ETHNIC DIFFERENCES IN ANXIETY AND DEPRESSION AMONG PRIMARY SCHOOL CHILDREN IN THE NETHERLANDS

Mia P Kösters, Mai JM Chinapaw, Marieke Zwaanswijk, Marcel F van der Wal, Hans M Koot
ABSTRACT

BACKGROUND Non-native ethnic groups form a substantial part of society. This is the first Dutch study that investigated symptoms of five DSM-IV-classified anxiety disorders and depression in school-aged children using a self-report questionnaire in a large multi-ethnic sample. In addition, we took socioeconomic status and peer rejection into account, as these are thought to be an explanatory factor for ethnic differences in child mental health.

METHODS We measured symptoms of anxiety and depression with the self-report Revised Child Anxiety and Depression Scale (RCADS) in 2707 children (aged 8-13 years, 55% girls) of six different ethnic groups in the Netherlands. Ethnic groups were compared using multilevel linear regression analyses adjusted for socioeconomic status or peer rejection.

RESULTS Non-Western ethnic groups reported significantly more symptoms of anxiety than Dutch children. Contrary to our expectations, neither socioeconomic status nor peer rejection fully explained these differences. No significant differences between ethnic groups were found for symptoms of depression.

CONCLUSION Although ethnic differences were small, these may become larger in later life as the prevalence of anxiety disorder increases with age. More research into the causes of these differences is necessary as well as prevention in vulnerable groups.
INTRODUCTION

Non-native ethnic groups form a substantial part of society in Western countries. The United Nations estimated that the number of international migrants rose from 155.5 million in 1990 to 213.9 million in 2010. In the more developed countries, international migrants are estimated to account for 10.1 per cent of the population (United Nations Department of Economic and Social Affairs Population Division, 2011). Migration and acculturation put families under a lot of stress (Bhugra, 2004) and it would be likely to find increased levels of mental health problems in children from non-native ethnic groups. However, when we focus on anxiety and depression, which are common mental health problems in children (Beesdo, Knappe, & Pine, 2009; Birmaher et al., 1996), the literature on ethnic differences shows inconsistent results (Belhadj Kouider, Koglin, & Petermann, 2014).

The inconsistencies in previous findings may be explained by differences in age groups, informants and measures. First, studies differ regarding the age range of the sample and a substantial part of the studies on ethnic differences in internalizing problems include samples that cover a broad range of ages, including both children and adolescents (Bengi-Arslan, Verhulst, van der Ende, & Erol, 1997; Stevens et al., 2003). Prevalence of anxiety and depression may differ across age (McLaughlin, Hilt, & Nolen-Hoeksema, 2007) with increases in the prevalence during adolescence (Beesdo et al., 2009; Birmaher et al., 1996). In addition, during adolescence, gender differences become more pronounced for anxiety and become visible for depression (Beesdo et al., 2009; Birmaher et al., 1996). Therefore it is difficult to compare symptom prevalences of anxiety and depression across studies covering different age ranges.

Secondly, studies differ regarding informants. Low agreement between child-reported and parent- or teacher-reported anxiety and depression has been shown in several studies (Achenbach, McConaughy, & Howell, 1987; Mesman & Koot, 2000). In addition, the ethnic background of parents or teachers has been shown to influence the identification of anxiety and depression symptoms (Crijnen, Bengi-Arslan, & Verhulst, 2000; van de Looij-Jansen, Jansen, de Wilde, Donker, & Verhulst, 2011; Verhulp, Stevens, van de Schoot, & Vollebergh, 2013). As anxiety and depression have a strong experiential component and self-report reflects children's own feelings, self-report is the preferred method when studying these problems. Children's self-reports are reliable from age 8 onwards (La Greca, 1990).

Thirdly, questionnaires used in previous studies are not always fit for assessing specific emotional problems. For example, while the Child Behavior Checklist (CBCL; Achenbach, 1991a) and the Youth Self Report (Achenbach, 1991b) are measures to assess emotional problems in general, the Revised Child Anxiety and Depression Scale (RCADS; Chorpita, Yim, Moffitt, Umemoto, & Francis, 2000) was developed to measure symptoms of anxiety and depression exclusively. A disorder-specific questionnaire is able to differentiate between different types of anxiety. This is important, as the study of Austin and Chorpita (2004) in which the RCADS was used, showed ethnic differences between various anxiety disorders. Therefore, it could be that studies using
non-disorder-specific questionnaires did not find differences on a general anxiety/mood scale, while there may have been ethnic differences for specific anxiety disorders. Moreover, ethnicity in itself may not be the explanatory factor for apparent ethnic differences in anxiety and depression. For example, a lower socioeconomic status (SES) in non-native groups may explain ethnic differences, as poverty has been found to be a risk factor for anxiety and depression in children (Najman et al., 2010; Samaan, 2000) and ethnic minority status is associated with a poorer SES (Service for Work and Income Amsterdam, 2012). Another factor may be the influence of peer rejection, which is linked to the development of internalizing problems (Gooren, van Lier, Stegge, Terwogt, & Koot, 2011; van Lier & Koot, 2010). Previous research found that non-native ethnic groups reported more peer and social problems (Derluyn, Broekaert, & Schuyten, 2008; Janssen et al., 2004).

To our knowledge, this is the first study examining ethnic differences in symptoms of anxiety and depression, in school-aged children from a variety of ethnic groups using an anxiety- and disorder specific, self-report questionnaire, which also takes into account SES and peer-rejection. We hypothesized that children with a non-native ethnic background would report more symptoms of anxiety and depression than children with a native background, but that most of these differences would disappear after adjusting for SES or peer rejection. Further, we expected to find gender differences, as many studies reported gender differences for internalizing problems (Belhadj Kouider et al., 2014).

METHODS

POPULATION

The present study used baseline data from a controlled trial evaluating a preventive intervention aimed at reducing symptoms of anxiety and depression (Kösters et al., 2012). Participants were primary school children from grades 4 to 6 in the Amsterdam area, the Netherlands. Data were collected in school years 2010-2011 and 2011-2012.

MEASURES

Revised Child Anxiety and Depression Questionnaire (RCADS)
The RCADS is a 47-item questionnaire that measures symptoms of anxiety and depression in children (Chorpita et al., 2000). The RCADS consists of six scales, based on the DSM-IV classification of childhood anxiety and depression (American Psychiatric Association, 1994): generalized anxiety disorder (GAD), social phobia (SP), separation anxiety disorder (SAD), panic disorder (PD), obsessive compulsive disorder (OCD), and major depressive disorder (MDD). The five anxiety scales can be combined into a total anxiety scale, all six scales can be combined into a total internalizing scale. Examples of items are: “I worry about things”, “I feel sad or empty”, and “I feel scared when I have to take a
test*. Children indicate how often each item applies to them on a 4-point Likert scale (never, sometimes, often, always). Confirmatory factor analysis with six factors showed an acceptable fit (RMSEA 0.048, TLI 0.86) and good internal consistency (alphas ranged from 0.75 to 0.95 for the total sample and from 0.70 to 0.96 for the different ethnic subgroups) in our multi-ethnic sample (Kösters, Chinapaw, Zwaanswijk, van der Wal, & Koot, 2015).

Sociodemographic information
Children were asked to fill in their birth date and their own and parents’ country of birth, and the four digits of their postal code.

Ethnicity was based on the mother’s country of birth, or, if the mother was born in the Netherlands, the father’s country of birth (cf. Statistics Netherlands, 2000). Classification was based on the most common ethnic groups in the Netherlands: Dutch, Turkish, Moroccan, Surinamese and Antillean. Children who did not belong to any of these ethnic groups were divided in two groups: the ‘other Western group’, including children from Europe (excluding Turkey), North America, Oceania, Japan, Indonesia (including former Dutch East Indies); or the ‘other non-Western group’, including children from Africa, Latin America, Asia (without Japan and Indonesia).

A SES score was computed based on education level, income and labor market position derived from the family’s postal code information. Negative numbers indicate a lower SES and positive numbers indicate a higher SES (The Netherlands Institute for Social Research, 2012).

Social preference scores
We used social preference scores as a measure of peer rejection (cf. van Lier & Koot, 2010). Children were asked to unlimitedly nominate classmates they liked (popularity) and liked not (rejection). Both scores were summed and divided by the number of classmates minus one, as self-nomination was not allowed. By subtracting the rejection score from the popularity score a social preference score was computed. Lower scores indicate poor acceptance – peer rejection – by classmates. Low social preference scores indicate rejection by classmates and have been widely accepted as a valid measure of peer status (Cillessen, 2009).

PROCEDURES
All 265 primary schools in the Amsterdam area were invited for participation in an intervention study evaluating the effectiveness of a school-based indicated prevention program targeting anxiety and depression (Kösters et al., 2012). The 45 participating schools were not different from the remaining schools regarding ethnic and SES composition. Children and parents received an information letter about the study and a passive informed consent form. If children or parents did not want to take part in the trial, they could decline to participate.
Children completed questionnaires in the classroom during school time. Researchers or research assistants explained the questionnaires and were available for additional clarification during completion of the questionnaire.

Ethical permission for the study was granted by the Medical Ethics Committee of the VU University Medical Center Amsterdam, the Netherlands.

**ANALYSES**

Descriptive statistics were performed using SPSS Statistics version 19 (IBM SPSS Statistics, 2010). All other analyses were performed using multilevel regression, as children were nested within classes and classes within schools (MLwiN version 2.13; Centre for Multilevel Modelling, University of Bristol). Differences between children with and without information on SES were assessed using logistic multilevel regression procedures.

Ethnic differences in anxiety and depression were assessed using linear multilevel regression analyses. The first series of models assessed associations between RCADS scales and ethnicity, adjusting for gender and age. The next series of models were additionally adjusted for SES or social preference score. Gender differences were derived from the first model. Moderating effects of gender were investigated by adding an ethnicity x gender interaction term. We used a cut-off value of \( p < 0.10 \) for testing the significance of moderating effects.

**RESULTS**

**SAMPLE**

Of the 3890 invited children from grades 4, 5 and 6, 115 (3%) declined. Another 139 children (4%) dropped out before or during data collection because of leaving school, illness or unknown reasons. Children for whom no information on gender (0.1%), ethnicity (3%) and/or SES (23%) was available were excluded from the present analyses \( (n=929, 24\%) \). Children without information on SES were significantly more often boys (58% versus 45%) and were younger (10.3 versus 10.7 years). Dropout was not selective for ethnicity.

The ethnic distribution of our sample was 40% Dutch, 9% Turkish, 16% Moroccan, 12% Surinamese/Antillean, 10% other Western, and 14% other non-Western. These percentages are in concordance with the ethnic distribution among all primary school children in Amsterdam (37%, 8%, 18%, 11%, 11%, and 15%, respectively in school year 2011/2012) (Department for Research and Statistics Amsterdam, 2012). The majority (91%) of the children was born in the Netherlands. Table 1 reports the characteristics of our sample per ethnic group.
Differences between Dutch and Non-Native Ethnic Groups

Table 2 presents the means and standard deviations of the RCADS scales per ethnic group. As shown in the table, anxiety scores for all groups of non-native children were higher on virtually all scales than for the Dutch children — indicating more symptoms of anxiety in non-native ethnic groups. Depression scores were less deviant between ethnic groups.

Multilevel analyses adjusted for gender and age also showed that non-Western children reported more symptoms of anxiety than Dutch children (Table 3). When further adjusting for SES, some differences were no longer significant (Table 4). Still, non-Western children, particularly Moroccan and other non-Western children, reported more anxiety symptoms compared to Dutch children. All non-Western groups reported more symptoms of OCD than Dutch children. Other Western children did not report significantly different levels of anxiety and depression than Dutch children. Adjusting for social preference scores influenced the differences in anxiety scores less than for SES. For depression, however, Moroccan children reported lower scores than Dutch children (Table 5).
**TABLE 2**  
*Means and standard deviations of the RCADS scales in a multi-ethnic sample of Dutch children aged 8-13 years per ethnic group*

<table>
<thead>
<tr>
<th>Scale</th>
<th>TOTAL SAMPLE n=2685</th>
<th>DUTCH n=1081</th>
<th>TURKISH n=233</th>
<th>MOROCCAN n=428</th>
<th>SURINAMESE/ANTILLEAN n=307</th>
<th>OTHER WESTERN n=264</th>
<th>OTHER NON-WESTERN n=378</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCADS (0-141) M (SD)</td>
<td>28.3 (20.0)</td>
<td>26.3 (18.4)</td>
<td>30.0 (19.0)</td>
<td>30.5 (24.1)</td>
<td>29.0 (19.9)</td>
<td>28.8 (19.6)</td>
<td>29.8 (19.9)</td>
</tr>
<tr>
<td>Anxiety (0-111) M (SD)</td>
<td>22.8 (16.8)</td>
<td>20.8 (15.3)</td>
<td>24.4 (15.9)</td>
<td>25.2 (20.5)</td>
<td>23.8 (16.9)</td>
<td>22.7 (16.3)</td>
<td>24.3 (16.6)</td>
</tr>
<tr>
<td>GAD (0-18) M (SD)</td>
<td>4.3 (3.6)</td>
<td>4.0 (3.2)</td>
<td>4.6 (3.6)</td>
<td>4.8 (4.3)</td>
<td>4.5 (3.6)</td>
<td>4.5 (3.5)</td>
<td>4.4 (3.5)</td>
</tr>
<tr>
<td>SP (0-27) M (SD)</td>
<td>7.7 (5.2)</td>
<td>7.4 (4.9)</td>
<td>8.0 (5.1)</td>
<td>7.9 (5.9)</td>
<td>7.7 (5.4)</td>
<td>7.9 (5.2)</td>
<td>8.4 (5.3)</td>
</tr>
<tr>
<td>SAD (0-21) M (SD)</td>
<td>2.7 (3.2)</td>
<td>2.6 (3.1)</td>
<td>2.7 (3.1)</td>
<td>3.2 (3.8)</td>
<td>2.4 (3.0)</td>
<td>2.9 (3.2)</td>
<td>2.8 (3.0)</td>
</tr>
<tr>
<td>PD (0-27) M (SD)</td>
<td>4.3 (4.3)</td>
<td>3.7 (3.8)</td>
<td>4.8 (4.2)</td>
<td>5.0 (5.2)</td>
<td>4.7 (4.4)</td>
<td>4.0 (3.9)</td>
<td>4.4 (4.4)</td>
</tr>
<tr>
<td>OCD (0-18) M (SD)</td>
<td>3.8 (3.4)</td>
<td>3.1 (3.0)</td>
<td>4.4 (3.4)</td>
<td>4.4 (3.9)</td>
<td>4.5 (3.6)</td>
<td>3.6 (3.3)</td>
<td>4.4 (3.4)</td>
</tr>
<tr>
<td>MDD (0-30) M (SD)</td>
<td>5.5 (4.0)</td>
<td>5.5 (3.9)</td>
<td>5.7 (4.1)</td>
<td>5.2 (4.3)</td>
<td>5.4 (3.9)</td>
<td>6.0 (4.2)</td>
<td>5.5 (4.1)</td>
</tr>
</tbody>
</table>

*Note: n varies slightly per scale due to missing values. M=mean, SD=standard deviation. RCADS=Revised Child Anxiety and Depression Scale. GAD=Generalized Anxiety Disorder. SP=Social Phobia. SAD=Separation Anxiety Disorder. PD=Panic Disorder. OCD=Obsessive Compulsive Disorder. MDD=Major Depressive Disorder. Other Western=Europe (excluding Turkey), North America, Oceania, Japan, Indonesia (including former Dutch East Indies). Other non-Western=Africa, Latin America, Asia (without Japan and Indonesia).*
### TABLE 3

**Ethnic differences in RCADS scores in a multi-ethnic sample of Dutch urban children aged 8-13 years: results of multilevel linear regression, adjusted for gender and age**

<table>
<thead>
<tr>
<th>Scale (range of scale)</th>
<th>DUTCH</th>
<th>TURKISH</th>
<th>MOROCCAN</th>
<th>SURINAMESE/ANTILLEAN</th>
<th>OTHER WESTERN</th>
<th>OTHER NON-WESTERN</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCADS (0-141)</td>
<td>2640 ref</td>
<td>2.11 [95% CI] [-1.09, 5.31]</td>
<td>2.28 [95% CI] [-0.35, 4.91]</td>
<td>1.95 [95% CI] [-0.90, 4.79]</td>
<td>1.90 [95% CI] [-0.73, 4.54]</td>
<td>2.85 [95% CI] [0.36, 5.34] a</td>
</tr>
<tr>
<td>Anxiety (0-111)</td>
<td>2645 ref</td>
<td>2.00 [95% CI] [-0.69, 4.70]</td>
<td>2.62 [95% CI] [0.41, 4.84] a</td>
<td>2.13 [95% CI] [-0.26, 4.52]</td>
<td>1.43 [95% CI] [-0.77, 3.63]</td>
<td>2.88 [95% CI] [0.79, 4.97] a</td>
</tr>
<tr>
<td>GAD (0-18)</td>
<td>2676 ref</td>
<td>0.55 [95% CI] [0.01, 1.08] a</td>
<td>0.71 [95% CI] [0.27, 1.14] a</td>
<td>0.51 [95% CI] [0.03, 1.00] a</td>
<td>0.38 [95% CI] [-0.09, 0.85]</td>
<td>0.38 [95% CI] [-0.05, 0.81]</td>
</tr>
<tr>
<td>SP (0-27)</td>
<td>2673 ref</td>
<td>0.45 [95% CI] [-0.38, 1.28]</td>
<td>0.25 [95% CI] [-0.43, 0.93]</td>
<td>0.04 [95% CI] [-0.70, 0.78]</td>
<td>0.48 [95% CI] [-0.21, 1.16]</td>
<td>0.90 [95% CI] [0.25, 1.54] a, c</td>
</tr>
<tr>
<td>SAD (0-21)</td>
<td>2672 ref</td>
<td>-0.12 [95% CI] [-0.62, 0.39]</td>
<td>0.24 [95% CI] [-0.17, 0.64]</td>
<td>-0.23 [95% CI] [-0.68, 0.22]</td>
<td>0.15 [95% CI] [-0.27, 0.57]</td>
<td>0.19 [95% CI] [-0.21, 0.58]</td>
</tr>
<tr>
<td>PD (0-27)</td>
<td>2676 ref</td>
<td>0.63 [95% CI] [-0.05, 1.31]</td>
<td>0.89 [95% CI] [0.33, 1.44] a</td>
<td>0.80 [95% CI] [0.20, 1.41] a</td>
<td>0.18 [95% CI] [-0.39, 0.74] b</td>
<td>0.57 [95% CI] [0.03, 1.10] a</td>
</tr>
<tr>
<td>OCD (0-18)</td>
<td>2676 ref</td>
<td>0.94 [95% CI] [0.40, 1.48] a</td>
<td>0.92 [95% CI] [0.48, 1.36] a</td>
<td>1.19 [95% CI] [0.71, 1.67] a</td>
<td>0.38 [95% CI] [-0.07, 0.83] c</td>
<td>1.15 [95% CI] [0.72, 1.57] a, d</td>
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<tr>
<td>MDD (0-30)</td>
<td>2675 ref</td>
<td>0.18 [95% CI] [-0.42, 0.78]</td>
<td>-0.35 [95% CI] [-0.83, 0.14]</td>
<td>-0.08 [95% CI] [-0.62, 0.47]</td>
<td>0.43 [95% CI] [-0.11, -0.00]</td>
<td>0.96 [95% CI] [-0.49, 0.48]</td>
</tr>
</tbody>
</table>

RCADS=Revised Child Anxiety and Depression Scale. GAD=Generalised Anxiety Disorder. SP=Social Phobia. SAD=Separation Anxiety Disorder. PD=Panic Disorder. OCD=Obsessive Compulsive Disorder. MDD=Major Depressive Disorder. Western=Europe (excluding Turkey), North America, Oceania, Japan, Indonesia (including former Dutch East Indies). Other non-Western=Africa, Latin America, Asia (without Japan and Indonesia). a Significantly different from Dutch children \((p<0.05)\). b Significantly different from Moroccan children \((p<0.05)\). c Significantly different from Surinamese/Antillean children \((p<0.05)\). d Significantly different from other Western children \((p<0.05)\).
### Ethnic differences in RCADS scores in a multi-ethnic sample of Dutch urban children aged 8-13 years: results of multilevel linear regression analyses, adjusted for gender, age and socio-economic status

<table>
<thead>
<tr>
<th>Scale (range of scale)</th>
<th>n</th>
<th>DUTCH</th>
<th>TURKISH</th>
<th>MOROCCAN</th>
<th>SURINAMESE/ANTILLEAN</th>
<th>OTHER WESTERN</th>
<th>OTHER NON-WESTERN</th>
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<tr>
<td>RCADS (0-141)</td>
<td>2640</td>
<td>ref 1.64</td>
<td>1.78</td>
<td>1.49</td>
<td>1.86</td>
<td>2.48</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>[-1.65, 4.93]</td>
<td>[-0.97, 4.53]</td>
<td>[-1.44, 4.42]</td>
<td>[-0.77, 4.50]</td>
<td>[-0.07, 5.04]</td>
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<tr>
<td>Anxiety (0-111)</td>
<td>2645</td>
<td>ref 1.63</td>
<td>2.22</td>
<td>1.77</td>
<td>1.41</td>
<td>2.59</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>[-1.13, 4.39]</td>
<td>[-0.09, 4.53]</td>
<td>[-0.69, 4.22]</td>
<td>[-0.80, 3.61]</td>
<td>[0.45, 4.73]</td>
<td></td>
</tr>
<tr>
<td>GAD (0-18)</td>
<td>2676</td>
<td>ref 0.38</td>
<td>0.54</td>
<td>0.36</td>
<td>0.36</td>
<td>0.26</td>
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<tr>
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<td></td>
<td>[-0.16, 0.93]</td>
<td>[0.08, 1.01]</td>
<td>[-0.15, 0.87]</td>
<td>[-0.11, 0.83]</td>
<td>[-0.19, 0.71]</td>
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<tr>
<td>SP (0-27)</td>
<td>2673</td>
<td>ref 0.38</td>
<td>0.18</td>
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<td>0.47</td>
<td>0.84</td>
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<tr>
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<td>[-0.47, 1.24]</td>
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<td>[-0.79, 0.74]</td>
<td>[-0.22, 1.16]</td>
<td>[0.18, 1.51]</td>
<td></td>
</tr>
<tr>
<td>SAD (0-21)</td>
<td>2672</td>
<td>ref -0.17</td>
<td>0.18</td>
<td>-0.28</td>
<td>0.15</td>
<td>0.14</td>
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<tr>
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<td>[-0.69, 0.35]</td>
<td>[-0.26, 0.61]</td>
<td>[-0.75, 0.18]</td>
<td>[-0.27, 0.56]</td>
<td>[-0.26, 0.55]</td>
<td></td>
</tr>
<tr>
<td>PD (0-27)</td>
<td>2676</td>
<td>ref 0.55</td>
<td>0.80</td>
<td>0.72</td>
<td>0.17</td>
<td>0.50</td>
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<tr>
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<td>[-0.15, 1.25]</td>
<td>[0.22, 1.38]</td>
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<td>[-0.39, 0.74]</td>
<td>[-0.05, 1.05]</td>
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<tr>
<td>OCD (0-18)</td>
<td>2676</td>
<td>ref 0.76</td>
<td>0.72</td>
<td>1.01</td>
<td>0.36</td>
<td>0.99</td>
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<td>[0.20, 1.31]</td>
<td>[0.26, 1.18]</td>
<td>[0.51, 1.50]</td>
<td>[-0.09, 0.81]</td>
<td>[0.56, 1.43]</td>
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<tr>
<td>MDD (0-30)</td>
<td>2675</td>
<td>ref 0.02</td>
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<td>-0.22</td>
<td>0.41</td>
<td>-0.12</td>
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<tr>
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<td></td>
<td>[-0.62, 0.66]</td>
<td>[-1.03, 0.03]</td>
<td>[-0.80, 0.36]</td>
<td>[-0.13, 0.94]</td>
<td>[-0.63, 0.39]</td>
<td></td>
</tr>
</tbody>
</table>

RCADS=Revised Child Anxiety and Depression Scale. GAD=Generalized Anxiety Disorder. SP=Social Phobia. SAD=Separation Anxiety Disorder. PD=Panic Disorder. OCD=Obsessive Compulsive Disorder. MDD=Major Depressive Disorder. Western=Europe (excluding Turkey), North America, Oceania, Japan, Indonesia (including former Dutch East Indies). Other non-Western=Africa, Latin America, Asia (without Japan and Indonesia). a Significantly different from Dutch children (p<0.05). b Significantly different from Moroccan children (p<0.05). c Significantly different from Surinamese/Antillean children (p<0.05). d Significantly different from other Western children (p<0.05).
**Table 5** Ethnic differences in RCADS scores in a multi-ethnic sample of Dutch urban children aged 8-13 years: results of multilevel linear regression analyses, adjusted for gender, age and social preference score

<table>
<thead>
<tr>
<th>Scale (range of scale)</th>
<th>$n$</th>
<th>Dutch $B$ [95% CI]</th>
<th>Turkish $B$ [95% CI]</th>
<th>Moroccan $B$ [95% CI]</th>
<th>Suriname/Antillean $B$ [95% CI]</th>
<th>Other Western $B$ [95% CI]</th>
<th>Other Non-Western $B$ [95% CI]</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCADS (0-141)</td>
<td>2640 ref</td>
<td>1.79 [-1.40, 4.99]</td>
<td>1.69 [-0.94, 4.33]</td>
<td>1.97 [-0.87, 4.81]</td>
<td>1.83 [-0.80, 4.46]</td>
<td>2.66 [0.18, 5.15] $^a$</td>
<td></td>
</tr>
<tr>
<td>Anxiety (0-111)</td>
<td>2645 ref</td>
<td>1.76 [-0.93, 4.46]</td>
<td>2.19 [-0.04, 4.41]</td>
<td>2.14 [-0.25, 4.53]</td>
<td>1.38 [-0.82, 3.58]</td>
<td>2.75 [0.66, 4.83] $^a$</td>
<td></td>
</tr>
<tr>
<td>GAD (0-18)</td>
<td>2676 ref</td>
<td>0.50 [-0.03, 1.04]</td>
<td>0.64 [0.20, 1.07] $^a$</td>
<td>0.52 [0.03, 1.00] $^a$</td>
<td>0.35 [-0.12, 0.82]</td>
<td>0.37 [-0.06, 0.80]</td>
<td></td>
</tr>
<tr>
<td>SP (0-27)</td>
<td>2673 ref</td>
<td>0.39 [-0.44, 1.22]</td>
<td>0.14 [-0.54, 0.83]</td>
<td>0.04 [-0.70, 0.78]</td>
<td>0.47 [-0.22, 1.16]</td>
<td>0.87 [0.22, 1.52] $^{a,c}$</td>
<td></td>
</tr>
<tr>
<td>SAD (0-21)</td>
<td>2672 ref</td>
<td>-0.13 [-0.63, 0.38]</td>
<td>0.19 [-0.22, 0.60]</td>
<td>-0.22 [-0.67, 0.23]</td>
<td>0.16 [-0.27, 0.56]</td>
<td>0.18 [-0.21, 0.57]</td>
<td></td>
</tr>
<tr>
<td>PD (0-27)</td>
<td>2676 ref</td>
<td>0.57 [-0.11, 1.25]</td>
<td>0.76 [0.20, 1.32] $^a$</td>
<td>0.80 [0.20, 1.41] $^a$</td>
<td>0.16 [-0.40, 0.73]</td>
<td>0.53 [0.00, 1.06] $^a$</td>
<td></td>
</tr>
<tr>
<td>OCD (0-18)</td>
<td>2676 ref</td>
<td>0.87 [0.33, 1.41] $^a$</td>
<td>0.82 [0.38, 1.26] $^a$</td>
<td>1.19 [0.71, 1.67] $^a$</td>
<td>0.36 [-0.09, 0.81]</td>
<td>1.11 [0.69, 1.53] $^{a,d}$</td>
<td></td>
</tr>
<tr>
<td>MDD (0-30)</td>
<td>2675 ref</td>
<td>0.12 [-0.48, 0.71]</td>
<td>-0.49 [-0.97, -0.01] $^a$</td>
<td>-0.02 [-0.57, 0.52]</td>
<td>0.40 [-0.13, 0.94] $^b$</td>
<td>-0.02 [-0.51, 0.46]</td>
<td></td>
</tr>
</tbody>
</table>

RCADS=Revised Child Anxiety and Depression Scale. GAD=Generalized Anxiety Disorder. SP=Social Phobia. SAD=Separation Anxiety Disorder. PD=Panic Disorder. OCD=Obsessive Compulsive Disorder. MDD=Major Depressive Disorder. Western=Europe (excluding Turkey), North America, Oceania, Japan, Indonesia (including former Dutch East Indies). Other non-Western=Africa, Latin America, Asia (without Japan and Indonesia). $^a$ Significantly different from Dutch children ($p<0.05$). $^b$ Significantly different from Moroccan children ($p<0.05$). $^c$ Significantly different from Surinamese/Antillean children ($p<0.05$). $^d$ Significantly different from other Western children ($p<0.05$).
DIFFERENCES BETWEEN NON-NATIVE ETHNIC GROUPS

Although the largest differences were observed between the Dutch and non-native ethnic groups, multilevel analyses adjusted for gender and age also showed significant differences between non-native ethnic groups (Table 3). Moroccan children reported significantly more symptoms of PD than other Western children, ($B=0.71$, 95% CI [0.02, 1.40]), and fewer symptoms of MDD than other Western children ($B=-0.77$, 95% CI [-1.40, -0.14]). Surinamese/Antillean children reported fewer symptoms of SP than other non-Western children ($B=-0.86$, 95% CI [-1.63, -0.08]). Other Western children reported fewer OCD symptoms than Surinamese/Antillean and other non-Western children ($B=-0.81$, 95% CI [-1.39, -0.23] and $B=-0.76$ [-1.30, -0.23] respectively).

When further adjusting for SES, the difference in PD symptoms between Moroccan and other Western children were no longer significant (Table 4). All other differences remained significant. Moroccan children still reported fewer MDD symptoms than the other Western children ($B=-0.91$, 95% CI [-1.56, -0.25]). Surinamese/Antillean children still reported fewer SP symptoms than other non-Western children ($B=-0.87$, 95% CI [-1.64, -0.09]), and other Western children still reported fewer OCD symptoms than Surinamese/Antillean children ($B=-0.65$, 95% CI [-1.24, -0.05]), and other non-Western children ($B=-0.63$, 95% CI [-1.17, -0.09]).

When adjusting for social preference scores, all differences remained significant, except for the difference PD symptoms between Moroccan and other Western children. The difference in MDD symptoms between Moroccan and other Western children became somewhat larger ($B=-0.89$, 95% CI [-1.52, -0.27]). Other differences remained virtually the same. For SP symptoms, Surinamese/Antillean children still reported fewer symptoms than other non-Western children ($B=-0.83$, 95% CI [-1.60, -0.05]). Also the differences in OCD symptoms between other Western children and Surinamese/Antillean ($B=-0.83$, 95% CI [-1.41, -0.25] and other Western and other non-Western children ($B=-0.75$ [-1.28, -0.21]) hardly changed.

GENDER DIFFERENCES

Girls reported more symptoms of anxiety and depression than boys, for RCADS: $B=6.9$, 95% CI [5.5, 8.4]), for total anxiety: $B=6.3$, 95% CI [5.0, 7.5], for GAD: $B=-0.8$, 95% CI [0.6, 1.1], for SP: $B=2.3$, 95% CI [2.0, 2.7], for SAD: $B=1.2$, 95% CI [1.0, 1.5], for PD: $B=1.3$, 95% CI [1.0, 1.7], for OCD: $B=0.4$, 95% CI [0.1, 0.7], and for MDD: $B=0.7$, 95% CI [0.4, 1.0].

We found a moderating effect of gender on ethnicity effects for three anxiety scales. Turkish boys reported more symptoms of OCD than Turkish girls. In non-Western children, gender differences were smaller than in Dutch children for GAD and SAD. Dutch boys reported fewer symptoms than non-Western boys, but Dutch girls reported more symptoms than non-Western girls.
DISCUSSION

The present study examined ethnic differences in symptoms of self-reported anxiety and depression in school-aged children. Non-Western ethnic groups reported more symptoms of anxiety than Dutch or other Western children. Differences were small but significant. For symptoms of depression, we did not find ethnic differences. Contrary to our expectations, SES only partly explained ethnic differences in internalizing problems, as differences were only slightly smaller after adjustment for SES. Peer rejection hardly explained differences in internalizing problems.

Non-Western children reported the most symptoms of anxiety. This is in line with other European studies reporting that children with a non-European background have more mental health problems than European migrant or native children (Belhadj Kouider et al., 2014). This might be explained by the fact that acculturation may be more difficult for people with a non-Western background. Western migrants are more similar to the host country’s culture than non-Western migrants, which could result in less difficulties when adjusting to a new country. Although most children in our sample were born in the Netherlands, these second generation migrant children may face acculturation problems as well. For example, children may acculturate faster than their parents which could lead to intergenerational conflicts (Zhou, 1997). These acculturation problems are associated with psychological problems in children (Hwang & Wood, 2009).

In the present study, especially other non-Western children (e.g., Ghanaian, Egyptian, Pakistani) reported more symptoms of anxiety than Dutch and other Western children (e.g., Indonesian, German, French). On top of more acculturation problems for non-Western migrants, it may be that other non-Western migrants may have arrived as refugees or asylum seekers. Being a refugee or asylum seeker is associated with psychological stress (Bhugra, 2004). Children with anxious or depressed parents are at higher risk to develop psychological problems themselves (Beidel & Turner, 1997).

In comparison with previous Dutch research, two findings stand out. Contrary to previous Dutch research (Stevens et al., 2003; van de Looij-Jansen et al., 2011), we found that Turkish children did not differ that much from their Dutch peers in symptoms of anxiety and depression. The second finding contradictory to previous research (Stevens et al., 2003) is that we found Moroccan children reporting more anxiety symptoms than Turkish children. It must be noted that the data in previous research were collected 20 and 10 years ago (Stevens et al., 2003; van de Looij-Jansen et al., 2011). Meantime, things have changed in the Netherlands. For example, Moroccan youth are more associated with behaviour problems and criminal behavior than Dutch or Turkish youth (Stevens et al., 2003; van der Laan, Blom, Tollenaar, & Kea, 2010; Zwirs, Burger, Schulpen, & Buitelaar, 2006), which has become a topical issue in public and politics during the past 10 years. This may have caused elevated anxiety levels in Moroccan children. Another possibility is that in previous research more anxiety symptoms were disguised by using a general internalizing scale (Stevens et al., 2003).
In the present study anxiety and depression were separately examined, as Moroccan children tended to report fewer symptoms of depression, the average of internalizing symptoms could have been not deviant from other ethnic groups when using a general internalizing scale.

However, based on previous research investigating the relation between anxiety and depression (Zahn-Waxler, Klimes-Dougan, & Slattery, 2000), one would expect to find higher levels of depression symptoms in groups with more anxiety symptoms. In that sense, it is remarkable that Moroccan children reported less depression symptoms than other Western children and tended to report less than Dutch children. The same applies to the finding of non-native ethnic groups reporting more anxiety symptoms, but reporting comparable levels of depression symptoms. Though, it may be that the age of our sample, pre-adolescents, play a role in this finding. As the prevalence of depression increases during adolescence (Birmaher et al., 1996), ethnic differences in depression may appear at a later age.

When we look at ethnic differences in specific anxiety scales, two types seem to be more prevalent in non-Western children: OCD and PD. All non-Western ethnic groups reported significantly more symptoms of OCD than the Dutch and other Western group. This finding is in line with previous studies examining self-reported symptoms of OCD in the US and a British nationwide study estimating the prevalence of OCD in children using diagnostic interviews, in which children from non-Western background had more symptoms of OCD (Austin & Chorpita, 2004; Heyman et al., 2001). Also for the PD scale Austin and Chorpita (2004) found more symptoms in non-Western children.

SES only partly explained ethnic differences. Although a lower SES in general is a risk factor for mental health problems (Belhadj Kouider et al., 2014), several studies reported that SES contributes to ethnic differences, but that it does not fully explain these (Stevens & Vollebergh, 2008). Peer rejection hardly influenced ethnic differences. Previous research linked peer rejection to internalizing problems (Gooren et al., 2011; van Lier & Koot, 2010). However, as these studies investigated this relation over a longer time period, it may be difficult to find the same link in a cross-sectional study.

Girls reported more internalizing symptoms than boys, which is in concordance with literature (Beesdo et al., 2009; Birmaher et al., 1996). For Turkish children, however, we found that boys reported more OCD than girls. It should be noted that the gender difference for the OCD scale was the smallest we found. Previously, Chorpita et al. (2000) reported higher OCD means in 7th to 10th grade boys.

For non-Western children, we found that gender differences for GAD and SAD were smaller than in Dutch children, with non-Western girls reporting fewer symptoms than Dutch girls and vice versa for non-Western and Dutch boys. This is remarkable, as non-Western children reported more anxiety symptoms overall. It could however explain why we did not or hardly found differences at the GAD and SAD scale between these ethnic groups.

Strengths of our study are the large sample of school-aged children with a variety of ethnic backgrounds and the low percentage of non-response. To our knowledge, this is the first study examining ethnic differences in symptoms of anxiety and depression.
in a large sample and using an anxiety- and disorder specific, self-report questionnaire, which also takes into account SES and peer rejection using standardized measures. Further, we had a low non-response percentage (7%).

Our study has also some limitations. First, the RCADS has not yet been tested for measurement invariance across the ethnic groups. Measurement invariance refers to equivalency of measurement properties in specified subgroups of a sample (Brown, 2006). A study in the US investigating measurement invariance in Caucasian and Afro-American children, found one SP, three OCD and one MDD noninvariant items for Afro-American children, meaning that these items are answered systematically different in this group. Further research is therefore recommended. A second limitation was that although we had a large study sample, it was smaller than the original sample because of missing data on SES. The children for whom no information about SES was available were younger and more often boys. However, as missing SES was not related to ethnicity, these missing values are unlikely to have influenced our findings. Thirdly, our measure of SES was calculated per postal code area and not based on individual household income or parental educational level. However, our study design did not allow us to collect data from parents directly. Finally, the results of this study may be not completely generalizable to children living in more rural areas of the Netherlands, as our study included an urban sample.

In sum, Dutch school-aged children from non-Western ethnic groups self-reported more symptoms of anxiety than their Dutch peers. Ethnic differences were only partly explained by SES. Peer rejection hardly explained differences. Ethnic differences were small but significant. Nonetheless, as the prevalence of anxiety increases with age (Beesdo et al., 2009) small differences in school-aged children may become larger in later life. Therefore, we recommend more research into the causes of these ethnic differences as well as prevention of a further increase in symptoms of anxiety and depression, especially in vulnerable groups.


