Externalizing disorders among children of different ethnic origin in the Netherlands

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Gedragsproblemen bij kinderen van verschillende etnische achtergrond in Nederland

(met een samenvatting in het Nederlands)

Proefschrift

Ter verkrijging van de graad van doctor aan de Universiteit Utrecht op gezag van de Rector Magnificus, Prof. Dr. W.H. Gispen, ingevolge het besluit van het College voor Promoties in het openbaar te verdedigen op vrijdag 19 mei des middags te 12.45 uur exact.

door
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Promotoren

Prof. Dr. T.W.J. Schulpen

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CHAPTER 1

General Introduction

The concept of ADHD

"Something strange has been happening to children in Western society in the past couple of decades. The diagnosis of Attention Deficit Hyperactivity Disorder (ADHD) has reached epidemic proportions, particularly amongst boys in North America. […] *Despite the assertion from ADHD industry insiders that ADHD is a medical disorder,* […] *no medical test for it exists, nor has any proof been forthcoming of what the supposed physical deficit is, and so diagnosis is based on the subjective opinion of the diagnoser.* […] *In the absence of objective methods for verifying the physical basis of ADHD, we also conceptualise ADHD as primarily a culturally constructed entity"* (Timimi & Radcliffe 2005).

In their paper entitled *"The Rise and Rise of ADHD,"* the child and adolescent psychiatrist Dr. Timimi and the clinical child psychologist Radcliffe suggest that ADHD is primarily a 'cultural construct' rather than a medical disorder. They consider the rise of its diagnosis not as a reflection of an increase in its incidence, but as a decrease in society's tolerance towards such nonconforming behaviour. From their perspective, ADHD is a *'convenient diagnostic "dumping ground" allowing all of us (parents, teachers, doctors, politicians) to avoid the messy business of understanding human relationships and institutions and their difficulties, and our commong responsibility for nurturing and raising well-behaved children'* (Timimi & Radcliffe 2005).

Despite the suggestions of clinicians like Timimi and Radcliffe to consider ADHD as a cultural construct, evidence on the internal and external validity of ADHD suggest ADHD to be a psychiatric disorder, rather than a cultural construct (Buitelaar & Rothenberger 2004). Moreover, the dominant approach towards ADHD has been a medical one from the early beginnings of the 20th century, when ADHD-like behaviour was first mentioned by the paediatrician Dr. Still (Still 1902). Since then, different nomenclatures used to describe the ADHD symptomatology, such as 'Minimal Brain Disorder' 'Minimal Brain Dysfunction' 'Post-encephalitic Behaviour Disorder' (Helmerichs 2002), were consistent in suggesting an underlying neurological cause.

The most recent classification system, the DSM-IV, defines ADHD as a persistent and severe pattern of inattention and/or hyperactivity-impulsivity which interferes with the child's functioning at home, in school and in relationships with peers (American Psychiatric Association 1994). Based on these DSM-IV criteria (Table I), children receive a diagnosis of the *inattentive subtype*, the *hyperactive/impulsive subtype* or the *combined*

Table I. DSM-IV Criteria for ADHD

A. Either (1) or (2)

(1)   Six (or more) of the following symptoms of inattention have persisted for at least six months to a degree that is maladaptive and inconsistent with developmental level:

Inattention:
(a)   Often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities
(b)   Often has difficulty sustaining attention in tasks or play activities
(c)   Often does not seem to listen when spoken to directly
(d)   Often does not follow through on instructions and fails to finish school work, chores, or duties in the workplace (not due to oppositional behaviour or failure to understand instructions)
(e)   Often has difficulty organizing tasks and activities
(f)   Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)
(g)   Often loses things necessary for tasks or activities (e.g., toys, school assignments, pencils, books, or tools)
(h)   Is often easily distracted by extraneous stimuli
(i)   Is often forgetful in daily activities

(2)   Six (or more) of the following symptoms of hyperactivity-impulsivity have persisted for at least six months to a degree that is maladaptive and inconsistent with developmental level:

Hyperactivity:
(a)   Often fidgets with hands or feet or squirms in seat
(b)   Often leaves seat in classroom or in other situations in which remaining seated is expected
(c)   Often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)
(d)   Often has difficulty playing or engaging in leisure activities quietly
(e)   Os often "on the go" or often acts as if "driven by a motor"
(f)   Often talks excessively

Impulsivity:
(a)   Often blurts out answers before questions have been completed
(b)   Often has difficulty awaiting turn
(c)   Often interrupts or intrudes on others (e.g., butts into conversations or games)

subtype, when six out of nine criteria for inattention, hyperactivity/impulsivity, or both are met, respectively. In contrast with previous DSM-classifications, the DSM-IV also includes an impairment criterion, i.e. some impairment of the symptoms should be present in two or more settings (e.g. at school and at home).

Comorbidity

The level of comorbity with other DSM-IV defined psychiatric disorders, in particular with other externalizing disorders[1], such as Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD), is high in children with ADHD (Angold et al. 1999, Gillberg et al. 2004). It is estimated that 3-5 % of the school-age children is affected by ADHD (Buitelaar 2002) of whom approximately 50-60% will also have another externalizing disorder (i.e. ODD or CD) diagnosed (Angold et al. 1999, Gillberg et al. 2004). DSM-IV defines ODD as a recurrent pattern of negativistic, defiant, disobedient and hostile behaviour toward authority figures. ODD is distinguished from CD by the more serious violations of the basic rights of others observed in CD (American Psychiatric Association 1994). Externalizing disorders, i.e. ADHD, ODD and CD, are associated with a variety of adverse outcomes in adolescence and adulthood, such as impairments in academic and psychosocial functioning (Biederman et al. 1996), delinquency (Satterfield & Schell 1997), substance use disorder and antisocial personality disorder (Mannuzza et al. 1989).

Aetiology

Twin and adoption studies demonstrate strong genetic effects for ADHD, and modest genetic effects for conduct problems. In a review on twin, adoption and molecular genetic studies, the heritability of ADHD was estimated at 75% (Biederman & Faraone 2005), meaning that the variation regarding ADHD symptoms between children is for 75% due to genetic factors. In a meta-analysis on the genetic and environmental influences on antisocial behaviour, a heritability of 41% was reported (Rhee & Waldman 2002).

In addition to genetic factors, a variety of environmental factors have been related to externalizing disorders. Prenatal exposure to nicotine (Milberger et al. 1998, Orlebeke et al. 1999) and alcohol (Mick et al. 2002) (Sood et al. 2001) are associated with externalizing problems in general, whereas low birth weight seems to increase the risk of ADHD in particular (Mick et al. 2002). Psychosocial adversity, such as poverty, paternal antisocial behaviour, maternal psychopathology, family conflict and coercive parenting have also found to be correlated with externalizing problems in children (Cunningham & Boyle 2002, Biederman et al. 2002, Costello et al. 2003). Finally, brain damage may put children at an increased risk of developing ADHD (Herskovits et al. 1999).

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[1] In this thesis the terms 'externalizing disorders' and 'disruptive behavioural disorders' will both be used to refer to ADHD, ODD and CD.

A Western condition?

However, as most research on externalizing disorders has been conducted in Western (native) children, much less is known about these disorders in non-Western (immigrant) children. Yet, there are important reasons for paying more attention to externalizing disorders in these groups as the *construct* of externalizing problems, but also the *treatment rates, prevalence*, *parental detection and screening validity* may vary for non-Western children, as compared to Western children.

For instance, the *construct* of externalizing problems as measured by the Conners Teacher Rating Scale has been found to differ between African-American and Caucasian children, as in addition to the "Conduct Problems Scale", an "Antisocial Behaviour" Scale was identified in African boys (Epstein et al. 1998). Likewise, the original factor structure of the SDQ was not confirmed in an Arab sample (Thabet et al. 2000). However, Reid (2001) reported the Inattention/Overactivity with Aggression (IOWA) Conners Scale to be similar for African American and Caucasian American children (Reid et al. 2001).

In addition to observed differences in the underlying construct of externalizing problems, *treatment rates* have been found to vary according to ethnicity. For instance, Rowland et al (2002) reported the prevalence of ADHD medication treatment to be much lower among African children and Hispanic children than among White children (Rowland et al. 2002). Similarly, black, Hispanic, Asian and Native-American students were found to be receiving less ADHD medication than white students (Safer & Malever 2000). These findings of lower treatment rates for non-Westerns as compared to Westerns have been corroborated by other studies (Angold et al. 2002, Kataoka et al. 2002, Olfson et al. 2003).

Furthermore, ethnic differences have been observed in the *prevalence* of behavioural disorders. For instance, studies based on rating scales have shown differences in the prevalence of behavioural problems across different countries (Crijnen et al. 1997, Verhulst et al. 2003), but also within countries across different ethnic groups (Reid et al. 1998, Kvernmo & Heyerdahl 1998, Stevens et al. 2003, Murad et al. 2003). Similarly, studies based on clinical interviews showed differences in the prevalence of externalizing disorders across countries (Bird 1996, Faraone et al. 2003). In contrast, the few studies that used clinical interviews comparing different ethnic groups from one population, indicated no difference in prevalence rates across ethnicity (Costello et al. 1997, Angold et al. 2002).

There is also some evidence to suggest that the *detection* of these disorders also varies across ethnicity. For instance, Mann (1992) found that Chinese and Indonesian clinicians gave

significantly higher scores for the externalizing problems observed in a standardized videotape vignette than their Japanese and American counterparts (Mann et al. 1992). Likewise, Weisz (1995) observed that Thai teachers reported much more problem behaviour for Thai children than American teachers did for American children, whereas observers scored American children significantly higher on problem behaviour than Thai children (Weisz et al. 1995).

Finally, the few studies that assessed the *screening* validity of the SDQ in non-Western samples suggested that this Western questionnaire was suitable for predicting problem behaviour in non-Western samples. Indeed, the prediction validity was supported for a clinical (Goodman et al. 2000) and a community (Mullick & Goodman 2001) sample of Bangladeshi children.

Non-Western groups in the Netherlands

With the exception of prevalence studies based on rating scales comparing Turkish with Dutch youth (Crijnen et al. 2000, Bengi-Arslan et al. 1997, Murad et al. 2003); Moroccan with Dutch youth (Stevens et al. 2003); and indigenous Sami with majority Norwegian youth (Kvernmo & Heyerdahl 1998), research on externalizing disorders among non-Western children, has mostly been carried out among Asian, African or Hispanic groups in the US. As a result, it is largely unknown whether expression, treatment rates, prevalence and tolerance of externalizing disorders differs between Western and non-Western children in Continental Europe. The present thesis aims to address this lack of knowledge by examining externalizing disorder in native Dutch, and Moroccan, Turkish and Surinamese immigrant children residing in the Netherlands.

Moroccan, Turks and Surinamese belong to the largest immigrant groups in the Netherlands. With a number of 1 million, they constitute about 60% of the approximately 1.7 million immigrants of non-western descent in the Netherlands (Statistics Netherlands, 2005). Since the 1960s and early 1970s Turks and Moroccans have migrated from Mediterranean countries to the Netherlands as labour migrants. Although labour migration decreased in the 1980s, Moroccans and Turks kept arriving in the Netherlands due to family reunification and marriage migration (Hiemstra 2003). Surinamese have come to the Netherlands since 1975, during the process of decolonisation. Immigrants are unequally distributed across the Netherlands, as most immigrants live close together in certain districts in the four largest cities (Statistics Netherlands, 2005).

Absolutism, Universalism and Cultural Relativism

In the literature about ethnic differences in psychopathology, three perspectives can be identified, i.e. *absolutism, universalism* versus *cultural relativism* (Ingleby 1998). Absolutism assumes psychiatric disorders to be invariant across cultures. The underlying factors are thought to be biological and the role of culture is of no importance. In contrast, cultural relativism emphasizes the ethnic variation and uniqueness of psychiatric disorders, assuming psychiatric disorders to be culturally determined. From this perspective, psychiatric disorders may be *'culture bound'* and therefore, not comparable across ethnicity. Universalism supposes psychiatric disorders to be similar across cultures and only to differ in degree and number. In this view the essence of psychiatric disorders is the same, whereas the expression may vary (Berry et al. 2002).

For instance, the eating disorder bulimia nervosa has only been identified in Western countries and may therefore be considered as a culture bound syndrome (Keel & Klump 2003). Likewise, the apparently new psychiatric phenomenon of 'Hikikomori', which is defined by a completely withdrawal from society for more than six months, has only been recognized in Japan (Watts 2002). However, whether externalizing disorders, such as ADHD, may be culturally defined disorders remains a matter of debate (Anderson 1996, Ali 1996, McArdle 2004, Kuruppuarachchi & Wijeratne 2004, Timimi & Taylor 2004, Rohde et al. 2005).

The perspectives universalism and cultural relativism may be related to different methodologies when studying psychopathology in different cultures (Berry et al. 2002). Generally, absolutists adopt an *etic* orientation as they study behaviour in different ethnic groups from a position outside the culture under study, using concepts and instruments that are thought to be universal. In this approach, criteria are regarded absolute or universal. In contrast to this obser-oriented approach, cultural relativists apply an actor-oriented approach, the so-called *emic* orientation, as they examine behaviour from within one particular ethnic group, using the vocabulary of the ethnic group under study. From this view, criteria are culturally determined (Berry et al. 2002). Whereas emic is essential for identifying disorders and symptoms that are relevant for a particular ethnic group, etic enables comparisons of psychiatric disorders across different ethnic groups. As the aim of the current study was to compare different ethnic groups regarding treatment rates, detection and prevalence estimates, an etic approach was applied. To avoid the risk of applying concepts which are not

meaningful in the non-Western group, we have tried to meet conditions of equivalence when possible.

Rationale for the present study

Several factors may cause variations in the *expression*, *prevalence, tolerance,* and *treatment rates* of externalizing disorders between Dutch and non-Dutch children. For instance, ethnic differences in the cultural values, such as the collectivistic-individualistic dimension, may influence the prevalence of externalizing disorders. Generally, Western cultures, such as the Dutch, are regarded as individualistic, emphasizing the importance of the individual, whereas non-Western cultures, (e.g. Moroccan, Turkish and Surinamese), are classified as collectivistic, stressing the importance of the group (Middleton & Jones 2000). People in collectivistic cultures maintain strong relationships within their cohesive in-groups, whereas ties in individual cultures may be loose (Berry et al. 2002). As parents from collectivist cultures are likely to put emphasis on conformity, respect and solidarity in their child-rearing strategies (Eldering 2002), it may be argued that the *prevalence* of externalizing problems in general, and the *expression* of oppositional symptoms in particular, will be lower among non-Dutch children, when compared to Dutch parents. Likewise, such behaviour may be less *tolerated,* whereas *treatment rates* may be lower as non-Dutch parents may be less willing to discuss their family problems with out-groups.

Furthermore, ethnic differences in genetic vulnerability or risk factors may cause variations in the *prevalence* of externalizing disorders across ethnicity. For instance, the perinatal mortality rate has found to be higher for Surinamese, Turkish and Moroccan children, which was (among other things) caused by a higher rate of immature and premature delivery, and late recognition of infectious diseases such as meningitis (Schulpen et al. 2001). Possibly, the overall rate of immature and premature delivery and (unrecognized) meningitis is higher among non-Dutch groups, which may result in lower birth weights and more brain damage, and thus increasing the risk for externalizing problems. Moreover, higher levels of psychosocial adversity in non-Dutch groups, such as a lower SES (Reijneveld 1998), larger family size, coercive parenting (Pels & Nijsten 2003), acculturation problems and experienced discrimination, may put non-Dutch children at an increased risk for developing externalizing problems. In contrast, the lower prevalence of smoking and alcohol consumption among Moroccan, Turkish and Surinamese women (Reijneveld 1998), may decrease the risk of externalizing disorders as the likelihood of prenatal exposure to alcohol

and nicotine is reduced. However, as these risk factors were identified in Western samples, it is unknown whether these factors are also associated with increased risks in non-Western groups, as this relationship may be weaker or non-existent in Western samples (see for example (Deater-Deckard & Dodge 1997)).

Finally *treatment rates* may vary between Dutch and non-Dutch children, because of differences in 'explanatory models' (Kleinman 1980). Indeed, it has been found that Moroccan and Turkish parents are more likely to attribute problem behaviour to external causes, such as socio-economic problems, discrimination and bullying (Hosper et al. 2001), which may decrease the likelihood of mental help seeking. Moreover, the expectations of non-Dutch parents and Dutch mental health professionals do not match, as non-Dutch parents are less experienced with the phenomenon of 'psychologization'(Ingleby 1998, Hosper et al. 2001). Another factor which may reduce the chance of mental help seeking among non-Dutch parents is that they are less familiar with such institutions (Hosper et al. 2001).

Aims

The overall aim of the present thesis was to extend the knowledge on externalizing disorders in non-Western immigrant children in Europe. More specifically, the current study aims at:

1) Assessing the cross-cultural construct validity of externalizing disorders in native Dutch, and Moroccan, Turkish and Surinamese immigrant children in the Netherlands;

2) Examining the treatment rates of externalizing disorders in Dutch and non-Dutch children;

3) Estimating the prevalence rates of externalizing disorders among the different ethnic groups;

4) Determining whether non-Dutch parents are less likely to report externalizing disorders than Dutch parents;

5) Developing a brief screenings instrument that predicts externalizing disorders irrespective of ethnicity.

Study Design

The *'detection of ADHD among children of Different Ethnic Origins in the Netherlands'*-study (ADEON), took place in Amsterdam and Utrecht from November 2002 to July 2004. We sampled schools solely from low socio-economic status (SES) inner-city areas (Knol 1998) with a large immigrant population, to obtain a sample with all four ethnicities represented with similar SES. In order to screen a large sample, while limiting the number of lengthy psychiatric interviews, we used a two-stage design. In the first phase, 2802 parents of children from grade 3-5 of all participating schools were asked permission for their child's teacher to be administered the Strengths and Difficulties Questionnaire (SDQ) (Goodman 1994, Goodman 1997).

The SDQ includes 25 items describing positive and negative attributes of children, divided into 5 scales of 5 items each: Emotional symptoms, Conduct problems, Hyperactivity-Inattention, Peer problems and Social behavior. In addition, the SDQ incorporates an impact supplement which inquires whether the child has a problem according to the teacher, and if so, asks further about overall distress, social impairment, educational impairment, the burden on the teacher and chronicity.

We excluded 336 children because they were from another ethnic origin than Dutch, Moroccan, Turkish or Surinamese. As 281 (11%) parents did not give permission, teachers completed for 2185 (89%) out of 2466 children with no significant variation in this proportion across ethnicity. Of these 2185 children, 684 (31%) were of Dutch, 702 (32%) of Moroccan, 434 (20%) of Turkish and 365 (17%) of Surinamese origin.

For the second phase of our study, we sampled all children scoring above the 90th percentile of the externalizing scales of the SDQ, i.e. the 'screen-positives' (N=153) and a random sample of children scoring below this cut-off, i.e. the 'screen-negatives' (N=223), yielding 376 eligible children. Out of this group 270 parents and children (72%) participated. Parents were administered the Diagnostic Interview Schedule for Children-Parent Version (DISC-P) (Shaffer et al. 2000). The DISC is a highly structured diagnostic interview that can be used by lay-persons to generate valid DSM-IV diagnoses on six domains (Anxiety, Mood, Disruptive, Substance Use, Schizophrenia and Miscellaneous Disorders), which can be administered independently (Shaffer et al. 2000). Because of our special interest in externalizing disorders and expected diagnostic prevalence in children, we included the following modules only: ADHD, ODD, CD, Separation Anxiety Disorder (SAD), Generalized Anxiety, Posttraumatic stress disorder (PTSS), Major Depressive disorder (MDD) and Bipolar

Disorder (BD). The internalizing disorders, SAD, PTSS, MDD and BD, were only examined because of differential diagnosis. Additionally, parents were asked about background information such as developmental history, family composition, country of birth, psychiatric disorders in the family and parental education.

The child was interviewed using the Semi-structured Clinical Interview for Children and Adolescents (SCICA) (McConaughy & Achenbach 2001), which is a flexible semi-structured interview intended to assess children aged 6-18. The SCICA contains nine broad areas of functioning 1. Activities, school, job; 2. Friends; 3. Family Relations; 4. Fantasies; 5. Self perception, Feelings; 6. Parent/Teacher-Reported Problems; 7. Achievement Tests (optional); 8. For ages 6-11: Screen for Fine and Gross Motor Abnormalities (optional) and 9. For ages 12-18: Somatic complaints, Alcohol, Drugs, Trouble wit the Law (McConaughy & Achenbach 2001).

As the SCICA asks about the child's perception of problems reported by parents or teachers, we administered a short questionnaire to teachers which was completed prior to the SCICA interview. This questionnaire consisted of 10 DSM-IV items (American Psychiatric Association 1994): 2 ADHD items on inattention ('Often loses things needed for tasks and activities (e.g. toys, school assignments, pencils, books or tools)'; 'Is often forgetful in daily activities'), 2 ADHD items about hyperactivity ('Often runs about or climbs when and where it is not appropriate'; 'Often has trouble playing or enjoying leisure activities quietly'), 1 ADHD on impulsivity ('Often interrupts or intrudes on others (e.g. butts into conversations or games')), 2 items on oppositional behaviour ('Often blames others for his mistakes or misbehaviour'; 'Often deliberately annoys people'), 1 item about conduct behaviour ('Has deliberately destroyed others' property') and 2 items about depressive symptoms ('Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day'; 'Low energy or fatigue').

Parents and children were interviewed simultaneously in two separate rooms at school. When parents were not willing to attend the interview at school, the interview took place at home. An experienced child psychiatrist conducted the child interview, whereas a trained psychologist or a trained bicultural/bilingual medical student administered the parent interviews. When necessary, parents were interviewed in Moroccan Arabic, Berber or Turkish. All child interviews were videotaped. We used the best-estimate procedure for diagnosis (Kosten & Rounsaville 1992), which means that information from different sources is examined by experts to yield a 'best-estimate' diagnosis. In the present study it meant that

the DISC-interviews were considered in conjunction with the SCICA-interviews and the 10 DSM-IV items as completed by the teachers. Best-estimate diagnoses were determined by a committee, chaired by a board-certified psychiatrist (JB), and consisting of two board-certified child psychiatrists that conducted the SCICA-interviews, as well as a psychologist/cultural anthropologist (BZ) who conducted DISC-interviews. The children for whom no agreement was achieved in this clinical conference (N=15) were discussed in a larger panel, that consisted of the aforementioned professionals and two other psychiatrists (one Dutch and one non-Dutch) experienced in working with children of different ethnic origin.

Outline of the thesis

First we assessed the construct validity of the SDQ Hyperactivity-Inattention Scale and the Conduct Problems Scale across the four ethnic groups by means of Structural Equation Modelling (SEM) techniques (Chapter 2). In Chapter 3, we examined whether the treatment rates for externalizing disorders were lower for Moroccan, Turkish and Surinamese immigrant children, than for native Dutch children, while accounting for the level of problem behaviour and the level of impairment according to teacher ratings. Chapter 4 presents the prevalence estimates of psychiatric disorders among the different ethnic groups according to the best-estimate diagnosis. In Chapter 5 the DISC-P-diagnoses were compared to best-estimate diagnoses to determine whether the detection rate of externalizing disorders was lower among non-Dutch immigrant parents than among Dutch native parents. In Chapter 6, we assessed the predictive validity of the SDQ scales on externalizing problems across ethnicity, and developed a brief instrument for teachers that can be used to determine the probability of having an externalizing disorder irrespective of ethnic origin. Finally, the main findings were summarised and discussed in Chapter 7.

As the chapters 2 to 6 were each submitted for publication, they can be read by itself. It also means that some sections may be repeated in different chapters.

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CHAPTER 2

The cross-cultural construct validity of externalizing problems: implications for assessment across ethnicity

Abstract

Objective

The aim of the present study was to examine the construct equivalence of externalizing problems, as measured by the Strengths and Difficulties Questionnaire (SDQ), in a sample of both Western and non-Western children.

Method

Elementary schoolteachers completed the SDQ for 2185 children aged 6 to 10 years of the four largest ethnic groups in the Netherlands, namely native Dutch (N=684) and Moroccan (N=702), Turkish (N=434) and Surinamese (N=365) immigrant children.

Results

Multisample structural equation modelling suggested the Hyperactivity-Inattention Scale and the Conduct Problems Scale to consist of the same items in the four ethnic groups. Differences in factor loadings across ethnicity were significant, but small. Moreover, in all ethnic groups externalizing problems were associated with impairment.

Conclusions

The construct of externalizing problems, as measured by teacher reports is similar for Dutch, Moroccan, Turkish and Surinamese children. Hence, we consider this measure suitable for examinations of externalizing problems in these groups.

Introduction

Externalizing disorders, i.e. Attention-Deficit Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD) are the most common psychiatric disorders of childhood. ADHD is estimated to affect three to five percent of school-age children in Western countries (Buitelaar 2002), of whom approximately 50-60% will also have ODD or CD diagnosed (Angold et al. 1999, Gillberg et al. 2004). Externalizing disorders are particularly problematic, because their characteristics (e.g. fighting, lying, high levels of hyperactivity) not only affect the individual, but also the family, and the community at large. Furthermore, externalizing disorders are associated with a range of poor outcomes in adolescence and adulthood, such as impairments in academic and psychosocial functioning (Biederman et al. 1996), delinquency (Satterfield & Schell 1997), substance use disorder and antisocial personality disorder (Mannuzza et al. 1989).

As most studies on externalizing disorders have been conducted in children of Western origin, less is known about these disorders in non-Western children. However, with the growing number of non-Western immigrants in Western countries, such as the United States (US) and Europe, more information about these disorders in non-Western populations is warranted. Given the findings of studies in the US that treatment rates for externalizing disorders are lower for non-Western children, as compared to Western children (Safer & Malever 2000, Rowland et al. 2002, Kataoka et al. 2002, Olfson et al. 2003), research in non-Western children is of particular relevance. Nevertheless, prior to the examinations of externalizing disorders in non-Western cultures, the equivalence of the construct should be established (Berry et al. 2002), because otherwise comparisons between Western and non-Western children are of less significance and assessments in non-Western samples would be of limited relevance.

Cross-cultural construct equivalence can exist at different levels (Steenkamp & Baumgartner 1998). *Configural invariance* is supported when ethnic groups use the same symptoms to classify a construct, implying that the pattern of zero and non-zero loadings is similar across ethnicity. A more stringent test of equivalence is that of *metric invariance*, called 'weak metric invariance' by others (Meredith 1993), which implies that the factor loadings on the construct are the same for the different ethnic groups. Whereas configural invariance and metric invariance only require information about the covariation of the items in the different ethnic groups, *scalar invariance* or 'strong metric invariance' (Meredith 1993) additionally evaluates whether the indicator intercepts are the same across the different ethnic

groups. Hence, scalar invariance implies that cross-ethnic differences in the means of the observed items are caused by differences in the means of the underlying concepts. Strictly, only after this level of invariance is established, one can make meaningful comparisons in factor means (Steenkamp & Baumgartner 1998).

However, previous studies that tested the equivalence of externalizing problems in non-Western children were mainly focused on configural invariance, using single samples of children (e.g. (Thabet et al. 2000, Dumenci et al. 2004, Kashala et al. 2005). Studies that examined measurement equivalence of externalizing disorders in children of both western as non-western origin simultaneously, are scarce and have only been carried out in the USA (Epstein et al. 1998); (Reid et al. 1998, Beiser et al. 2000, Reid et al. 2001).

Moreover, these studies have yielded contradictory results regarding the construct validity of externalizing problems in non-Western samples. For instance, the externalizing scales of the Conners Teacher Rating Scale have been found to be dissimilar for African-American and White American children, as an additional Antisocial factor was observed in black boys (Epstein et al. 1998). In contrast, Reid (2001) found the Inattention/Overactivity with Aggression (IOWA) Conners Scale to be similar for African American and Caucasian American children (Reid et al. 2001).

The purpose of the present study is to examine the cross-cultural equivalence of externalizing disorders, as measured by the Strengths and Difficulties Questionnaire's (SDQ)(Goodman 1994, Goodman 1997), in both western as non-western children residing in Europe. More specifically, we aimed to assess the equivalence of the Hyperactivity-Inattention Scale and the Conduct Problems Scale in a multi sample of native Dutch children, and Moroccan, Turkish and Surinamese immigrant children who reside in the Netherlands.

The Dutch population numbers 16 million inhabitants, of which 1.7 million immigrants of non-western descent. With a number of 1 million, Moroccans, Turks and Surinamese are the largest (non-Western) immigrant groups in the Netherlands, as they constitute about 6% of the total Dutch population and nearly 60% of the immigrants of non-western descent (Statistics Netherlands, 2005). Since the 1960s and early 1970s Turks and Moroccans migrated from, Eastern Europe and North Africa, respectively, to the Netherlands as labor migrants. Surinamese came from South America to the Netherlands during the process of decolonization, as Surinam has been a Dutch colony until 1975. Most immigrants in the Netherlands live in the four largest cities (i.e. Amsterdam, Rotterdam, Utrecht and The Hague) close together in certain districts (Statistics Netherlands, 2005).

Methods

Participants

Data were drawn from the Detection of ADHD among children of Different Ethnic Origins in the Netherlands Study (ADEON), which was carried out in 2002 and 2003 in two large cities (Amsterdam and Utrecht) in the Netherlands. The aim of ADEON was to examine the prevalence of externalizing disorders and service use in children of the four largest ethnic groups in the Netherlands.

To obtain a sample with all four ethnicities represented, we sampled schools from low socioeconomic status (SES) areas (Knol 1998) with a large immigrant population. Out of 87 eligible schools, 45 schools (52%) agreed to participate. Of 37 schools (82%) all teachers participated, the majority being of Dutch origin (77%). Non-participating schools and teachers refused to take part because of logistic reasons. However, we assume the socio-demographic characteristics of the children in the 45 participating schools to be similar to those in the 42 non-participating schools, as both participating and non-participating schools are from the same neighborhoods, which are characterized by a low SES level and a large minority population.

Parents of all 2802 children enrolled in grade 3 through 5 of the participating schools were asked permission for their child's teacher to be administered a screening questionnaire. Children with another ethnic origin than Dutch, Moroccan, Turkish or Surinamese, were excluded from the study (N=336). As 281 (11%) parents refused to give permission, teachers completed 2185 out of 2466 questionnaires (89%), with no significant variation in this proportion across ethnicity.

Children were classified as "Moroccan", "Turkish" or "Surinamese" when at least one parent had been born in Morocco, Turkey or Surinam, respectively. When both parents were of non-Dutch origin, we used mother's country of birth to determine the child's ethnicity. Native Dutch children were Dutch-born offspring of Dutch-born parents. Of the 2185 subjects included in the present study, 31% was of Dutch, 32% of Moroccan, 20% of Turkish and 17% of Surinamese origin.

The study protocol was approved by the Medical Ethical Committee of University Medical Center Utrecht. Parents of all participating children gave informed consent.

Instrumentation

Teachers completed the Dutch version of the SDQ (Goodman 1997, Van Widenfelt et al. 2003). The SDQ has been translated into more than 40 languages (see www.sdqinfo.com) and explored in several cultures (Woerner et al. 2004b, Kashala et al. 2005, Thabet et al. 2000). The SDQ includes 25 items describing positive and negative attributes of children. These 25 items are distributed among 5 scales of 5 items each: 1) Hyperactivity-Inattention; 2) Emotional Symptoms; 3) Conduct Problems; 4) Peer Problems and 5) Social Behavior. Each item is scored on a 0-2 scale (not true, somewhat true, certainly true). In addition, the SDQ includes five items that ask about impairment (i.e. overall distress, social impairment, educational impairment, the burden on the teacher and chronicity).

The SDQ has been translated and validated for Dutch children, which yielded a factor solution for the parent and youth SDQ that was nearly identical with the five factors as proposed by Goodman (Muris et al. 2003). Widenfelt et al. (Van Widenfelt et al. 2003) reported Cronbach α coefficients greater than 0.70 for all subscales of the Dutch teacher SDQ and higher inter-informant correlations than for the corresponding Achenbach scales (Achenbach 1991).

Information about SES was obtained by an area-based method. As the postal code has been related to income, level of education and rate of unemployment (Knol, 1998), it may be considered as a proxy measure for SES. In the present study, SES was assessed by using the postal code of schools, and scored on a five-point scale from 1 (high) to 5 (low). These codes were obtained from Statistics Netherlands.

Analysis

We conducted multisample Structural Equation Modeling (SEM) with EQS 6.0 (Dunn et al. 1993) to test the factor validity of the Hyperactivity-Inattention factor and the Conduct Problems factor of the SDQ across the four ethnic samples. Because we were particularly interested in externalizing problems, we only examined the Hyperactivity-Inattention Scale and the Conduct Problems Scale. Following Steenkamp and Baumgartner (1998), we first tested for *configural invariance* which implies that the pattern of zero loadings and non-zero (or near zero) loadings of the items show the same configuration in all four ethnic groups. Second, we assessed a more stringent test of invariance, the *metric invariance*, by introducing equal factor loadings across ethnicity (Steenkamp & Baumgartner 1998). As we had to use polychoric correlations, we were not able to test for *scalar invariance.*

Because the scores were not normally distributed, we used the Satorra-Bentler scaled chi-square tests and robust standard errors to estimate the parameters in the model. The most widely used index for the assessment of the overall model fit is the Chi-square statistic. However, as the Chi-square is dependent on sample size, we used the Normed Fit Index (NFI), the Non-Normed Fit Index (NNFI) and the Comparative Fit Index (CFI), which have found to perform very well at all sample sizes (Bentler 1990). A value of at least 0.90 for these indices indicates an acceptable fit (Kline 1998). Finally, the Root Mean Square Error of Approximation (RMSEA), was used as a fit index (Arbuckle 1997). The recommended cutoff criterion for the RMSEA varies from <.05 to <.10 and we choose a value of .08 as the cutoff (Joreskog & Sorbom 1993). Thus, only models with a NFI, a NNFI and a CFI greater than .90 and a RMSEA smaller than .08 were accepted.

The configural invariance model, in which factor loadings are free to vary, is the baseline model against which the other model will be compared. The metric equivalence of the two-factor model was tested by comparing the fit of the baseline model with the fit of the full metric invariance model. We computed the Satorra-Bentler Scaled χ^2 difference test (Satorra & Bentler 2001) to assess whether the constraints on the factor loadings significantly deteriorated the model. Given the large sample size, even small differences could be statistically significant, however. Therefore, we examined statistical significance, but we also assessed the fit indices (NFI, NNFI, CFI and RMSEA) of the constrained and the unconstrained model. In addition, we compared factor structures using the congruence coefficient, a measure of factor similarity where +1 points out perfect agreement (Harman 1976). Finally, we used logistic regression to estimate the relative risk of Hyperacitivity-Inattention and Conduct Problems for impairment in each ethnic group separately. Relative risks were expressed as odds ratios with 95% confidence intervals.

Table I. Demographic characteristics of the study sample

	Dutch N=684	Moroccan N=702	Turkish N=434	Surinamese N=365
Boys	352 (51.5 %)	378 (53.8 %)	212 (48.8 %)	168 (46 %)
Girls	332 (48.5 %)	324 (46.2 %)	222 (51.2 %)	197 (54 %)
Age (Mean; Min-max)	7.6 (5-10)	7.9 (6-11)	8.0 (5-10)	7.7 (6-11)
SES (Median; Min-max)	5 (1-5)	5 (1-5)	5 (1-5)	5 (1-5)
Foreign born	-	74 (10.5)	39 (9.0)	61 (16.7)

Results

Sample characteristics

Demographic characteristics of the study population are presented in Table I. Irrespective of ethnic group, the proportion boys was about 50%, the mean age was almost eight and SES was low. The percentage children that was born in the country of origin was small across all non-Dutch groups, but slightly larger among Surinamese than among Moroccans and Turks.

Construct equivalence across ethnicity

Configural invariance was assessed by testing the original two-factor model of externalizing problems in the four ethnic groups, allowing factor loadings to vary (Model 1). As shown in Table II, the two-factor solution yields an acceptable fit for Dutch, Moroccan, Turkish and Surinamese children. All factor loadings were significant in all ethnic groups, and 38 out of 40 standardized factor loadings were greater than 0.60 (Table III). Thus, configural invariance of externalizing problems on the SDQ was supported across all ethnic groups, meaning that the Hyperactivity-Inattention Factor and the Conduct Problems Factor consisted of the same items across the different ethnic groups.

Table II. Goodness-of-Fit Indices

Model	Factor loadings	S-BX^2	Df	p	NFI	NNFI	CFI	RMSEA (95%CI)
1	Free to vary	783.9192	136	<0.001	.927	.919	.939	.047 (.044-.050)
2	Equal	946.3878	166	<0.001	.912	.920	.926	.047 (.044-.050)

To test for metric invariance, factor loadings were constrained to be equal across the four groups (Model 2). Factors were allowed to correlate freely in both models, with correlations of 0.66, 0.73, 0.70 and 0.78 for the Dutch, Moroccan, Turkish and Surinamese group, respectively. The Satorra-Bentler Scaled χ^2 between Model 1 and Model 2 was significant (ΔS-Bχ^2 = 115.73; Δdf = 30, p < 0.001) indicating that full metric invariance was not supported. However, based on fit indices, the full metric invariance model yielded acceptable fit (Table II). Clearly, whereas the differences in factor loadings among the samples were not due to chance, they were trivial. Another way to examine whether the same model fits across the four ethnic groups, is to compare factor loadings by means of

congruence coefficients (Harman 1976). Congruence coefficients based on the factor loadings (Table III), were 1, .98, .99 for the Hyperactivity-Inattention Scale, and .99, .99, 1 for the Conduct Problems scale, for Moroccans, Turks and Surinamese, respectively, as compared to Dutch, indicating that factor loadings were highly similar across ethnicity.

Table III. Standardized factor loadings across ethnicity

	Dutch ($N = 684$)	Moroccan ($N = 702$)	Turkish ($N = 434$)	Surinamese ($N = 365$)
Hyperactivity				
Restless	.79	.93	.98	.93
Fidgety	.78	.89	.95	.92
Distractible	.91	.85	.79	.80
Reflective	-.77	-.81	-.69	-.75
Persistent	-.82	-.76	-.67	-.66
Conduct Problems				
Tempers	.54	.68	.70	.59
Obedient	-.72	-.83	-.74	-.75
Fights	.79	.89	.79	.81
Lies	.92	.83	.81	.92
Steals	.81	.71	.81	.87

Association with impairment scores

After having established the level of metric invariance (or weak metric invariance), we examined whether the relationship between the externalizing scales and the level of impairment was similar for Dutch and non-Dutch children. Overall, Hyperactivity-Inattention factor scores, and Conduct Problem scores were positively related to impairment, with odds ratios of 1.48 (95%CI: 1.41-1.56) and 1.47 (95%CI: 1.37-1.58), respectively. These relationships appeared to be similar for all ethnic groups, as shown in Table IV.

Table IV. Relationship of externalizing scores with impairment for different ethnicities

Ethnicity	Hyperactivity-Inattention scores OR (95% CI)	Conduct Problems scores OR (95% CI)
Dutch	1.48 (1.35-1.62)*	1.63 (1.41-1.88)*
Moroccan	1.46 (1.33-1.59)*	1.44 (1.29-1.61)*
Turkish	1.53 (1.34-1.76)*	1.45 (1.19-1.77)*
Surinamese	1.49 (1.31-1.72)*	1.42 (1.19-1.71)*

* $p < .001$.

Discussion

The aim of the present study was to investigate the cross-cultural equivalence of externalizing problems, as assessed by the SDQ, in native Dutch children and Moroccan, Turkish and Surinamese immigrant children. Findings demonstrate that the constructs of Hyperactivity-Inattention and Conduct Problems are generally similar among the four ethnic groups. Likewise, in the four ethnicities, the Hyperactivity-Inattention and Conduct Problem dimensions were associated with an increased risk of impairment.

Results of the multisample confirmatory factor analysis confirmed the original two-factor model of externalizing problems in Dutch, Moroccan, Turkish and Surinamese children. Therefore, it appears likely that the Hyperactivity-Inattention scores and Conduct Problem scores on the SDQ represent similar underlying constructs in these groups. Previous studies have offered contradictory results regarding the underlying dimensions of the SDQ. The original factor structure of the SDQ was replicated among German parents (Woerner et al. 2004a), Congolese teachers (Kashala et al. 2005) and parents and adolescents of Dutch origin (Muris et al. 2003) but not among Norwegian adolescents (Ronning et al. 2004), American parents (Dickey & Blumberg 2004) and Arab children, parents and teachers living in the Gaza strip (Thabet et al. 2000).

No studies exist that examined the SDQ among Moroccans, Turkish or Surinamese children. However, our results are in line with a study that replicated the original factor structure of the CBCL in a Turkish sample (Dumenci et al. 2004). Studies that examined measurement equivalence of externalizing problems in children of different ethnic groups residing in the same country yielded evidence for both factor similarity (Reid et al. 2001, Reid et al. 1998) as factor dissimilarity across ethnicity (Epstein et al. 1998).

Despite the statistically significance of the differences in factor loadings across ethnicity, these differences were small. Moreover, based on the fit indices, the same two-factor model of externalizing problems yielded an acceptable fit in all ethnic groups, which was confirmed by the congruence coefficients of >.95. This finding of metric invariance is in line with the only other comparable study in which the metric invariance of the ADHD-IV Rating Scale was tested among Caucasian and African American students in the USA (Reid et al. 1998). The Hyperactivity-Inattention Scale and the Conduct Problems Scale also increased the likelihood of impairment, which appeared to be similar for Dutch, Moroccan, Turkish and Surinamese children.

The results of this study reflect how teachers, mainly of Dutch origin, perceive externalizing problems among Dutch, Moroccan, Turkish and Surinamese children. As teachers in the Netherlands are largely of Dutch origin and as they play an important role in the detection of behavioural disorders, their perception is of great importance. Nevertheless, additional research is needed to determine whether the expression of externalizing problems for Dutch, Moroccan, Turkish and Surinamese children is similar according to teachers of non-Dutch origin and according to parents.

 Despite the rather crude way of controlling for differences in SES by adjusting for SES by postal codes of the schools, we think the SES indicated by the school would closely resemble that of the household as most children in the Netherlands attend a school in their own neighbourhood. Still, the present findings should be replicated in other studies that can take individual measures of SES into account.

Although we were not able to test for scalar invariance (or strong metric invariance), our findings suggest that the underlying constructs of externalizing problems on the SDQ are largely similar for native Dutch, and Moroccan, Turkish and Surinamese immigrant children. Therefore, we consider this measure suitable for examinations of these problems in Moroccan, Turkish and Surinamese immigrant children, and for comparisons between Dutch and non-Dutch children.

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CHAPTER 3

Different treatment thresholds

in non-Western children with

behavioural problems

Abstract

Objective

First, to investigate whether non-Western children in the Netherlands are less likely to be treated for behavioral problems than Western children. Second, to examine whether discrepancies in treatment status are related to differences in level of problem behavior and impairment.

Method

The study included 2185 children of the four largest ethnic groups in the Netherlands, namely 684 Dutch, 702 Moroccan, 434 Turkish and 365 Surinamese children from grade three to five of elementary school. Teachers completed the Strengths and Difficulties Questionnaire and 5 DSM-IV items on externalizing problems. In addition they provided information on the treatment status of the child.

Results

Moroccan boys displayed more problem behavior, Turkish boys less problem behavior, and Surinamese boys similar rates of problem behavior, as compared to Dutch boys. No difference in problem behavior was found between Western and non-Western girls. Adjusted for age, level of problem behavior and impairment, Moroccan and Turkish children and Surinamese girls were less likely to receive treatment for problem behavior.

Conclusions

The higher treatment thresholds of non-Western children compared to Western children in the Netherlands could not be explained by differences in level of problem behavior or impairment. Detection of behavioral problems in non-Western children should receive more attention.

Introduction

With an estimated prevalence of 3-5%, Attention Deficit Hyperactivity Disorder (ADHD) is one of the most common psychiatric disorders among school-age children (Buitelaar 2002). In both clinical and epidemiological samples ADHD is highly comorbid, in particular with Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD), mood disorders and anxiety disorders (Gillberg et al. 2004).

Because most research on ADHD has been done among Western children, much less is known about the disorder in non-Western children. Nevertheless, there is some evidence that the prevalence of ADHD may vary within different ethnic groups. For instance, differences in prevalence of behavioral problems have been observed across countries (Crijnen et al. 1999); (Verhulst et al. 2003), and also within countries across different ethnic groups (Reid et al. 1998, Arnold et al. 2003); (Stevens et al. 2003). Moreover, although comorbidity diagnoses of ADHD such as ODD, CD and anxiety disorders have been found both in Western as in non-Western children (Souza et al. 2004, Samuel et al. 1998), the rates of these comorbid diagnoses seem to vary (Samuel et al. 1998).

Furthermore, not only the prevalence of behavioral disorders seems to be influenced by ethnicity, also treatment rates appear to differ according to ethnicity. For instance Safer et al (2000) found black, Hispanic, Asian and Native-American students to be receiving less ADHD medication than white students (Safer & Malever 2000). Likewise, Rowland et al (2002) reported that the prevalence of ADHD medication treatment was much lower among African children and Hispanic children than among White children (Rowland et al. 2002). This pattern of lower treatment rates among non-Caucasian compared to Caucasian is confirmed by other studies (Angold et al. 2002, Kataoka et al. 2002, Olfson et al. 2003) except for a study among American Indians (Angold et al. 2000). In the latter study, no difference in the rate of use of stimulants was found between American Indians with ADHD and others with ADHD.

The aim of this study is to examine the treatment rates of behavioral problems in the four largest ethnic groups in the Netherlands, namely Dutch, Moroccan, Turkish and Surinamese. With a number of 1.6 million, immigrants constitute about 10% of the total Dutch population. The largest group of immigrants has come to the Netherlands as labor migrants since the 1960s and early 1970s. They came from Mediterranean countries, mainly Turkey and Morocco. Surinamese migrated from South America to the Netherlands during the process of decolonisation, as Surinam has been a Dutch colony until 1975.

Given the high rate of comorbid diagnoses as ODD and CD in children with ADHD, and possible differences in the presentation of ADHD among children of different ethnic origins, we examined not only symptoms of ADHD, but also of ODD and CD, addressing three questions: 1. What is the occurrence of behavioral problems (ADHD, ODD and CD) among Dutch, Moroccan, Turkish and Surinamese children according to teacher-ratings? 2. Do these behavioral problems impair these ethnic groups equally? 3. Are Dutch, Moroccan, Turkish and Surinamese children with a given level of behavioral problems and impairment equally likely to be treated?

Methods

Subjects

Two thousand eighty hundred and two children enrolled in grade three through five of mainstream elementary schools in multicultural neighborhoods in two large cities (Amsterdam and Utrecht) in the Netherlands were sampled in 2002 and 2003. To obtain a sample with all four ethnicities represented with similar socio-economic status (SES), we sampled schools from areas with low SES and a large immigrant population. 174 teachers from 45 out of 87 (52%) schools participated in the study. In 37 out of 45 schools (82%), all teachers participated. The majority of teachers was of Dutch origin (77%). The reasons for non-participation among schools and teachers were mainly logistic, i.e. they already participated in other studies or they were too occupied with other activities.

As both participating and non-participating schools are from the same neighborhoods, which are characterized by a low SES level and a large minority population, we assume that the socio-demographic characteristics of the children in the 45 participating schools do not differ from those in the 42 schools that did not participate. Therefore, it is very unlikely that selection bias would have distorted our results. Parents of all 2802 children in these three grades received a letter with information on the screening procedures. Children with another ethnic origin than Dutch, Moroccan, Turkish or Surinamese, were excluded from the study (N=336), because we were particularly interested in the four largest ethnic groups and the number of children with another ethnic origin was to small to reach an acceptable power. As two hundred-eighty-one parents refused to give permission, teachers completed 2185 out of 2466 questionnaires (89%), with no significant variation in this proportion across ethnicity (Table I). Children were classified as "Moroccan", "Turkish" or "Surinamese" when the child

itself or at least one parent had been born in Morocco, Turkey or Surinam, respectively. When both parents were of non-Dutch origin, we used mother's country of birth to determine the child's ethnicity.

The study protocol was approved by the Medical Ethical Committee of University Medical Center Utrecht. Parents of all participating children gave informed consent.

Instrumentation

Teachers completed the Dutch version of the Strengths and Difficulties Questionnaire (SDQ) (Goodman 1997, Van Widenfelt et al. 2003). The SDQ includes 25 items describing positive and negative attributes of children. These 25 items are distributed among 5 scales of 5 items each, generating scores for Emotional symptoms, Conduct problems, Hyperactivity, Peer problems and Social behavior. A factor analysis of the Dutch SDQ for parents and youth, yielded a five factor solution that was nearly identical with the five factors proposed by Goodman (Muris et al. 2003). Widenfelt et al. (Van Widenfelt et al. 2003) translated and validated the teacher SDQ for Dutch children and reported Cronbach α coefficients > 0.70 for all subscales and higher inter-informant correlations than for the corresponding Achenbach scales (Achenbach 1991).

Given our specific interest in ADHD and related externalizing behavior problems, we added 5 DSM-IV items (American Psychiatric Association 1994) to the SDQ: 2 ADHD items on inattention ('Often has trouble organizing activities'; 'Often avoids, dislikes, or does not want to do things that take a lot of mental effort for a long period of time (such as schoolwork or homework)'; 1 ADHD item about impulsivity ('Often has trouble waiting one's turn'); 1 ADHD item about hyperactivity ('Often talks excessively') and 1 item regarding oppositional behavior ('Often argues with adults').

Each item was rated on a three-point scale from 1 (not true) to 3 (definitely true). The items on the Hyperactivity Scale (5 items) and the Conduct Problem Scale (5 items) of the SDQ and the 5 items directly adapted from the diagnostic criteria for ADHD and ODD in the DSM-IV, 15 items in total, were summed to bring about a problem score (min=15, max=45). A score above the 90th percentile is generally considered 'high' and is the recommended cut-off score (Reid et al. 2000). In the present study we therefore dichotomized the problem score at this cut-off in the total group. Scores higher than the cut-off were defined 'problem behavior'.

Furthermore, the SDQ includes a short impact supplement that inquires whether the child has a problem according to the teacher, and if so, asks further about overall distress ('Do the difficulties upset or distress the child?'), social impairment ('Do the difficulties interfere with the child's everyday life in peer relationships?'), educational impairment ('Do the difficulties interfere with the child's everyday life in classroom learning?'), the burden on the teacher ('Do the difficulties put a burden on you or the class as a whole?') and chronicity ('How long have these difficulties been present?').

All 5 impact items were scored on a four-point scale from 0 (not at all) to 3 (very much) and were aggregated to generate an impairment score (Min=0, max=12). The item on chronicity, which was delineated on a four-point scale from 0 (shorter than a month) to 3 (more than a year), was not incorporated into this score, because many teachers knew their pupils for only 6 months. As approximately 80% of the children scored zero on the impairment score, we decided to dichotomize the score at this value. Accordingly, a score greater than zero was considered as impairment.

Finally, 5 items regarding the treatment status of the child were added. Examples of these items are: 'Is this child being treated for behavioral disorders?' 'Does this child use medicines because of behavioral disorders?' These items were scored as follows: 1 (does not know); 2 (no) and 3 (yes). Teachers in the Netherlands are well informed about the treatment status of the child, as the mental health care system cooperates with them during the treatment process, e.g. teachers are asked to fill in questionnaires about the behavior of the children in school. Therefore, we consider teachers as valid informants on the treatment status of the children. Importantly, the percentage of the teacher's answer on 'does not know' was not significantly higher for non-Dutch children, compared to Dutch children (OR=1.02; 95%CI=0.71-1.45).

Information about socioeconomic status (SES) was obtained by an area-based method. As the postal code may be considered as a proxy measure for income, level of education and rate of unemployment (Knol, 1998), SES was estimated by using the postal code of schools and scored on a five-point scale from 1 (high) to 5 (low). These codes were obtained from Statistics Netherlands.

Analysis

Proportions were tested for statistically significant differences using the Chi^2 test. Logistic regression was used to estimate the relative risk of a Turkish, Surinamese or

Moroccan ethnic background for problem behavior, impairment and treatment. Dutch ethnicity served as the reference group. These relative risks were expressed as odds ratios with 95% confidence intervals. To examine whether any differences in risk could be explained by age or SES, these factors, were included as covariates. In addition, to find out whether the observed relations could be explained by the child being born in the country of origin, we incorporated the proportion foreign born children among the non-Dutch groups as a covariate. However, adjusting for the proportion foreign born children barely affected the results.

In all analyses we accounted for dependency of the observations at the class level, by calculating robust standard errors using the clustering option of STATA 7.0. The analyses were performed in boys and girls separately.

Table I. Demographic characteristics of the study population

Ethnicity	Eligible	Included	Response	Age (years)	Boys	SES
	n	*n*	rate (%)	Mean (Min; max)	(%)	Median (Min; max)
Dutch	768	684	89	7.6 (5; 10)	52	5 (1; 5)
Moroccan	792	702	88	7.9 (6; 11)	54	5 (1; 5)
Turkish	497	434	87	8.0 (5; 10)	49	5 (1; 5)
Surinamese	409	365	89	7.7 (6; 11)	46	5 (1; 5)

Results

Table I shows demographic characteristics of the study population. Irrespective of ethnic group, the response rate was high, half of the children were male, mean age was almost eight and SES was low. In Table II the relation between problem behavior and ethnicity is shown. In comparison with Dutch boys, Moroccan boys were about 70% more likely to display problem behavior. Turkish boys were about 60% less likely to show problem behavior. There was no significant difference between Dutch and Surinamese boys. In girls no marked differences were observed.

In addition, the risk of impairment was examined (Table III). Overall, 409 (19%) children were impaired. In comparison with Dutch boys, Turkish boys were 40% less likely to be impaired. Moroccan and Surinamese boys did not differ much from Dutch boys in impairment, as is shown in Table III. Neither did girls differ significantly in scores on impairment.

Problem behavior was strongly related to impairment with an overall odds ratio of 29.6 (95%CI: 16.5-53.3), similarly in all ethnicities. Therefore, we repeated the analysis controlling for problem behavior (Table 3). It appeared that the lower frequency of impairment in Turkish boys could be largely explained by the lower level of problem behavior in this group, as the difference in impairment almost disappeared.

Table II. Relative risk of problem behavior for different ethnicities, adjusted for age and SES

Gender	Ethnicity	*n*	Median (Min; max)	Scoring above clinical cut-off (%)	OR (95%CI)
Boys	Dutch	343	22 (15; 42)	13.6	Reference
	Moroccan	366	23 (15; 45)	21.8	1.61 (1.07-2.42)*
	Turkish	205	20 (15; 43)	7.2	0.39 (0.20-0.75)*
	Surinamese	163	21 (15; 43)	17.6	1.27 (0.75-2.17)
Girls	Dutch	324	17 (15; 37)	4.9	Reference
	Moroccan	311	19 (15; 44)	6.7	1.25 (0.65-2.38)
	Turkish	215	19 (15; 41)	6.0	1.11 (0.52-2.37)
	Surinamese	192	19 (15; 41)	6.7	1.41 (0.66-3.02)

Note: * $p < 0.05$; Median refers to the median of the 'problem score'

Table III. Relative risk of impairment for different ethnicities

Gender	Ethnicity	*n*	Impaired (%)	After adjusting for age and SES OR (95%CI)	After adjusting for age, SES and problem level OR (95%CI)
Boys	Dutch	337	24.6	Reference	Reference
	Moroccan	362	28.6	1.08 (0.78-1.50)	0.74 (0.47-1.15)
	Turkish	202	16.3	0.58 (0.40-0.83)*	0.81 (0.51-1.30)
	Surinamese	161	22.9	0.80 (0.53-1.20)	0.66 (0.38-1.17)
Girls	Dutch	321	12.5	Reference	Reference
	Moroccan	306	16.3	1.28 (0.82-2.00)	0.84 (0.52-1.35)
	Turkish	210	12.4	1.07 (0.69-1.65)	0.87 (0.54-1.42)
	Surinamese	188	12.9	1.18 (0.73-1.90)	0.83 (0.49-1.41)

Note: * $p < 0.05$

Finally, treatment rates were assessed (Table IV). Overall, 101 (5%) children were treated for problem behavior with large differences between Dutch and non-Dutch boys and girls. In comparison with Dutch boys, Turkish boys were almost 90% less likely to be treated for behavioral problems, while this percentage was about 65 for Moroccan and Surinamese boys. Moroccan, Turkish and Surinamese girls were all about 70% less likely to be treated for behavioral problems.

Problem behavior and impairment were strongly associated with being treated: the odds ratios were 7.5 (95%CI: 4.8-11.8) and 27.6 (95%CI: 13.7-55.6), respectively. These odds ratios were similar in the different ethnicities. After adjusting for problem behavior, non-Dutch children were still less likely to be treated for behavioral problems (Table IV). When we additionally adjusted for the level of impairment, the results were essentially similar to the unadjusted analysis, but the difference between Dutch and Surinamese boys was no longer statistically significant.

Table IV. Relative probability of treatment for behavioral problems for different ethnicities

Gender	Ethnicity	n	Treated (%)	After adjusting for age and SES OR (95%CI)	After adjusting for age, SES and problem level OR (95%CI)	After adjusting for age, SES, problem level and impairment level OR (95%CI)
Boys	Dutch	332	11.7	Reference	Reference	Reference
	Moroccan	359	4.7	0.33(0.18-0.61)*	0.26(0.13-0.53)*	0.33 (0.15-0.70)*
	Turkish	202	3.0	0.13(0.04-0.39)*	0.17(0.06-0.53)*	0.20 (0.06-0.70)*
	Surinamese	150	5.3	0.37(0.16-0.85)*	0.36(0.16-0.81)*	0.40 (0.15-1.04)
Girls	Dutch	310	6.5	Reference	Reference	Reference
	Moroccan	306	2.3	0.35(0.13-0.99)*	0.23(0.08-0.71)*	0.18(0.06-0.58)*
	Turkish	210	1.9	0.28(0.09-0.85)*	0.18(0.05-0.60)*	0.14(0.03-0.65)*
	Surinamese	188	1.7	0.26(0.08-0.88)*	0.17(0.05-0.56)*	0.19(0.05-0.77)*

Note: * $p < 0.05$

Discussion

This study is the first to compare the level of problem behavior, associated impairment of functioning and the likelihood of treatment between Western and non-Western children in Europe. The present study indicates that, according to teachers from grades three through five,

Moroccan boys display more, and Turkish boys show less problem behavior than Dutch boys, which could not be explained by differences in the proportion foreign born children. The relatively high score on teacher-reported problem behavior for Moroccan boys is in accordance with a recent study in the Netherlands in which teachers reported more problem behavior among Moroccan children than among Dutch and Turkish children (Stevens et al. 2003). However, recent studies have offered contradictory results regarding differences in problem behavior between Turkish boys and Dutch boys. Crijnen et al. (2000) found no differences in teacher-reported problem behavior between Turkish immigrant and Dutch children (Crijnen et al. 2000), whereas in self-reports on problem behavior, Turkish boys scored lower on Delinquent Behavior than Dutch boys (Murad et al. 2003).

An explanation for the observed higher problem scores among Moroccan boys might be the wider cultural gap that Moroccans have to bridge, compared with Surinamese and Turks. Being colonial migrants, Surinamese, possessed Dutch nationality, spoke Dutch and were more familiar with Dutch culture, which might explain the similar scores on problem behavior between Surinamese and Dutch children. The migration history of Turks and Moroccans differs from Surinamese, in that Turks and Moroccans came as labor migrants from Islamic countries. However, despite similarities, some important differences do exist between Turkey and Morocco. For instance, Morocco is less secularized, democratized and industrialized than Turkey, and in Morocco women have fewer political rights than in Turkey. Thereby, the rate of illiteracy is much higher and the level of education is lower in Morocco than in Turkey. Therefore, Moroccans have to deal with a wider culture gap than Surinamese and Turks.

Another explanation might be the negative stigma from which Moroccan boys seem to suffer. This negative stigma on the one hand and (presumed) problem behavior on the other hand, may reinforce each other. Furthermore, the gender-specific parenting in Moroccan culture, does confront Moroccan boys with a harsh authoritarian socialization inside of the home, but with a lack of supervision outside of the home (Pels 2003).

The relatively low score on problem behavior among Turkish boys, might be explained by cultural differences in parenting, as obedience, conformism and respect are highly valued in Turkish socialization (Bengi-Arslan et al. 1997). Moreover, Turkish culture is characterized by strong internal social cohesion and effective social control mechanisms which is stronger than in Moroccan culture (Dagevos 2001). These mechanisms may serve as protective factors in the development of problem behavior.

Despite the observed differences in problem behavior among boys from different ethnic origins, we found no differences among girls. This finding is also consistent with the study mentioned above (Stevens et al. 2003). Explanations for the absence of differences between girls might be related to the explanations for the presence of differences among boys. For instance, in contrast to Moroccan boys, Moroccan girls are not confronted with a bad image in the Netherlands. On the contrary, they are said to be more integrated and to do much better than Moroccan boys. Furthermore, Moroccan girls experience less freedom of movement and find themselves much more confronted with social control than boys (Buitelaar 2002). Moreover, since the rate of hyperactivity and impulsivity symptoms, and comorbid disruptive behavior problems have reported to be lower in girls with ADHD compared to boys with ADHD (Abikoff et al. 2002, Biederman et al. 2004) and the expression of aggression in girls in general has found to be more covert compared to boys, the identification of behavioral problems in girls may be problematic. As a result, observing possible differences in the level of behavioral problems between girls of different ethnic origin may be even more difficult.

We found no differences in impairment scores between children of different ethnic origin. Thus, according to teachers, problem behavior does impair Dutch, Moroccan, Turkish and Surinamese children equally. This finding is consistent with the only other comparable study, in which black youth in the USA has found to be as much impaired as white youth (Angold et al. 2002). The present findings may suggest that children of different ethnic origin differ in the number of symptoms, but not in impairment. However, we only reported on impairment according to teachers. Therefore, impairment may be determined by ethnicity in other situations than the school.

Despite our observation that problem behavior impaired all ethnic groups equally, Non-Dutch girls were about 80% less likely to receive mental help than Dutch girls. Moroccan and Turkish boys were 70% and 80% less likely to be treated for their problem behavior, respectively. The probability of treatment among Surinamese boys was similar to that found in Dutch boys. This finding is in accordance with a study in which the use of health care was found to be relatively low in first generation Turkish and Moroccan immigrants, whereas the Surinamese did not differ from the Dutch population in service use (Stronks et al. 2001). Importantly, as citizen status in itself is not related to health care access in the Netherlands, it not very likely that a difference in citizen status, between Surinamese on the one hand and Turks and Moroccans on the other hand, explains the observed differences in treatment status. The present findings are also in line with results of studies in the USA in

which treatment rates have found to be lower among non-Caucasian children, as compared to Caucasian children (Angold et al. 2002); (Kataoka et al. 2002); (Olfson et al. 2003).

As the discrepancy in treatment status between Dutch and non-Dutch could not be explained by differences in problem level or impairment, explanations might be related to barriers in the help-seeking process. Goldberg and Huxley describe this process as consisting of five levels separated by four filters (Goldberg & Huxley 1980). The first filter concerns expression and recognition of behavioral problems, and the decision to consult a general practitioner (GP). The second filter represents the recognition of the child's problem by the GP. The GP's decision to refer the child to psychiatric care, and the psychiatrist's decision to refer the child from outpatient to inpatient psychiatric care, correspond to the third and the fourth filter, respectively.

Several barriers at the first filter may contribute to the observed difference in treatment rate between Dutch and non-Dutch children. First, differences in parental perceptions, i.e. non-Dutch parents may apply other definitions of normal and abnormal behavior. Second, a difference in attribution style (Bussing et al. 1998), i.e. non-Dutch parents possibly do not regard behavioral problems as something which could be treated. Third, a difference in social desirability, i.e. non-Dutch parents may be less willingly to discuss mental problems with outsiders. Fourth, differences in caregiver strain, i.e. non-Dutch parents may experience less 'demands, responsibilities, difficulties, and negative psychic consequences' of caring for a child with behavioral problems than Dutch parents (McCabe et al. 2003). Fifth, the Dutch mental health service system perhaps does not meet the service need of non-Dutch parents. Sixth, a discrepancy in behavior at school and at home, i.e. non-Dutch children may show relatively less problem behavior at home than at school. Finally, as teachers have found to play an important role in referring children with behavioral problems (Wisniewski et al. 1995); (Schneider & Grimes 1993), a potential teachers' bias in referrals may be another barrier at this stage.

A potential barrier at the second stage is a difference in GP's perceptions, i.e. GP's may apply other definitions of normal and abnormal behavior in children of different ethnic origins. However, minority children have found to be identified by clinicians as having symptoms of inattention and hyperactivity at the same rate as other children (Wasserman et al. 1999). Another barrier at this filter may be a difference in attribution style, i.e. GP's may consider behavioral problems in non-Dutch children as a 'cultural problem' instead of a treatable disorder. A barrier that may serve both at the third as at the fourth filter is discrimination, in that GP's or psychiatrists may be less willingly to refer non-Dutch children

to specialized mental health care (Williams & Rucker 2000, Kendall & Hatton 2002). Finally, a barrier possibly serving at all filters, is that ethnicity may determine the expression of behavioral problems. Consequently behavioral problems in children of some ethnic origins may be more difficult to identify than in children of other ethnic origins.

Limitations

We only explored teacher's perspective. As a result, perceptual bias may be responsible for the observed higher problem scores among Moroccan boys. A perceptual bias in teacher ratings has been reported previously. Sonuga-Barke et al (1993) found that teachers rated Asian immigrant children higher on hyperactivity symptoms than English native children, whereas the scores on more objective measures of hyperactivity were similarly for both groups (Sonuga-Barke & Minocha 1993). Nevertheless, it is not very likely that a strong perceptual bias influenced our data, as lower problem scores were observed among Turkish boys. Moreover, as teachers have found to play an important role in initiating the help-seeking process, their perceptions are of great interest, whether they are biased or not. Finally, as the treatment status of the child is not determined by teachers' perceptions we still observe an enormous discrepancy in treatment status between Dutch and non-Dutch children.

In addition, we have sampled from inner-city neighborhoods with a low SES, and therefore our findings cannot be generalized to other neighborhoods with middle and higher SES levels without additional study. Nevertheless, as most migrants in the Netherlands live in urban areas and are from the lowest SES, generalizing to middle and higher SES neighborhoods seems of limited relevance.

Moreover, adjustment for SES by an area-based method is a rather crude way to control for differences in SES. However, we think the SES indicated by the school would closely resemble that of the household, as most children attend a school in their own neighborhood. In addition, as a substantional number of minorities in the Netherlands have had no formal education and no comparable Dutch group can be found (Uniken Venema et al. 1995), we do not think it is possible to have a more suitable sample than our sample from urban areas with a low SES and a large immigrant population.

Finally, although religion and perhaps other socio-demographic factors may play an important role in explaining differences in problem behavior, impairment or treatment status, their role was not investigated in the present study.

Implications

Our finding that non-Dutch boys and girls are less likely to be treated for their behavioral problems than Dutch children is worrisome given the evidence that behavioral disorders increase the risks of peer problems, school problems, substance abuse, criminality and psychiatric disorders later in life (Biederman et al. 1996, Mannuzza et al. 1989). In addition to clinical implications, the present results have political implications, indicating that non-Westerners have less access to services than Westerners.

With the increasing number of immigrants worldwide, our findings do not only have relevance for the Netherlands but also for the United States and other multiethnic societies, as treatment thresholds of Western and non-Western children in these countries may parallel the currently observed treatment thresholds. Therefore, detection of behavioral disorders in non-Western children should receive more attention from policymakers in child and adolescent mental health, teachers and clinicians in multiethnic societies in general. Possibly, additional means of accessing the health care systems should be developed for immigrant children in order to reduce inequities. Other strategies may include placing much more emphasis in various training curriculums on the detection and presentation of behavioral disorders in non-Western children. However, first more research is needed to clarify the mechanisms underlying disparities in service use between Western and non-Western children.

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CHAPTER 4

Prevalence of psychiatric disorders among children of different ethnic origin

Summary

Background

With the increasing ethnic diversity worldwide, comparing the prevalence of psychiatric disorders across ethnicity has become very important. The present study assesses the population prevalence of DSM-IV disorders among non-treated native and minority children living in low socio-economic status (SES) inner-city neighbourhoods in the Netherlands

Methods

In the first phase of a two-phase epidemiological design, teachers screened an ethnic diverse sample of 2802 children aged 6-10 years using the Strengths and Difficulties Questionnaire (SDQ). In the second phase, a subsample of 270 children were administered the Semi-structured Clinical Interview for Children and Adolescents (SCICA). Their parents were interviewed using the Diagnostic Interview Schedule for Children-IV-Parent version (DISC-IV-P). In addition, teachers completed a short questionnaire about 10 DSM-IV items. Prevalence was estimated using the best-estimate diagnosis which was based on the SCICA, the DISC-IV and the teacher questionnaire.

Results

Projected to the total population, 11% of the children had one or more psychiatric disorders, which did not differ between native and non-native children. Likewise, the proportion children with Disruptive Behaviour Disorders (9%) in general and ADHD (7%) in particular did not substantially differ across ethnicity. Overall, boys had more psychiatric disorders than girls ($p < 0.001$), which was similar for Dutch ($p = 0.01$), Moroccans ($p = 0.01$) and Surinamese ($p = 0.05$), but not for Turkish children ($p = 0.47$).

Conclusions

This study suggests that the prevalence of psychiatric disorders among non-treated minority and native children in low SES inner-city neighbourhoods does not materially differ.

Introduction

In the design of preventive interventions and treatment programs for youth, policy makers need to know the prevalence of psychiatric disorders among children. With the increasing ethnic diversity of populations worldwide, comparing the prevalence of psychiatric disorders in children of different ethnic background is of particular interest. Further, differences in occurrence in psychiatric disorders between ethnicities may yield clues to their aetiology.

The majority of epidemiological studies on childhood psychopathology have been carried out in the United States (US). Relatively few studies have been conducted in Europe, Asia, Africa, and South America. In a review of these studies, Roberts reports prevalence estimates of child psychopathology ranging from 1% in Tokyo to 51% in the US(Roberts et al. 1998). Certainly, methodological variations across studies, such as sampling differences, have contributed to this wide range of prevalence estimates. However, the precise effect of these method factors is difficult to judge. Hence, it remains unclear to what extent the observed differences in prevalence are due to ethnic or cultural issues.

Therefore, it is important to conduct epidemiological studies on the prevalence of childhood disorders in different ethnic groups from one population and with one single methodology. For instance, Costello (1997) compared American Indian and White youth and reported that the overall prevalence of psychiatric disorders did not vary according to ethnicity (Costello et al. 1997). Similarly, no ethnic difference was observed in the overall prevalence of psychiatric disorders between African American and white youth, (Angold et al. 2002). In Continental Europe, only three studies on the prevalence of problem behaviour in children compared minority with majority ethnic groups, i.e. Turkish immigrant adolescents with native Dutch adolescents (Bengi-Arslan et al. 1997) (Crijnen et al. 2000, Murad et al. 2003), indigenous Sami with majority Norwegian adolescents (Kvernmo & Heyerdahl 1998) and Moroccan immigrant youth with native Dutch youth (Stevens et al. 2003). However, these European studies were based on rating scales. Thus, studies that estimate the prevalence of child psychiatric disorders in different ethnic groups from one population using structured and clinical interviews are scarce and have not been performed in Europe.

The present study was designed to extend the knowledge in this area by assessing the population prevalence of psychiatric disorders among non-treated children of the four largest ethnic groups in the Netherlands, namely Dutch, Moroccan, Turkish and Surinamese, using the best-estimate procedure. In the 1960 and early 1970s Turks and Moroccans migrated from

Mediterranean countries to the Netherlands as low-wage labour migrants, whereas Surinamese have come from South America to the Netherlands during the process of decolonization since 1975. As the different ethnic groups were from one population and as we used one single methodology, the prevalence estimates in non-Dutch immigrant children were directly comparable to those in native Dutch children.

Methods

Subjects

The study sample used in the present study is part of a larger study on the detection of ADHD among children of Different Ethnic Origins in the Netherlands (ADEON-study). The ADEON-study was designed to estimate the prevalence of behavioural disorders in non-treated native Dutch, Moroccan, Turkish and Surinamese children living in the Netherlands. In order to screen a large sample, while restricting the number of extensive diagnostic interviews, a two-stage design was used (Armitage et al. 1987).

In the first phase of the ADEON-study (Zwirs et al. 2006), parents of 2802 children, enrolled in grade 3 through 5 of mainstream schools were asked permission for their child's teacher to be administered the Strengths and Difficulties Questionnaire (SDQ)(Goodman 1997). To obtain a sample with all four ethnicities represented with similar socio-economic status (SES), we sampled exclusively from low SES inner-city areas in two large cities in the Netherlands (i.e. Amsterdam and Utrecht), as most migrants live in low SES urban neighbourhoods. The SES level of neighbourhoods has previously been determined according to the unemployment rate, the level of education and income (Knol 1998).

Forty-five (52%) of the 87 eligible schools, participated in the study. Of 37 schools (82%) all teachers participated, the majority being of Dutch origin (77%). The reasons for non-participation among schools and teachers were mainly logistic, i.e. they already participated in other studies or they were too occupied with other activities. As both participating and non-participating schools are from the same neighbourhoods, we assume the socio-demographic characteristics of the children in the 45 participating schools to be similar to those in the 42 schools that did not participate. Therefore, we consider selection bias unlikely. Parents of all 2802 children in these three grades received a letter with information on the screening procedures.

Children with another ethnic origin than Dutch, Moroccan, Turkish or Surinamese, were excluded from the study (N=336). Children were categorized as "Moroccan", "Turkish" or

"Surinamese" when at least one parent had been born in Morocco, Turkey or Surinam, respectively. When both parents were of non-Dutch origin, we used mother's country of birth to determine the child's ethnicity. Children were classified as "Dutch" when both parents and the child itself were born in the Netherlands. As 281 parents refused to give permission, 2185 (89%) out of the remaining 2466 questionnaires were completed, with no significant variation in this proportion across ethnicity. After excluding 40 children with incomplete data and 104 children that were treated for behavioural problems or other psychiatric disorders, the source population consisted of 2041 children.

For the second phase, we invited a random sample of all children scoring above the 90th percentile on problem behaviour on the SDQ, denoted as screen-positives, and a random sample of children scoring below the 90th percentile on problem behaviour, referred to as screen-negatives. As a result, 376 children were eligible for participation in our study of whom 153 were screen-positive and 223 were screen-negative. Out of this group the parents of 270 (72%) children participated, with no significant variation in this response rate between ethnic groups. Of the screen-positive children 99 (65%) parents and of the screen-negative children 171 (77%) parents participated. The analysis of the second phase was performed in all children with complete data (N=253).

Data were collected from November 2002 to July 2004. Parent and child interviews took place at school in two separate rooms. When parents were not willing to attend the interview at school, they were visited at home. The child interviews were conducted by an experienced child psychiatrist and were all videotaped. Parents were interviewed by a trained psychologist or a trained medical student. When necessary, interviews with Turkish and Moroccan parents were conducted in Turkish, Moroccan Arabic, or Berber, respectively. After complete description of the study to the subjects, written informed consent was obtained from all parents. The study was approved by the Medical Ethical Committee of University Medical Centre Utrecht.

Best-estimate diagnoses

We used the best-estimate procedure for diagnosis: SCICA results were considered in combination with the DISC-P-results and school-information. Best-estimate diagnoses were consensually formulated by a committee chaired by a board certificated psychiatrist (JB) and consisting of two other board certified child psychiatrists who conducted the SCICA interviews as well as a psychologist/cultural anthropologist (BZ) who conducted DISC-P-interviews. When no agreement was achieved (N=15) in this clinical conference, the child

was recommended for the expert panel, consisting of the aforementioned professionals accompanied by two other psychiatrists, of whom one of non-Dutch origin, experienced in working with patients from non-Dutch ethnic origins. Additionally, 16 cases (4 children of each ethnic group) were assessed by this larger expert-panel to calibrate the best-estimate procedure. The large expert panel reviewed all available information and in addition viewed sections of the SCICA interview recorded on video. Best-estimate diagnoses were considered the reference diagnosis.

Psychiatric interviews

The Diagnostic Interview Schedule for Children-Parent Version (DISC-P) is a highly structured diagnostic interview and can be used by lay-persons to generate valid DSM-IV diagnoses (Shaffer et al. 2000). The DISC, which was administered to the parents, is organized such that the different modules can be administered independently. We used the modules about Attention-deficit Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD), Conduct Disorder (CD), Separation Anxiety Disorder (SAD), Generalized Anxiety, Posttraumatic stress disorder (PTSS), Major Depressive disorder (MDD) and Bipolar disorder.

In a study by Schwab-Stone (1996) test-retest reliability has been found to be good to excellent for ADHD (kappa statistic (κ) =0.60), moderate for ODD (κ=0.68), CD (κ=0.56) and MDD (κ=0.55) and poor for SAD (κ =0.45). Agreement between the DISC and clinician ratings were moderate to very good except for SAD (Schwab-Stone et al. 1996).

In addition, background information such as developmental history, family composition, country of birth, psychiatric disorders in the family and parental education were collected during the parent interview. The socio-economic status (SES) was measured by parents' highest educational level which was rated on a 5-point scale: 0=no education; 1=elementary school; 2= secondary vocational; 3=secondary general; and 4=tertiary. SES was dichotomized in low SES (i.e. no education or elementary school) and high SES (i.e. secondary vocational, secondary general and tertiary) and weighted back to the source population.

The Semi-structured Clinical Interview for Children and Adolescents (SCICA), which was administered to the children, is a flexible semi-structured interview for assessing children aged 6-18 years (McConaughy & Achenbach 2001). As the SCICA asks about the child's perception of problems reported by parents or teachers, we administered a short questionnaire

to teachers which was completed prior to the SCICA interview. This questionnaire included 10 DSM-IV items (American Psychiatric Association, 1994): 2 ADHD items on inattention, 2 ADHD items about hyperactivity, 1 ADHD on impulsivity, 2 items on oppositional behaviour, 1 item about conduct behaviour and 2 items about depressive symptoms. A full description of these items has been previously published (ref).

Impairment measure

The SDQ includes a short impact supplement that asks about overall distress, social impairment, educational impairment, the burden on the teacher and chronicity. As many teachers knew their pupils for only 6 months, we excluded the item on chronicity. The remaining 4 impact items that are rated on a four-point scale from 0 (not at all) to 3 (very much), were aggregated to generate an impairment score (Min=0, max=12). As approximately 80% of the children scored zero on the impairment score, we decided to dichotomize the score at this value. Accordingly, a score greater than zero was considered as an index of functional impairment.

Analysis

We estimated the population prevalence with 95% confidence intervals by projecting the observed prevalences in the screen-positive and screen-negative group in the second phase sample to the screen-postive and screen-negative children in the source population, correcting the confidence intervals for the two-stage sampling design (Armitage et al. 1987). We conducted logistic regression to estimate the statistical significance of the association of psychiatric disorders with ethnicity and gender, while adjusting for SES. Analyses were performed with Statistical Package for the Social Sciences, version 11.0 (SPSS 11.0).

Results

In Table I demographic characteristics of the source population are shown. About half of the children were male and the mean age was almost eight years, which was similar for all ethnic groups. SES was lower among Moroccan and Turkish parents, compared to Dutch and Surinamese parents. The percentage of children that was born in the country of origin was low across all non-Dutch groups, but slightly higher for Surinamese than for Turks and Moroccans.

Table I. Demographic characteristics of the source population

	Dutch N=615	Moroccan N=662	Turkish N=415	Surinamese N=349	Total N=2041
Gender					
Boys (%)	50.1	53.5	48.7	45.0	50.0
Age					
Mean (Min; max)	7.6 (5; 10)	7.9 (6; 11)	8.0 (5; 10)	7.7 (6; 11)	7.8 (5; 11)
SES					
Low (%)	8.9	36.9	30.9	10.3	22.0
Foreign born					
(%)	-	67 (10.1)	36 (8.7)	57 (16.3)	-

Note: Low SES = Elementary school or no education

Table II shows last-year prevalence estimates of DSM-IV diagnoses for the whole sample and stratified by ethnicity and gender. Among Dutch children, 36% had one or more psychiatric disorders, which was similar for Moroccan ($p = 0.18$), Turkish ($p = 0.81$) and Surinamese ($p = 0.50$) children (Figure I). Disruptive Behaviour Disorders (DBD), in particularly ADHD, were more common than mood and anxiety disorders, which was similar for all ethnic groups. The prevalence of DBD and ADHD among Dutch children was 26% and 25%, respectively, which did not substantially differ for Moroccan ($p = 0.27$; $p = 0.92$), Turkish ($p = 0.86$; $p = 0.30$) and Surinamese ($p = 0.52$; $p = 0.61$) children, although Dutch children showed the highest ADHD prevalence.

Gender effects were generally in the expected direction, i.e. boys showed higher prevalences. In the total group, psychiatric disorders were more frequent in boys than in girls ($p < 0.001$), as were DBD ($p < 0.001$), ADHD ($p = 0.001$), CD ($p = 0.002$) and mood disorders ($p = 0.01$). The prevalence of ODD was non-significantly higher in boys ($p = 0.39$) but anxiety disorders were more prevalent among girls, although not statistically significant ($p = 0.29$).

The gender differences observed in the total group were similar for almost all ethnic groups (Figure I). Compared to girls, Dutch, and Moroccan boys, had more psychiatric disorders in general ($p = 0.01$ and $p = 0.01$, respectively), and more DBD ($p = 0.01$ and p = .03, respectively). Surinamese boys had more psychiatric disorders in general ($p =0.03$) and tended to have more DBD ($p = 0.06$), when compared to girls. Dutch boys had more ADHD than girls ($p = 0.02$), while Moroccan and Surinamese boys only tended to have more ADHD

Table II. One-year prevalence (95% Confidence Intervals) of DSM-IV diagnostic categories

|	Any Disorder (95%CI)	Any DBD (95%CI)	ADHD (95%CI)	ODD (95%CI)	CD (95%CI)	Any Mood (95%CI)	Any Anxiety (95%CI)
Total	33 (27-39)	25 (19-30)	19 (14-24)	11 (7-15)	3 (1-6)	8 (4-11)	8 (5-12)
Boys	44 (35-53)	33 (25-41)	25 (18-32)	13 (7-18)	7 (2-11)	12 (6-18)	6 (2-11)
Girls	22 (15-30)	16 (10-23)	13 (7-20)	9 (4-14)	0 (0-1)	2 (0-5)	10 (4-16)
Dutch	36 (23-48)	26 (15-37)	25 (14-36)	9 (2-16)	1 (0-2)	6 (0-13)	12 (4-21)
Boys	53 (34-72)	40 (21-58)	39 (21-58)	15 (1-28)	2 (1-3)	13 (0-27)	9 (0-20)
Girls	21 (6-35)	13 (2-25)	13 (2-25)	5 (0-12)	0	0	15 (2-28)
Moroccan	38 (26-50)	24 (14-34)	18 (9-26)	8 (3-14)	4 (0-8)	16 (6-26)	10 (2-17)
Boys	48 (31-65)	30 (16-44)	20 (9-30)	10 (2-18)	7 (0-15)	22 (7-37)	6 (0-14)
Girls	25 (8-42)	16 (2-31)	15 (1-29)	8 (0-17)	0	9 (0-21)	13 (0-27)
Turkish	29 (17-42)	24 (12-36)	16 (6-26)	13 (4-22)	5 (0-11)	3 (0-8)	7 (0-14)
Boys	31 (13-49)	25 (9-42)	17 (3-30)	10 (0-21)	9 (0-20)	6 (0-14)	9 (0-20)
Girls	28 (10-46)	22 (5-39)	16 (1-32)	16 (1-32)	0	1 (0-2)	5 (0-14)
Surinamese	30 (18-41)	25 (15-36)	16 (8-25)	13 (6-21)	5 (0-9)	4 (0-9)	3 (0-8)
Boys	44 (26-61)	37 (20-53)	25 (11-39)	19 (7-31)	8 (0-17)	8 (0-17)	0
Girls	16 (3-28)	15 (2-27)	8 (0-18)	8 (0-18)	1 (0-3)	0	6 (0-16)

Note: DBD = Disruptive Behaviour Disorders, i.e. ADHD, ODD and CD; ADHD = Attention-Deficit Hyperactivity Disorder; ODD = Oppositional Defiant Disorder; CD = Conduct Disorder

than girls ($p = 0.09$ and $p = 0.10$). Among Turkish children, boys showed a non-significantly higher prevalence of psychiatric disorders in general ($p = 0.85$), DBD ($p = 0.83$) and ADHD ($p = 0.79$) than girls. Contrary to the other ethic groups, Turkish girls showed more ODD and less anxiety disorder than boys, although these differences were not statistically significant either.

Overall, we did not observe an association between SES with the prevalence of any psychiatric disorder, being similar for all ethnic groups ($p = 0.48$).

Figure I. The overall prevalence of psychiatric disorders separated by ethnicity and gender
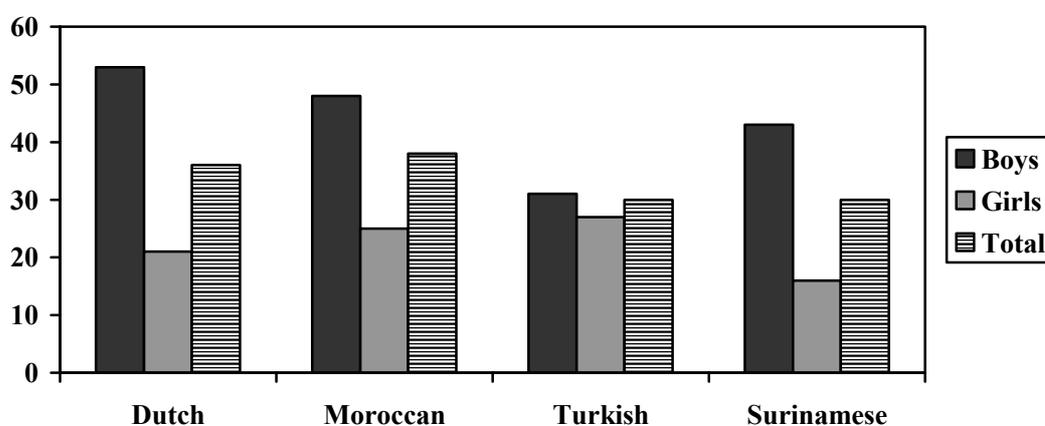
In addition, we estimated prevalences that combined best-estimate diagnoses with an impairment measure (Table III). The overall prevalence dropped from 33% to 11%, and was similar for Moroccan ($p = 0.15$), Turkish ($p = 0.96$), and Surinamese children ($p = 0.80$), when compared to Dutch children. The proportion children with an impairing DBD (9%) was higher than the proportion with a mood (2%) or anxiety disorder (3%). Among Dutch children, the prevalence of an impairing DBD or ADHD was 11%, which did not differ for Moroccan ($p = 0.70$ and $p = 0.45$), Turkish ($p = 0.39$ and $p = 0.62$) and Surinamese children ($p = 0.36$ and $p = 0.58$).

Gender effects remained in the expected direction. Impairing DSM-IV disorders were more prevalent in boys ($p < 0.001$), as were impairing DBD ($p < 0.001$), ADHD ($p = 0.001$), ODD ($p = 0.03$) and CD ($p = 0.05$), whereas the prevalence of impairing mood disorders and anxiety disorders was not significantly higher for boys ($p = 0.34$ and $p = 0.36$, respectively).

Table III. One-year prevalence (95% Confidence Intervals) of DSM-IV diagnostic categories including impairment

	Any Disorder + impaired (95%CI)	Any DBD + impaired (95%CI)	ADHD + impaired (95%CI)	ODD + impaired (95%CI)	CD + impaired (95%CI)	Any Mood + impaired (95%CI)	Any Anxiety + impaired (95%CI)
Total	11 (8-14)	9 (6-11)	7 (5-10)	4 (2-6)	2 (1-3)	2 (0-3)	3 (1-5)
Boys	16 (11-21)	14 (9-19)	12 (7-16)	6 (3-9)	3 (1-5)	2 (0-4)	3 (0-6)
Girls	5 (2-9)	3 (0-5)	2 (0-5)	2 (0-4)	0 (0-1)	1 (0-4)	2 (0-5)
Dutch	11 (4-18)	11 (4-18)	11 (3-18)	5 (0-10)	1 (0-2)	0 (0-1)	0 (0-1)
Boys	22 (7-37)	22 (7-37)	22 (7-37)	10 (0-21)	2 (1-3)	1 (0-1)	1 (0-1)
Girls	1 (0-3)	1 (0-3)	1 (0-3)	0 (0-0)	0 (0-0)	0 (0-0)	0 (0-0)
Moroccan	13 (7-19)	8 (6-10)	6 (4-8)	4 (2-5)	2 (1-3)	5 (0-11)	5 (0-11)
Boys	18 (10-26)	12 (10-15)	10 (7-13)	5 (3-8)	3 (1-5)	5 (0-13)	6 (0-14)
Girls	6 (0-15)	2 (0-4)	2 (0-4)	2 (0-4)	0 (0-0)	4 (0-13)	4 (0-13)
Turkish	12 (4-21)	9 (2-17)	6 (0-13)	4 (0-8)	2 (0-7)	0 (0-1)	5 (0-11)
Boys	11 (0-23)	11 (0-23)	7 (0-15)	1 (0-3)	4 (0-13)	0 (0-0)	1 (0-3)
Girls	13 (0-26)	7 (0-17)	6 (0-16)	6 (0-16)	0 (0-0)	1 (0-2)	5 (0-14)
Surinamese	6 (5-8)	6 (4-7)	5 (3-6)	4 (2-6)	2 (0-3)	1 (0-2)	0 (0-0)
Boys	12 (9-14)	11 (8-13)	8 (5-11)	8 (5-11)	2 (0-4)	2 (0-4)	0 (0-0)
Girls	1 (0-3)	1 (0-3)	1 (0-3)	0 (0-0)	1 (0-3)	0 (0-0)	0 (0-0)

Note: DBD = Disruptive Behaviour Disorders, i.e. ADHD, ODD and CD; ADHD = Attention-Deficit Hyperactivity Disorder; ODD = Oppositional Defiant Disorder; CD = Conduct Disorder

The gender effects observed in the total group were similar for almost all ethnic groups. The prevalence of any impairing DSM-IV disorder and impairing DBD was higher in Dutch ($p = 0.01$ and $p = 0.01$) and Moroccan boys ($p = 0.01$ and $p = 0.01$), and tended to be higher in Surinamese boys ($p = 0.05$ and $p = 0.07$), when compared to girls. Dutch boys had more impairing ADHD and Moroccan boys tended to have more impairing ADHD than girls ($p = 0.02$ and $p = 0.05$, respectively). The prevalence of impairing ADHD was non-significantly higher in Surinamese boys ($p = 0.15$), as compared to girls. Among Turkish children, the prevalence for any impairing DSM-IV diagnosis, impairing DBD or ADHD did not differ between boys and girls ($p = 0.47$, $p = 0.91$ and $p = 0.96$, respectively).

Again, we observed no relation between SES and any impairing psychiatric disorder, which was similar for all ethnic groups ($p = 0.73$).

Discussion

The present study is innovative, as it is the first epidemiological study in Europe that estimated the prevalence of childhood psychiatric disorders based on best-estimate diagnoses in four different ethnic groups from one population. It appeared that the prevalence of psychiatric disorders did not differ between native Dutch and immigrant children. Generally, psychiatric disorders were more prevalent among boys than among girls with the exception of anxiety disorders which were more frequently observed in girls.

The overall prevalence of psychiatric disorders was estimated at 33%, among which DBD (25%) in general and ADHD (19%) in particular, were more common than mood disorders (8%) and anxiety disorders (8%). This prevalence estimate is comparable to the 36% observed in another study conducted in the Netherlands (Verhulst et al. 1997), but higher than the prevalence estimates in other countries (Ford et al. 2003); (Bilenberg et al. 2005).

The relatively high prevalence of psychiatric disorders in the present study, may be related to the best-estimate procedure, which has found to yield a higher rate of diagnoses than interviews alone (Kosten & Rounsaville 1992). Nevertheless, the rather high prevalence estimates are in line with other studies that focused on youth living in deprived areas (Kashani et al. 1987); (Bird et al. 1988). Moreover, it was hypothesized that not all children with a DSM-IV diagnosis were functionally impaired. Therefore, we estimated the prevalence after including an impairment criterion, which yielded an overall prevalence of 11%, similarly for all ethnic groups. This drop in prevalence after including an impairment measure has been found previously (Verhulst et al. 1997); (Canino et al. 2004).

The observation that the prevalence of psychiatric disorders was similar for Western native and non-Western immigrant children, is consistent with the results of comparable studies in the US (Costello et al. 1997); (Angold et al. 2002), but in contrast to other studies (Bird 1996); (Crijnen et al. 1997); (Roberts et al. 1998). However, the latter studies compared prevalence estimates in different populations using different methodologies which, at least in part, may explain the observed differences.

The few European studies that compared native and immigrant children offered contradictory results regarding the ethnic differences in the level of problem behaviour, depending on which informant provided the data. For instance, Moroccan immigrant adolescents themselves reported fewer problems than their Dutch native counterparts, whereas parents observed no difference in the level of problem behaviour, in contrast to teachers who reported more externalizing problems for Moroccan than for native Dutch youth (Stevens et

al. 2003). Likewise, according to teacher ratings Turkish immigrant and native Dutch children display similar levels of problem behaviour (Crijnen et al. 2000), whereas according to self-reports the level of problem behaviour differed between Turkish immigrant and Dutch children (Murad et al. 2003). Nevertheless, these studies relied on rating scales and lacked a gold standard.

Remarkably, gender differences in the prevalence of psychiatric disorders appeared to be cross-culturally invariant, as boys had more psychiatric disorders than girls in all ethnic groups, except for the Turks, accounted for largely by a relatively lower prevalence among Turkish boys. This cross-cultural consistency in gender effects is in accordance with previous findings (Crijnen et al. 1999). The relatively low prevalence of psychiatric disorders among Turkish boys is in line with a study in which Turkish boys reported less delinquent behaviour than Dutch boys (Murad et al. 2003).

In contrast with previous results (Verhulst & Achenbach 1995), we observed no association between the prevalence of psychiatric disorders and SES, i.e. parents' highest educational level. Possibly, the variation in SES in these low SES inner-city areas is too small to detect associations between SES and the prevalence of psychiatric disorders. Another explanation may be that the influence of living in a deprived neighbourhood outweighs the effect of the individual level of SES on the prevalence of psychiatric disorders (Kalff et al. 2001).

Limitations

The members of the diagnostic panel in our study were all of Dutch origin, and may therefore be biased in assessing non-Dutch children. For instance, Sonuga-Barke et al (1993) reported that English teachers rated Asian immigrant children higher on hyperactivity symptoms than English native children, whereas the scores on more objective measures of hyperactivity were similar for both groups (Sonuga-Barke & Minocha 1993). Nevertheless, the members of our diagnostic panel were experienced in working with children of non-Dutch origin. Moreover, our best-estimate procedure has been attuned by an expert panel qualified in working with non-Dutch children and including one professional of non-Dutch origin. Therefore, we consider the possibility of perceptual bias of limited size.

Furthermore, as only 160 (11.2 %) of the non-Dutch children in our study were born in the country of origin and as we have sampled from disadvantaged inner-city neighbourhoods, our results concern second generation immigrants from low SES urban areas, and may not generalize to first generation immigrant children or to neighbourhoods

with middle and higher SES levels without additional study. Among children from families with low SES and deprived neighbourhoods the prevalence of psychiatric disorders may be relatively high (Verhulst & Achenbach 1995); (Schneiders et al. 2003). Moreover, the prevalence of psychiatric disorders among high SES migrants and natives may differ. Nevertheless, as most migrants are from the lowest SES, generalizing to middle and higher SES neighbourhoods seems of less relevance.

Finally, in comparison with other epidemiological studies, the sample size in the second stage of the present study was rather small, which reduces the statistical power to detect small differences. Yet, the stability of the point estimates of the prevalence across gender and ethnicity groups suggests that this problem is limited.

Conclusion

In conclusion, our study shows that the prevalence of childhood disorders does not differ for Western native children and for non-Western immigrant children in low SES inner-city neighbourhoods. As we studied different ethnic groups from one population using one single methodology including uniform diagnostic assessments, our findings may indicate that previously observed differences in prevalence estimates (Bird 1996, Roberts et al. 1998, Stevens et al. 2003, Murad et al. 2003) may at least in part be due to methodological variations. Therefore, it is of great importance to study the effect of ethnicity on the prevalence of psychiatric disorders by comparing ethnic groups from one population using one single methodology and best-estimate diagnoses.

Our finding that the prevalence of psychiatric disorders is similar for immigrant children and their native counterparts who reside in the same low SES inner-city neighbourhoods, has not only relevance for the Netherlands, but also for other multiethnic societies, as immigrants in these countries are also highly concentrated in poor urban neighbourhoods. As a result, the prevalence estimates in low SES urban areas in these countries may parallel the currently observed prevalence estimates. However, although the prevalence of psychiatric disorders in low SES inner-city areas may be similar for native and immigrant children, the prevalence and the effects of risk and protective factors may differ according to ethnicity (Deater-Deckard & Dodge 1997, Beiser et al. 2002) and should therefore be taken into account in both research as practice.

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CHAPTER 5

**Ethnic differences in
parental detection of
externalizing disorders**

Abstract

Background

Previous research has reported lower treatment rates for externalizing disorders among non-Western children as compared to Western children. Ethnic differences in parental detection may be an explanation for this discrepancy.

Aims

In a cross-sectional study among the four largest ethnic groups in the Netherlands, namely Dutch, Moroccan, Turkish and Surinamese, we examined the influence of ethnicity on parental detection of behavioural disorders.

Method

A total of 270 children (aged 6-10 years) and their parents were interviewed regarding psychiatric disorders and socio-demographic data. Sensitivity and specificity were calculated by using standard definitions, with adjustment for parental educational level.

Results

Sensitivity to detect any externalizing disorder and ADHD in particular was significantly lower among Moroccan and Surinamese parents when compared to Dutch parents. Sensitivity to detect ADHD tended to be lower among Turkish parents. Specificity to detect any externalizing disorder was higher among Moroccan and Turkish parents. Specificity to detect ADHD was higher among Moroccan parents and tended to be higher among Turkish parents.

Conclusions

The detection rate of externalizing disorders is markedly lower among non-Dutch parents than among Dutch parents. This finding emphasizes the importance of taking parents' cultural context into account when appraising their report on possible externalizing disorders in their children.

Introduction

Externalizing disorders, such as attention-deficit hyperactivity disorder (ADHD), oppositional defiant disorder (ODD), and conduct disorder (CD) are associated with substantial unfavourable long term outcomes. Among these are impairments in academic and psychosocial functioning (Biederman et al. 1996), substance use disorder, antisocial personality disorder (Mannuzza et al. 1989) and delinquency (Satterfield & Schell 1997). The combination of stimulant and psychosocial treatment, has been shown to be effective in reducing symptoms of externalizing disorders (MTA Cooperative Group 1999).

However, both in the US (Safer & Malever 2000) as in Europe (Zwirs et al. 2006) treatment rates for behavioural disorders have reported to be lower in non-Western children as compared to Western children. Since parental identification of the child's problem behaviour has found to be a prerequisite for mental health service use (Sayal et al. 2002), ethnic differences in parental detection of behavioural problems may be an explanation for the observed discrepancy in treatment status between Western and non-Western children.

Although few studies have examined the extent of ethnicity bias in reporting on behavioural problems, there is some evidence to suggest that cross-cultural differences in perceptions do exist. For instance, within the vignette approach perceptual differences towards externalizing problems have been observed between Chinese and Indonesian clinicians on the one hand and Japanese and American clinicians on the other hand (Mann et al. 1992), but also between Jamaican and American teachers and parents (Lambert et al. 1992). Furthermore in observational studies, perceptual differences on problem behaviour have been reported for African American and Jamaican teachers (Puig et al. 1999), and for Thai and American teachers (Weisz et al. 1995). Nevertheless, in a sample of bicultural families, each with a Thai and a Caucasian American parent, no differences were observed in parental perspectives on problem behaviour (Weisz & McCarty 1999).

Notwithstanding the relevance of these studies, they suffer from some limitations. For instance, the vignette approach used to assess the possible effect of parental culture on reports of problem behaviour suffers from the limitation that it is not clear to what extent parents' vignette responses are in line with their judgments on their own children in real life (Weisz & McCarty 1999). In addition, in observational research children are observed in specific settings during a restrictive time period. As a result, the information obtained by observers may not be as comprehensive as that of teachers or parents (Weisz et al. 1995). Finally, intercultural couples may hold cultural values that differ from their cultural mainstream,

blurring the intercultural differences that are the focus of bicultural parent-versus-parent design (Weisz & McCarty 1999). Cross-cultural research that compares parental judgments of their own child's problem behaviour to a standard of validity does not exist.

The present study was designed to examine whether ethnicity influences sensitivity and specificity of parents to detect behavioural disorders. We compared parental reports to best-estimate diagnoses in a cross-sectional study among the four largest ethnic groups in the Netherlands, namely Dutch, Moroccan, Turkish and Surinamese.

Method

Subjects

The sample consisted of a subset of participants of a larger study on the detection of ADHD among children of Different Ethnic Origins in the Netherlands (ADEON-study), which was designed to examine prevalence of behavioural disorders and service use in children of the four largest ethnic groups in the Netherlands. For the first phase of the ADEON-study (Zwirs et al. 2006), parents of 2802 children, enrolled in grade 3 through 5 of mainstream schools in two large cities in the Netherlands, Amsterdam and Utrecht, were asked permission for their child's teacher to be administered the teacher version of the Strengths and Difficulties Questionnaire (SDQ)(Goodman 1997). To obtain a sample with all four ethnicities represented, we solely sampled schools from areas with a large immigrant population which are characterized by a low SES (Knol 1998).

Children with another ethnic origin than Dutch, Moroccan, Turkish or Surinamese, were excluded from the study (N=336). Information by teacher report was gathered about problem behaviour, level of impairment and treatment status of 2185 children out of 2466 children (89%). Teachers in the Netherlands are accurately informed about the treatment status of the child, as the mental health care system cooperates with them during the treatment process, e.g. teachers are asked to fill in questionnaires about the behavior of the children in school.

For the second phase of the study, which is described in the present article, we excluded children that were treated for behavioural problems or other psychiatric disorders (N=104). Subsequently, we selected all children scoring above the 90th percentile on the Hyperactivity Scale and the Conduct Problems Scales on the SDQ (N=153) and a random sample of children scoring below this cut-off (N=223) resulting in 376 eligible children. Seventy-two percent of the parents agreed to participate (N=270), with no significant

variation across ethnicity. For logistic reasons, one child and 13 parents were unable to participate in the interview. Consequently, 269 child interviews and 257 parent interviews were left for the analyses. From 256 children both parent and child interviews were obtained.

Instruments

Parents were administered the Diagnostic Interview Schedule for Children-Parent Version. The DISC-P is a highly structured diagnostic interview and can be used by lay-persons to generate valid DSM-IV diagnoses (Shaffer et al. 2000). The instrument consists of 6 modules, each containing related diagnoses (Anxiety, Mood, Disruptive, Substance Use, Schizophrenia and Miscellaneous Disorders), which can be administered independently. Because of time constraint, our special interest in behavioural disorders, and expected diagnostic prevalence in children, we included the following modules only: Attention-deficit Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD), Conduct Disorder (CD), Separation Anxiety Disorder (SAD), Generalized Anxiety, Posttraumatic stress disorder (PTSS), Major Depressive disorder (MDD) and Bipolar Disorder (BD). The internalizing disorders, SAD, PTSS, MDD and BD, were only examined because of differential diagnosis, as the focus of our study were externalizing disorders.

Schwab-Stone *et al* (1996) reported good to excellent test-retest reliability for ADHD ($\kappa=0.60$), moderate test-retest reliability for ODD ($\kappa=0.68$), CD ($\kappa=0.56$) and MDD ($\kappa=0.55$) and poor reliability for SAD ($\kappa=0.45$). Agreement between the DISC and clinician ratings were moderate to very good except for SAD (Schwab-Stone et al. 1996).

In addition to the DISC-P, general information was collected including developmental history, psychiatric disorders in the family and information about parents' highest educational level. The educational level of the parents was used as a proxy measure for socio-economic status (SES) and was delineated on a 5-point scale: 0=no education; 1=elementary school; 2= secondary vocational; 3=secondary general; and 4=tertiary.

The diagnostic interviews with the children were conducted by an experienced child psychiatrist using the Semi-structured Clinical Interview for Children and Adolescents (SCICA). The SCICA provides a flexible semi-structured interview format for assessing children aged 6-18 regarding nine broad areas of functioning: 1. Activities, school, job; 2. Friends; 3. Family Relations; 4. Fantasies; 5. Self perception, Feelings; 6. Parent/Teacher-Reported Problems; 7. Achievement Tests (optional); 8. For ages 6-11: Screen for Fine and Gross Motor Abnormalities (optional) and 9. For ages 12-18: Somatic complaints, Alcohol, Drugs, Trouble wit the Law (McConaughy & Achenbach 2001). The good reliability and

validity of the SCICA as established in an American sample (McConaughy & Achenbach 2001) have been replicated in a Dutch sample (Kasius 1997). Moreover, SCICA-items have found to be very consistent with DSM-IV diagnostic categories (McConaughy & Achenbach 2001). As our study subjects were aged 6 to 11 years, we left out the questions about work and alcohol and we adapted the questions about somatic complaints, drugs and trouble with the law.

With regard to area 6 of the SCICA, we administered a short questionnaire to teachers which was completed prior to the SCICA interview. This questionnaire included 10 DSM-IV items: 2 ADHD items on inattention ('Often loses things needed for tasks and activities (e.g. toys, school assignments, pencils, books or tools)'; 'Is often forgetful in daily activities'), 2 ADHD items about hyperactivity ('Often runs about or climbs when and where it is not appropriate'; 'Often has trouble playing or enjoying leisure activities quietly'), 1 ADHD on impulsivity ('Often interrupts or intrudes on others (e.g. butts into conversations or games')), 2 items on oppositional behaviour ('Often blames others for his mistakes or misbehaviour'; 'Often deliberately annoys people'), 1 item about conduct behaviour ('Has deliberately destroyed others' property') and 2 items about depressive symptoms ('Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day'; 'Low energy or fatigue').

Procedure

Interviews with both parents and children took place in school in separate private rooms. When parents were not willing to attend the interview at school, they were visited at home. The children were interviewed by an experienced child psychiatrist and the parents were interviewed by a trained psychologist or a trained medical student. When necessary, interviews with Turkish and Moroccan parents were conducted in Turkish, Moroccan Arabic, or Berber. The trained bilingual and bicultural interviewers had translated the DISC into Turkish, Moroccan Arabic and Berber. All interviews with children were videotaped. After complete description of the study to the subjects, written informed consent was obtained from all parents. The study protocol was approved by the Medical Ethical Committee of University Medical Centre Utrecht.

Clinical diagnoses were consensually formulated by a committee chaired by a board certificated psychiatrist and consisting of two other child psychiatrists who conducted the SCICA interviews and a psychologist who conducted DISC-P-interviews. The best-estimate

procedure for diagnosis was used: SCICA results were considered in conjunction with the DISC-P-results and school-information. We arrived at a best-estimate diagnosis when this was indicated by at least two informants, i.e. parent-child, parent-teacher or teacher-child. When no agreement was achieved in this clinical conference (N=15) the child was recommended for the expert panel, consisting of the aforementioned persons accompanied by two other psychiatrists experienced in working with patients from different ethnic origins. Best-estimate diagnoses were considered as gold standard.

Analysis

To obtain more statistical power we increased the number of DISC-P-cases by determining subthreshold DISC-P-diagnoses (Kadesjo & Gillberg 2001). This was accomplished by choosing a cut-off of one symptom below the common criterion level. We calculated parental sensitivity as the proportion of children with a DISC-P diagnosis out of the total number of children who received that DISC-P diagnosis as the best-estimate diagnosis. Likewise, we calculated specificity as the proportion of those without a DISC-P diagnosis out of the total number of children without that best-estimate diagnosis. Sensitivity and specificity were supplied with an exact binomial 95% confidence interval (95% CI).

We further calculated the relative risk of a Moroccan, Turkish or Surinamese ethnic background for a parental DISC diagnosis in the presence of a best estimate diagnosis (sensitivity), as well as the relative risk of no parental DISC diagnosis in the absence of a best estimate diagnosis (specificity). Dutch ethnicity served as the reference group. Logistic regression was used to see whether parents' educational level explained differences in sensitivity and specificity. The measures of association in these analyses were odds ratios with 95% CI.

Results

Sample characteristics

Table I shows subjects' demographic characteristics. Across ethnicities no substantial differences were observed, with the exception of lower parental educational level for Moroccan and Turkish children. Across ethnicity the DISC's externalizing modules demonstrated acceptable to good levels of internal consistency with Cronbach's alpha coefficients of 0.85, 0.83, 0.73 and 0.83 for the ADD scale, 0.78, 0.81, 0.66 and 0.69 for the

Hyperactivity-Impulsivity Scale, and 0.81, 0.61, 0.68 and 0.69 for the ODD scale among the Dutch, Moroccan, Turkish and Surinamese group, respectively. As most items on the CD scale showed zero variance, it was not possible to compute Cronbach's alpha for this scale.

Table I. Demographic characteristics of the study population

	Eligible	Included N (%)	Complete cases N (%)	Age (years) Mean (Min; max)	Boys (%)	PEL Median (Min ; max)
Dutch	98	69 (70)	69 (100)	7.6 (6; 10)	57	3 (0; 4)
Moroccan	109	84 (77)	78 (93)	8.0 (6; 11)	67	2 (0; 4)
Turkish	84	60 (71)	53 (88)	8.0 (6; 10)	51	2 (1; 4)
Surinamese	85	57 (67)	56 (98)	7.9 (6; 10)	57	3 (0; 4)
Total	376	270 (72)	256 (95)	7.6 (6; 11)	59	3 (0; 4)

Note: PEL= Parental Educational Level

Overall parental detection of behavioural disorders

Parental detection rates of children with any externalizing disorder, ADHD and ODD are presented in Table II. Ninety-two children had a best-estimate diagnosis of a behavioural disorder. Of these, 36 children (39%) received a DISC-P-diagnosis of a behavioural disorder. Consequently, 56 (61%) had a best-estimate diagnosis of an externalizing disorder, that was not identified by parents. Twenty-four (15%) received a DISC-P-diagnosis of a behavioural disorder, but did not have one, while 140 (85%) were correctly identified as having no externalizing disorder. This pattern was not essentially different for ADHD and ODD. As only one (Dutch) child received a DISC-P-diagnosis of CD these data are not presented.

Parental detection according to ethnicity

Table II also shows the influence of ethnicity on the sensitivity and the specificity to detect behavioural disorders. Compared with a Dutch background, a Moroccan and a Surinamese background reduced sensitivity to detect an externalizing disorder with a factor

Table II. Parental sensitivity and specificity to detect behavioural disorders (95% confidence intervals)

	Best-estimate diagnosis any externalizing disorder		Best-estimate diagnosis ADHD		Best-estimate diagnosis ODD	
	Yes	No	Yes	No	Yes	No
Total group						
DISC Yes	36 SE = 39% (29-50)	24	26 SE = 35% (24-47)	16	9 SE = 20% (10-35)	27
DISC No	56	140 SP = 85% (79-90)	48	166 SP = 91% (86-95)	35	185 SP = 87% (82-91)
Total	92	164	74	182	44	212
Dutch						
DISC Yes	16 SE = 70% (47-87)	13	14 SE = 64% (41-83)	8	4 SE = 50% (16-84)	14
DISC No	7	33 SP = 72% (57-84)	8	39 SP = 83% (69-92)	4	47 SP = 77% (65-87)
Total	23	46	22	47	8	61
Moroccan						
DISC Yes	5 SE = 16% (5-33)	4	5 SE = 20% (7-41)	3	0 SE = 0% (one sided:-24)	4
DISC No	27	42 SP = 91% (79-98)	20	50 SP = 94% (84-99)	14	60 SP = 94% (85-98)
Total	32	46	25	53	14	64
Turkish						
DISC Yes	7 SE = 47% (21-73)	2	3 SE = 27% (6-61)	1	3 SE = 38% (9-76)	4
DISC No	8	36 SP = 95% (82-99)	8	41 SP = 98% (87-100)	5	41 SP = 91% (79-98)
Total	15	38	11	42	8	45
Surinamese						
DISC Yes	8 SE = 36% (17-59)	5	4 SE = 25% (7-52)	4	2 SE = 14% (2-43)	5
DISC No	14	29 SP = 85% (69-95)	12	36 SP = 90% (76-97)	12	37 SP = 88% (74-96)
Total	22	34	16	40	14	42

Note: DISC = Diagnostic Interview Schedule for Children; ADHD = Attention-Deficit Hyperactivity Disorder; ODD = Oppositional Defiant Disorder; SE = Sensitivity; SP = Specificity

0.23 (95%CI=0.10-0.53) and 0.52 (95%CI=0.28-0.97), respectively. Between Dutch and Turkish parents no significant difference was observed in this measure (Relative Risk = 0.67; 95% CI = 0.37-1.23).

A Moroccan and Turkish background increased the specificity to detect any externalizing disorders with 1.27 (95%CI=1.04-1.56) and 1.32 (95%CI=1.09-1.61), respectively. No significant difference was observed in this measure between Dutch and Surinamese parents (RR=1.19; 95%CI=0.95-1.50). Table III presents the odds ratios for any externalizing disorder, unadjusted and adjusted for parental educational level.

Table III. Odds Ratios for any externalizing disorders across ethnicity, unadjusted and adjusted for parental educational level

	Sensitivity		Specificity	
	Unadjusted OR (95%CI)	Adjusted OR (95%CI)	Unadjusted OR (95%CI)	Adjusted OR (95%CI)
Dutch	Reference	Reference	Reference	Reference
Moroccan	0.08 (0.02-0.30)*	0.09 (0.02-0.35)*	4.14 (1.23-13.87)*	3.68 (1.06-12.84)*
Turkish	0.38 (0.10-1.47)	0.40 (0.10-1.55)	7.09 (1.49-33.81)*	6.70 (1.39-32.20)*
Surinamese	0.25 (0.07-0.87)*	0.29 (0.08-1.02)**	2.29 (0.73-7.19)	2.14 (0.68-6.79)

Note: * $p < 0.05$; ** $p = 0.05$;

In addition, we examined the influence of ethnicity on the sensitivity and the specificity to detect ADHD. Compared to Dutch parents, Moroccan and Surinamese parents were 0.31 (95%CI = 0.14-0.73) and 0.39 (95%CI=0.16–0.97) times less likely to identify cases of ADHD, respectively. Sensitivity to detect ADHD tended to be 0.43 (95%CI=0.16-1.18) times lower among Turkish parents.

The specificity to detect ADHD was 1.14 (95%CI=0.98-1.32) times higher among Moroccan parents and tended to be 1.18 (95%CI=1.03-1.35) times higher Turkish parents. No significant difference was observed in this measure between Dutch and Surinamese parents (RR=1.08; 95%CI=0.92-1.28). Table IV presents the odds ratios for ADHD, unadjusted and adjusted for parental educational level. As can also be seen from Table II, parental sensitivity to detect ODD was lower in non-Dutch parents. Parental specificity to detect ODD was higher

among non-Dutch parents as compared to Dutch parents. However, too few cases of ODD were identified for OR's to be reliable.

Table IV. Odds Ratios for ADHD across ethnicity, unadjusted and adjusted for parental educational level

	Sensitivity		Specificity	
	Unadjusted OR (95%CI)	Adjusted OR (95%CI)	Unadjusted OR (95%CI)	Adjusted OR (95%CI)
Dutch	Reference	Reference	Reference	Reference
Moroccan	0.14 (0.04-0.53)*	0.14 (0.03-0.55)*	3.42 (0.85-13.75)**	3.12 (0.73-13.28)
Turkish	0.21 (0.04-1.05)**	0.20 (0.04-1.01)**	8.41 (1.01-70.39)*	8.09 (0.96-68.19)**
Surinamese	0.19 (0.05-0.79)*	0.23 (0.05-0.98)*	1.85 (0.51-6.66)	1.76 (0.49-6.37)

Note: * $p < 0.05$; ** $p < 0.09$;

Discussion

This study is the first to evaluate the effect of ethnicity on parental sensitivity and specificity to detect behavioural problems by comparing parental reports to best-estimate diagnoses. It appeared that non-Dutch parents detected considerably fewer externalizing disorders than Dutch parents.

Even though we used a more flexible cut-off for the DISC-P diagnoses, the DISC did not perform well as a diagnostic instrument. Parents only detected 39% of the children with an externalizing disorder. Hence, based on parental reports 61% of children with a behavioural disorder would not be detected. Conversely, 15% of children were incorrectly identified as having an externalizing disorder, while 85% was appropriately recognized as not having one. By way of comparison, if the more stringent cut-off had been used, the sensitivity and the specificity would have been 25% and 91%, respectively (data not shown).

In contrast, previous studies (Boyle et al. 1993, Lewczyk et al. 2003) reported higher prevalence of disruptive behaviour disorders based on structured interviews as compared to clinical diagnoses. However, these studies evaluated the Diagnostic Interview Schedule for Children and Adolescents (DICA-R) instead of the DISC-IV examined in the present study (Boyle et al. 1993), or studied a clinical sample (Lewczyk et al. 2003) instead of the community sample we studied. In addition, we used the best-estimate procedure as

comparison, which has found to yield a higher rate of diagnoses than interviews alone (Kosten & Rounsaville 1992).

Yet, as we assessed subthreshold DISC-P diagnoses, the observed low sensitivity and high specificity among parents, remains remarkable. An explanation for this finding may be the overall low SES of our sample, since adults belonging to lower social classes have found to answer less honestly and more defensively than adults of higher social classes (Kalliopuska 1992).

The overall low parental sensitivity but high specificity observed in the current study can also be explained by the presence of Moroccan, Turkish and Surinamese immigrant parents, as these measures varied significantly according to ethnicity. A Moroccan or Surinamese background reduced the sensitivity to detect any externalizing disorder and ADHD in particular, substantially. Among Turkish parents, the sensitivity to detect ADHD tended to be lower. Conversely, specificity to detect any behavioural disorder was markedly higher among Moroccan and Turkish parents. The specificity to detect ADHD was significantly higher for Moroccan parents and tended to be higher for Turkish parents.

Studies on the influence of ethnicity on parental detection of behavioural disorders are rare but consistent in suggesting that non-Western parents report less externalizing disorders when compared to Western parents. For instance, Stevens *et al* (2003) found that Moroccan immigrant parents rated their children lower on attention problems and delinquent behaviour when compared to native Dutch parents (Stevens et al. 2003). Likewise, Turkish children received lower scores from their parents on delinquent behaviour and aggressive behaviour than American children (Erol et al. 1995). Nevertheless, these studies did not include a standard of validity and therefore, it remains unclear as to whether the observed variations reflect actual differences in children's behaviour or ethnic differences in parental detection.

An explanation for the observed lower detection rate of children's externalizing disorders among Moroccan, Turkish and Surinamese minority parents, as evident from a relatively low sensitivity and high specificity, may be that these parents apply other definitions of normal and abnormal behaviour. Indeed, it is generally believed that parental attitudes towards acceptable behaviour are influenced by ethnicity. For instance, Gujarati parents have been found to tolerate fewer behaviour problems than English parents (Hackett & Hackett 1993). Likewise Bussing (2003) reported that Caucasian parents were more worried about ADHD-related school problems than African-American parents (Bussing et al. 2003). Moreover, non-Western parents like Moroccan, Turkish and Surinamese parents in the current study may be more likely to provide socially desirable responses. For instance, Arab

parents in the United Arab Emirates have found to be reluctant to acknowledge that a family member had a mental illness(Eapen & Ghubash 2004). In addition, since the level of monitoring has found to be relatively low among Moroccan parents, when compared to Dutch parents (Junger et al. 1995), the lower detection rate of non-Dutch parents may also be related to the fact that these parents are less well informed about their children's functioning outside the home. Finally, Moroccan, Turkish and Surinamese immigrant children may show relatively less problem behaviour at home than outside of the home as compared to native Dutch children, which may associated with a with an authoritarian socialization inside of the home, but with a lack of supervision outside of the home as observed in Moroccan families (Pels 2003).

Limitations

Our results have to be evaluated with consideration of some limitations. First, the DISC-P had not been translated and validated for a Turkish, Moroccan or Surinamese sample. As a result, semantic or conceptual differences in the DISC may be responsible for the relatively low sensitivity and high specificity among non-Dutch parents. However, as 70% of the Moroccans in the Netherlands are of Berber origin and as Berber is an oral language of which many dialects do exist, it would be hardly possible to develop a 'standard translation' of the DISC in Berber. Therefore, we think that our translations, which resulted from extensive discussions among the carefully trained bicultural/bilingual interviewers and consultation of different experts, are relatively valid translations. Moreover, as a lower detection rate was also observed among Surinamese parents (who were interviewed in Dutch) and among Dutch speaking Turkish and Moroccan parents, it is unlikely that our results are fully explained by semantic or conceptual differences. Finally, in practice non-Dutch parents in the Netherlands are assessed with instruments that are developed and standardized in Western samples and therefore our results reflect the reality. Still, future research is needed to validate instruments in non-Western samples like Moroccans, Turkish and Surinamese, and to clarify to what extent a lower detection rate among these parents is explained by the instruments that are used.

As the members of the diagnostic committee and the larger expert panel, who were mainly of Dutch origin, were not blinded to the ethnicity of the child, an ethnic bias may have influenced the diagnoses. For instance, English teachers have been found to score Asian immigrant children higher on hyperactivity symptoms than English native children, whereas

the ratings on more objective measures of hyperactivity were similarly for both groups (Sonuga-Barke & Minocha 1993). Likewise, the clinicians in the present study may have been more likely to identify non-Dutch children as disordered, when compared to Dutch children. However, as the professionals were experienced in working with children of non-Dutch origin, we expect them to be culturally sensitive. Moreover, since the prevalence of psychiatric disorders based on the best-estimate diagnosis was not higher for non-Dutch children as compared to Dutch children (Zwirs et al. *submitted*), it is unlikely that a strong perceptual bias distorted the results.

In addition, the best-estimate diagnosis chosen as 'gold standard' for this study may not have perfect reliability or validity itself. Nevertheless, as this 'gold standard' draws on three important sources (parent, child and teacher), includes the perspectives of different professionals, and has been evaluated by an expert panel, we think it is a reasonable standard of validity.

Finally, as we have sampled from inner-city neighbourhoods with a low SES, our findings cannot be generalized to other neighbourhoods with middle and higher SES levels without additional study. In a middle or high SES sample, sensitivity may be higher and specificity lower (Kalliopuska 1992). Nevertheless, as most migrants in the Netherlands live in urban areas and are from the lowest SES, generalizing to middle and higher SES neighbourhoods seems of less relevance.

Conclusion

The current study shows that, although a more flexible cut-off for diagnosing DISC-P diagnoses was used, the detection rate of externalizing disorders was low among all parents, but in particular among non-Dutch parents. If the more stringent cut-off had been used, the detection rate of parents would have been even lower. Thus, the original criterion level for diagnosing DISC-P diagnoses would have been too stringent. However, as the detection rate was also relatively low with the more flexible cut-off, it may be questioned whether the DISC is suitable at all for assessment among parents of low SES and/or non-Dutch origin. Additional research is needed to examine whether semi-structured or open interviews are more appropriate.

The finding that non-Western parents, like the Moroccans, Turks and Surinamese in the present study, are relatively less likely to detect best estimate diagnoses of externalizing disorders, may be an explanation for the observed lower treatment rates among non-Western

children with behavioural disorders (Safer & Malever 2000) (Zwirs et al. 2006). Therefore, researchers and clinicians working with an ethnically diverse population should be cautious in deriving conclusions solely based on parental information. When assessing children of non-Western origin, it may be of particular importance to obtain information from other resources than the parents, such as the teachers.

Nevertheless, as it remains unclear to what extent the lower detection rate among non-Western parents is associated with ethnic differences in social desirability, in parental attitudes towards acceptable behaviour, in monitoring children's behaviour, or in the discrepancy between children's indoors and outdoors behaviour, future research is needed to elucidate the mechanisms underlying the lower detection rate among non-Western parents. Qualitative studies in particular may be required to clarify the meaning of externalizing items for non-Western parents and to find out whether they hold different concepts of behavioural disorders.

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CHAPTER 6

Screening for Disruptive

Behaviour Disorders among

children of different ethnic

origin

Summary

Background

Most screenings instruments for Disruptive Behaviour Disorders (DBD) have been developed and validated in Western children. The aim of the present study was to develop a brief screenings instrument to be completed by teachers for predicting DBD in a community sample of both western and non-western children.

Methods

Teachers completed the Strengths and Difficulties Questionnaire for an ethnic diverse sample of 2185 children aged 6-10 years. In a random sub sample, 254 children and their parents were additionally interviewed regarding psychiatric disorders and socio-demographic data. In this group stepwise logistic regression was used to derive a score for predicting a best-estimate diagnosis of DBD from gender and all items of the Hyperactivity and Conduct Problems Scale of the SDQ. The accuracy of the score was compared between western and non-western children.

Results

Ninety-one cases of DBD were identified. A DBD could accurately be predicted by the items 'restless' 'obeys', 'lies' and 'attends'. Gender did not contribute to a prediction of DBD. The area under the receiver operator characteristic (ROC) was 0.84 (95%CI: 0.79-0.89), indicating good discriminatory power with no substantial differences between western and non-western children.

Conclusions

DBD in both western and non-western children can be predicted with a scoring rule, based on only four items which can be easily administered by teachers. Before this internally validated prediction tool can be implemented, external validation in another sample is necessary.

Introduction

Children with Disruptive Behaviour Disorders (DBD), are at an increased risk of a variety of adverse outcomes in adolescence and adulthood, such as impairments in academic and psychosocial functioning (Biederman et al. 1996), delinquency (Satterfield & Schell 1997), substance use disorder and antisocial personality disorder (Mannuzza et al. 1989). DBD are represented by Attention-Deficit Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD) and Conduct Disorder (CD) (American Psychiatric Association 1994). As the diagnosis of these disorders requires extensive clinical interviews by experienced personnel which may be time-consuming and therefore quite costly, efficient screening is of great importance. Moreover, with the increasing ethnic diversity worldwide, screening instruments should validly predict DBD irrespective of ethnicity.

However, as most studies on Disruptive Behaviour Disorders (DBD) have been conducted in western children, the detection and treatment of DBD among children of non-western origin has received relatively little attention. Only recently, studies have been carried out on treatment rates for DBD among children of different non-western origin. These studies suggest that both in the US (Safer & Malever 2000) (Kataoka et al. 2002) as in Europe (Zwirs et al. 2006) treatment rates in non-western children are lower, when compared to western children. Possibly, DBD go largely undetected in children of non-Western origin.

Schoolteachers play an important role in the timely referral for the evaluation of possible DBD. To date, children are probably screened in an informal and hap-hazard fashion. This is at least in part because no concise easy-to-use scoring rule exists that enables teachers to estimate the likelihood that a child has a DBD and therefore has to be referred.. The Strengths and Difficulties Questionnaire (SDQ) (Goodman 1997), has shown to be a highly valid screening instrument. Psychiatric predictions based on the SDQ have been found to agree well with clinical diagnoses both in a clinical sample (Goodman et al. 2000b) as in a community sample (Goodman et al. 2000a). However, it requires 25 positive and negative attributes to be filled out not only by teachers but also by the 11- to 16-year-olds themselves and their parents (Goodman & Scott 1999).

Moreover, with the exception of the validation study of the SDQ in a clinic sample in Dhaka (Goodman et al. 2000b), studies that have specifically assessed the diagnostic accuracy of the SDQ for predicting DBD in community children of non-western origin, do not exist. Given the lower treatment rates of DBD in non-western children, detection of DBD in community samples of non-western children seems of particular importance. Furthermore,

whereas some DBD items would be better predictors of DBD than others, the ability of individual DBD items to predict DBD has not been studied previously.

The aim of the present study was 1) to evaluate the joint predictive value of gender with the SDQ Hyperactivity and Conduct Problems items of a best-estimate diagnosis on DBD in children of the four largest ethnic groups in the Netherlands (i.e. native Dutch and Moroccan, Turkish and Surinamese immigrants), and 2) to develop a brief and easily applicable instrument for teachers to determine the chance of having a DBD irrespective of ethnicity.

With a number of 1 million, Moroccan, Turkish and Surinamese constitute about 6% of the total Dutch population, and 60% of the approximately 1.7 million immigrants of non-western descent in the Netherlands (Statistics Netherlands, 2005). Since the 1960s and early 1970s Turks and Moroccans have come from Mediterranean countries to the Netherlands as labour migrants. Surinamese came from South America to the Netherlands during the process of decolonisation in 1975.

Methods

Subjects

The detection of ADHD among children of Different Ethnic Origins in the Netherlands-study (ADEON), took place in two large cities in the Netherlands (Amsterdam and Utrecht) from November 2002 to July 2004. A full description of the study's first phase has been previously reported (Zwirs et al. 2006). In brief, parents of 2802 children, enrolled in grade 3 through 5 of mainstream schools in low SES inner-city neighbourhoods (Knol 1998), were asked permission for their child's teacher to be administered a screenings questionnaire.

Children were classified as 'Dutch' when both the parents as the child itself were born in the Netherlands. Children were categorized as 'Moroccan', 'Turkish' or 'Surinamese', when at least one parent had been born in Morocco, Turkey or Surinamese, respectively. When both parents were foreign born, mother's country of birth was used to determine the child's ethnicity. As we were particularly interested in the four largest ethnic groups, we excluded children with another ethnic origin than Dutch, Moroccan, Turkish or Surinamese (N=336). As 281 (11%) parents refused to give permission, 2185 (89%) out of the remaining 2466 questionnaires were completed, with no significant variation in this proportion across ethnicity. After excluding 14 children with incomplete data and 104 children that were treated for behavioural problems or other psychiatric disorders, the source population consisted of

2067 children.

For the second stage of the study we invited all children scoring above the 90th percentile on the problem scales of the SDQ, referred to as 'screen-positives' (N=153), and a random sample of children scoring below this cut-off, denotes as 'screen-negatives' (N=223). As a result, 376 children were eligible of whom 270 (72%) parents and children participated, with no significant variation in this response rate between ethnic groups. Ninety-nine (65%) parents of the screen-positive and 171 (77%) parents of the screen-negative children participated. The logistic regression analysis was performed in all children with complete data (N=254).

Procedure

Parents and children were interviewed at school in two separate rooms. When parents were not willing to attend the interview at school, the interviews were conducted at home. The child interviews were performed by an experienced child psychiatrist and were all videotaped. Parents were interviewed by a trained psychologist or a trained medical student. Interviews with Turkish and Moroccan parents were conducted in Turkish, Moroccan Arabic, or Berber, when necessary. After complete description of the study to the subjects, written informed consent was obtained from all parents. The study was approved by the Medical Ethical Committee of University Medical Centre Utrecht.

Potential predictors: Demographic characteristics and SDQ-scales

As potential predictors we selected gender, all items of the Conduct Problems Scale ('Often loses temper', 'Generally well behaved, usually does what adults request', 'Often fights with other children or bullies them', 'Often lies or cheats', and 'Steals from home, school or elsewhere') and all items of the Hyperactivity Scale ('Restless, overactive, cannot stay still for long', 'Constantly fidgeting or squirming', 'Easily distracted, concentration wanders', 'Thinks things out before acting' and 'Good attention span, sees work through to the end') of the SDQ. Each item was scored on a three-point scale from 1 (not true) to 3 (definitely true). As the aim was to acquire an optimal prediction with a minimal burden on teachers, we did not include socio-economic status (SES) as a potential predictor. Moreover, SES has not found to improve the discriminating power of the attention problem scale (Chen et al. 1994).

Outcome: Best-estimate diagnoses on any DBD

Parents were interviewed using the Diagnostic Interview Schedule for Children-Parent Version (DISC-P), a highly structured diagnostic interview that can be used by lay-persons to generate valid DSM-IV diagnoses (Shaffer et al. 2000). The Semi-structured Clinical Interview for Children and Adolescents (SCICA), which is a flexible semi-structured interview for assessing children aged 6-18 years, was administered to the children (McConaughy & Achenbach 2001). As the SCICA asks about the child's perception of problems reported by parents or teachers, we administered a short questionnaire to teachers which was completed prior to the SCICA interview. This questionnaire included 10 DSM-IV items (American Psychiatric Association, 1994). A full description of these items has been previously described (Zwirs et al. *accepted*).

The best-estimate procedure was used for diagnosis, considering SCICA results in conjunction with the DISC-P-results and school-information. A committee chaired by a board certified psychiatrist (JB) and consisting of two other board certified child psychiatrists who conducted the SCICA interviews, as well as a psychologist/cultural anthropologist (BZ) who conducted DISC-P-interviews, consensually formulated the best-estimate diagnoses.

When no agreement was achieved (N=15) in this clinical conference, the child was recommended for the expert panel, consisting of the aforementioned professionals accompanied by two other psychiatrists, both experienced in working with patients from non-Dutch ethnic origins and one of non-Dutch origin. Additionally, 16 cases (4 children of each ethnic group) were assessed by this larger expert-panel that reviewed all available information and viewed sections of the SCICA interview recorded on video, to calibrate the best-estimate procedure. The outcome of the present study was the presence of a best-estimate diagnosis of any DBD, i.e. Attention-Deficit Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD) or a Conduct Disorder (CD). Best-estimate diagnoses were generated blind to the SDQ-scale scores.

Analysis

All potential predictors were included in a multivariable logistic regression model. In order to obtain an instrument with the strongest and independent predictors only, this model was subsequently reduced. To this end, predictors with *p*-values greater than 0.15 were eliminated in a backward stepwise fashion. Significance levels greater than 0.05, i.e. 0.15 or even 0.25, are commonly used in prediction research as to limit bias in the predictor

coefficients (Dales & Ury 1978, Steyerberg et al. 1999).

The goodness of fit of the reduced model was assessed using the Hosmer and Lemeshow test. The discriminatory power of the model, i.e. the extent to which it separates children with a DBD from children without a DBD, was quantified by calculating the area under the receiver operating characteristic curve (AUC) of the model. The AUC is an overall measure of discriminatory power, with a value 0.5 indicating no discrimination, and a value 1.0 indicating perfect discrimination between those with and without the outcome under study (Hanley & McNeil 1982). Differences in AUC between ethnicities were tested for statistical significance using one-way analysis of variance. Using bootstrapping techniques, the model was subsequently validated by correcting it for overfitting or overoptimism (Efron & Tibshirani 2005). For this purpose 100 random bootstrap samples were drawn with replacement and the model building process was repeated in each sample.

The model's predictive performance after bootstrapping is the performance that can be expected when the model is applied to future similar populations (Kalkman et al. 2003). Unfortunately, the AUC cannot be interpreted in a way that allows practical application, as its value corresponds to the probability that for a random pair of subjects, one with and one without the outcome of interest, the one with the outcome has the highest predicted probability.

To obtain a practically applicable instrument yielding the absolute probability of a DBD for a given child, a DBD risk score was developed. This was accomplished by transforming the beta coefficients, i.e. all coefficients except for the intercept (constant), from the bootstrapped model to a round number of points. Because the beta coefficients indicate the relative weight of the predictors, this transformation was performed in a uniform way, in this study multiplication by 10 and subsequent rounding to the nearest integer. A total DBD score for each child in the larger population (N=2067) with complete data on all predictors could then be calculated by multiplying the points for each item by the value of that item (0, 1 or 2), and adding them up. To prevent negative DBD scores, 20 was added as a constant. The predicted probability of a DBD was presented in four broad categories of the DBD score for reasons of statistical stability and practical applicability. The categories were chosen in an arbitrary way with a view to size as well as practical applicability. We proceeded with the analyses by creating dichotomous 'diagnostic' tests from the DBD score using the same cutoffs as those used to delineate the DBD score categories. By relating them to the predicted probability from the logistic model, the sensitivity, specificity and predicted values of these

tests were calculated.

The data were analyzed using SPSS 11.0 and S-plus 2000.

Results

Sample characteristics

Demographic characteristics of the study sample and the number of children with a DBD are shown in Table I. About half of the children were male and the mean age was almost eight years, which was similar for all ethnic groups. A total of 91 children received a best-estimate diagnosis on DBD.

Table I. General characteristics of the study population

Characteristic	Source sample N = 2067	Study sample N = 254
Gender		
Girls	1034 (50%)	105 (41%)
Boys	1033 (50%)	149 (59%)
Ethnicity		
Dutch	621 (30.0%)	69 (27%)
Moroccan	675 (32.7%)	77 (30%)
Turkish	420 (20.3%)	53 (21%)
Surinamese	351 (17.0%)	55 (22%)
Age	7.8 ± 1.1	7.8 ± 1.1
DBD	*440 (21.3%)*	91 (35.8%)

The initial model with all predictors yielded an ROC area of 0.84 (95%CI: 0.79-0.89). Of these 11 predictors, only four predictors, i.e. the items, 'restless', 'lies', 'obeys' and 'attends', were independent statistically significant predictors of a best-estimate diagnosis on DBD with p-values ≤ 0.15 (Table 2). Apparently, restlessness and lies increased the probability of a DBD whereas obeys and attends where associated with a lower risk. Gender did not contribute to the prediction of a DBD, probably because this characteristic was already conveyed by the other predictors. The reduced model including only the above mentioned four items yielded an ROC area of 0.84 (95%CI: 0.79-0.89), which was identical to the full

model. The p-value from the Hosmer-Lemeshow test was 0.06 indicating no deviance of model fit. The AUC of the final model was similar across ethnicities, i.e. 0.85 (95%CI: 0.76-0.94), 0.84 (95%CI: 0.74-0.93), 0.77 (95%CI: 0.63-0.90) and 0.89 (95%CI: 0.80-0.97) for the Dutch, Moroccan, Turkish and Surinamese group, respectively. The p-values for the difference with the AUC in the Dutch group were 0.87, 0.32 and 0.55, for the Moroccan, Turkish and Surinamese group, respectively. After validation by bootstrapping, the ROC area was 0.81 (95%CI: 0.76-0.86).

Table II. Multivariable predictors of the presence of Disruptive Behaviour Disorders (DBD) in school-aged children (N=254)

Predictor	Coefficient	Odds ratio per unit item score (95% confidence interval)	Contribution to DBD score per unit item score
Intercept (constant)	-0.47	-	20
Restless	0.537	1.71 (1.08 – 2.70)	+5
Lies	0.392	1.48 (0.86 – 2.54)	+4
Obeys	- 0.375	0.69 (0.42 – 1.13)	-4
Attends	- 0.592	0.55 (0.35 – 0.88)	-6

Note: Total DBD score = 20 + 5 * restless item score + 4 * lies item score – 4 * obeys item score – 6 * attends item score.

The model presented in table II can be used to calculate an exact predicted probability of a DBD as 1 / (1 + exp (-(-0.478 + 0.537*restlessness + 0.392*lies - 0.375*obeys - 0.592*attends))). More conveniently, probability estimation can be obtained by calculating the total DBD score using the formula at the bottom of table 2. For instance, a child with a score of 2, 2, 0, 1 on the items 'restless', 'lies', 'obeys' and 'attends', respectively, has a total DBD score of 32 (20 + 5*2 + 4*2 - 4*0 – 6*1). The mean exact predicted probability according to DBD score category can be read from table 3. The mean predicted probability was 21.3%, i.e. projected to the larger population 440 children with a DBD, which corresponds well to the 25 % prevalence of DBD reported earlier (Zwirs et al. *submitted*). From table 3 it can be seen that the child introduced above has a predicted risk of 63%.

For all three possible cut-offs, the sensitivity, specificity and predicted values are displayed in table IV. It serves to consider possible scenarios of application to a population similar to our larger population of 2067 children. If, for instance, a DBD score ≥ 25 defines 'test positive', and if these 179 children are referred to a (mental) health professional, it can be expected that 63% (PPV), i.e. 113 children will appear to have a DBD. This means that of the 440 children with a DBD, 113 (26%, sensitivity) will be referred justly. It also means that of those 1888 children with a negative test 321 (1-NPV, 17%) will still have a DBD while of all 1627 children without a DBD 96% (specificity), i.e. 1562 children, were correctly not referred.

Table III. Probability of Disruptive Behaviour Disorders (DBD) in school-aged children according to DBD score categories

DBD score	N (%)	Predicted probability (min;max)
0	718 (35%)	8 % (8;8)
1-14	822 (40%)	17 % (12;28)
15-24	348 (17%)	36 % (29;51)
25+	179 (9%)	63 % (51;80)
Total	2067 (100%)	21 % (8;80)

Table IV. Test characteristics of dichotomized DBD score for screening for Disruptive Behaviour Disorders (DBD) in school-aged children

Cut-off DBD score	Test positive N (%)	Sensitivity	Specificity	PPV	1 - NPV
≥ 1	1349 (65%)	87%	41%	28%	8%
≥ 15	527 (25%)	54%	82%	45%	13%
≥ 25	179 (9%)	26%	96%	63%	17%

Note: PPV = positive predictive value; 1 - NPV = 1- negative predictive value, i.e. the probability of a DBD in case of a negative test

Discussion

The present results show that only four items of the Hyperactivity Scale and the Conduct Problems Scale of the SDQ, i.e. one ODD-item 'obeys', one Hyperactivity-item

'restless', one CD-item 'lies' and one Inattention-item 'attends' significantly predicted a DBD in a sample of schoolchildren. It appeared that gender did not contribute to this prediction, probably because the effect of gender was already represented by the other predictors. A prediction rule based on these four items was able to classify both western as non-western children as low or high probability of having a DBD.

We found the four items to have an AUC of 0.84 for predicting a DBD, which is consistent with previous results. Hudziak (2004) reported similar AUC values for the Attention Problems syndrome and the Aggressive Behaviour syndrome of the CBCL for predicting ADHD and ODD/CD, respectively, in both probands and siblings (Hudziak et al. 2004). Chen (1994) found AUC values for the Attention Problems scale of .96 and .87 for predicting ADHD in probands and siblings, respectively (Chen et al. 1994). Goodman (2001) observed an AUC of .83 for the Conduct Problems Scale of the SDQ and an AUC of .95 for the Hyperactivity-Inattention in distinguishing community subjects from clinic subjects with the corresponding disorder (Mullick & Goodman 2001). However, in our study both non-cases as cases were from a community sample.

Although the finding that four items proved as effective for predicting DBD as the complete corresponding scales of the SDQ or the CBCL is striking, the sensitivity and specificity of the scoring rule seem rather low (Table 4). However, it should be kept in mind that these estimates concern a screening setting instead of a diagnostic setting. It was not the aim to create a new diagnostic instrument but to realize a brief and easily applicable screener for teachers at primary schools. This means that the instrument is not to be deployed in diagnostic settings and is not meant to replace any diagnostic instrument currently in use in clinical practice.

Even though we adjusted our model for overoptimism by bootstrapping techniques that have shown to be superior to for example split-sample techniques (Harrell, Jr. et al. 1996), external validation in a similar population is required to establish its definite predictive capacity. As many schools have ethnically heterogeneous pupils, an important step was to validate the screener for different ethnicities. Although we observed no marked differences in the performance among different ethnicities, the subgroups were rather small and therefore validation in larger groups of different ethnicities remains mandatory.

We have presented the results using three scoring thresholds. Optimal cut-offs may be determined by minimizing both false-positives and false-negatives. In practice, the choice of a particular threshold will depend on the relative cost-effectiveness of the consequences of false-positive and false-negative predictions. For instance, if resources are limited and there is

a shortage of mental health services, teachers may wish only to select children with the highest risk. Moreover, they may want to avoid the risk of unnecessarily labeling children or causing distress to children without a DBD. In this case, it is important to minimize the number of false-positives, suggesting a threshold of 25 (Table 4). On the other hand, if mental health services are available and the risk of not treating children with DBD is unacceptable, the number of false-negatives should be minimized, indicating a threshold of 1. As the selection of an appropriate threshold requires proper cost-benefit analyses, which is beyond the scope of this paper, further research is warranted.

In conclusion, we have shown that the chance of having a DBD in both western as non-western children can be predicted by using a scoring rule with only four DBD items. Although we have optimized the robustness of our model by bootstrapping techniques, external validation in a similar but different population is needed before this prediction rule can be implemented into practice. Clearly, implementation is only useful if treatments have proven to be effective.

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CHAPTER 7

General Discussion

and summary

Introduction

The overall aim of the current study was to extend the knowledge of externalizing problems in non-Western immigrant children in Europe. More specifically, the research was aimed at assessing whether the expression, treatment rates, prevalence estimates, parental detection and screening validity of externalizing disorders differed between native Western and non-Western immigrant children in the Netherlands. In general, the results show the expression, the prevalence and the screenings validity of externalizing disorders to be similar across ethnicity, whereas the rates of parental detection and treatment are lower for Moroccans, Turks and Surinamese, as compared to Dutch.

The study consisted of two stages. In the first phase, teachers completed the Strengths and Difficulties Questionnaire (SDQ) (Goodman 1994, Goodman 1997) for 2185 children enrolled in grade 3 through 5 of mainstream schools in low SES inner-city areas in Amsterdam and Utrecht. In the second phase, a subsample of 270 children were administered the Semi-structured Interview for Children and Adolescents (SCICA) (McConaughy & Achenbach 2001), while their parents were interviewed using the Diagnostic Interview Schedule for Children-Parent Version (DISC-P). In addition, teachers completed a short questionnaire which consisted of 10 DSM-IV items (American Psychiatric Association 1994).

In this general discussion the main findings of the present study are summarized, limitations are addressed, and implications for the cross-ethnic understanding of externalizing disorders and further research are suggested.

Summary of findings

After an introduction to the subject in Chapter 1, we first examined the cross-cultural construct validity of externalizing disorders among Dutch, Moroccan, Turkish and Surinamese children, as measured by the SDQ, (Chapter 2). To this end, teachers completed the SDQ for a sample of 2185 children, consisting of 684 Dutch, 702 Moroccan, 434 Turkish and 365 Surinamese children. Multisample Structural Equation Modelling (MSEM) showed that the two-factor model of Hyperactivity-Inattention and Conduct Problems of the SDQ consisted of the same items in all ethnic groups. Although differences in factor loadings across ethnicity were statistically significant, these differences were trivial. Moreover, the same two-factor model showed an acceptable fit across all ethnic groups, which was confirmed by the congruence coefficients being greater than .95. Likewise, in all ethnicities, the Hyperactivity-Inattention and the Conduct Problems scores increased the risk of

impairment. As a result, we concluded the construct of externalizing problems, as assessed by the teacher SDQ, to be valid in both Dutch as non-Dutch children.

Given the lower treatment rates for externalizing disorders in non-Western children than among Western children as observed in studies in the US (Rowland et al. 2002, Safer & Malever 2000), we examined whether a similar pattern of treatment rates existed among native Western and non-Western immigrant children in the Netherlands, while we accounted for the level of problem behaviour and impairment, as assessed by the teacher (Chapter 3). It appeared that teachers rated Moroccan boys higher, Turkish boys lower and Surinamese similar on problem behaviour, when compared to Dutch boys, whereas no difference was reported in the level of problem behaviour among girls of different ethnic origins. Strikingly, non-Dutch children were less likely to be treated for their problem behaviour, although they were as much impaired as Dutch children.

To examine whether the prevalence of psychiatric disorders differed according to ethnicity, we compared the prevalence estimates in the different ethnic groups based on best-estimate diagnoses (Chapter 4). Despite the reported ethnic differences in problem behaviour by teachers (Chapter 3), the prevalence of psychiatric disorders in general, as assessed by the best-estimate procedure, was similar across ethnicity, as was the prevalence of externalizing disorders in general and ADHD in particular. Because not all children with a best-estimate diagnosis were thought to be functionally impaired, we estimated the prevalence after including an impairment criterion, which yielded a considerable drop in all prevalence estimates, similarly for all ethnic groups. Generally, gender effects appeared to be cross-culturally invariant, as boys had more psychiatric disorders than girls in all ethnic groups, except for the Turks, accounted for largely by a relatively lower prevalence among Turkish boys.

As parental detection of children's problem behaviour has found to be a prerequisite for mental health service use (Sayal et al. 2002), we hypothesized that the observed discrepancy in treatment status between Dutch and non-Dutch children might be associated with a lower detection rate of externalizing disorders among non-Dutch parents. To study whether non-Dutch parents were less likely to detect externalizing disorders in their children, as compared to Dutch parents, we compared diagnoses based on the DISC-P (Shaffer et al. 2000) with best-estimate diagnoses (Chapter 5). Best-estimate diagnoses were based on the SCICA interview (McConaughy & Achenbach 2001), the DISC-P interview and teacher information, and formulated by a committee consisting of three child psychiatrists and a psychologist. It was demonstrated that the detection rate of externalizing disorders in general

and of ADHD in particular, was indeed significantly lower in Surinamese and Moroccan parents, when compared to Dutch parents. Among Turkish parents, the detection rate of ADHD tended to be lower.

Finally, we assessed the screening validity of the externalizing scales on the SDQ in Chapter 6. It was shown that only four items of the Hyperactivity and Conduct Problems Scale of the SDQ (i.e. "Restless, overactive, cannot stay still for long", "Generally obedient, usually does what adults request", "Often lies or cheats" and "Sees tasks through to the end, good attention span") were significant predictors of an externalizing disorder. Gender appeared not to contribute to this prediction, as it was probably already conveyed by the other predictors. A prediction rule based on these four items was able to identify both Western as non-Western children as low or high probability of having an externalizing disorder.

Limitations

When evaluating these findings, a number of limitations should be kept in mind. Although some issues have been addressed in the different chapters, we here like to discuss the main limitations of the study.

First, as has been noted in the introduction, an *etic* approach was used in the current study, meaning that instruments and concepts developed in Western samples were utilised to study non-Western samples. Although this approach enabled us to use standardized instruments and to make comparisons across the different ethnic groups, we were unable to discover whether the concepts and instruments were also applicable for Moroccans, Turks and Surinamese themselves. Nevertheless, in Chapter 2 it was shown that the construct of externalizing disorders as measured by the teacher SDQ, appeared to be valid across all ethnic groups, yielding evidence for the suitability of non-Western instruments among Western children. Furthermore, translation and adaptation of the DISC resulted from extensive discussions among our carefully trained bilingual and bicultural interviewers, and consultation of different professionals. Finally, as the non-Dutch groups in the current study reside in the Netherlands and are thus confronted with Western concepts and instruments, our approach reflects reality. Still, qualitative studies with an *emic* approach are needed to elucidate the meaning of specific items (SDQ, DISC, SCICA) for Moroccans, Turks and Surinamese and to find out whether these ethnic groups hold different concepts of externalizing disorders.

Furthermore, the current study showed a lower treatment and parental detection of externalizing disorders for non-Dutch children than for Dutch children. Although it was

assumed that this discrepancy might be associated with insufficient detection of externalizing disorders among non-Dutch parents, it could also have been related to an inflated detection by Dutch parents. However, two findings support the idea of underdetection among non-Dutch children. First, a repetition of the analyses of Chapter 2 in a subsample of children that were impaired according to teachers still showed that non-Dutch children were less likely to be treated for their problem behaviour than Dutch children (data not shown). The observation that a similar pattern of treatment rates was revealed in impaired children seems to indicate underdetection in non-Dutch children rather than overdetection in Dutch children. Second, in Chapter 4 DISC-P diagnoses were compared to best-estimate diagnoses. Thus, according to a committee chaired by a board-certified child psychiatrist and consisting of two other child psychiatrists and a cultural anthropologist/psychologist, non-Dutch parents were less likely to detect externalizing disorders than Dutch parents.

In addition, the members of our diagnostic panel were mainly of Dutch origin as were the teachers, which may have resulted in a bias towards non-Dutch children, as has been observed previously (Sonuga-Barke & Minocha 1993). However, since teachers reported less problem behaviour for Turkish boys than for Dutch boys, a strong perceptual bias among teachers seems unlikely. In addition, as our diagnostic panel consisted of professionals qualified in working with non-Dutch children and as the diagnostic procedure has been attuned by a larger expert panel experienced in working with non-Dutch children and including one professional of non-Dutch origin, we consider the possibility of perceptual bias of limited size.

Another limitation may be that the sample of the second stage of our study was relatively small resulting in a reduced statistical power to detect differences. However, the finding that the prevalence estimates as described in Chapter 2 generally followed the same pattern for the different ethnic groups indicates that this problem is limited. Nevertheless, validation of our findings in another sample is warranted.

As we studied children that were raised in western societies, our findings are limited to immigrants in Western societies and it remains to be seen whether the same holds for Moroccans, Turks and Surinamese in the country of origin. Yet, there is some evidence to suggest that the construct of externalizing problems is also valid in Turkey. For instance, Dumenci (2004) replicated the measurement structure of the CBCL in a Turkish population (Dumenci et al. 2004). As far as we know, no research has been carried out on the validity of externalizing problems in Morocco or Surinam. Such studies are necessary to increase our

knowledge on the cross-cultural validity of the concept of externalizing disorders, but also on the aetiology of these problems.

Theoretical implications

As was described in the introduction, three models regarding ethnic differences in psychiatric disorder have been proposed: Absolutism, Universalism and Cultural Relativism (Ingleby 1998). Firstly, from the perspective of *absolutism*, psychiatric disorders are deemed culturally invariant and caused by biological factors. In contrast, within a *cultural relativistic* framework, psychiatric disorders are considered culturally bound and thus not comparable across cultures. Finally, from a *universalistic* point of view, psychiatric disorders are assumed to be essentially the same, but to vary in degree, number and expression (Berry et al. 2002).

Findings of the current thesis suggest externalizing problems not to be 'culturally bound' in that the underlying construct, as assessed by the teacher SDQ, consisted of the same items for all ethnic groups. Moreover, differences in item loadings appeared statistically different, but too small to be of clinical importance. Similarly, in all ethnic groups, the Hyperactivity-Inattention and the Conduct Problems factors were associated with an increased risk of impairment (Chapter 2). Not only yields the cross-cultural construct validity evidence for the universality of the externalizing problems. The prevalence estimates also indicate that externalizing disorders are not bound to Western cultures, as according to the best-estimate diagnoses the prevalence of externalizing disorders in general, and ADHD in particular, was similar among Dutch, Moroccan, Turkish and Surinamese children (Chapter 4).

However, the findings of the present thesis do not support a perspective of 'absolutism', as for instance the pervasiveness over situations of the externalizing disorders seems to be culturally determined. Given that the 'true' prevalence of externalizing disorders is similar for Dutch, Moroccan, Turkish and Surinamese children as indicated by the best-estimate diagnoses, the finding of relatively high levels of problem behaviour for Moroccan boys and low levels for Turkish boys on teacher reports (Chapter 3), indicates that Moroccan boys show more problem behaviour at school than at other situations, whereas the opposite seems to hold for Turkish boys. The suggestion that Moroccan boys may behave problematically at school, but appropriately at home is in accordance with previous propositions (Stevens et al. 2003, Pels 2003).

Additionally, although the gender effect appeared to be culturally invariant for Dutch, Moroccan and Surinamese children to the extent that psychiatric disorders were more

prevalent in boys than in girls, no difference was observed in the prevalence of psychiatric disorders between Turkish boys and girls (Chapter 4). The absence of a gender effect among Turkish children was accounted for by a relatively low prevalence of psychiatric disorders among Turkish boys. Finally, parental detection of externalizing disorders seems to be culturally determined as non-Dutch parents are less likely to detect externalizing disorders, when compared to Dutch parents (Chapter 5). Likewise, treatment rates are influenced by ethnicity, since non-Dutch children are less likely to be treated for externalizing problems than Dutch children (Chapter 3).

Based on the present results we conclude externalizing problems to be universal across ethnicity. However, further research is needed to determine the meaning of the concept and items of externalizing disorders according to Turks, Moroccan and Surinamese themselves. Moreover, it should be assessed as to whether the present findings can be replicated in the countries of origin to determine to what extent the present results are explained by the fact that these children and parents live in a Western country.

Clinical implications

The finding that non-Dutch children with externalizing disorders are less likely to be treated is worrisome given the evidence that these disorders are associated with peer problems, school problems, substance abuse, criminality and psychiatric disorders later in life (Biederman et al. 1996, Mannuzza et al. 1989, Biederman et al. 1996, Satterfield & Schell 1997). Therefore, the detection of externalizing disorders in school-age children of non-Dutch origin should receive more attention from policymakers in the child mental health field, but also from teachers. The screening instrument for teachers as presented in Chapter 6 may be an effective tool to improve the detection of externalizing problems in general and in non-Dutch children in particular. Since the instrument consists of only four items, the screening will not be very time-consuming and the burden on teachers will be limited. The implementation of the screening questionnaire among schools may at the same time serve as an external validation of the instrument in order to determine its definite screening aptitude. It should be noted that the instrument is not meant for diagnostic purposes.

As the detection rate of externalizing disorders was found to be lower for non-Dutch parents than for Dutch parents, the pattern of lower treatment rates for non-Dutch children may partly be explained by underdetection among non-Dutch parents. Although the mechanisms underlying the lower detection rate among non-Dutch parents remain unclear,

there is some evidence to suggest that Moroccan children display lower levels of problem at home than at school (Pels 2003, Stevens et al. 2003), and that Moroccan and Turkish parents are less likely to monitor their child's behaviour outside of the home (Junger 1990). Thus, non-Dutch parents may be less likely to report externalizing disorders, since their child's behaviour at home is properly, and/or possible problematic behaviour outside of the home remains unknown to them. Therefore, it is of great importance that teachers keep non-Dutch parents in particular informed about their child's behaviour at school. As educational achievement is highly valued among non-Dutch parents, even more than among Dutch parents (Pels 2002), teachers may emphasize the association of externalizing with academic failure. Researchers and clinicians should know that information from other sources than the parents, such as the teachers, is of particular importance when assessing externalizing problems in children of non-Dutch origin.

Another explanation for the underdetection among non-Dutch parents may be social desirability. Middleton and Jones (2002) point out that non-Western subjects may be more likely to provide social desirable answers than Western subjects, because of differences in cultural values (Middleton & Jones 2000). For instance, as collectivists, non-Westerners highly value the interest of their group members, and may therefore be less willing to discuss family problems with outsiders. Moreover, non-Dutch parents may have other explanatory models regarding externalizing problems (Bussing et al. 1998) and may not regard externalizing problems as treatable disorders. As a result, these groups may be less likely to seek mental help. Hence, it may be important to educate non-Dutch parents about the causes, the symptoms, the associated risks and treatment possibilities regarding externalizing disorders. Moreover, an outreaching approach seems necessary in order to lower the thresholds for mental help seeking among non-Dutch parents.

Remarkably, the level of problem behaviour among Turkish boys was relatively low according to teachers, but also according to the best-estimate diagnosis. Apparently, the prevalence of externalizing disorders among Turkish boys is lower than among Dutch, Moroccan and Surinamese boys. Since, internal social cohesion and social control has been found to be stronger in Turkish culture than in other cultures (Dagevos 2001, Pels 2003), this may be an important mechanism in protecting Turkish boys from developing externalizing disorders. Indeed, the absence of social control has not only been associated with problematic behaviour in Western children but also in non-Western children (Pels 2003). Therefore, interventions aimed at enlarging social cohesion and control within schools, but also within neighbourhoods, may be helpful in the prevention of problem behaviour among children.

Implementation

The results of the present study underscore the importance of improving the detection of externalizing disorders among children of non-Dutch origin. Given the findings in Chapter 2 and Chapter 6 it is not necessary to develop a separate screening instrument for non-Dutch children, as the construct validity and the screening validity was supported in all ethnic groups. The screening instrument, as described in Chapter 6, will be an effective tool in standardizing and improving the detection process of externalizing disorders among schoolchildren in general and among non-Dutch children in particular.

It should be kept in mind that the instrument is designed to be implemented in a screening setting instead of a diagnostic setting and should not replace any diagnostic instrument presently in use in daily practice. The screener will assist teachers in estimating the risk of externalizing disorders in both Dutch as non-Dutch children. As the instrument consists of only four items, the burden on teachers will be limited. In order to facilitate implementation, the screening instrument should be introduced to institutions for youth mental health care and to mental health professionals at schools. Implementation is also required to determine the definite predictive capacity of the screening instrument.

However, not only the screening instrument will be of importance for clinical practice. The diagnostic process in the present study was conducted in a standardized way, since the children were interviewed using the Semi-structured Clinical Interview for Children and Adolescents (SCICA). As the diagnostic process is reproducible and videotaped, it may serve as educational material for professionals in the mental health field.

In conclusion

The present study yielded insight into the cross-ethnic validity of externalizing disorders as measured by the teacher SDQ. The same two factor model of Hyperactivity-Inattention and Conduct Problems appeared to be valid in all ethnic groups (Chapter 2). Moreover, it was shown that only four items on these scales were needed to predict an externalizing disorder with a discriminative power of 0.84 (95%CI: 0.79-0.89), which was similar across all ethnic groups (Chapter 6).

The results of current study also confirm the expectation that non-Dutch immigrant children in the Netherlands are less likely to be treated for externalizing disorders than Dutch children (Chapter 3). As the detection rate of externalizing disorders was lower among non-Dutch parents (Chapter 5), the observed discrepancy in treatment rates may partly be

explained by a difference in detection rate between Dutch and non-Dutch parents. Several explanations may account for the lower detection rate among non-Dutch parents, among which are: 1) differences in social desirability; 2) differences in monitoring children's behaviour, or 3) differences in the discrepancy between children's indoors and outdoors behaviour. Future research should clarify the mechanisms underlying this underdetection by non-Dutch parents.

Whereas teachers reported more problem behaviour for Moroccan boys and less for Turkish boys than for Dutch boys (Chapter 3), the prevalence of psychiatric disorders in general and externalizing disorders in particular as assessed by the best-estimate procedure was similar across ethnicity (Chapter 4). An explanation for this divergence in findings may be that Moroccan boys display more problem behaviour at school than in other situations, whereas the opposite is true for Turkish boys. Although the higher problem scores for Moroccan boys at school may also be explained by a teacher bias in ratings, it seems unlikely that teacher ratings were strongly biased, as Turkish boys obtained lower problems scores than Dutch boys.

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CHAPTER 8

Samenvatting

(Summary in Dutch)

Achtergrond en doel van het onderzoek

Gedragsstoornissen zoals ADHD (Attention-Deficit Hyperactivity Disorder), ODD (Oppositional Defiant Disorder) en CD (Conduct Disorder) zijn de meest voorkomende psychiatrische stoornissen[2] bij kinderen. Ongeveer 3-5% van de kinderen heeft last van ADHD, en bij ongeveer 60% van deze kinderen wordt nog een andere gedragsstoornis zoals ODD of CD geconstateerd. Deze stoornissen gaan gepaard met aanzienlijke leer- en opvoedingsproblemen en sociaal disfunctioneren. Daarnaast kunnen er ernstige gevolgen optreden op de lange termijn, zoals gewelddadig en delinquent gedrag. Terwijl er veel onderzoek is gedaan naar gedragsstoornissen onder Westerse kinderen, is er relatief weinig bekend over gedragsstoornissen onder niet-westerse kinderen. Omdat er aanwijzingen zijn voor mogelijke verschillen aangaande gedragsstoornissen tussen Westerse en niet-westerse kinderen, is onderzoek naar de signalering van gedragsstoornissen in niet-westerse populaties van belang .

Het doel van het onderzoek dat is beschreven in dit proefschrift was nagaan in hoeverre:

1. Het (Westerse) concept van gedragsstoornissen ook van toepassing is op Marokkaanse, Turkse en Surinaamse kinderen (Hoofdstuk 2).

2. Marokkaanse, Turkse en Surinaamse kinderen minder vaak behandeld worden voor gedragsstoornissen dan Nederlandse kinderen, rekening houdend met het niveau van probleemgedrag en de ervaren beperkingen (*impairment)* (Hoofdstuk 3);

3. De prevalentie van gedragsstoornissen verschilt voor de verschillende etnische groepen; (Hoofdstuk 4);

4. Marokkaanse, Turkse en Surinaamse ouders minder vaak gedragsstoornissen rapporteren dan Nederlandse ouders (Hoofdstuk 5), en

5. Screeningslijsten, ongeacht de etniciteit van het kind, een valide signalering van gedragsstoornissen mogelijk maken (Hoofdstuk 6).

Opzet van het onderzoek

Het onderzoek bestond uit twee fasen. In de eerste fase van het onderzoek vulden basisschoolleraren voor 2185 kinderen uit groep 3 t/m groep 5 vragenlijsten in over het gedrag en de behandelingsstatus van de kinderen. Voor de tweede fase van het onderzoek

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[2] Met de termen "gedragsstoornissen" of "externaliserende stoornissen" wordt gerefereerd aan ADHD, ODD en CD gezamenlijk. De term "psychiatrische stoornissen" heeft betrekking op gedragsstoornissen, maar ook op angststoornissen en stemmingsstoornissen.

hebben we uit deze groep kinderen alle kinderen met een hoog risico op gedragsstoornissen geselecteerd, en een willekeurige steekproef genomen van kinderen die niet in het risicogebied scoorden. Van de 376 kinderen die op deze wijze geselecteerd werden voor het vervolgonderzoek, hebben uiteindelijk 270 ouders en kinderen meegedaan. Het vervolgonderzoek bestond uit een anamnestisch en diagnostisch interview met de ouders en een psychiatrisch onderzoek bij de kinderen. Ook vulden de leraren nog een extra gedragsvragenlijst in over deze kinderen. Een diagnostisch panel dat bestond uit 3 psychiaters en een psycholoog bepaalde uiteindelijk aan de hand van het ouderinterview, het kindinterview en de leraarvragenlijst of het betreffende kind al dan niet een stoornis had, de zogenaamde *best-estimate diagnosis*. De best-estimate procedure is afgestemd met andere deskundigen die eveneens ervaren waren in het diagnosticeren van kinderen met verschillende etnische achtergrond.

Resultaten van het onderzoek

Na een introductie tot het onderzoeksonderwerp in Hoofdstuk 1, werd in hoofdstuk 2 onderzocht of het (Westerse) concept van gedragsstoornissen ook van toepassing was op Marokkaanse, Turkse en Surinaamse kinderen. Omdat gedragsstoornissen voornamelijk onderzocht zijn in Westerse populaties, is het immers niet duidelijk of niet-westerse kinderen met gedragsstoornissen dezelfde symptomen vertonen als Westerse kinderen met gedragsstoornissen. Op basis van de vragenlijsten die ingevuld werden door de leraren kan geconcludeerd worden werd geconcludeerd dat de symptomen voor Hyperactiviteit/Inattentie en Gedragsproblemen hetzelfde zijn voor Nederlandse, Marokkaanse, Turkse en Surinaamse kinderen. Ook werd duidelijk dat externaliserende problemen in alle etnische groepen samenhingen met beperkingen in schoolprestaties, maar ook in de omgang met klasgenoten en de leraar.

Studies in de Verenigde Staten hebben aangetoond dat kinderen met een Afrikaanse, Latijns-Amerikaanse en Aziatische achtergrond minder vaak behandeld worden voor gedragsstoornissen dan blanke Amerikaanse kinderen. In hoofdstuk 3 werd dan ook nagaan of hetzelfde gold voor de Nederlandse situatie, namelijk dat allochtone kinderen minder vaak behandeld worden voor gedragsstoornissen dan autochtone kinderen. Hierbij werd rekening gehouden met het niveau van probleemgedrag en de ervaren *impairment*. Leraren rapporteerden meer probleemgedrag voor Marokkaanse jongens, minder probleemgedrag voor Turkse jongens en evenveel probleemgedrag voor Surinaamse jongens, in vergelijking met

Nederlandse jongens. Het probleemgedrag van meisjes bleek niet te verschillen tussen de etnische groepen. Ondanks de observatie van leraren dat allochtone kinderen evenveel belemmerd werden door hun probleemgedrag als autochtone kinderen, werden allochtone kinderen minder vaak behandeld voor hun probleemgedrag dan autochtone kinderen. Een uitzondering hierop vormden de Surinaamse jongens die even vaak behandeld werden als Nederlandse jongens.

Om na te gaan of de prevalentie van psychiatrische stoornissen tussen Westerse en niet-westerse kinderen verschilde, bepaalden we aan de hand van de *best-estimate procedure* de prevalentie van psychiatrische stoornissen voor de kinderen van de verschillende etnische groepen (Hoofdstuk 4). Ondanks de etnische verschillen in de leraarrapportages, aangaande gedragsstoornissen onder jongens (Hoofdstuk 3), verschilde de totale prevalentie van psychiatrische stoornissen, vastgesteld volgens de *best-estimate procedure,* niet voor de verschillende etnische groepen. Hetzelfde gold voor de totale prevalentie van gedragsstoornissen en de prevalentie van ADHD afzonderlijk. Omdat verwacht werd dat niet alle kinderen met een *best-estimate diagnosis* belemmering zouden ervaren in hun dagelijks functioneren, werd de prevalentie bepaald terwijl er rekening werd gehouden met de ervaren *impairment.* De totale prevalentie van psychiatrische stoornissen nam hierdoor af van 33% tot 11% voor alle etnische groepen. Met uitzondering van de Turkse groep, bleken de jongens in alle etnische groepen meer psychiatrische stoornissen te hebben dan de meisjes.

Omdat herkenning van probleemgedrag door ouders een voorwaarde is voor het zoeken van hulp, veronderstelden we dat de geobserveerde discrepantie in behandelingsstatus tussen allochtone en autochtone kinderen, mogelijk te wijten was aan ondersignalering van gedragsstoornissen door allochtone ouders. Om deze hypothese te toetsen, vergeleken we in Hoofdstuk 5 de ouderrapportages met de *best-estimate diagnosis*. Het bleek inderdaad zo te zijn dat de signalering van gedragsstoornissen in totaal en van ADHD afzonderlijk lager was onder Marokkaanse en Surinaamse ouders dan onder Nederlandse ouders. Ook Turkse ouders waren geneigd minder vaak ADHD te signaleren, maar dit verschil was marginaal significant.

Tenslotte onderzochten we in Hoofdstuk 6 de screeningsvaliditeit van de externaliserende probleemschalen van de leraarvragenlijst. Het werd duidelijk dat slechts vier symptomen van deze schalen ("Rusteloos, overactief, kan niet lang stilzitten"; "Doorgaans gehoorzaam, doet gewoonlijk wat volwassenen vragen"; "Liegt of bedriegt vaak" en "Maakt opdrachten af, kan de aandacht goed vasthouden") voorspellend waren voor een gedragsstoornis zoals gediagnosticeerd door het panel van deskundigen. Geslacht droeg niet bij aan deze voorspelling, wellicht omdat de invloed van geslacht reeds in de andere items

werd meegenomen. Zo scoren jongens op de betreffende vragen significant hoger dan meisjes. Met een algoritme gebaseerd op deze vier items was het mogelijk zowel de autochtone als de allochtone kinderen met een hoge kans op een gedragsstoornis te onderscheiden van de kinderen met een lage kans op een gedragsstoornis.

Theoretische implicaties

In de inleiding werden drie modellen besproken met betrekking tot etnische verschillen in psychiatrische stoornissen: het absolutisme, het universalisme en het cultureel relativisme. Het *absolutisme* stelt dat psychiatrische stoornissen noch qua oorzaken noch qua uitingsvorm onderhevig zijn aan culturele invloeden. Vanuit het *cultureel relativistisch* perspectief bezien zijn psychiatrische stoornissen volledig cultureel bepaald en als zodanig niet vergelijkbaar tussen culturen. Het *universalisme* gaat ervan uit dat psychiatrische stoornissen in essentie cultureel invariant zijn, maar dat er wel verschillen kunnen zijn in de ernst, de frequentie en de uiting van symptomen.

De resultaten van het hier beschreven onderzoek suggereren dat externaliserende stoornissen niet 'cultureel gebonden' zijn. Het onderliggende construct, zoals gemeten aan de hand van de leraarvragenlijst, blijkt in alle etnische groepen uit dezelfde items te bestaan. Bovendien is het verschil in de mate waarin de items representatief zijn voor het onderliggende construct dermate klein dat het niet van klinische betekenis is. Evenzo blijken de externaliserende problemen in alle etnische groepen samen te hangen met een groter risico op *impairment.* Tevens duiden de prevalentieschattingen op de universaliteit van externaliserende stoornissen, aangezien de prevalentie van deze stoornissen op grond van de *best-estimate procedure* niet verschilt voor Nederlandse, Marokkaanse, Turkse en Surinaamse kinderen.

De bevindingen ondersteunen echter niet het perspectief van absolutisme, aangezien de situatie waarin het probleemgedrag zich voordoet lijkt te verschillen tussen de etnische groepen. Gegeven dat de 'ware' prevalentie van externaliserende stoornissen hetzelfde is voor de verschillende etnische groepen zoals vastgesteld aan de hand van de *best-estimate diagnose,* suggereren de relatief lage scores op probleemgedrag voor Turkse jongens en de relatief hoge scores voor Marokkaanse jongens zoals gerapporteerd door de leraren, dat Marokkaanse jongens mogelijk meer probleemgedrag vertonen op school dan in andere situaties en dat het omgekeerde geldt voor Turkse jongens.

Een andere bevinding die de invloed van etniciteit onderstreept, is het gender verschil. Terwijl in de Nederlandse, Marokkaanse en Surinaamse groep de prevalentie van

externaliserende stoornissen hoger was voor jongens dan voor meisjes, werd dit verschil niet waargenomen in de Turkse groep. De afwezigheid van het effect van gender op de prevalentie van externaliserende stoornissen binnen de Turkse groep, werd vooral verklaard door de relatief lage prevalentie onder de Turkse jongens. Tenslotte bleek ook de signalering van externaliserende stoornissen beïnvloed te worden door etniciteit, aangezien allochtone ouders minder vaak externaliserende stoornissen signaleerden dan autochtone ouders. Ook de kans op behandeling is onderhevig aan culturele variatie, daar allochtone kinderen minder vaak behandeld bleken te worden voor externaliserende stoornissen dan autochtone kinderen.

Uitgaande van deze bevindingen hanteren we het standpunt van universalisme met betrekking tot externaliserende stoornissen, omdat er sprake is van culturele invariantie (het construct en de prevalentie), maar ook van culturele verschillen (invloed gender, signalering door ouders, kans op behandeling). Toekomstig onderzoek zal echter moeten uitwijzen in hoeverre Turkse, Marokkaanse en Surinaamse ouders hetzelfde verstaan onder de concepten en de items over externaliserende stoornissen. Bovendien zal onderzocht moeten worden of de resultaten van dit onderzoek bevestigd kunnen worden in de landen van herkomst van de allochtone kinderen, of dat de huidige bevindingen verklaard worden door het gegeven dat deze kinderen en ouders in een Westers land leven.

Klinische implicaties

Aangezien externaliserende gedragsstoornissen geassocieerd worden met problemen thuis, op school en met leeftijdsgenootjes, maar ook met verslaving, criminaliteit en psychiatrische stoornissen op latere leeftijd, is het zorgelijk dat allochtone kinderen met externaliserende gedragsstoornissen minder vaak behandeld worden voor deze problemen dan autochtone kinderen. Het is dan ook van groot belang dat de signalering van deze stoornissen onder schoolkinderen van allochtone afkomst meer aandacht krijgt van beleidsmakers in de jeugdgezondheidszorg, maar ook van leraren. Het screeningsinstrument, zoals beschreven in Hoofdstuk 6, zou een effectief middel kunnen zijn om de signalering van gedragsstoornissen onder kinderen te verbeteren, en dan in het bijzonder onder allochtone kinderen. Omdat het instrument slechts uit vier items bestaat, zal de last voor leraren beperkt zijn. De implementatie van het instrument zou tegelijkertijd als validering kunnen dienen.

Allochtone ouders signaleerden minder gedragsstoornissen bij hun kinderen dan Nederlandse ouders. De onderbehandeling van allochtone kinderen zou dan ook gedeeltelijk verklaard kunnen worden door ondersignalering van gedragsstoornissen door allochtone ouders. Hoewel het onduidelijk is welke mechanismen ten grondslag liggen aan deze

ondersignaleringen, zijn er aanwijzingen dat Marokkaanse kinderen thuis minder probleemgedrag vertonen dan buitenshuis en dat allochtone ouders minder goed op de hoogte zijn van het gedrag van hun kinderen buitenshuis. Het is dan ook belangrijk dat leraren allochtone ouders op de hoogte houden van het gedrag van hun kinderen op school. Aangezien voorgaand onderzoek heeft laten zien dat allochtone ouders veel waarde hechten aan schoolprestaties, zal het belangrijk zijn het risico van gedragsstoornissen voor de schoolprestaties te benadrukken.

Een andere reden voor de ondersignalering van gedragsstoornissen door allochtone ouders zou kunnen zijn dat zij meer geneigd zijn tot sociaal wenselijke antwoorden en dat zij mogelijk minder snel hun problemen met buitenstaanders bespreken. Het zou ook zo kunnen zijn dat zij gedragsstoornissen niet als behandelbare stoornissen beschouwen en om deze reden geen hulp voor hun kind zoeken. Het is daarom van groot belang allochtone ouders voor te lichten over de mogelijke oorzaken van gedragsstoornissen, over de symptomen, de gepaard gaande risico's en de behandelingsmogelijkheden. Bovendien lijkt het noodzakelijk dat hulpverleners 'outreachend' te werk gaan en achter hun bureaus vandaan komen om cliënten in hun eigen leefomgeving op te zoeken. Een dergelijke benaderingswijze zal de drempel tot hulpverlening voor allochtone ouders verlagen.

Een opvallende bevinding van het onderzoek was dat Turkse jongens relatief weinig probleemgedrag vertoonden volgens de leraar, maar ook op basis van de best-estimate diagnose. Aangezien interne cohesie en sociale controle kenmerkend zijn voor de Turkse cultuur, nog meer dan voor de Marokkaanse cultuur, zouden deze mechanismen een belangrijke rol kunnen spelen bij het voorkomen van probleemgedrag onder Turkse jongens. Interventies gericht op het vergroten van de cohesie en sociale controle op scholen, maar ook in de wijken, zouden wellicht bij kunnen dragen aan de preventie van probleemgedrag onder kinderen.

Implementatie

Het screeningsinstrument, zoals beschreven in Hoofdstuk 6, kan een belangrijke bijdrage leveren aan de standaardisering van het signaleringsproces van gedragsstoornissen onder schoolgaande kinderen. Bovendien kan het instrument een belangrijk middel zijn om de signalering van gedragsstoornissen onder allochtone kinderen in het bijzonder te verbeteren. Het is niet de bedoeling dat het instrument wordt gebruikt als diagnostisch middel en het dient dan ook niet ter vervanging van bestaande diagnostische middelen. Het instrument is bedoeld

om leraren op basisscholen te voorzien van een praktisch toepasbaar instrument dat bijdraagt aan een effectieve screening van gedragsstoornissen onder zowel autochtone als allochtone kinderen. Het instrument zal daarom verspreid worden onder instellingen voor jeugd-GGz, Bureau's Jeugdzorg, schoolgezondheidszorgdiensten en leerlingbegeleiders op scholen. Overigens is niet alleen het beschreven instrument van belang voor de klinische praktijk. De diagnostiek binnen dit onderzoek is verricht op gestandaardiseerde wijze door middel van het semi-gestructureerde klinische interview voor kinderen en adolescenten (de SCICA). Deze diagnostiek is reproduceerbaar en zou als instructiemateriaal kunnen dienen voor medewerkers binnen de jeugd GGz.

CURRICULUM VITAE
LIST OF PUBLICATIONS

Curriculum Vitae

Barbara Wilhelmina Cornelia Zwirs werd geboren op 3 oktober 1977 in Alphen aan den Rijn. Daar behaalde zij in 1995 haar Gymnasiumdiploma aan het Christelijk Lyceum. In datzelfde jaar begon zij aan de Universiteit Utrecht aan de opleidingen Culturele Antropologie en Psychologie. In 1997 heeft zij meegewerkt aan een onderzoek onder leiding van Prof. Dr. F. Bovenkerk naar interacties tussen Rotterdamse politieagenten en Marokkaanse first-offenders. In 2000 werkte zij als onderzoeksassistent mee aan een onderzoek naar problematisch gokken dat werd uitgevoerd door het Centrum voor Verslavingsonderzoek. In 2000 en 2001 liep zij achtereenvolgens stage als jeugdhulpverlener bij de Stichting Welzijn Utrecht Zuidwest en als behandelcoördinator bij Valkenheide, een internaat voor jongens met gedragsproblemen. In het kader van haar afstudeeronderzoek voor Culturele Antropologie liep zij in 1999 stage bij de Immigratie- en Naturalisatie Dienst in Den Haag om onder begeleiding van Prof. Dr. F. Bovenkerk en Dr. R. Hesseling onderzoek te doen naar mensensmokkel vanuit de Kaukasus. In 2000 behaalde ze haar bul voor Culturele Antropologie. Aansluitend werkte zij onder begeleiding van Prof. Dr. D. Ingleby en Dr. B. Orobio de Castro aan haar afstudeeronderzoek voor Psychologie en bestudeerde de relatie tussen gedragsnormen en agressie bij kinderen. In oktober 2001 ontving ze haar bul voor Ontwikkelingspsychologie. In september 2001 werd zij als AIO aangesteld door het UMC Utrecht en werkte zij binnen het Centre for Migration and Child Health (hoofd Prof. Dr. T. Schulpen) van het Wilhelmina Kinderziekenhuis aan het onderzoek dat leidde tot dit proefschrift. Sinds 1 januari 2006 werkt zij als Universitair Docent Criminologie aan de Erasmus Universiteit te Rotterdam.

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