School performance of children whose parents suffered torture and war—a register-based study in Denmark

Line Bager 1, Thomas Munk Laursen 1,2,3, Niels Skipper 4, Esben Agerbo 1,2,3

1 Department of Economics and Business Economics, NCRR, National Centre for Register-Based Research, Aarhus University, Aarhus, Denmark
2 Department of Economics and Business Economics, iPSYCH, The Lundbeck Foundation Initiative for Integrative Psychiatric Research, Aarhus, Denmark
3 Department of Economics and Business Economics, CIRRAU, Centre for Integrated Register-based Research, Aarhus University, Aarhus, Denmark
4 Department of Economics and Business Economics, Aarhus University, Aarhus, Denmark

Correspondence: Line Bager, National Center for Register-Based Research, Business and Social Sciences, Aarhus University, Fuglesangs Allé 26, Building R, 8210 Aarhus V, Denmark, Tel: +45 (0) 87166294, Fax: +45 8716 4601, e-mail: llbager@econ.au.dk

Background: Young refugees and descendants of refugees have different preconditions for learning than their peers without refugee background. Children growing up in families where parents have suffered torture and war trauma may represent a particularly vulnerable group. This study investigates whether children of torture survivors living in Denmark achieved different test scores throughout primary and secondary school compared to children of non-traumatized parents. Methods: Using data from a national school test programme, tests from Grades 2–8 were compared for children whose parents had been treated for torture and war trauma as to their peers. Referral to specialized rehabilitation clinics was used to identify the traumatized parent group. The mean score difference was estimated using multilevel linear regression, and outcomes were measured within groups of parental region of origin to allow for region-specific effects. The odds of missing a test were also estimated with multilevel logistic regression. Results: The study included 854 467 children [median age (interquartile range) = 12 (3.3)] of which 7809 were children of the trauma-exposed parents. The analysis revealed that children of torture survivors achieved test scores between −6% (95% CI: −0.13, 0.00) and −38% (95% CI: −0.44, −0.32) of a standard deviation compared to children of non-traumatized parents, adjusted for the main effect of region of origin. They were also more likely to miss a test [OR = 4.95 (95% CI: 4.30, 5.71)]. Conclusions: The findings indicate that risk factors for poorer school performance cluster in children of traumatized refugee parents, and reveal the possible adverse educational effects of trauma across generations.

Introduction

Severe traumatic experiences of torture and war have ramifications across generations.1 Children whose parents have suffered severely traumatizing experiences are a vulnerable group2 and may be at increased risk of developing mental health issues.3

Torture and cumulative exposure to traumatic events are consistent predictors of post-traumatic stress disorder (PTSD) and depression.4 Poor mental health among refugees post-resettlement may also be associated with pre-displacement socioeconomic factors, such as gender, education and pre-flight socioeconomic status (SES).5 It is not known how many refugee parents struggle with the aftereffects of trauma but an estimate reports up to 30% of refugees resettled in Western societies might be torture survivors.6

A systematic review of intergenerational effects in the refugee population found that there is an increased risk of adverse psychological outcomes in the next generation.7 The pathways of transmission from parent to child are thought to work through impaired parenting, family dynamics and parental psychopathology.8 Moreover, parental trauma is a risk factor for family-related violence and child abuse.9 Studies have also pointed to the critical role of parental PTSD in child psychopathology as mediated by parental impairment.10

Young refugees and descendants of refugees make up an increasing share of children in the school system in refugee-hosting countries.11 Their backgrounds and preconditions for learning and excelling in school might be different from their peers with native-born parents. Challenges arise related to learning in a different language than the mother tongue as well as having to adjust and catch-up to a host country school-level.12 Moreover, for some resettled refugee families, support for the children are further challenged by parental trauma, such as the experiences of torture.13

Only sparse evidence exists on how children of traumatized refugees, resettled in Western societies, are doing in terms of school and other socioeconomic outcomes.14 Yet, doing well in school is a remarkably reliable predictor for later life success with respect to both health and SES.14,15 Poorer school performance is also a risk factor for an array of specific adverse outcomes, such as increased risk of suicide,16 self-inflicted injury,17 alcohol abuse18 and increased risk of schizophrenia and psychosis.19 School drop-out and non-completion have also been found to be associated with childhood trauma.20

As MacCabe et al.19 school performance encompasses considerably more than intelligence and cognition; rather, it captures aspects of underlying vulnerabilities of biological and psychosocial nature also associated with mental health outcomes. School performance indicators may serve as a critical source of information about which children are particularly vulnerable,19 and school outcomes may in turn affect the life trajectories of vulnerable children.15

Research has shown that family adversity affects children’s performance in school. Parents’ psychiatric morbidities, such
depression and other serious mental illnesses (SMIs) are negatively associated with child school outcomes. One study, investigating the effect of parental torture trauma, found that children with comorbid attention deficit hyperactivity disorder and PTSD also scored lower in terms of IQ among the group with traumatized parents. Another study in Sweden, found that parental PTSD was adversely associated with school performance at age 16. Nonetheless, despite the potential impact of parental trauma on the child’s prospects, little evidence exists in terms of the effect on school and other socioeconomic outcomes.

This study aimed to investigate whether there was any discernible difference in the children’s school performance and school test attendance between those whose parents had been treated for torture and war trauma and those who had not. Refugees with torture and war trauma residing in Denmark originate from regions with different cultural contexts and economic development trajectories. To accommodate the potential differential effect of torture and war trauma, outcomes are measured within parental region. Moreover, the mediating role of parental SES on the path from parental trauma to child test score was examined.

Based on previous research on children’s school performance and drop-out rates in vulnerable families, we hypothesized that children of torture survivors achieved lower average test scores, compared to children of non-traumatized parents and were more likely to miss a test. The study was based on unique and comprehensive school test data and clinical data on torture survivors linked with population level register data.

Methods

Study design, participants and follow-up

The Danish Civil Registration System (CRS) gives all residents of Denmark a unique identification number. This number can be used to link information from population registers. The CRS was used to retrieve information on the study population’s sex, date and place of birth, vital status, dates of immigration and emigration as well as the link to the parental identifier. The exposed children were those identified with a parent treated for torture and war trauma. The trauma-exposed parents were identified from five specific clinics located across Denmark. The unique parental identification number was obtained from the respective clinics’ electronic patient file system and if possible, from the clinics’ physical archive. Some of the clinics have provided rehabilitation since the early 1980s, and therefore the cohort covers patients treated from this time until 2017.

Information on maternal and paternal mental illness was found in the Danish National Patient Register (DNPR) and the Danish Psychiatric Central Research Register (DPCRR). Psychiatric contacts are registered in the DPCRR for inpatient and outpatient contacts from 1969 and 1995 onwards, respectively. The DNPR contains information on hospital diagnoses, treatment and examinations from 1977 forward. Diagnoses of parental mental health from the DPCRR and DNPR are registered as ICD-10 codes (‘International Classification of Disease’ tenth Edition) from 1994 and ICD-8 codes prior to that. Employment information served as an estimate of parental SES and was retrieved from the Employment Classification Module, a register going back to 1976 where the individuals’ primary employment throughout the year is recorded.

Definition of variables

Outcome

In 2010, nationally standardized tests were introduced in Danish public schools in primary and secondary grade levels. The tests have good coverage as they are compulsory for all public schools, where ~80% of school-aged children attend. Moreover, the tests have been shown to predict the grade point average of the ninth grade exam well. The tests from the compulsory national test in reading (Danish) and mathematics, for all children attending public primary and secondary school from 2010–18 were used in the analysis. Reading was measured in second, fourth, sixth and eighth grade while mathematics was tested in third, sixth and eighth grade (eighth-grade mathematics only introduced in 2018). Test scores were standardized [mean = 0, standard deviation (SD) = 1] within test domain, subject and year.

Exposures

The primary exposure was whether the child had a parent treated for torture and war trauma interacted with the parent’s region of origin. For briefing, the terminology exposed and unexposed children, is used in the text, referring to whether the parent had been treated for torture and war trauma. Parental region of origin was grouped into four categories when at least one parent came from the country in question; (i) the Middle East and Northern Africa, including Afghanistan abbreviated MENA for brevity, (ii) Former Yugoslavia, (iii) Denmark and (iv) Other. For parents with mixed background, the group was determined by the order (i)–(iv), with (i) taking precedence over (ii)–(iv) and so forth. Countries in the Former Yugoslavia include Bosnia and Herzegovina, Croatia, Macedonia, Montenegro, Kosovo and Serbia. The countries in the other group refer to countries in sub-Saharan Africa, Asia but excluding Afghanistan, Greenland, northern and southern Americas and the rest of Europe.

Covariates

Child age at immigration was defined as a four-level categorical variable, with children born in Denmark serving as the reference. Child age-grade congruence was computed as a separate variable as the distance in years between the age of the child at the test time and the age of the majority of the children taking the test.

Parental mental illness was defined as a three-level categorical variable. Zero indicated that none of the parents had a recorded psychiatric diagnosis, one if at least one parent had a diagnosis other than a SMI and two if at least one parent had an SMI diagnosis. SMI was defined as follows: schizophrenia (ICD-8: 295, excl. 295.79; ICD-10: F20), bipolar disorder (ICD-8: 296.19, 296.39, 298.19; ICD-10: F30, F31, F34.0, F38.0); unipolar depression (ICD-8: 296.09, 296.29, 296.89, 296.99, 298.09, 300.49, 301.19; ICD-10: F32, F33, F34, excl. F34.0, F38, excl. 38.0 and F39). Diagnoses were included if they had been registered before the child’s ninth birthday, the year where the majority of children take their first test in second grade.

Maternal and paternal SES, as indicated by labour market status, were defined as two separate variables. Maternal employment status was divided into five levels indicating whether mothers were outside the labour market, in lower-skilled paid employment, self-employed, in higher-skilled paid employment, or whether employment status was missing/unknown. Paternal employment status was defined similarly but with an extra level indicating whether the paternal link was missing. Both maternal and paternal employment was set in the calendar year where the child turned eight. If the information for this year was missing, the most recent registered employment information was used but no earlier than the year the child turned four.

Statistical analysis

All children residing in Denmark and with at least one registered test score or missing test score were included in the study. The mean score difference between the exposed and non-exposed children was estimated among those with at least one test score using a multilevel linear regression model, using restricted maximum likelihood estimation. The multilevel model was used to account for the correlation of test scores by the same child and by children of the same
mother. Explanatory variables were entered in blocks with Model 1 representing minimum adjustment for child sex and age at immigration. Model 2 included parental mental illness in addition to Model 1 variables and Model 3 further added indicators of paternal and maternal SES and whether the child was in the age-appropriate year. In all models, the exposures of parental region of origin and trauma were entered as an interaction, allowing the investigation of the effect of parental trauma after adjusting for the main effect of region of origin. As per suggestion by the reviewer, the mediating role of parental SES was investigated comparing the estimated coefficients for the exposure in Models 1 and 3 with and without the suspected mediator (difference in coefficients approach). Sensitivity analyses were carried out stratifying Model 1 on child gender and subject type (reading and mathematics). Finally, an analysis of the children’s risk of having a missing test score was analyzed using a multilevel logistic regression. For this analysis, only child age at immigration and the indicator of parental torture and war trauma were included. Reasons for legitimate absence were also available for the school year 2011/12, and these were summarized. All statistical analysis was done using Stata version 15.1 (StataCorp., College Station, TX, USA). The study was approved by Statistics Denmark, the Danish Data Protection Agency, the Danish Health Data Authority and the Danish Patient Safety Authority.

Results

Table 1 shows the background characteristics of the study population. The study included 854 467 children born to 513 903 mothers, amounting to 2 912 515 test scores in the period 2010–18. Among the children, 7809 had a parent treated for torture and war trauma, and they accounted for 26 249 test scores. Approximately half (51%) of the children were male, both in the exposed and unexposed group. The median number of tests per child were 3 (interquartile range = 3). The children in the exposed group were more likely to have immigrated (30% of the exposed children as compared to 5% in the comparison group), and they were more likely to be older than their peers in the same grade level (28% in the exposed compared to 16% in the comparison group). Moreover, parents with torture and war trauma were more often unemployed/outside the labour market and had a diagnosed psychiatric disorder.

The first column in table 2 report the estimates for the mean score difference for the explanatory variables unadjusted for any of the other covariates. Being male was associated with a lower z score, $-0.13$ (95% CI: $-0.14$, $-0.13$), corresponding to 13% of an SD lower than females. Increasing age at immigration was associated with poorer school performance as compared to those children born in Denmark. It ranged from $-0.16$ (95% CI: $-0.17$, $-0.15$) for those who immigrated before age 6 to $-1.19$ (95% CI: $-1.22$, $-1.15$) for those who immigrated between the ages of 12 and 18. Both maternal and paternal labour market participation was positively associated with school performance. In contrast, parental psychiatric illness was associated with worse school performance in the children. Parental region of origin also proved to be strongly associated with school performance with children of parents from the MENA region $[-0.62$ (95% CI: $-0.63$, $-0.61]$), former Yugoslavia $[-0.44$ (95% CI: $-0.45$, $-0.42]$) and other countries $[-0.20$ (95% CI: $-0.21$, $-0.19]$ for those who immigrated between the ages of 12 and 18.

Model 1 variables and Model 3 further added indicators of paternal and maternal SES and whether the child was in the age-appropriate range.

Sensitivity analyses were carried out stratifying Model 1 on child gender and subject type (reading and mathematics). Finally, an analysis of the children’s risk of having a missing test score was analyzed using a multilevel logistic regression. For this analysis, only child age at immigration and the indicator of parental torture and war trauma were included. Reasons for legitimate absence were also available for the school year 2011/12, and these were summarized. All statistical analysis was done using Stata version 15.1 (StataCorp., College Station, TX, USA). The study was approved by Statistics Denmark, the Danish Data Protection Agency, the Danish Health Data Authority and the Danish Patient Safety Authority.
Achieving lower test scores compared to children of Danish-born parents.

Table 2 further gives the results from the multilevel linear regression with the covariates entered in blocks (Models 1–3). The table reports the main association of parental region of origin as well as the interaction between trauma and region, indicating the effect of parental trauma after adjusting for the main effect of region. Parental country of origin is strongly associated with academic performance, as also indicated by the unadjusted estimates. The interaction between parental region of origin and parental trauma point to an association between parental trauma and poorer school performance. In Model 1, the estimated mean score for children with traumatized parents from MENA was −0.14 (95% CI: −0.17, −0.11) lower compared to unexposed children with parents from the same region, adjusted for child sex and age at immigration. The largest mean score difference between the exposed and non-exposed children was seen for children with parents from the remaining countries with a mean score difference of −0.38 (95% CI: −0.44, −0.32). The lowest estimated mean score difference between the exposed and non-exposed was seen among children with parents from former Yugoslavia [−0.06 (95% CI: −0.13, 0.00)]. Figure 1 illustrates the estimates in Model 1.

Model 2 (table 2) added an indicator of parental psychiatric disorders, in addition to Model 1 covariates. The estimated mean score difference was −0.17 (95% CI: −0.19, −0.15) for the children with at least one parent with an SMI and −0.21 (95% CI: −0.21, −0.20) for the children with at least one parent with a mental disorder other than SMI compared to those where neither parent was diagnosed with a psychiatric disorder, adjusted for the other covariates.

In Model 3, parental labour market participation, as well as an indicator of the child’s age-grade congruence, was added. The estimate of the effect of parental region of origin on the unexposed children’s mean score changed from −0.52 (95% CI: −0.53, −0.51) in Model 1 to −0.28 (95% CI: −0.29, −0.27) in Model 3 for children of parents from MENA as compared to the Danish reference. For children with parents from former Yugoslavia, the estimate changed from −0.40 (95% CI: −0.42, −0.38) to −0.19 (95% CI: −0.21, −0.18), while for the remaining grouped countries, the corresponding change was from −0.15 (95% CI: −0.16, −0.15) to −0.06 (95% CI: −0.06, −0.05) as compared to unexposed children with Danish-born parents. Having a parent in paid employment, with a highly-skilled job, was positively associated with higher mean test scores. Children who were older with a year or more, compared to the majority in the grade level, archived lower mean test score.

Table 3 shows the estimated mean score difference for the covariates included in Model 1, but stratified on subject and child gender. The stratified analysis revealed that especially the test scores in reading were negatively associated with age at immigration. The stratified analysis indicated that the median effect of parental region of origin on the unexposed children’s mean score changed from −0.52 (95% CI: −0.53, −0.51) for those arriving between the ages of 12 and 18, to −0.06 (95% CI: −0.06, −0.05) for those born in Denmark. The analysis stratified on gender did not reveal differences in the estimated mean test score. Both for subject and gender stratified analyses, the estimated mean score for the exposed children (the estimate for the interaction between parental region and trauma) was similar to the mean score difference found in Model 1 (table 2).

The mediating role of parental SES was investigated for Models 1 and 3. The analysis showed a small to moderate indirect effect

| Table 2 Multilevel linear regression model—mean score difference in standardized test scoresa |
|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Child gender | Female | (Ref) | (Ref) | (Ref) | (Ref) |
| Child age at immigration | Born in Denmark | (Ref) | (Ref) | (Ref) | (Ref) |
| Parental regional origin | MENA | −0.62 (−0.63, −0.61) | −0.52 (−0.53, −0.51) | −0.50 (−0.51, −0.49) | −0.29 (−0.30, −0.28) |
| Parental trauma*region | MENA | −0.14 (−0.17, −0.11) | −0.12 (−0.15, −0.10) | −0.09 (−0.10, −0.09) | −0.06 (−0.08, −0.05) |
| Parental psychiatric diagnoses | None | (Ref) | (Ref) | (Ref) | (Ref) |
| Maternal SES | Unemployed/outside labour market | 0.18 (0.17, 0.18) | 0.08 (0.08, 0.09) | 0.25 (0.24, 0.26) | 0.32 (0.32, 0.33) |
| Paternal SES | Unemployed/outside labour market | 0.11 (0.10, 0.11) | 0.21 (0.20, 0.22) | 0.22 (0.21, 0.23) | 0.23 (0.23, 0.24) |
| Age-grade congruence | −1 year or more | 0.06 (0.04, 0.07) | 0.04 (0.03, 0.05) | 0.05 (0.04, 0.06) | 0.06 (0.05, 0.07) |

MENA, the Middle East and North Africa; F. Yugoslavia, Former Yugoslavia; Other, remaining countries; SMI, serious mental illness.

a: Estimates for Models 1–3, with the main effect of parental trauma, are displayed in Supplementary table S2.

---

Downloaded from https://academic.oup.com/eurpub/article/31/4/749/6359509 by Aarhus University Library user on 29 November 2022
(Supplementary table S1). For Model 1, the estimated indirect effect ranged from $-0.26$ ($-0.26; -0.25$) to $-0.11$ ($-0.12; -0.11$). For the Former Yugoslavia, the mediation analysis suggested that parental SES acts as a suppressor of the effect of the exposure on the outcome.

Further, the pattern of missing test scores was estimated in the multilevel logistic regression with child exposure status, adjusted for child gender. The analysis indicated that the exposed children were more likely to have a missing test score corresponding to an OR of 4.95 (95% CI: 4.30, 5.71) compared to unexposed children. For the school year 2011/12, listing the reasons for being exempt, the most frequent reason for being missing among the unexposed children were physical/mental disability (65%). In comparison, among the exposed children, the most frequent reason for being exempt was inadequate Danish language skills (60%) (results not shown).

### Discussion

The analysis revealed that children with a parent treated for torture and war trauma on average experienced adverse school outcomes compared to children of non-traumatized parents, after adjusting for region of origin. These poorer outcomes were manifested as both lower mean test scores in reading and mathematics but also in the relative higher odds of missing a test. The fully adjusted model, in addition to other variables, included maternal and paternal SES and these proved strongly associated with child mean test score. Adjustment for these characteristics removed much of the association of parental trauma and region of origin with the test scores. This change reflects that parental region of origin and trauma history is highly correlated with employment status. Although the pathways have not been fully elucidated, childhood SES is often highlighted as a critical factor affecting school achievement. 0.34 Childhood SES likely has long-term implications for health and future economic position. In this study, parental SES could also be conceptualized, at least partly, as a product of trauma history and refugee status.

The mediation analysis revealed that a large proportion of the exposures’ effect on the outcome was mediated through parental SES. Yet, the apparent importance of parental SES highlight the to some degree modifiable risk factor of poor parental labour market participation. In the Danish context, immigration status is highly correlated with lower SES, and both immigrants and their descendents are overrepresented in the lowest income deciles. 0.34 Research on the long-term well-being of traumatized refugees increasingly point to the significance of post-migration stressors, 0.38 where employment and income are emphasized as a central concerns, including the possibility that financial strain might interfere with the gains in the treatment for trauma. 0.39

### Strengths and limitations

The strength of the study lies both in the population level register data of outcome and covariates but also in the number of trauma-

### Table 3 Multilevel linear regression model—stratified analyses by subject and gender

<table>
<thead>
<tr>
<th></th>
<th>Danish reading z score difference (95% CI)</th>
<th>Mathematics z score difference (95% CI)</th>
<th>Girls z score difference (95% CI)</th>
<th>Boys z score difference (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>(Ref)</td>
<td>(Ref)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>$-0.21$ ($-0.21$, $-0.20$)</td>
<td>$0.01$ ($0.01$, $0.02$)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child age at immigration</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Born in Denmark</td>
<td>(Ref)</td>
<td>(Ref)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>[0–6]</td>
<td>$-0.06$ ($-0.08$, $-0.05$)</td>
<td>$-0.04$ ($-0.05$, $-0.03$)</td>
<td>$-0.05$ ($-0.06$, $-0.03$)</td>
<td>$-0.06$ ($-0.08$, $-0.05$)</td>
</tr>
<tr>
<td>[6–12]</td>
<td>$-0.60$ ($-0.62$, $-0.58$)</td>
<td>$-0.20$ ($-0.21$, $-0.18$)</td>
<td>$-0.47$ ($-0.49$, $-0.45$)</td>
<td>$-0.47$ ($-0.49$, $-0.44$)</td>
</tr>
<tr>
<td>[12–18]</td>
<td>$-1.14$ ($-1.18$, $-1.10$)</td>
<td>$-0.42$ ($-0.48$, $-0.36$)</td>
<td>$-1.02$ ($-1.07$, $-0.97$)</td>
<td>$-0.94$ ($-0.99$, $-0.88$)</td>
</tr>
<tr>
<td>Parental regional origin</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MENA</td>
<td>(Ref)</td>
<td>(Ref)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Former Yugoslavia</td>
<td>$-0.54$ ($-0.55$, $-0.53$)</td>
<td>$-0.48$ ($-0.49$, $-0.46$)</td>
<td>$-0.56$ ($-0.57$, $-0.54$)</td>
<td>$-0.50$ ($-0.51$, $-0.48$)</td>
</tr>
<tr>
<td>Denmark</td>
<td>$-0.40$ ($-0.42$, $-0.38$)</td>
<td>$-0.43$ ($-0.45$, $-0.40$)</td>
<td>$-0.43$ ($-0.46$, $-0.41$)</td>
<td>$-0.40$ ($-0.43$, $-0.38$)</td>
</tr>
<tr>
<td>Other</td>
<td>$-0.15$ ($-0.16$, $-0.15$)</td>
<td>$-0.16$ ($-0.16$, $-0.15$)</td>
<td>$-0.16$ ($-0.17$, $-0.16$)</td>
<td>$-0.16$ ($-0.17$, $-0.15$)</td>
</tr>
<tr>
<td>Parental trauma *region</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MENA</td>
<td>$-0.15$ ($-0.18$, $-0.12$)</td>
<td>$-0.10$ ($-0.14$, $-0.07$)</td>
<td>$-0.12$ ($-0.16$, $-0.08$)</td>
<td>$-0.16$ ($-0.20$, $-0.12$)</td>
</tr>
<tr>
<td>Former Yugoslavia</td>
<td>$-0.06$ ($-0.12$, $0.01$)</td>
<td>$-0.05$ ($-0.13$, $0.02$)</td>
<td>$-0.03$ ($-0.11$, $0.05$)</td>
<td>$-0.07$ ($-0.16$, $0.01$)</td>
</tr>
<tr>
<td>Denmark</td>
<td>$-0.33$ ($-0.59$, $-0.06$)</td>
<td>$-0.36$ ($-0.66$, $-0.07$)</td>
<td>$-0.48$ ($-0.78$, $-0.17$)</td>
<td>$-0.21$ ($-0.56$, $0.13$)</td>
</tr>
<tr>
<td>Other</td>
<td>$-0.36$ ($-0.43$, $-0.29$)</td>
<td>$-0.43$ ($-0.50$, $-0.36$)</td>
<td>$-0.39$ ($-0.47$, $-0.32$)</td>
<td>$-0.38$ ($-0.46$, $-0.30$)</td>
</tr>
</tbody>
</table>

MENA, the Middle East and North Africa; F. Yugoslavia, Former Yugoslavia; Other, remaining countries.
exposed parents identified through the rehabilitation clinics. Challenges to the identification and long-term follow-up means intergenerational effects of torture are not frequently analyzed. Nevertheless, there are important limitations of the study that should be kept in mind. The group of exposed parents are a select group of those who could be identified through five public or private rehabilitation clinics. Their treatment-seeking behaviour therefore characterizes them and it is unknown how many refugee parents in Denmark seek treatment elsewhere or not at all. Not all private clinics and organizations providing health care in the asylum phase report to the registers, and therefore there might be a degree of underreporting of mental health disorders in the refugee population.

The results presented here were limited to children attending public schools. While the public school system includes the vast majority of children, indications are that children attending private schools come from families with higher income and parental education levels. Moreover, the analysis adjusted for age at immigration but as we do not have information on the child’s own potentially traumatic experiences, we are unable to adjust for these. The exposed children were more likely to miss the test, illustrating that they are a relatively vulnerable group. While the increased risk for the exposed children to miss a test might underestimate the mean score difference, the test scores probably represent a good overall indicator of child vulnerability. Unlike diagnoses of mental disorders or utilization of health care services, school performance is observed for most children, regardless of healthcare-seeking behaviour.

Conclusions

This comprehensive study investigated the correlation between parental torture and war trauma and child school performance in a treatment-seeking group of traumatized refugee parents. The analysis indicates that children of traumatized refugee parents are at risk of experiencing adverse school outcomes as compared to children of parents from the same region not treated for trauma. The findings underline that children of migrants from refugee sending countries are at risk of relatively poorer school outcomes and that children whose parents are severely traumatized and seeking help for trauma are an especially vulnerable group.

Supplementary data

Supplementary data are available at EURPUB online.

Funding

Drs E.A. and T.M.L. were supported by The Lundbeck Foundation Initiative for Integrative Psychiatric Research (LF Grant number: R248–2017–2003).

Conflicts of interest: None declared.

Key points

- Children of traumatized refugee parents living in Denmark experience poorer school outcomes compared to their peers.
- The risk factors for adverse school outcomes, such as parental mental illness, immigrant background and lower parental SES appear to cluster in this group.
- Children of traumatized refugee parents constitute a high-risk group in terms of experiencing suboptimal school outcomes, potentially influencing long-term health and well-being.

References