 7) the need to develop a primary care classification for causes of referral to both medical and non-medical primary care.

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