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Ethnic disparities in problem behaviour in adolescence contribute to ethnic disparities in social class in adulthood

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Abstract *Background* It is important for prevention of social class disparities to know how ethnic disparities in social class arise among migrant children. We contribute to this understanding by examining the role of problem behaviour in adolescence. *Methods* Prospective observational study with 753 Dutch native and 217 Turkish migrant adolescents (11–18 year) followed for 10 years. Internalising and externalising problems were assessed in adolescence and employment status and occupational level were assessed in adulthood. The difference in odds ratios (OR) before and after adjustment for internalising and externalising problems was an indication of the predictive value of disparities in internalising and externalising problems for the development of social class disparities. *Results* A total of 135 (62%) of the Turkish and 602 (80%) of the Dutch adults were employed. Internalising and externalising problems were not associated with employment status. Of the employed, 65 (48%) Turkish and 179 (30%) Dutch adults worked in low-level occupations ($p < 0.0001$). Internalising and externalising problems were associated with both ethnicity and occupation. The OR for low-level occupation for Turkish adults was 1.78 (1.19–2.65), indicating ethnic disparities. Adjustment for internalising problems lowered the OR with 36% to 1.50 (0.97–2.31), and adjustment for externalising

problems lowered it with 8% to 1.72 (1.15–2.57). Findings were similar for men and women and did not vary by age. *Conclusions* Ethnic disparities in occupational level in adulthood could partly be attributed to disparities in mental health between Turkish migrants and Dutch natives in adolescence. Prevention of ethnic disparities in mental health at young age may therefore also contribute to the prevention of occupational differences in adulthood.

Key words socio-economic disparities – ethnic disparities – mental health – occupation – prospective study

Introduction

Within many countries substantial disparities in health outcomes exist between ethnic groups [4, 9]. Socio-economic position is often mentioned as one of the important explanations of ethnic disparities [8, 27]. A low socio-economic position is associated with many health outcomes [21], and ethnic minority populations often have a lower socio-economic position than the ethnic majority [6, 42]. The latter is especially true for first generation labour migrants. Their children, who grow up in the host country, still have a lower socio-economic position as adults than natives, although they are enrolled in the same educational system as natives [7]. It is important for prevention of social class disparities to know how ethnic disparities in social class arise among migrant children.

In this paper we want to contribute to this understanding, by examining the role of problem behaviour in adolescence. Prospective observational studies have mainly focussed on education or employment status as indicators of socio-economic position, and have shown that externalising problems and internalising problems in childhood probably

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have negative consequences for educational achievement and employment [14, 19, 22, 23]. Fewer studies are available for occupational level. Power et al. reported selection into lower occupational levels for those with mental health problems at age 16 in the 1958 British birth cohort [29]. In this study and those on educational achievement no findings specific to ethnic groups were reported.

Different mechanisms have been suggested and tested by which mental health problems in childhood may lead to lower social class in adulthood. These mechanisms mainly included contextual circumstances, such as parental involvement, material deprivation and school composition [14, 22, 32]. Therefore, one might expect similar associations among migrant children and native children. If externalising and internalising problems are unequally distributed between migrant children and native children, then the disparities in these problems may contribute to the disparities in acquirement of socio-economic position.

We have tested this hypothesis in a sample of Turkish migrant and Dutch native adolescents in the Netherlands who were followed up into young adulthood. Previously we have found ethnic disparities in problem behaviour among the adolescents in this sample, most pronounced for internalising problems, but also present for externalising problems, with more problems in Turkish adolescents than Dutch natives [3, 25]. The study question was split up into three questions: (1) Are Turkish migrants more often unemployed, or employed in low-level occupations in young adulthood than Dutch natives?; (2) Is problem behaviour in adolescence in Turkish migrants and in Dutch natives related to employment status and to employment in low-level occupations in adulthood?; and (3) Can disparities in problem behaviour in adolescence explain disparities in employment status and occupational level in young adulthood, and to what extent?

Methods

■ Setting

Turkish men, predominantly young and healthy, came to the Netherlands in the 1960s and 1970s to take part in the Dutch labour force. This migration resulted from the poor economic conditions in their country of origin, and the shortage of labour force in the Netherlands. Although their initial intention was to stay only temporarily, a large proportion decided to stay permanently, and brought their families to the Netherlands. Nowadays Turkish migrants form the largest non-Western migrant group in the Netherlands, with around 341,000 people [37]. Similarly, in other European countries Turkish migrants also form large groups of labour migrants (e.g. [5, 16]).

■ Samples

We have used data from two studies on problem behaviour of children in the Netherlands [3, 44]. Both studies were observational prospective studies aimed at describing the development of children into adulthood. They took place in the province of Zuid-

Holland, a very dense populated area with only 10% rural area. Rotterdam and The Hague are the two largest cities of the province and cover 31% of the total population. Most migrants in Zuid-Holland live in Rotterdam or The Hague. From both studies we selected adolescents (11–18 year) and used a follow-up period of 10 years. We used two separate samples, of which data were collected in partly overlapping periods. However, there were no secular trends in problem behaviour among Dutch children and adolescents [46], and there were no major economic changes in the Netherlands [36].

Turkish migrant sample

The Turkish migrant sample was followed up for 10 years from 1993 to 2003. The study in 1993 included a random sample of 1,198 Turkish children aged 4–18 years from The Hague and Rotterdam. Of these children 19 were not eligible as they were mentally retarded, or did not have at least one parent born in Turkey. Parents of 833 (71%) children were interviewed in the study. Of these children 425 were adolescents (11–18 year), and 379 of them filled out a questionnaire on problem behaviour (89% of 425). In 2003 we traced addresses via municipal registries. We could not follow-up 17 adolescents because they moved out of the region ($n = 8$), died ($n = 2$), moved abroad ($n = 3$), or were untraceable ($n = 4$). At follow-up in 2003 we approached 362 of the 379 young adults for participation, and 217 were interviewed in 2003 (57% of 379). Main reasons for non-response at follow-up were refusal (18%), impossible to reach respondent after at least three attempts (11%), and incorrect address provided by the municipality (8%). Of the respondents 26% were born in Turkey and 74% in the Netherlands. Those born in Turkey arrived in the Netherlands at young age.

Response in 1993 was not selective with regard to the age of the child, sex of the child and socio-economic position of the parents. Response in 2003 was not selective for age and sex of the child, socio-economic position of parents and parent and self-reported problem behaviour scores in 1993. Thus, attrition was not selective with regard to demographics, socio-economic position and problem behaviour in adolescence.

Dutch sample

The Dutch sample was followed-up from 1983 to 1997. We used data from 10-year follow-up from 1987 to 1997, because in 1987 the respondents were aged 11–18 years. The original random sample in 1983 consisted of 2,600 children from the province of Zuid-Holland, and 2,076 parents completed the questionnaire (80%) [44]. After the baseline measurement in 1983 the sample was approached again in 1985, 1987, 1991 and 1997. In 1987, 1,291 children were between 11 and 18 years. Of these adolescents 929 participated (72% of 1,291), and at follow-up in 1997, 753 young adults participated in the interview (81% of 929).

The response in 1983 was not selective with regard to age of the child, sex of the child and socio-economic position of the parents. From 1983 to 1987 attrition was selective for age, sex and socio-economic position of parents. Compared with the dropouts in 1987 the respondents of 1987 were younger (mean 10.3 year vs. 11.0 year in 1983, $p < 0.0001$), more frequent women (53% vs. 45%, $p = 0.007$) and their parents had a higher socio-economic position ($\chi^2 = 20.6669$, 5df, $p = 0.0009$). Attrition was not selective for problem behaviour in 1983. From 1987 to 1997 attrition was only selective for age, i.e. respondents were younger than dropouts (mean 14.4 year vs. 15.6 year in 1987, $p < 0.0001$). Attrition was not selective with regard to sex, socio-economic position of the parents and problem behaviour in 1987.

■ Problem behaviour

In both studies problem behaviour in adolescence was measured with the Dutch version of the Youth Self-Report (YSR) [45]. This is a self-report questionnaire for adolescents aged 11–18 years for the

assessment of psychopathology [1]. Problem items were scored 0 if the item was “not true”, 1 if it was “somewhat or sometimes true”, and 2 if it was “very true or often true”, during the past 6 months. Scores can be grouped on two broadband scales: Internalising Problems with 31 items (including items on anxiety, depression, withdrawn behaviour and somatic complaints) and Externalising Problems with 30 items (including items on aggressive and delinquent behaviour). All 102 items together form the Total Problems Score (including besides items on internalising and externalising problems, items on thought, social and attention problems and other problems). The good reliability and validity of the YSR were supported for the Dutch version [45], and for the Turkish translation in Turkey [11, 12]. The test-retest reliability of the YSR in the Turkish migrant children over an interval of 9 days was 0.78. Internal consistency was high: Cronbach’s alpha was 0.87 for Internalising Problems and 0.86 for Externalising Problems in the Turkish sample.

■ Social class

Respondents were grouped into “not employed” and “employed”. Current students were classified as “not employed”. The employed group included everybody who was currently employed, or had been employed in the preceding 2 years. For the employed group we coded job descriptions according to the classification of Statistics Netherlands [35]. This classification is based on the principles of the International Standard Classification of Occupations ISCO-1988 [18]. The Dutch classification identifies five occupational levels: elementary, low, intermediate, high and academic. We merged these levels into two categories: “low” (elementary and low; e.g. unschooled and schooled farm worker, cleaner, caretaker, cycle repairer) and “high” (intermediate, high and academic; e.g. foreman, self-employed, teacher, doctor).

■ Confounders

Possible confounders represented three large groups of confounders: socio-demographic background (age, sex, socio-economic position of parents), family situation at baseline and school performance until baseline measurement [13, 14]. Socio-economic position of the parents was measured by the highest occupation of either parent at baseline and coded as “low” (manual or low non-manual), and “high” (self-employed, or intermediate non-manual or high non-manual) [43]. Family situation at baseline was indicated by whether the parents of the child were divorced. The indicator for school performance was item 61 of the YSR “My school performance is poor”.

■ Statistical analyses

First, we assessed disparities in problem behaviour in adolescence and in employment status and occupational level in adulthood. Then we checked the association of problem behaviour with employment status and occupational level, adjusted for confounders (ANOVA). Last, we used logistic regression models to calculate odds ratios (OR) for low occupation, with Dutch natives as reference group. In the first model we adjusted for confounders and in the next models we added problem behaviour. We used the change in OR as an indication of the predictive value of disparities in problem behaviour for the development of occupational disparities [2]. Country of birth of the Turkish adults was not related to employment status or occupation, and was therefore not included in the analyses.

Results

Baseline and follow-up characteristics are presented in Table 1. Turkish adolescents reported more prob-

Table 1 Characteristics of Turkish migrants and Dutch natives

	Turkish	Dutch	<i>p</i>
N	217	753	
<i>Baseline characteristics</i>			
Age ^a	13.6 (13.3–13.8)	14.5 (14.3–14.6)	<0.0001
Men	109 (50)	347 (46)	0.28
“My schoolwork is poor”			0.01
Often or always	11 (5)	26 (3)	
Sometimes	62 (29)	152 (20)	
Never	144 (66)	575 (76)	
Parents divorced	11 (5)	66 (9)	0.08
Parental occupation ^b			<0.0001
Low	187 (86)	465 (62)	
High	30 (14)	288 (38)	
<i>Problem behaviour^{a,c}</i>			
Internalising problems	13.7 (12.8–14.5)	7.1 (6.6–7.5)	<0.0001
Externalising problems	9.5 (8.8–10.2)	7.7 (7.3–8.1)	<0.0001
Total problems	38.3 (36.1–40.4)	24.3 (23.2–25.4)	<0.0001
<i>Follow-up characteristic</i>			
Employed in ≤2 year			<0.0001
Yes	135 (62)	602 (80)	
No	82 (38)	151 (20)	
Occupational level ^d			<0.0001
Low	65 (48)	179 (30)	
High	70 (52)	423 (70)	

Frequencies in numbers and column percentages

^a Mean; 95% confidence interval

^b Low: manual, or low non-manual; High: self-employed or intermediate non-manual or high non-manual

^c Adjusted for baseline characteristics: age, school performance, parents divorced and parental occupation

^d Only for those employed in previous 2 years

lem behaviour, especially Internalising Problems (mean score Turkish 13.7 vs. Dutch 7.1, $p < 0.0001$). As adults, Turkish were less often employed (62%) than Dutch (80%). Most of the not employed adults were students in both groups (Turkish ($n = 59$) 72%, Dutch ($n = 131$) 87%). Other reasons for not being employed were mainly housework and unemployment. In the Turkish group housework (Turkish ($n = 12$) 15%, Dutch ($n = 11$) 7% of the not employed) and involuntary unemployment (Turkish ($n = 8$) 10%, Dutch ($n = 3$) 2% of the not employed) were more common than in the Dutch group. Turkish

Table 2 Mean problem scores in adolescence (11–18 year) by employment status and occupational level in adulthood (21–28 year)

	Internalising problems		Externalising problems		Total problems	
	Mean	95% CI	Mean	95% CI	Mean	95% CI
<i>Employment:</i>						
No	8.6	7.7–9.4	7.7	6.9–8.4	26.8	24.7–28.9
Yes	8.6	8.2–9.1	8.2	7.9–8.6	27.7	26.5–28.8
<i>p</i> -value	0.94		0.17		0.48	
<i>Occupation:</i>						
Low	9.3	8.5–10.1	8.7	8.0–9.4	29.5	27.5–31.4
High	8.3	7.7–8.8	8.0	7.5–8.5	26.6	25.2–28.0
<i>p</i> -value	0.04		0.10		0.02	

Adjusted for age, sex, migrant status, family situation, school performance and parental occupation; CI confidence interval

Table 3 Odds ratios for low-level occupation for Turkish migrants, crude and adjusted for Internalising Problem Score, or Externalising Problem Score, or Total Problem Score

	Turkish		Dutch
	OR	95% CI	OR
Confounders	1.78	1.19–2.65	1.00
Confounders + Internalising	1.50	0.97–2.31	1.00
Confounders + Externalising	1.72	1.15–2.57	1.00
Confounders + Total Problems	1.52	1.00–2.32	1.00

All models included the confounders age, sex, family situation, school performance and parental occupation. OR odds ratio, CI confidence interval

adults more often worked in low-level occupations (Turkish 48% vs. Dutch 30%, $p < 0.0001$).

Not employed and employed young adults had similar scores for problem behaviour in adolescence (Table 2). The largest group within the group of not employed, i.e. the students, had similar scores of problem behaviour in adolescence as employed young adults. Adults who were not employed for other reasons (e.g. unemployment, house work) had higher scores of problem behaviour in adolescence: 10.7 (8.8–12.7) for Internalising Problems, 10.6 (8.9–12.2) for Externalising Problems and 35.2 (30.4–39.9) for Total Problems. However, they form only a small group of the not employed, too small for separate analyses.

We did find differences in adolescent problem behaviour between young adults with low-level and with high-level occupation (Table 2). Young adults with low-level occupations had a higher mean score for Internalising Problems, Externalising Problems and Total Problems in adolescence. We did not find any interactions with ethnicity, sex or age.

The association of social class with problem behaviour is necessary for a contribution of disparities in problem behaviour to disparities in social class; therefore we have focused on occupational level in the following analyses.

Third, we have looked at odds ratios unadjusted and adjusted for problem behaviour (Table 3). The odds for low-level occupation were significantly higher for Turkish adults than for Dutch natives (OR: 1.78, 95% CI: 1.19–2.65), independent of parental socio-economic position, age, sex, family situation and school performance in adolescence. As the disparities in problem behaviour in adolescence were most pronounced for Internalising Problems, and the association with occupation was stronger for Internalising Problems than for Externalising Problems, we expected more attenuation of the odds ratio by adjustment for Internalising Problems than for Externalising Problems. This expectation was supported by our findings in Table 3: an attenuation of 36% by adjustment for Internalising Problems (from 1.78 to 1.50) and an attenuation of 8% by adjustment for Externalising Problems (from 1.78 to 1.72). We did not find any interactions with sex or age.

Discussion

In this prospective study problem behaviour in adolescence was strongly related to ethnicity, and modestly related to occupational level in adulthood. The contribution of ethnic disparities in problem behaviour to occupational disparities was 36% for internalising problems and 8% for externalising problems.

Strengths and limitations

The main strength of our study is that it is the first to relate ethnic disparities in mental health in childhood with ethnic disparities in occupational level in adulthood. Furthermore, it was a prospective community study with a within subject design, the samples were fairly representative and response rates were satisfactory. Attrition was higher in the Turkish sample than in the Dutch sample. Although we did not find strong selective attrition, we cannot exclude selective attrition on other than the measured possible selective factors. Usually, those with the least successful life trajectories drop out of prospective studies. Therefore we may have underestimated the proportion respondents with low-level occupations more in the Turkish than in the Dutch population. Further, the Dutch data on problem behaviour were collected in 1987 and the Turkish data in 1993, which may affect our results. However, the effect is probably very limited as no secular trends in problem behaviour among Dutch children and adolescents were found over this period, and no major economic changes occurred in the Dutch society [36, 46].

Another limitation might be that the measurement of problem behaviour was influenced by different interpretation of symptoms or willingness to disclose the existence of a symptom by migrants. However, the internal consistency of the scales was high among Turkish adolescents, and good reliability and validity were confirmed for both the Dutch translation [45], and for the Turkish translation in Turkey [11, 12]. Furthermore, most Turkish respondents were born in the Netherlands (74%), or arrived at young age. Most of them understand the Dutch language well and they are quite aware of the Dutch perception of problem behaviour. Therefore, we believe that ethnic differences in the answer tendency to the YSR cannot solely explain our findings.

It is possible that other characteristics, for which we did not control, account for some of the observed effect. We have chosen our controls from the groups of most important confounders for the association between problem behaviour and social class from other studies: family socio-demographic background, family functioning and cognitive ability [14, 22]. Another possible confounder could have been parental psychopathology [19]. However, in our study additional adjustment for parental score on the Gen-

eral Health Questionnaire did not change the association between problem behaviour and occupational level for the Turkish adults. These data were not available for the Dutch natives. Furthermore, discrimination could be suggested as possible confounder. We measured discrimination among Turkish adults at the same time as we assessed social class. Discrimination in adulthood was not related to problem behaviour in adolescence and it was also not related to employment status or occupational level of Turkish adults. Therefore, discrimination may play a role in the origin of disparities in problem behaviour in adolescence, but probably it did not strongly confound the association between problem behaviour in adolescence and social class in adulthood.

At follow-up respondents were aged between 21- and 28-year-old. In most cases their occupational careers have only just begun and will continue to develop. The educational attainment of migrant children is often lower than that of native children [7], and may limit their advancement towards higher-level occupations. Therefore it is likely that the observed ethnic disparities in occupational level will increase when migrant young adults become older.

■ Disparities in problem behaviour as predictors of disparities in social class

Our aim was to find out whether ethnic disparities in problem behaviour in adolescence contributed to ethnic occupational disparities in adulthood. We are not aware of any other study that has presented findings on this research question. The only findings that come close to ours are from the 1958 British birth cohort where men and women with problem behaviour at age 16 were significantly more likely to be intergenerational downwardly mobile in occupational level and less likely to be upward mobile by age 23 in comparison with others [29]. In the same study population also disparities in problem behaviour in adolescence by family social class have been reported [32]. Although these findings have not been combined in one analysis, we might expect similar findings as our findings if they were combined, albeit for the contribution to social class disparities instead of ethnic disparities in occupational level.

Unfortunately we could not study the specific processes underlying the association between mental health and occupational level. Probably the mental health impact on adult occupational level is largely mediated through education [17]. Two types of processes have been suggested to underlie the association between mental health in childhood and educational achievements. First, early academic failures resulting from the child's early emotional and behavioural problems become self-sustaining, independent of subsequent mental health status. Academic failures may create interactional cycles that lead to further failures [22, 24]. Second, children who have emotional

and behavioural problems are more likely than others to have those same problems in adolescence and young adulthood. In turn, the problems they experience at those later points in time are associated with poor academic achievement [22, 30]. The pathway of mediation through education probably also underlies the development of ethnic disparities in social class of second generation migrants, as we know that educational attainment of second generation migrants from various ethnicities is lower than that of the host population in many European countries [7]. Besides an impact on adult occupational level through education, problem behaviour may also affect occupational level through its effect on social functioning, skills and relationships.

In our sample Turkish adolescents reported more problem behaviour than Dutch natives. Findings on mental health of migrant children have been inconclusive [10, 15, 20, 25, 31, 34, 38, 39]. However, all findings on Turkish migrant children indicated less favourable mental health than native children [25, 34, 38]. It is possible that these differences reflect population differences more than migration related differences [3]. Migrant children may have different mental health compared with native children because risk factors are differentially distributed between migrant and native children (e.g. parental social class), or because they are exposed to risk factors specific to migrant children (e.g. acculturation, discrimination), or both. Cross-sectional findings indicate similar risk factors for Turkish and Moroccan adolescents as for natives in the Netherlands [26, 40, 41]. In the study of Turkish adolescents the distribution of only a limited range of risk factors, including repeating a grade, parental socio-economic position, family size and stress differed between migrant and native adolescents [25]. Findings on the role of migrant specific factors, such as acculturation and discrimination, in mental health of migrant children have yet been inconclusive (e.g. [28, 33]). It is clear that more research is warranted in this field.

Conclusion

In conclusion, ethnic disparities in social class in adulthood could partly be attributed to disparities in mental health between Turkish adults and Dutch natives in adolescence in this study. The findings are new and warrant future studies. These studies may give more insight in the role of mental health in the development of disparities in social class and may also give more insight in the generalisation of our findings to other countries and other ethnic groups. Since minority groups within the Netherlands resemble groups in other countries in many ways, we expect that these results to some extent apply to other countries with similar minority groups. Finally the

findings suggest that prevention of ethnic disparities in mental health at young age may also partly prevent social class disparities in adulthood.

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