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Chapter 3

The Link between Ethnicity, Social Disadvantage and Mental Health Problems in a School-Based Multiethnic Sample of Children in the Netherlands

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ABSTRACT
To investigate to what extent differences in prevalence and types of mental health problems between ethnic minority and majority youth can be explained by social disadvantage. Mental health problems were assessed in a sample of 1,278 schoolchildren (55 % Dutch, 32 % Moroccan and 13 % Turkish; mean age: 12.9 ± 1.8) using the Strengths and Difficulties Questionnaire self-report and teacher report. Measures of family socioeconomic status, neighbourhood deprivation, perceived discrimination, family structure, repeating a school year, housing stability and neighbourhood urbanization were used as indicators of social disadvantage, based on which a cumulative index was created. Ethnic minority youth had more externalizing and fewer internalizing problems than majority youth. Perceived discrimination and living in an unstable social environment were associated with mental health problems, independent of ethnicity. A dose–response relationship was found between social disadvantage and mental health problems. The adjusted odds ratio for mental health problems was 4.16 (95 % CI 2.49–6.94) for more than four compared with zero indicators of social disadvantage. Social disadvantage was more common in ethnic minority than in majority youth, explaining part of the differences in prevalence of mental health problems. Ethnic minority youth in the Netherlands have a different profile of mental health problems than majority youth. In all ethnic groups, the risk of mental health problems increases with the degree of social disadvantage. The higher prevalence of externalizing problems among ethnic minority youth is explained partly by their disadvantaged social position. The findings suggest that social factors associated with ethnicity are likely to explain mental health problems in ethnic groups.
Keywords: Children, Externalizing problems, Internalizing problems, Ethnicity, Social disadvantage.

INTRODUCTION

Worldwide studies have examined the prevalence of mental health problems among ethnic minority and majority youth. Some studies found higher rates of mental health problems in ethnic minorities; others reported lower or similar rates, depending on the types of problems, ethnic groups and host countries studied and the informants used (Stevens & Vollebergh, 2008). Ethnic differences in mental health problems may be attributed to genetic factors, obstetric complications, dietary habits or differences in substance use, but social factors seem to be most important (Stevens & Vollebergh, 2008). The concept of ethnicity encompasses a host of social, cultural and economic factors, which might all be related to mental health (Dogra et al., 2012). For example, differences in family socioeconomic position between ethnic groups or the attitudes of host countries' populations towards ethnic minorities are likely to influence associations between ethnicity and mental health problems (Stevens & Vollebergh, 2008). Studies carried out among ethnic groups with distinct social and cultural backgrounds residing in various social contexts offer us an outstanding opportunity to examine such underlying social factors (Phelan et al., 2010).

One possible construct contributing to ethnic differences in mental health may be the disadvantaged social position many ethnic minority youths have in European societies. Several indicators of social disadvantage have been linked to childhood mental health problems, such as living in low-income families in disadvantaged neighbourhoods, discrimination and low social support (Vollebergh et al., 2005; Klineberg et al., 2006; van Dijk et al., 2011). A recent review of mental health in migrant children (Stevens & Vollebergh, 2008) hypothesized that having a position at the bottom of the social hierarchy may predispose migrant children towards developing mental health problems, through discrimination and other restrictive processes in the host society. Similarly, growing up in a disadvantaged ethnic minority position, characterized by a low social status and a high degree of discrimination against the group and low neighbourhood ethnic density, has been associated with an increased risk of psychotic disorders in young adults (Veling & Susser, 2011). The combination of a low socioeconomic status (SES), perceived discrimination and limited resources of social support as a result of an unstable social environment may well increase the vulnerability to childhood mental health problems (Stevens & Vollebergh, 2008) and psychiatric disorders such as psychosis later in life (Veling & Susser, 2011). The degree to which social disadvantage is present among different ethnic groups residing in different host countries varies (Gijsberts, 2009; Armenta & Hunt, 2009) and consequently may cause inconsistent results on the prevalence of mental health problems among ethnic minority youth (Phelan et al., 2010).

Although associations between aspects of social disadvantage and mental health problems have been reported (Vollebergh et al., 2005; Klineberg et al., 2006; Stevens & Vollebergh, 2008; van Dijk et al., 2011), these social factors may be particularly risky when they accumulate in an individual. Indeed, previous research has reported a gradually increased risk of childhood mental health problems with every added risk factor in a cumulative manner (Deater-Deckard et al., 1998; Atzaba-Poria et al., 2004; Appleyard et al., 2005). Additionally, as

trajectories towards externalizing and internalizing problems seem different (Atzaba-Poria et al., 2004; Oppedal et al., 2005), the specific risk profile of growing up in a disadvantaged social position may exert differential effects on these types of problems. For example, experiences of discrimination may lead to external attribution styles as adaptive coping, possibly protecting against internalizing problems, but simultaneously predisposing individuals to develop externalizing problems (Major et al., 2003).

In the Netherlands, most research has been done among Moroccan and Turkish immigrant youth.

Generally, Moroccans show an equal number of internalizing problems to and more externalizing problems than the native Dutch majority, although Moroccan children themselves report fewer externalizing problems (Stevens et al., 2003; Zwirs et al., 2011). Turkish immigrant youth show more internalizing problems than and an equal number of externalizing problems to the Dutch majority youth (Crijnen et al., 2000; Stevens et al., 2003; Darwish et al., 2003; Janssen et al., 2004; Zwirs et al., 2011). The socioeconomic position of Moroccan and Turkish immigrants in the Netherlands is very low (Gijsberts, 2009). Moroccans are exposed to the highest degree of discrimination (Veling et al., 2007b).

In this school-based sample of ethnic minority and majority youth in the Netherlands, we aimed to investigate whether (i) the prevalence of internalizing and externalizing problems measured by self-reports and teacher reports is different among ethnic minority compared to majority youth; (ii) mental health problems are associated with (cumulative) social disadvantage, in terms of a low SES, perceived discrimination and an unstable social environment; and (iii) any ethnic differences in the prevalence of mental health problems can be explained by cumulative social disadvantage.

METHODS

Participants

As this study was particularly aimed at Moroccan immigrant youth, a list was made of urban and rural districts in the Netherlands with corresponding percentages of Moroccan inhabitants. We approached primary and secondary schools both in districts with small and large Moroccan populations (range 1.9–9.2 %), because the aim was to include a large sample of ethnic minority youths living in different social contexts; 78.2 % of schools participated. Eight primary and ten secondary schools with various educational levels were included in the Dutch provinces of North Holland, South Holland, Utrecht, Gelderland, North Brabant and Limburg. Years six to eight of primary schools (9–12 year olds) and years one to three of secondary schools (12–15 year olds) were included. The overall participation rate was 85.7 % of the school students eligible for the study: 7.0 % were absent, 6.3 % did not receive permission from their parents or caregivers to participate, and 1.0 % refused participation. The total sample consisted of 1,563 participants.

According to the ethnic categories defined by Statistics Netherlands, children were categorized as Dutch when both parents were born in the Netherlands (n =

703). Children were categorized as belonging to an ethnic minority when one or both parents were born in a foreign country (n = 860).[3] In case of parents with two different foreign countries of birth, the mother's country of birth was used to define the child's ethnic group. Together with Dutch youths as a reference group (n = 703), the Moroccan (n = 407) and Turkish (n = 173) ethnic groups were large enough to be studied separately. A small proportion of the Dutch (n = 1), Moroccan (n = 3) and Turkish (n = 1) children did not complete the questionnaire, resulting in a total sample for analysis of 1,278 participants. Teachers filled out a questionnaire on 91.3 % of the participating children (n = 1,167; see 'Measurements').

Boys and girls were almost equally represented (53.5 % boys, 46.5 % girls), without statistically significant differences between ethnicities. At the time of the survey, the participants were on average 12.9 years old (SD = 1.8). The Dutch youths were slightly older (13.2 ± 1.7) than Moroccan (12.7 ± 1.9) and Turkish (12.8 ± 1.7) immigrant youths [F(df = 2) = 10.69, p \ 0.001]. All differences between ethnic groups were adjusted for sex and age. First-generation Moroccan and Turkish immigrant youths were born in Morocco or Turkey themselves (8.7 %, n = 50). Second-generation immigrant youths were born in the Netherlands and had at least one parent born outside of the Netherlands (91.3 %, n = 526). There were no significant differences in the distribution of first-generation and second-generation immigrants among Moroccan and Turkish youths. Almost a third (29.0 %) of the students attended primary schools. Of the secondary school students (71.0 %), 48.7 % followed lower secondary vocational education, and 51.3 % followed a higher educational track. There was an overrepresentation of Moroccan (38.4 %) and Turkish (47.7 %) youths at primary schools compared with Dutch (19.1 %) youths [v2(df = 2) = 79.79, p \ 0.001]. At secondary schools, there was an overrepresentation of Moroccan (56.2 %) and Turkish (70.0 %) youths following lower secondary vocational education compared with Dutch (42.1 %) youths (χ^2 (df = 2) =83.72, p < 0.001).

Procedure

Data were collected from June 2009 to April 2010. The medical ethics committee of the VU Medical Centre approved the study. After receiving approval from school administrators, students and their parents received a letter of introduction, a description of the study and a passive informed consent form. Parents or primary caregivers were asked to sign and return the informed consent form only if they refused participation of their children. Students completed the web-based survey during a regular school day. A trained research assistant introduced the survey and its topics, and at least two research assistants were available in the classroom to answer the children's questions while they were taking the survey. To protect the confidentiality of the responses, children filled out the questionnaires using a unique identification number. Teachers were not involved in the actual

[3] This method will have misclassified 1.7 and 2.2 % of Moroccan and Turkish ethnic minority youth, respectively, as ethnically Dutch, because not their parents, but their grandparents were born in a foreign country (third generation immigrants). The third generation of Moroccans and Turks in the Netherlands is small (Statistics Netherlands, 2010a).

administration. For every student, the teacher filled out a paper questionnaire of the SDQ teacher-report version (see 'Measurements'), which they handed over to the researchers or sent to our research department. The teacher report was linked to the self-report by corresponding identification numbers on the questionnaires. A strip of paper attached to every questionnaire indicated the student's name, which teachers removed right after completion.

Measurements

Outcome: mental health problems

Children and teachers completed the self-report and teacher-report versions of the Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997), consisting of five subscales: conduct problems, hyperactivity, emotional symptoms, peer problems and pro-social behaviour. Each subscale consists of five items on a three-point scale from 0 (not true) to 2 (certainly true). We principally focussed on conduct problems, hyperactivity (externalizing problems) and emotional symptoms (internalizing problems), because these subscales follow psychiatric symptom domains and can be classified according to the DSM. Furthermore, a total difficulties score can be generated by summing the scores on four psychopathology subscales: conduct problems, hyperactivity, emotional symptoms and peer problems (range 0–40). Cronbach's alphas in our sample were good for the self-report (0.69–0.75) and teacher-report (0.81–0.87) total difficulties scores among all three ethnic groups, confirming internal reliability. The SDQ self-report version is considered suitable for children and adolescents aged around 11–16, depending on the level of understanding and literacy (Goodman, 1997). It can be used in children as young as 8 years old (Muris et al., 2004) and has been previously used in a young sample of Moroccan children in the Netherlands with a good Cronbach's alpha (Paalman et al., 2011). In our sample, a Cronbach's alpha of 0.68 of the self-reported total difficulties scale indicated good internal consistency for children aged under 11 (12.0 %, n = 153).

In order to create dichotomous outcome measures, we used normative SDQ data from the United Kingdom. Children in our sample were categorized as high for mental health problems when they scored in the borderline or abnormal range according to the UK norms (Goodman, 1997; Youthinmind, 2001). In order to create an aggregated measure of the self-report and teacher report, children who scored in the borderline or abnormal range on one or both reports were assigned to the high mental health problems group. This procedure was followed for the total difficulties score as well as for the subscales conduct problems, hyperactivity and emotional symptoms.

Determinants: indicators of social disadvantage

Socioeconomic status (SES) The Family Affluence Scale (FAS) (Currie et al., 2008) was used to assess family SES. The scale was developed to reliably estimate family SES in (young) children using questions they are likely to know about. It consists of four questions about material comforts in their families (car, bedrooms, vacations and computers). A total FAS score is calculated by summing the responses to these four items (range 0–9). To create three groups with sufficient

participants, children were categorized into low, medium and high family SES according to tertiles based on our sample.

With the postal codes of the home addresses of the children, provided by the schools, a measure of the socioeconomic deprivation of the neighbourhood could be obtained from the Netherlands Institute for Social Research (SCP) (The Netherlands Institute for Social Research, 2010). The SCP transformed the score, based on mean income, unemployment rate and level of education of the residents of a neighbourhood, to a z-distribution. Scores more than one standard deviation below the mean were designated as low, scores between one standard deviation below and one above the mean as medium and scores more than one standard deviation above the mean as highly deprived neighbourhoods.

Perceived discrimination Three items assessed whether children perceived personal discrimination based on skin colour, origin or religion during the past year: 'In the past year, have you felt discriminated against by others or disadvantaged based on your skin colour/country of origin/religion?'. Children answering 'yes' to one of these items were classified as having experienced personal discrimination.

To assess perceived group discrimination, children were asked whether they felt their ethnic group was discriminated against in four situations (street, school, shops or by the police). Answers (ranging from never to always on a four-point scale) were summed to create a total perceived group discrimination scale (range 0–12). As no norms were available, children were categorized into low, medium and high group discrimination according to tertiles based on our sample.

Unstable social environment Several variables were selected to define an unstable social environment at family, school, housing and neighbourhood levels. At the family level, other situations than living with both biological parents are less likely to offer stable social support. Variables at school and housing levels indicated whether children had (recently) changed their social context. Living in an urbanized neighbourhood contributes to an unstable social environment due to increased social fragmentation (Zammit et al., 2010). Children responded to categorical questions on family structure (categorized as living with both biological parents; 'yes' or 'no'), if they had ever repeated a school year ('no' or 'yes') and if they had moved recently (categorized as 'never moved', 'moved (5 years ago', 'moved 1–5 years ago', 'moved past year'). Statistics Netherlands (CBS) (Statistics Netherlands, 2010b) provided a measure of the urbanization of the neighbourhood by district, based on the average density of addresses per square kilometre. We trichotomized the five categories formed by the CBS by aggregating not urban and scarcely urban into 'rural' (<1,000 addresses per km2), moderately urban into 'intermediate' (1,000–1,500 addresses per km2) and urban and very urban into 'urban' (>1,500 addresses per km2).

Statistical analysis

As our data are organized in a three-level hierarchical data structure (schools, classes, students), we determined whether multilevel analysis was required using MLwiN version 2.23. Intraclass correlation coefficients (ICC) ranged from 0.0 to 9.8 %, which can be interpreted to indicate that associations between ethnicity,

social disadvantage and mental health problems, were not significantly different between schools or classes, and multilevel analyses were not required (Twisk, 2006). Analyses were performed using the Statistical Package for Social Science (SPSS), version 19.0.

Prevalence of mental health problems (research question i)
Percentages of Dutch, Moroccan and Turkish children scoring high on SDQ (sub)scales of the self-report and teacher report were calculated. The percentage of children scoring high on the total difficulties scale on one or both reports, used as an outcome measure in the following analyses as 'high mental health problems', was also reported. Differences between the ethnic minority groups relative to Dutch youth were tested using logistic regressions adjusting for sex and age.

Mental health problems and social disadvantage (research question ii)
To test for multicollinearity, inter-correlations between the indicators of social disadvantage were calculated. Pearson r correlation coefficients ranged from 0.008 to 0.453 (see online resource 1, Table 1). Multicollinearity proved not to be an issue.
Associations between indicators of social disadvantage and high mental health problems were examined by logistic regression analyses, adjusting for sex, age and ethnicity. To test whether associations were different across ethnic groups, interaction effects for ethnicity were calculated.
To create a cumulative social disadvantage score, a score of one was assigned to each category with a hypothesized risk of mental health problems: 'low family SES', 'high neighbourhood deprivation', 'perceived personal discrimination', 'high perceived group discrimination', 'not living with both biological parents', 'having repeated a school year', 'having moved in the past year' and 'living in an urban neighbourhood'. Subsequently, these dichotomized indicators of social disadvantage were summed into a cumulative social disadvantage score (range 0–8).
The cumulative social disadvantage score was entered in logistic regression models with high mental health problems and high conduct problems, hyperactivity and emotional symptoms (based on children scoring high on the self-report or teacher report) as dependent variables, adjusting for sex, age and ethnicity. Again, interaction effects for ethnicity were calculated to test whether associations were different across ethnic groups.

Social disadvantage and ethnicity (research question iii)
Percentages of Dutch, Moroccan and Turkish children reporting the indicators of social disadvantage were calculated. The percentage of children scoring in each category of the cumulative social disadvantage score was also reported. Differences between the ethnic minority groups relative to Dutch youth were tested in logistic regression analyses adjusting for sex and age. Finally, how differences in the prevalence of mental health problems changed was examined by adjusting for cumulative social disadvantage. Thus, the cumulative social

disadvantage score was added to the logistic regression models. Unadjusted and adjusted test characteristics of differences in mental health problems between the ethnic minority groups relative to Dutch youth and the change in proportion-explained variance (DR) were described.

RESULTS

Prevalence of mental health problems

Table 3.1 shows percentages of Dutch, Moroccan and Turkish youth scoring high on SDQ (sub)scales and differences between the ethnic minority groups relative to Dutch youth. Compared with Dutch youth, Moroccan and Turkish youth reported more conduct problems (Moroccan OR 1.94, 95 % CI 1.41–2.67 and Turkish OR 1.55, 95 % CI 1.00–2.39) and less hyperactivity (Moroccan OR 0.35, 95 % CI 0.25–0.49 and Turkish OR 0.32, 95 % CI 0.19–0.53). In addition, Moroccan youth reported fewer emotional symptoms compared with Dutch youth (OR 0.63, 95 % CI 0.44–0.92). According to teachers and compared to Dutch youth, Moroccan and Turkish youth showed more conduct problems (Moroccan OR 3.60, 95 % CI 2.68–4.85 and Turkish OR 1.81, 95 % CI 1.23–2.66) and hyperactivity (Moroccan OR 2.04, 95 % CI 1.52–2.73 and Turkish OR 1.54, 95 % CI 1.05–2.25). Teachers also reported more total difficulties in Moroccan youths than in Dutch youths (OR 1.93, 95 % CI 1.44–2.58). In addition, compared with Dutch youth a higher percentage of Moroccan youth were classified as having 'high mental health problems' (based on children with high scores on the total difficulties scale on one or both reports) (OR 1.40, 95 % CI 1.07–1.84).

Table 3.1: Percentages of Dutch, Moroccan and Turkish youth scoring high on SDQ self report and teacher report

	Dutch (n=702, n=644)		Moroccan[a] (n=404, n=358)		Turkish[a] (n=172, n=165)	
Problem scale	n	%	n	%	n	%
SDQ self report						
Conduct problems	97	13.8	94	23.3***	34	19.8*
Hyperactivity	199	28.3	49	12.1***	19	11.0***
Emotional symptoms	115	16.4	47	11.6*	19	11.0
Peer problems	199	28.3	182	45.0***	71	41.3**
Pro-social behaviour	162	23.1	77	19.1	31	18.0
Total difficulties	135	19.2	71	17.6	31	18.0
SDQ teacher report						
Conduct problems	143	22.2	164	45.8***	53	32.1**
Hyperactivity	168	26.1	137	38.3***	56	33.9*
Emotional symptoms	187	29.0	87	24.3	43	26.1
Peer problems	195	30.3	110	30.7	36	21.8
Pro-social behaviour	109	16.9	83	23.2***	26	15.8
Total difficulties	170	26.4	133	37.2***	48	29.1
SDQ self report or teacher report						
Total difficulties[b]	240	37.3	156	43.6*	66	40.0

[a.] Differences relative to Dutch youth were adjusted for sex and age. Test characteristics can be found in table 3.4

[b.] Used as the outcome measurement in the following analyses as 'high mental health problems'

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Mental health problems and social disadvantage

A number of indicators of social disadvantage were associated with high mental health problems (Table 3.2). Perceived personal discrimination (OR 1.83, 95 % CI 1.32–2.55), a high degree of perceived group discrimination (OR 1.71, 95 % CI 1.30–2.24), not living with both biological parents (OR 2.09, 95 % CI 1.53–2.86), having repeated a school year (OR 2.09, 95 % CI 1.53–2.86), having moved in the past 5 years (moved 1–5 years ago OR 1.42, 95 % CI 1.01–1.99 and moved past year OR 1.94, 95 % CI 1.14–3.30) and living in an urban neighbourhood (OR 1.50, 95 % CI 1.05–2.15) were significantly related to high mental health problems. No interaction effects for ethnicity were found.

Table 3.2: Indicators of social disadvantage x low/high mental health problems

	Low (n=705, n=667)		High (n=462, n=423)		Model[a]	
	n	%	n	%	OR	95% CI
Socioeconomic status						
Family SES						
High	287	58.9	200	41.1	1.00	-
Medium	131	59.8	88	40.2	0.92	0.66 – 1.28
Low	287	62.3	174	37.7	0.76	0.57 – 1.03
Socioeconomic deprivation neighbourhood						
Low	68	61.8	42	38.2	1.00	-
Medium	461	61.5	289	38.5	0.98	0.64 – 1.49
High	176	57.3	131	42.7	1.00	0.60 – 1.67
Perceived discrimination						
Personal						
No	618	63.1	362	36.9	1.00	-
Yes	87	46.5	100	53.5	1.83	1.32 – 2.55***
Group						
Low	413	65.8	215	34.2	1.00	-
Medium	70	61.9	43	38.1	1.19	0.78 – 1.81
High	222	52.1	204	47.9	1.71	1.30 – 2.24***
Unstable social environment						
Living with both biological parents						
Yes	613	63.3	356	36.7	1.00	-
No	92	46.5	106	53.5	2.09	1.53 – 2.86***
Ever repeated a school year						
No	520	66.3	264	33.7	1.00	-
Yes	185	48.3	198	51.7	1.99	1.53 – 2.58***
Housing stability						
Never moved	301	64.7	164	35.3	1.00	-
Moved > 5 years ago	217	61.3	137	38.7	1.14	0.86 – 1.53
Moved 1-5 years ago	117	56.8	89	43.2	1.42	1.01 – 1.99*
Moved past year	32	49.2	33	50.8	1.94	1.14 – 3.30*
Urbanization of neighbourhood						
Rural	149	66.8	74	33.2	1.00	-
Intermediate urban	180	60.0	120	40.0	1.39	0.94 – 2.05
Urban	376	58.4	268	41.6	1.50	1.05 – 2.15*

[a.] Model adjusted for sex, age and ethnicity. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure 3.1 displays sex, age and ethnicity adjusted odds ratios of mental health problems for each category of cumulative social disadvantage. There was a linear relationship between cumulative social disadvantage and high mental health problems (OR 1.39, 95% CI 1.25–1.53). The cumulative social disadvantage

index also showed linear relationships with high conduct problems (OR 1.36, 95 % CI 1.23–1.50), hyperactivity (OR 1.27, 95 % CI 1.16–1.41) and emotional symptoms (OR 1.25, 95 % CI 1.13–1.38). No interaction effects for ethnicity were found for the cumulative social disadvantage score to high mental health problems or emotional symptoms. For high conduct problems and hyperactivity, however, an interaction effect was found; the association with cumulative social disadvantage was significant in Dutch (conduct problems OR 1.50, 95 % CI 1.30–1.72, hyperactivity OR 1.41, 95% CI 1.23–1.60) and Moroccan (conduct problems OR 1.30, 95 % CI 1.07–1.57, hyperactivity OR 1.28, 95 % CI 1.06–1.55) youth, but did not reach significance in Turkish youth.[4]

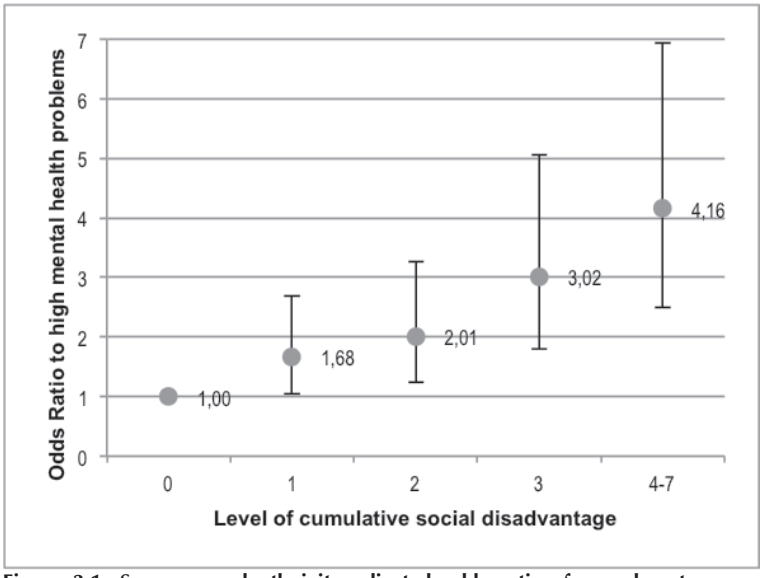

Figure 3.1: Sex, age and ethnicity adjusted odds ratios for each category of cumulative social disadvantage to high mental health problems

Note: Cumulative social disadvantage score = low family SES + high neighbourhood deprivation + perceived personal discrimination + high perceived group discrimination + not living with both biological parents + having repeated a school year + having moved in the past year + living in an urban neighbourhood.

Social disadvantage and ethnicity

Table 3.3 displays comparisons in prevalence of social disadvantage of the Dutch versus the Moroccan and Turkish groups. Compared with Dutch youth, Moroccan and Turkish youths were more likely to have a low family SES (Moroccan OR 6.20, 95 % CI 4.71–8.15 and Turkish OR 4.63, 95 % CI 3.25–6.60), live in a highly deprived neighbourhood (Moroccan OR 12.90, 95 % CI 9.45–17.63 and Turkish OR 19.52, 95 % CI 13.01–29.28), perceive personal discrimination (Moroccan OR 4.44, 95 % CI 3.11–6.33 and Turkish OR 4.08, 95 % CI 2.62–

[4] The analysis assessing the relationship between cumulative social disadvantage and hyperactivity, adjusting for sex and age, in Turkish youth is slightly underpowered when the rule of thumb of at least 20 cases per explaining variable in a logistic regression model is followed (the number of cases in the category of the dependent variable with the lowest N is 54, with three explaining variables).

6.34) and high group discrimination (Moroccan OR 5.45, 95 % CI 4.15–7.17 and Turkish OR 2.97, 95 % CI 2.09–4.23), have ever repeated a school year (Moroccan OR 2.06, 95 % CI 1.56–2.72 and Turkish OR 2.91, 95 % CI 2.03–4.18) and live in an urbanized neighbourhood (Moroccan OR 4.25, 95 % CI 3.22–5.61 and Turkish OR 2.39, 95 % CI 1.68–3.39). Moroccan youths were less likely not to live with both biological parents (OR 0.63, 95 % CI 0.45–0.89) and more likely to have moved in the past year (OR 2.22, 95 % CI 1.30–3.80) than Dutch youths.

Table 3.3: Percentages of Dutch, Moroccan and Turkish youth reporting indicators of social disadvantage

	Dutch (n=702)		Moroccan[a] (n=404)		Turkish[a] (n=172)	
Indicator of social disadvantage	n	%	n	%	n	%
Low family SES	159	22.6	260	64.4***	98	57.0***
High neighbourhood deprivation	78	11.1	249	61.6***	122	70.9***
Perceived personal discrimination	56	8.0	108	26.7***	44	25.6***
High perceived group discrimination	160	22.8	239	59.2***	77	44.8***
Not living with both biological parents	144	20.5	55	13.6**	29	16.9
Repeated a school year	189	26.9	154	38.1***	80	46.5***
Moved past year	26	3.7	33	8.2**	8	4.7
Urban neighbourhood	295	42.0	309	76.5***	111	64.5***

[a.] Differences relative to Dutch youth were adjusted for sex and age
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure 3.2 shows the prevalence of cumulative social disadvantage by ethnic group. Moroccan and Turkish youths scored higher on cumulative social disadvantage compared with Dutch youths; 51.4 % of Moroccan and 47.1 % of Turkish youths had four or more risk factors compared to 9.1 % of the Dutch group (Moroccan OR 12.53, 95 % CI 8.85–17.73 and Turkish OR 10.23, 95 % CI 6.70–15.60).

When controlling for cumulative social disadvantage, Moroccan and Turkish youth no longer reported higher levels of conduct problems compared with Dutch youth (Moroccan OR 0.99, 95 % CI 0.66–1.48 and Turkish OR 0.82, 95 % CI 0.49–1.36, DR = 3.9 %; see Table 3.4). Based on teacher reports, differences in conduct problems diminished between the Moroccan and Dutch youths (OR 2.09, 95 % CI 1.45–3.02, DR = 2.8 %) and disappeared between the Turkish and Dutch youths (OR 1.05, 95 % CI 0.67–1.65, DR = 2.8 %). Differences in teacher-reported levels of hyperactivity disappeared for Moroccan and Turkish compared with Dutch youths (Moroccan OR 1.26, 95 % CI 0.87–1.81 and Turkish OR 0.93, 95 % CI 0.59–1.45, DR = 2.2 %). Finally, increased teacher-reported total difficulties (OR 1.15, 95 % CI 0.79–1.66, DR = 2.8 %) and 'high mental health problems' (OR 0.73, 95 % CI 0.52–1.04, DR = 5.2 %) disappeared in Moroccan youth compared with Dutch youth.

Table 3.4: Differences in prevalence of mental health problems unadjusted and adjusted for cumulative social disadvantage

	Unadjusted[a]				Adjusted[b]			
	Moroccan v. Dutch		Turkish v. Dutch		Moroccan v. Dutch		Turkish v. Dutch	
Problem scale	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
SDQ self report								
Conduct problems	1.94	1.41 – 2.67***	1.55	1.00 – 2.39*	0.99	0.66 – 1.48	0.82	0.49 – 1.36
Hyperactivity	0.35	0.25 – 0.49***	0.32	0.19 – 0.53***	0.25	0.16 – 0.38***	0.21	0.12 – 0.38***
Emotional symptoms	0.63	0.44 – 0.92*	0.62	0.37 – 1.05	0.35	0.22 – 0.57***	0.33	0.18 – 0.61***
Peer problems	1.99	1.54 – 2.58***	1.72	1.22 – 2.43**	1.44	1.04 – 2.00*	1.17	0.78 – 1.76
Pro-social behaviour	0.83	0.61 – 1.13	0.74	0.48 – 1.14	0.74	0.51 – 1.09	0.62	0.37 – 1.02
Total difficulties	0.89	0.64 – 1.22	0.92	0.60 – 1.42	0.43	0.29 – 0.65***	0.45	0.27 – 0.76**
SDQ teacher report								
Conduct problems	3.60	2.68 – 4.85***	1.81	1.23 – 2.66**	2.09	1.45 – 3.02***	1.05	0.67 – 1.65
Hyperactivity	2.04	1.52 – 2.73***	1.54	1.05 – 2.25*	1.26	0.87 – 1.81	0.93	0.59 – 1.45
Emotional symptoms	0.82	0.61 – 1.11	0.90	0.61 – 1.33	0.52	0.36 – 0.77***	0.63	0.40 – 0.99*
Peer problems	1.11	0.84 – 1.48	0.67	0.44 – 1.01	0.76	0.52 – 1.09	0.47	0.29 – 0.75**
Pro-social behaviour	1.80	1.28 – 2.52***	0.98	0.61 – 1.58	1.72	1.11 – 2.65*	0.84	0.47 – 1.49
Total difficulties	1.93	1.44 – 2.58***	1.23	0.84 – 1.81	1.15	0.79 – 1.66	0.74	0.47 – 1.18
SDQ self report or teacher report								
Total difficulties[b]	1.40	1.07 – 1.84*	1.16	0.82 – 1.66	0.73	0.52 – 1.04	0.64	0.42 – 0.97*

[a.] Differences relative to Dutch youth were adjusted for sex and age

[b.] Differences relative to Dutch youth were adjusted for sex, age and cumulative social disadvantage

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

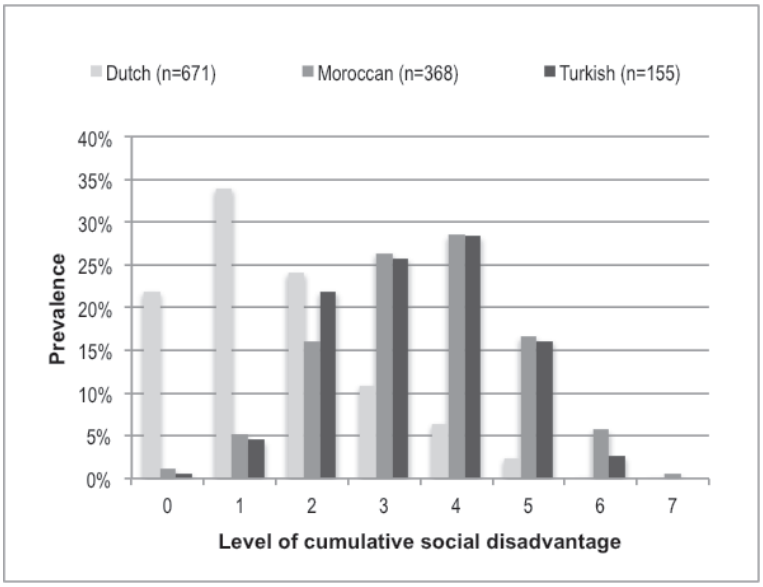

Figure 3.2: Prevalence of cumulative social disadvantage x ethnic group
Note: Cumulative social disadvantage score = low family SES + high neighbourhood deprivation + perceived personal discrimination + high perceived group discrimination + not living with both biological parents + having repeated a school year + having moved in the past year + living in an urban neighbourhood.

DISCUSSION

In this school-based study, examining associations between (cumulative) social disadvantage and externalizing and internalizing problems among ethnic minority and majority youth, three main findings have emerged. First, ethnic minority youth had more externalizing and fewer internalizing problems than majority youth. Second, we found associations between mental health problems and indicators of social disadvantage. The risk of mental health problems increased with the degree of social disadvantage in a dose–response fashion. These associations were found in all ethnic groups. Third, Moroccan and Turkish youth much more often lived in a socially disadvantaged position, which partly explained the increased externalizing problems compared with Dutch youth.

Consistent with previous research, teachers reported more externalizing problems in Moroccan as compared to Dutch youth (Stevens et al., 2003; Zwirs et al., 2011). Remarkably, where Stevens et al. (2003) found Moroccan youths themselves to report fewer externalizing problems than their Dutch counterparts, in our study self-report, and teacher-report measurements were in agreement regarding conduct problems. This may be explained by the simultaneous administration of a web-based survey to a group of children instead of individual assessments. Children may have felt more anonymous, which may have resulted in less underreporting of conduct problems by Moroccan youth. With regard to internalizing problems, in Moroccan youths, we found similar numbers of or fewer problems compared with Dutch youths, as was previously found in other studies (Stevens et al., 2003; Zwirs et al., 2011). Contrary to previous results in

Turkish youths, teachers and youths themselves reported more rather than as many or fewer externalizing problems in Turkish youths (Crijnen et al., 2000; Stevens et al., 2003; Darwish et al., 2003; Janssen et al., 2004; Zwirs et al., 2011). Additionally, Turkish children reported as many rather than more internalizing problems compared with Dutch children (Stevens et al., 2003; Darwish et al., 2003; Janssen et al., 2004). Consistent with previous work, however, we found teachers to report an equal number of internalizing problems (Crijnen et al., 2000; Stevens et al., 2003). These findings confirm that, among ethnic minority youth in the Netherlands, inconsistent results on the prevalence of mental health problems are obtained, depending on the types of problems and ethnic groups studied, as well as the informants used.

Informant discrepancies regarding childhood mental health problems are often found in general population studies. Generally, internalizing problems are best detected by self-report measures (Achenbach & Rescorla, 2001) and externalizing problems by teacher reports (De Los Reyes & Kazdin, 2005). In ethnic minority research, cultural or group perception processes may additionally influence informant discrepancies. Teachers with majority ethnicity may underestimate emotional problems among ethnic minority youth, due to a lack of trust between both groups (Crijnen et al., 2000). Regarding externalizing problems, studies have shown that, for example, hyperactivity was overestimated in ethnic minority youth by teachers with majority ethnicity (Sonuga-Barke et al., 1993), possibly caused by bias in teachers' perceptions and explanations of behaviour (Jackson, 2002; Stevens et al., 2003). Then again, ethnic minority youth experiencing a low social status in society may underreport externalizing problems to prevent an even more negative perception by the majority population (Stevens et al., 2003). These three mechanisms may result in even larger informant discrepancies in ethnic minority research.

Apart from differences in the administration of questionnaires and informant discrepancies, further inconsistent results on the prevalence of mental health problems among ethnic groups may be explained by a different degree of social adversity between ethnic groups and over time. Several studies have shown associations between mental health problems and indicators of social disadvantage like low SES, discrimination or low social support among ethnically diverse samples (Darwish et al., 2003; Vollebergh et al., 2005; Stevens et al., 2005a; Stevens et al., 2005b; Klineberg et al., 2006; Jansen et al., 2010; van Dijk et al., 2011). In our data, several indicators of social disadvantage were related to mental health problems, independent of ethnicity. Associations with perceived discrimination and an unstable social environment were most marked. There were no significant associations between mental health problems and family or neighbourhood SES. When we added indicators of social disadvantage in a cumulative score, the risk of mental health problems gradually increased with every added factor. These findings suggest that social disadvantage is particularly harmful when negative factors cumulate in a child's life. The negative effect of cumulative risk on childhood problem behaviour in multiethnic samples was previously found (Deater-Deckard et al., 1998; Atzaba-Poria et al., 2004). This study, however, is the first to focus on specific factors constituting the

disadvantaged social position several ethnic minority groups occupy in European societies.

The correlation between cumulative social disadvantage and mental health problems appeared to be stronger for externalizing than internalizing problems, although confidence intervals overlapped. Because of the cross-sectional design of this study, developmental pathways or etiologic mechanisms remain unknown. A hypothesis could be that growing up in a disadvantaged social position may predispose children relatively more towards developing externalizing rather than internalizing problems, possibly caused by external attribution styles to buffer the negative effects of social adversity (Major et al., 2003). Accordingly, this mechanism may explain the paradox of lower internalizing problems and higher externalizing problems in highly disadvantaged ethnic minority groups seen in our study, and in other studies among Moroccans in the Netherlands (Stevens et al., 2003; Zwirs et al., 2011) and African Americans in the USA (Angold et al., 2002; McLaughlin et al., 2007). The observed difference in the profile of mental health problems could also be explained by cultural differences in parenting practices of minority parents that shape how psychosocial distress is expressed. For example, differences in the habit of talking about emotions, or strategies that parents teach their children to manage emotions, may lead to differences in emotion regulation skills across ethnic groups and subsequently to a different tendency to internalize or externalize problems (McLaughlin et al., 2007). Also, less parental monitoring could lead to externalizing problems (Stevens et al., 2007a). However, such explanations go beyond the scope of this paper, and future research should explore causality in relationships between social disadvantage and mental health.

In our study, we found again that ethnic differences in the prevalence of mental health problems depend on the types of problems and ethnic groups studied, as well as the informants used. The findings suggest that ethnicity should not be studied as a factor as such, but as a proxy for social factors that are associated with ethnicity. In our study, we found that the disadvantaged social position of ethnic minority youth partly explained mental health differences between ethnic groups in the Netherlands. Still, while social disadvantage may partly explain why some mental health problems are more prevalent in socially disadvantaged groups, it does not explain which children within such groups will develop such problems. Further research should explore other social factors explaining mental health differences between ethnic groups and try to identify which factors within an ethnic minority group make some children resilient and others vulnerable to developing mental health problems despite shared exposure to social disadvantage.

The findings of this study are subject to several limitations. First, questionnaires developed in Europe are used. It is not known to what extent these questionnaires can be used in the same way with Moroccan or Turkish youths, because psychometric properties and norms have not been evaluated in ethnic groups separately. However, the SDQ has been used worldwide (Achenbach et al., 2008), the total difficulties score of the teacher SDQ is shown to be valid and reliable for young children of different ethnic groups in the Netherlands (Mieloo et al., 2014) and in our sample, internal reliability was comparable among Dutch,

Moroccan and Turkish youths. Second, although the study was carried out throughout the Netherlands representing various social contexts, we were unable to form groups of ethnic minority and majority youths comparable in socioeconomic terms. In future research, it would be interesting to test whether minority children from higher SES families and neighbourhoods have psychiatric symptom profiles similar to Dutch youths. Third, the sample of Turkish youth (n = 172) was small compared with the Dutch (n = 702) and Moroccan (n = 404) samples. Also, almost half of the Turkish youth (47.7 %) attended primary schools compared with almost a third (29.0 %) of the total sample. The results of analyses within the Turkish group should therefore be interpreted with caution, although the number of cases was sufficiently large in all but one logistic regression models (testing the association between cumulative social disadvantage and hyperactivity), and all differences between ethnic groups were adjusted for age. Fourth, the selection of schools for this study was not random. Areas were preselected based on percentage of Moroccan population in the area, but participation of schools depended on practical factors, such as other on-going projects and interest of teachers in this subject. This may have influenced the findings, as a result of which conclusions cannot readily be generalized.
Strengths of this study were the assessment of mental health problems in a school-based sample of three ethnic groups using multiinformant data with a high participation rate. The sample of ethnic minority youth is unique because it consists of youths living both in big cities and more rural areas in the Netherlands, whereas previous Dutch studies exclusively included youth living in big cities (Crijnen et al., 2000; Stevens et al., 2003; Darwish et al., 2003; Janssen et al., 2004; Stevens et al., 2005a; Stevens et al., 2005b; Jansen et al., 2010; Zwirs et al., 2011; Mieloo et al., 2014). The simultaneous administration of a web-based survey to a school class could have made children feel more anonymous, resulting in a higher validity of their answers as is reflected by less discrepancy between self-reports and teacher reports than was seen in previous studies (Stevens et al., 2003).

Conclusion

Ethnic minority youth in the Netherlands have a different profile of mental health problems than majority youth. The risk of mental health problems increases with the degree of social disadvantage in all ethnic groups. The higher prevalence of externalizing problems among ethnic minority youth is partly explained by their disadvantaged social position. The findings suggest social factors that are associated with ethnicity are likely to explain mental health problems in ethnic groups.