Attention deficit/hyperactivity disorder and ethnicity

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Despite the large volume of research dedicated to attention deficit/hyperactivity disorder (ADHD), the influence of ethnicity on the condition is still to be adequately addressed. Previous studies have shown differing rates of ADHD between different countries (although this can be affected by the assessment tool used). Cultural environment may affect a child's behaviour, but the differing attitudes of parents, clinicians, and society around the world towards acceptable behaviour may also influence diagnosis. If assessment criteria could be consistently applied across different ethnic groups, the prevalence of ADHD would probably be similar.

They found that the application of DSM-IV criteria increased total ADHD prevalence rates by 64%. A study of professionals from Italy and the US did not differ significantly in diagnosing case descriptions, but did so in the reported use of assessment to diagnose ADHD in routine clinical practice. Americans were found to use more assessment procedures than Italians.⁸

Wolraich *et al* evaluated a measurement model of ADHD in a study where elementary school teachers rated 21 161 children in four locations: Spain, Germany, urban USA, and suburban USA and found that the two factor model (inattention, hyperactivity/impulsivity) was the best fit for all four samples in the two continents.⁹

INFLUENCE OF ETHNICITY

Culture influences the very same areas that are central to mental health, such as behavioural expectations and tolerance, language, emotion, attention, attachment, traumatic experiences, conduct, personality, motivation, setting limits and other aspects of parenting and child rearing, and so on.¹⁰ Undoubtedly, cultural context plays an important role not only in structuring the environment in which an ADHD individual functions, but also in the way such an individual is understood and treated.³

In order to understand the phenomenon of ADHD, it is important to explore the complex interaction between organic, environmental and cultural factors. Psychodynamic and attachment factors in the genesis of ADHD have not so far received the attention that they merit.¹¹ Traumatized children exhibit patterns of symptom clusters that resemble ADHD, conduct disorders, and anxiety disorders.¹² Sustained traumatic experiences, such as child abuse and neglect, or failure to form a secure attachment in the early years of life, can create a chronic state of hyper arousal in a child that alters the neuroendocrine activities of the brain with cognitive, emotional, and behavioural changes.^{13 14}

Block argued that children prone to hyperactivity may be "suffering from a culturally-induced stimulus overload".¹⁵ A disproportionate number of ethnic minority families live in highly stressful environments, thus making their children more vulnerable to hyperactivity.¹⁶

According to Margalit, the syndrome is stable across different cultures and similar proportions of children are defined as deviant.² However, the extent of agreement among different countries regarding labelling, such as what is an impulsive behaviour or a concentration problem, needs to be studied further. Mann *et al* examined the degree to which mental health professionals in four countries (China, Indonesia, Japan, and the

Attention deficit/hyperactivity disorder (ADHD) is among the most frequent, intensely researched, and yet diagnostically controversial conditions of childhood.¹ There is extensive literature on ADHD, but relatively little emphasis has been placed on cultural differences,² and diversity variables, such as ethnicity, have been rather neglected in ADHD research.³

INFLUENCE OF RATING SCALES ON PREVALENCE

Large variations exist in the reported rates of ADHD for different countries (tables 1 and 2), which likely reflect the difference in diagnostic schemes used. However, a review of 50 studies from around the world suggests that ADHD is at least as high in many non-US children as in US children.⁴

There seem to be differing views about the distinction between hyperactivity and conduct disorders, as well as about the necessary severity for defining a case. The classification of disruptive behaviour disorders of childhood therefore continues to be controversial.⁵ Taylor and Sandberg highlighted a 20-fold variation in the diagnostic rate between USA and UK.⁶ This may reflect differences in the definition of the condition, rather than the behaviour of the children.⁷ Prendergast *et al* studied the differences in US and UK clinicians' rating of the case histories of actual child psychiatric patients and found that the diagnostic scheme and clinician training both contributed to the difference in the reported cases.⁵ They concluded that cross cultural studies will have to be based upon better means of identifying cases than is yielded by clinical diagnosis.

Baumgaertel *et al* compared teacher reported prevalence rates for disruptive behaviour disorders in a German elementary school sample using DSM-III, DSM-III-R, and DSM-IV criteria.¹

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Abbreviations: CTRS, Conners' Teacher Rating Scale.

Table 1 Community (usually school) samples

Country	Rate (%)	Note	Reference
Japan	7.7	School; DSM-III-R	Kanbayashi <i>et al</i> ²⁰
China	1.9–13	Range of studies	Li <i>et al</i> ²¹
	3.0	Primary school children; DSM-III	Tao ²²
Israel	5.0	CTRS	Margalit ²
Italy	3.9 ("likely cases")	Fourth graders; DSM-III R	Gallucci <i>et al</i> ²³
	6.9 ("possible cases")	CTRS	O'Leary <i>et al</i> ²⁴
	12.0		
Spain	16.0	CTRS	Gingerich <i>et al</i> ³
Germany	8.0	CTRS	Gingerich <i>et al</i> ³
Iceland	5.7	School; DSM-IV	Magnusson <i>et al</i> ²⁵
Scotland	4.5	CTRS	Gleeson & Parker ²⁶
UK	16.6	DSM-III	Taylor <i>et al</i> ²⁷
The Netherlands	9.5	DSM-III	Verhulst <i>et al</i> ²⁸
Canada	5.8 (boys 9%, girls 3.3%)	Ontario, multiple checklists	Szatmari <i>et al</i> ²⁹
USA	9.1–12.0	DSM-III (4 studies)	Studies reviewed by Faraone <i>et al</i> ⁴
	7.1–12.8	DSM-III R (6 studies)	
	11.4–16.1	DSM-IV (4 studies)	
Columbia	16.0	Children in the general population; DSM-IV	Pineda <i>et al</i> ³⁰
Brazil	5.8	School; DSM-IV	Rohde <i>et al</i> ³¹
Australia	12.0	Queensland; CTRS	Halborow <i>et al</i> ³²
New Zealand	15.0	CTRS	Werry & Hawthorne ³³

CTRS, Conners' Teacher Rating Scale.

US) differed in their ratings, and found that perceptions of hyperactivity vary significantly across countries even if uniform rating criteria are applied.¹⁷ Chinese and Indonesian clinicians gave significantly higher scores for hyperactive disruptive behaviours than others. Clearly, parental perceptions of normal and deviant behaviour in children are influenced by their culture. Hackett and Hackett found that Gujarati-speaking parents had more stringent expectations of child behaviour and tolerated fewer behavioural difficulties.¹⁸ Indeed, children were found to display fewer behavioural problems in line with parental expectations. Thus, the differences in the rate of ADHD across cultures or across time could also be a reflection of the differences in social tolerance of behaviours that do not conform.¹⁹ However, it is not possible to standardise the cultural environment and the attitudes of parents, clinicians, and society towards acceptable behaviour.

According to Tamimi,¹⁹ a variety of social mediators appear to have produced the ideal cultural precondition for the birth and propagation of the ADHD construct in modern Western culture, as there are no specific cognitive, metabolic, or

neurological markers and no medical tests for ADHD that are commonly used in current clinical practice. In the research setting, however, emerging functional neuroimaging and neuropathological data describe measurable differences. In essence, it appears that if consistent assessment criteria for ADHD are applied to differing ethnic groups of children, the prevalence of the condition would be similar between such groups.

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Table 2 Clinic or other samples

Country	Rate (%)	Note	Reference
India	7.5	Child Guidance Clinic; DSM-IV	Mukhopadhyay <i>et al</i> ³⁴
	11.2	Hospital OPD; DSM-III	Bhatia <i>et al</i> ³⁵
Israel	3.9	DSM-III R in army inductees (16–17 years)	Zohar <i>et al</i> ³⁶
Kenya	2.5	Nairobi Juvenile Court; ICD-10	Maru <i>et al</i> ³⁷
Nigeria	1.1	Ibadan, paediatric primary care clinic; DSM-III R	Gureje <i>et al</i> ³⁸
	5.0	Ibadan, child psychiatric clinic; DSM-IV	Omigbodun ³⁹

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