

Migration, Health & Help-seeking in Childhood



Ilse Flink

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Migratie, gezondheid en het zoeken van hulp bij kinderen

Ilse J.E. Flink

ACKNOWLEDGEMENTS

The Generation R Study is conducted by the Erasmus Medical Centre in close collaboration with the Erasmus University Rotterdam, School of Law and Faculty of Social Sciences, the Municipal Health Service Rotterdam area, Rotterdam, the Rotterdam Homecare Foundation, Rotterdam, and the Stichting Trombosedienst & Artsenlaboratorium Rijnmond (STAR), Rotterdam. We gratefully acknowledge the contribution of general practitioners, hospitals, midwives and pharmacies in Rotterdam. The first phase of the Generation R Study is made possible by financial support from: Erasmus Medical Centre, Rotterdam, Erasmus University Rotterdam and the Netherlands Organization for Health Research and Development (ZonMw).

The work presented in this thesis was conducted at the Department of Public Health and was supported by a grant from ZonMW (Grant Number 80-82465-98-055).

Further financial support for this thesis was provided by the Department of Public Health, the Generation R Study, Erasmus Mundus and the Erasmus University Rotterdam.



Cover: Eva Bolt www.evabolt.blogspot.nl/

Layout and printing: Optima Grafische Communicatie, Rotterdam, The Netherlands

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Migratie, gezondheid en het zoeken van hulp bij kinderen

Proefschrift

ter verkrijging van de graad van doctor aan de
Erasmus Universiteit Rotterdam
op gezag van de
rector magnificus

Prof.dr. H.G. Schmidt

en volgens besluit van het College voor Promoties.
De openbare verdediging zal plaatsvinden op
dinsdag 10 september 2013 om 15:30 uur

door

Ilse Johanna Elisabeth Flink
geboren te Kigali, Rwanda



PROMOTIECOMMISSIE

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MANUSCRIPTS THAT FORM THE BASIS OF THIS THESIS

Chapter 2

Flink, I.J.E., Jansen, P.W., Beirens, T.M.J., Tiemeier, H., van IJzendoorn, M.H., Jaddoe, V.W., Hofman, A., Raat, H. Differences in problem behaviour among ethnic minority and majority pre-schoolers in the Netherlands and the role of family functioning and parenting factors as mediators: the Generation R Study. *BMC Public Health*. 2012, 12:1092.

Chapter 3

Flink, I.J.E., Prins, R.G., Mackenbach, J.P., Jaddoe, V.W., Hofman, A., Verhulst, F.C., Tiemeier, H., Raat, H. Neighbourhood ethnic diversity and behavioural and emotional problems in 3 year olds: results from the Generation R Study. *PLoS ONE*, in press.

Chapter 4

Flink, I.J.E., Restrepo, M.H., Blanco, D.P., Ortegón, M.M., Enriquez, C.L., Beirens, T.M.J., Raat, H. Mental health of internally displaced pre-school children: a cross-sectional study conducted in Bogotá, Colombia. *Social Psychiatry and Psychiatric Epidemiology*. 2013 Jun;48(6):917-26.

Chapter 5

Flink, I.J.E., Beirens, T.M.J., Looman, C.W.N., Landgraf, J.M., Tiemeier, H., Moll, H.A., Jaddoe, V.W.V., Hofman, A., Mackenbach, J.P., Raat, H. Health-related quality of life of infants from ethnic minority groups: the Generation R Study. *Quality of Life Research*. 2013 Apr;22(3):653-64.

Chapter 6

Flink, I.J.E., Beirens, T.M.J., Butte, D., Raat, H. Help-seeking behaviour for internalizing problems: Perceptions of adolescent girls from different ethnic backgrounds. *Ethnicity and Health*. 2013, May 30. E-pub ahead of print.

Chapter 7

Flink, I.J.E., Beirens, T.M.J., Butte, D., Raat, H. The role of maternal perceptions and ethnic background in the mental health help-seeking pathway of adolescent girls. *Journal of Immigrant and Minority Health*. 2013 Apr;15(2):292-9.

Chapter 1

General introduction



MIGRATION AND HEALTH

In this 21st century, migration between countries is higher than ever before. According to the most recent publications of the United Nations and the International Organisation for Migration^{1,2} the total number of international migrants has increased from 150 million persons in 2000 to 214 million persons in 2010. Europe is considered a top migrant destination and migrants make up approximately 8.7% of the population in this continent.²

Forced migration within countries due to, amongst others, armed internal conflicts and natural disasters has also increased rapidly the past decade. For instance, the global estimate of the number of internally displaced persons in 2000 was 21 million while, this increased to 27.5 million by the end of 2010.³

Migration, be it voluntary or forced, can influence health in many different ways. First and foremost, the migration process, particularly when forced, can be a traumatic experience which brings about many health risks.⁴ Upon arrival in receiving societies, migrants are often faced with further difficulties. Due to their (often) low socio-economic position, language and acculturation difficulties, access to health services⁵ and help-seeking⁶ can be hampered and, exposure to health hazards is increased.⁷ The sending and receiving context may also influence migrant health.⁸ For instance, the receiving society may not always endorse the arrival of migrants and, racism and discrimination can be a potential consequence which in turn can influence health.^{9,10}

Most studies on migrant health have been conducted among adult populations. Given that health problems in early life, when left untreated, are likely to persist or become worse later in life, it is of importance to study how migration influences health and help-seeking in childhood, particularly in the pre-school years.

THE MENTAL HEALTH OF MIGRANT PRE-SCHOOL CHILDREN

A variety of epidemiological studies have shown that migrant children are at an increased risk of mental health problems such as depression or attention problems.¹¹⁻¹³ Yet, the explanatory mechanisms for these differences, particularly in young children, remain unclear. Migrant groups often have a low socio-economic position. Hence, socio-economic influences such as poverty, low parental education, young and single parenthood might partly explain the mental health differences between migrant and

non-migrant pre-schoolers.^{11,14} On the other hand, migration and acculturation stress may also play a role in explaining the differences.⁷ In very young children, the family environment may additionally exert an important influence on their mental health.¹⁵⁻¹⁷ A more recent development in the migrant health literature has been the focus on the neighbourhood context, in particular the level of ethnic density and ethnic diversity and its impact on mental health.¹⁸⁻²⁰ In children exposed to forced migration, additional stressors such as exposure to war-time trauma may play a role in explaining differences in mental health in early life.^{21,22}

HEALTH-RELATED QUALITY OF LIFE OF MIGRANT INFANTS

Studies have shown that migrant children may not only be at an increased risk of mental health problems but also of other health outcomes such as low birth weight^{23,24} and respiratory symptoms.^{25,26} In combination with adverse family circumstances this may result in worse health-related quality of life, even in early life.^{27,28} Some studies on the health-related quality of life of migrant groups have been realized in older children.^{29,30} For instance, a study conducted in Spain showed that adolescents from migrant groups (e.g., Latin American) reported a relatively lower health-related quality of life compared to their native counterparts.³⁰ It is however unclear whether poorer health outcomes and adverse family circumstances also result in worse health-related quality of life in migrant infants.

MENTAL HEALTH HELP-SEEKING IN MIGRANT ADOLESCENT GIRLS

Mental health service utilization among migrant adolescents with mental health problems is relatively low compared to the majority group.³¹ For example, a study in the United States found that African American and Asian American/Pacific Islander youth were half as likely to receive any type of mental health care compared to their White American counterparts, even after controlling for risk factors associated with mental health care use.³¹ The differences were particularly large for outpatient care though differences were also found for informal care like self-help groups. A Dutch study revealed that Moroccan girls were less likely to use youth mental health care services than Dutch girls.³² For internalizing problems, which have been found to be more common in adolescent girls than boys³³, delayed or no help-seeking may be a particular concern as problems are difficult to detect and therefore go by unnoticed.³⁴ To enhance

help-seeking for internalizing problems in adolescent girls from ethnic minorities, it is important to explore their help-seeking behaviour for these problems. As mothers play an important role in adolescent girls' lives and may therefore act as primary gatekeepers to mental health care^{35,36} it is additionally of interest to explore maternal perceptions of help-seeking.

MIGRANT GROUPS IN THE NETHERLANDS

Definitional issues

It should firstly be mentioned that different terms have been used to describe migrant groups in Europe and elsewhere.³⁷ Commonly used terms are migrants, immigrants, and ethnic minorities. To date, no consensus has been reached on which term is preferable and its usage may depend on the context.³⁷ In this thesis, we made use of the country of birth indicator to distinguish between different ethnic groups in the Netherlands, which is a standard classification employed by Statistics Netherlands.³⁸ Using country of birth as an indicator of ethnic background fits with the concept of a common geographical and ancestral origin in the conceptualization of ethnicity.³⁹ In the Netherlands, this classification captures, at least in part, the elements of migration history, culture and religion.⁴⁰

According to the Statistics Netherlands definition, a person is considered to belong to a non-Dutch group if (s)he was born outside the Netherlands and at least one of the parents was born outside the Netherlands (first generation migrant), or if (s)he was born in the Netherlands with at least one of the parents born outside the Netherlands (second generation migrant).³⁸ With regard to ethnic background, for a first-generation migrant the ethnic background is determined by the country where (s)he is born. For a second-generation migrant, the ethnic background is determined by the country where the mother is born, unless that is the Netherlands. In that case, ethnic background is determined by where the father was born.³⁸ Advantages to the application of this definition are numerous. Prime advantages are that it is objective and stable.⁴⁰

The Statistics Netherlands definition does not allow for the identification of third generation migrants.⁴⁰ This is a concern given that the health effects of migration and cultural patterns are often 'trans generational' (passed on from one generation to another).⁴¹ To address this issue in this thesis, pre-school children were classified according to paren-

tal ethnic background instead of child ethnic background. Maternal ethnic background was considered the prime determinant because studies have shown that mothers in particular play an important role in young children's lives and their ethnic background and experiences of acculturation are most likely to influence child health.^{11,42,43} However, we also checked associations with paternal ethnic background.

Additionally, the Statistics Netherlands definition cannot distinguish between different migrant groups from the same country of origin. This is particularly a concern for Surinam, where the population is of mixed ethnic origin. For this reason self-classification was used to further classify the Surinamese migrants into Surinamese Creole and Surinamese Hindu.

Central to this thesis were the six largest non-Western migrant groups in Rotterdam, namely: the Turks, the Moroccans, the Antilleans, the Cape Verdeans, the Surinamese Creole and the Surinamese Hindus. We additionally included the largest Western migrant group in Rotterdam, namely: other Europeans (Dutch excluded).

Migration histories of migrant groups in the Netherlands

The migration histories of the migrant groups in the Netherlands depend on the population. The Turks and the Moroccans migrated to the Netherlands as labour workers in the 1960's and 1970's.⁴⁴ Most of the Turks and Moroccans that migrated in the 1960's stayed in the Netherlands on a temporary basis and returned to their country of origin. However, those that migrated in the 1970's or later often stayed permanently.⁴⁴ As many had arrived without their families, women and children soon followed, which led to a great influx of Moroccan and Turkish migrants from 1973 and onwards.

The largest influx of the Surinamese to the Netherlands took place after Surinam gained independence from the Netherlands in 1975.⁴⁴ Migration by the Surinamese was either for economic or political reasons. The Surinamese population is of mixed ethnic origin. The largest ethnic groups are the Surinamese Creoles, descendants of African slaves and, the Surinamese Hindus, descendants of Indian contract workers.

The Dutch Antilles are still part of the Netherlands. Between 1955 and 1985 there was a constant influx of migrants from this region mainly for work-related reasons⁴⁴. After 1985, migration increased due to economic reasons.

Cape Verdeans migrated to the Netherlands in the 1950's and 1960's to work in the Rotterdam harbour. In the 1970's migration continued for family reunion reasons.⁴⁴

In the Netherlands, there is also a large group of European migrants from neighbouring countries such as Belgium or Germany and, from Southern European countries such as Spain. Since the 1990's, the Eastern Europeans are the largest growing migrant group in the Netherlands.⁴⁴

FORCED INTERNAL DISPLACEMENT IN COLOMBIA

Definitional issues

Colombian law defines the internally displaced population as "All persons that have been forced to migrate within their national boundaries, abandoning their actual residence or usual economic activities, because their life, physical integrity, safety or personal freedom are at risk or are directly violated due to one of the following: armed internal conflict, internal tensions or disturbances, generalized violence, massive human rights violations, violations of international humanitarian law or other circumstances that may alter or are altering the public order drastically".⁴⁵ In 1997, law 387 article 32 established the principle that displaced persons (fulfilling the above criteria) have the right to assistance (e.g. schooling, housing and healthcare).⁴⁶ In 2000, a formal National Registry of the Displaced Population (Registro Único de Población Desplazada or RUPD) was launched by the government.⁴⁶ The displacement status of the children studied in this thesis was based on registration with the RUPD.

Background information on the internally displaced population

In 2011, Colombia counted the largest population of internally displaced people in the world.⁴⁷ The main cause of the forced internal displacement in Colombia is the armed internal conflict which started almost five decades ago and is still on-going.⁴⁷ Youth below the age of 18 make up approximately 50% of the internally-displaced population in Colombia. Most of the forced internal displacement in Colombia takes place from rural to urban settlements. The capital city Bogotá is the prime receptor municipality for internally displaced persons.⁴⁸

THIS THESIS

This thesis was embedded in the Rotterdam Academic Collaborative Centre for Diversity in Youth Policy (DWARS) which aims to improve the accessibility and effectiveness of preventive services for minority families and youth.⁴⁹ The studies in this thesis were undertaken to enhance our understanding of how migration influences mental health, health-related quality of life and help-seeking in childhood.

Research questions

In order to address the larger question of how migration influences mental health, health-related quality of life and help-seeking in childhood, several research questions were formulated and organized into three parts.

Part I - The mental health of migrant pre-school children

- a. Is there an association between the migrant status and mental health problems in pre-school children?
- b. To what extent do family characteristics explain this association?
- c. To what extent does this association depend on neighbourhood characteristics?

Part II - Health-related quality of life of migrant infants

- a. Is there an association between the migrant status and infant health-related quality of life?
- b. To what extent do child health and family characteristics explain this association?

Part III - Mental-health help-seeking in migrant adolescent girls

- a. How do adolescent girls with different ethnic backgrounds perceive the issue of help-seeking for internalizing problems?
- b. How do mothers with different ethnic backgrounds perceive the issue of help-seeking for internalizing problems experienced by adolescent girls?

Outline of the thesis

Part I is devoted to studying the association between the migrant status and child mental health problems and possible explanatory mechanisms. *Chapters two and three* focus on the association between the migrant status and problem behaviour in 3 year old children participating in the Generation R study, a multi-ethnic prospective population-based cohort study from foetal life until young adulthood. The Generation R Study is undertaken in Rotterdam, the Netherlands and was designed to identify early environmental and genetic determinants of growth, development and health in foetal life, childhood and adulthood.⁵⁰ *Chapter two* specifically looks at family functioning and parenting factors as potential mediators in this association. *Chapter three* looks at whether the association between the migrant status and child problem behaviour depends on the level of neighbourhood ethnic diversity. *Chapter four* focuses on the association between forced internal displacement and problem behaviour in two to six year old children using cross-sectional data collected in Bogotá, Colombia. Additionally, this chapter looks at correlates of problem behaviour in displaced children. In all chapters in this part of the thesis problem behaviour is measured with the Child Behaviour Checklist (CBCL) 1,5-5 years, a parent-report instrument.⁵¹

Part II (chapter five) focuses on the health-related quality of life of migrant infants. More specifically, it is devoted to studying the association between the migrant status and health-related quality of life in 1 year old infants and further looks at whether child health and family characteristics explain this association. Data is used from the Generation R Study and, health-related quality of life is measured with the Infant Toddler Quality of Life Questionnaire.⁵²⁻⁵⁴

Part III includes two focus group studies (*chapters six and seven*) on perceptions of help-seeking for internalizing problems in adolescent girls and mothers with a teenage daughter with Turkish, Moroccan and Dutch backgrounds.

Table with an overview of the studies presented in this thesis

	Design	Sample	Population for analyses	Age focus	Research focus
<i>Part I - The mental health of migrant pre-school children</i>					
Chapter 2	Prospective cohort	Generation R/ Rotterdam, the Netherlands	n=4082	3 years	Family functioning and parenting factors as mediators of the relationship between the migrant status and problem behavior
Chapter 3	Prospective cohort	Generation R/ Rotterdam, The Netherlands	n=3076	3 years	Moderating role of neighborhood ethnic diversity on the relationship between the migrant status and child problem behavior
Chapter 4	Cross-sectional	Convenience sample/ Deprived neighbourhood Bogotá, Colombia	n=279	2-6 years	Forced internal displacement and problem behavior
<i>Part II - Health-related quality of life of migrant infants</i>					
Chapter 5	Prospective cohort	Generation R/ Rotterdam, The Netherlands	n=4506	1 year	Migrant status and health-related quality of life
<i>Part III - Mental-health help-seeking among migrant adolescent girls</i>					
Chapter 6	Focus Group Discussions	Convenience sample/ Rotterdam, The Netherlands	n=50	12-20 years	Perceptions of adolescent girls from different ethnic backgrounds towards help-seeking for internalizing problems
Chapter 7	Focus Group Discussions	Convenience sample/ Rotterdam, The Netherlands	n=41	Mothers of 12-20 year olds	Perceptions of mothers with different ethnic backgrounds towards help-seeking for internalizing problems experienced by adolescent girls

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Part I

The mental health of migrant pre-school children



Chapter 2

Differences in problem behaviour among ethnic minority and majority pre-schoolers in the Netherlands and the role of family functioning and parenting factors as mediators: the Generation R Study

Based on: Flink, I.J.E. / Jansen, P.W. / Beirens, T.M.J. / Tiemeier, H. / van IJzendoorn, M.H. / Jaddoe, V.W.V. / Hofman, A. / Raat, H. Differences in problem behaviour among ethnic minority and majority pre-schoolers in the Netherlands and the role of family functioning and parenting factors as mediators: the Generation R Study

BMC Public Health. 2012, 12:1092





ABSTRACT

Background: Studies have shown that, compared to native counterparts, pre-schoolers from ethnic minorities are at an increased risk of problem behaviour. Socio-economic factors only partly explain this increased risk. This study aimed to further unravel the differences in problem behaviour among ethnic minority and native pre-schoolers by examining the mediating role of family functioning and parenting factors.

Methods: We included 4,282 pre-schoolers participating in the Generation R Study, an ethnically-diverse cohort study with inclusion in early pregnancy. At child age 3 years, parents completed the Child Behavior Checklist (CBCL/1,5-5); information on demographics, socio-economic status and measures of family functioning (maternal psychopathology; general family functioning) and parenting (parenting stress; harsh parenting) were retrieved from questionnaires. CBCL Total Problems scores in each ethnic subgroup were compared with scores in the Dutch reference population. Mediation was evaluated using multivariate regression models.

Results: After adjustment for confounders, pre-schoolers from ethnic minorities were more likely to present problem behaviour than the Dutch subgroup (e.g. CBCL Total Problems Turkish subgroup OR 7.0 (95% CI 4.9; 10.1)). When considering generational status, children of first generation immigrants were worse off than the second generation ($P < 0.01$). Adjustment for socio-economic factors mediated the association between the ethnic

minority status and child problem behaviour (e.g. attenuation in OR by 54.4% ($P < 0.05$) from OR 5.1 (95% CI 2.8; 9.4) to OR 2.9 (95% CI 1.5; 5.6) in Cape Verdean subgroup). However, associations remained significant in most ethnic subgroups. A final adjustment for family functioning and parenting factors further attenuated the association (e.g. attenuation in OR by 55.5% ($P < 0.05$) from OR 2.2 (95% CI 1.3; 4.4) to OR 1.5 (95% CI 1.0; 2.4) in European other subgroup).

Conclusion: This study showed that pre-schoolers from ethnic minorities and particularly children of first generation immigrants are at an increased risk of problem behaviour compared to children born to a Dutch mother. Although socio-economic factors were found to partly explain the association between the ethnic minority status and child problem behaviour, a similar part was explained by family functioning and parenting factors. Considering these findings, it is important for health care workers to also be attentive to symptoms of parental psychopathology (e.g. depression), poor family functioning, high levels of parenting stress or harsh parenting in first and second generation immigrants with young children.

BACKGROUND

Studies have shown that, compared to native counterparts, pre-schoolers from ethnic minorities are at an increased risk of problem behaviour.¹⁻³ Studies aiming to explain this vulnerability have mostly focused on socio-economic influences and showed that more problem behaviour in ethnic minorities relative to the majority group were partly explained by income inequalities, poverty, low parental education, young and single parenthood.^{1,4} Though socio-economic factors thus explain an important part of the association between the ethnic minority status and child problem behaviour, a substantial part of the association still remains unexplained.

Pre-schoolers have the family as a predominant environment, and as such the family exerts an important influence on their well-being. Family functioning and parenting

factors have been found to vary between ethnic minority and majority groups, with ethnic minorities showing a greater risk of, amongst others, poor family functioning⁵, parenting stress⁶ and harsh parenting.^{7,8} These differences can partly be explained by socio-economic status.⁹ Additionally, factors unrelated to socio-economic status like migration and acculturation stress may also contribute to these differences.¹⁰

A few studies have focused on how family factors contribute to the presence of problem behaviour in ethnic minority children.¹¹⁻¹³ Weiss et al.¹³ demonstrated that the family's reliability on internal coping strategies was a risk factor for problem behaviour in Latino children residing in the US. Varela et al.¹⁴ showed that the influence of parental control and acceptance on anxiety symptoms differed between Latin-American, European-American and Mexican-American children.

Although the above studies provide important insights into how family factors contribute to problem behaviour in ethnic minorities, these studies do not unravel whether family functioning and parenting factors explain the ethnic differences in child problem behaviour and, whether this potential mediation is independent of socio-economic factors.

The present study sought to address this gap. The objectives were to investigate (1) whether problem behaviour at 3 years differs between children born to a Dutch mother and ethnic minority children; and (2) whether maternal psychopathology, family functioning, parenting stress, and harsh parenting mediate the association between the ethnic minority status and child problem behaviour. As acculturation levels may vary between first and second generation immigrants¹⁵, we additionally investigated whether problem behaviour and potential mediating roles of family functioning and parenting factors differed according to maternal generational status. Our hypotheses were that (1) ethnic minority children, particularly those with first generation immigrant mothers, would present more problem behaviour than children born to Dutch mothers; (2) family functioning and parenting factors would partly mediate this association; and (3) mediation by family functioning and parenting factors will be stronger in children of first generation immigrants than in children of second generation immigrants due to family effects of migration stress.¹⁵

METHODS

Participants

This study was embedded in the Generation R study, a prospective population-based cohort from foetal life onwards in Rotterdam, the Netherlands.¹⁶ The Medical Ethics Committee of the Erasmus MC, Rotterdam, approved this study. Written informed consent was obtained from all participants. All information that enabled identification of participants was excluded before distribution to the researchers.¹⁷

Full consent for the postnatal phase was obtained from 7295 participants. Mothers with missing data on their ethnic background ($n = 525$) were excluded. Due to small numbers, classification difficulties or heterogeneity of groups, 825 mothers of different ethnic backgrounds were also excluded (i.e. Africans $n = 113$, Surinamese other or Surinamese origin missing $n = 179$, American Western $n = 28$, American non-Western $n = 84$, Asians $n = 412$ and Oceania $n = 9$). Children with no CBCL score ($n = 1663$) were further excluded leaving 4282 children for analysis (see Figure 1).

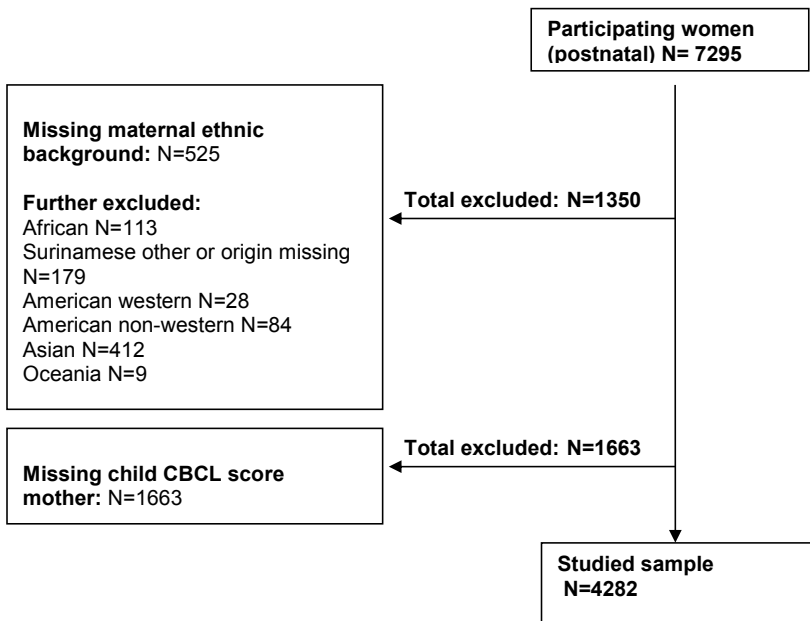


Figure 1 Flowchart of the study population

Measures

Data for this study were retrieved from medical records, and collected by prenatal and postnatal questionnaires. On request (i.e. in the case of illiteracy or very low education), trained research assistants with varied ethnic backgrounds helped with completing the questionnaires.

Ethnic background

We classified children according to maternal ethnic background. A choice was made for maternal ethnic background because mothers play an important role in young children's lives and their ethnic background and experiences of acculturation are most likely to influence family functioning and parenting as well as child problem behaviour.^{18,19} Maternal ethnic background was determined by the country of birth of the mother and the mother's parents, a classification employed by Statistics Netherlands.²⁰ If the mother or one of her parents was born outside the Netherlands, this country of birth determined the ethnic background. If both parents were born outside the Netherlands, the country of birth of the mother's mother determined the ethnic background. Women with a Surinamese background were further classified as Surinamese Hindu or Surinamese Creole. Subgroups of children in the study were: Dutch (n=3105), Other European (n = 397), Antillean (n = 78), Cape Verdean (n = 94), Moroccan (n = 155), Surinamese Creole (n = 78), Surinamese Hindu (n = 85), and Turkish (n = 290). As a sensitivity analysis, we also considered paternal ethnic background for which a similar classification was employed. To account for differences in acculturation, we additionally established the generational status of non-Dutch participants. The first generation group included mothers who were born outside the Netherlands; the second generation group included mothers who were born in the Netherlands.

Problem behaviour

Mothers and fathers were both asked to fill out the Child Behavior Checklist (CBCL/1,5-5) when the child was 3 years. The CBCL/1,5-5, is a self-administered parent-report questionnaire that contains 99 problem items rated on a 3-point scale: 0 (not true), 1 (somewhat or sometimes true) and 2 (very true or often true). By summing the raw scores, seven syndrome scales (Emotionally Reactive, Anxious/Depressed, Somatic Complaints, Withdrawn, Sleep Problems, Attention Problems and Aggressive Behaviour) can be computed. The CBCL/1,5-5 also includes a Total Problems summary scale

which was used for this study. A higher score on the Total Problems scale represents a higher severity. Good reliability and validity have been reported for the CBCL/1,5-5.²¹ The CBCL was available in Dutch, Turkish and English. The great majority (96.3%) filled in the Dutch version.

Potential confounders and mediators

Child birth weight, gestational age at birth (≤ 36 weeks or > 36 weeks), sex and age were treated as confounders in this study.^{1,22}

Based on previous studies^{1,23,24}, we treated the following socio-economic factors as mediators: maternal age; marital status (married/cohabiting or no partner); parity, maternal education, classified as ‘low’ (primary school, lower vocational training, intermediate general school, 3 years general secondary school), ‘medium’ (> 3 years general secondary school; intermediate vocational training; 1st year higher vocational training), and ‘high’ (higher vocational training, Bachelor’s degree, higher academic education and PhD); family income was defined by the total net month income of the household and classified as ‘ < 1200 €’ (below social security level), ‘ $1200-2000$ €’ and ‘ > 2000 €’ (more than modal income).

Measures of family functioning that were included as potential mediators were maternal psychopathology, assessed prenatally and two months postpartum with the Brief Symptom Inventory²⁵ and overall family functioning, assessed prenatally with the twelve item General Functioning scale of the McMasters Family Assessment Device (FAD).²⁶

Measures of parenting that were included as potential mediators were overall parenting stress measured at child age 18 months and assessed with the “Nijmeegse Ouderlijke Stress Index-Kort” (NOSIK)²⁷, the Dutch version of the Parenting Stress Index-Short Form and, harsh parenting measured at child age 3 years and assessed through separate maternal and paternal self-reports based on the Parent-child Conflict Tactics Scale.²⁸ In a previous study, a factor analysis was conducted to identify harsh parenting items.⁷

Internal consistencies of family functioning and parenting scales were good ($\alpha > 0.70$) and only marginally satisfactory for maternal and paternal harsh parenting ($\alpha = 0.63$).

Statistical analyses

To handle missing data in the covariates (i.e. confounders and potential mediators), multiple imputation was applied.²⁹ Five imputed datasets were generated using a fully conditional specified model, thus taking into account the uncertainty of the imputed values. In line with previous studies³⁰, imputations were based on the correlations between each variable for which missing values were observed (e.g. maternal education) and other relevant participant characteristics.

Frequency tables and cross tabulations were used to explore characteristics of the study population (table 1). Because the CBCL Total Problems scores were skewed and could not be transformed to satisfy the assumption of normality, we firstly dichotomized the scores according to the 83rd percentile borderline cut-offs of a Dutch reference population.³¹ Hereafter we used a multivariable logistic regression (model 1; basic model) to examine the association between maternal ethnic background and maternal-reported CBCL total problems, adjusted for confounders (table 2).

Some of the family functioning and parenting factors were also skewed and were transformed (using the square root and the natural log) to approach normality. Harsh parenting could not be normalized and was therefore dichotomized. The 20% highest scoring mothers and fathers were considered as parents who use harsh parenting.

We assessed mediation of the family functioning and parenting factors by following the causal step approach proposed by Baron and Kenny (figure 2).³² We conducted a series of regression models to test 1. the association between maternal ethnic background and potential mediators (data not shown; Step A) and, 2. the association between the potential mediators and CBCL Total problems adjusted for maternal ethnic background (supplement table 1s; Step B). Factors that were significantly associated with maternal ethnic background and CBCL Total Problems were considered ‘true’ mediators and were selected for a third and final step (Step C). In this step, we separately added the mediators to model 1 to evaluate the attenuation (or increase) of the original association of maternal ethnic background with CBCL Total Problems (Table 2). Model 2 included the confounders and socio-economic factors. Hereafter, the family functioning and parenting factors were individually added to model 2 (models 3–7). Finally, the 8th model was the ‘full’ model including confounders, socio-economic and family functioning and parenting factors. The mediating roles of the socio-economic and family functioning and parenting factors were assessed by calculating the percentage change in Odds Ratio (OR) relative to model 1 (socio economic factors) or, model 2, (family functioning and parenting factors) (e.g. $(100 * [OR_{\text{model 1+ mediator}} - OR_{\text{model 1}}] / [OR_{\text{model 1}} - 1])$). Additionally a

Table 1 Characteristics of participants

	<i>n</i>	Dutch <i>n</i> = 3105	Other European <i>n</i> = 397	Antillean <i>n</i> = 78	Cape Verdean <i>n</i> = 94	Moroccan <i>n</i> = 155	Surinamese Creole <i>n</i> = 78	Surinamese Hindu <i>n</i> = 85	Turkish <i>n</i> = 290	<i>p</i> -value
Child characteristics										
Sex (% boys)	4186	50.2	46.5	46.2	46.8	49.7	57.9	40.0	50.2	0.35
Age (months)	4282	36.5 (1.2)	36.6 (1.1)	37.1 (2.4)	36.9 (1.4)	37.2 (2.0)	36.8 (1.4)	36.9 (1.6)	37.2 (1.8)	<0.001
Birth weight (grams)	4184	3511.2 (551.4)	3468.8 (539.0)	3196.0 (520.9)	3247.1 (563.0)	3483.7 (518.1)	3254.7 (559.5)	3067.7 (476.9)	3391.8 (519.5)	<0.001
Gestational age at birth (%≤36 weeks)	4282	4.6	5.3	9.0	1.1	3.9	3.8	4.7	4.8	0.46
Socio-demographic characteristics										
Age mother at intake (years)	4282	32.2 (4.0)	31.6 (4.3)	28.3 (5.4)	29.6 (5.3)	28.9 (5.1)	30.9 (5.9)	28.7 (5.4)	28.2 (5.3)	<0.001
Educational level	4212									<0.001
High (%)		66.9	66.6	25.6	12.5	16.0	23.7	20.2	15.0	
Medium (%)		31.7	28.4	65.4	64.8	57.6	65.8	69.0	49.1	
Low (%)		1.4	5.0	9.0	22.7	26.4	10.5	10.7	35.9	
Marital status (% single)	4187	5.0	5.6	40.3	40.0	5.3	44.9	22.4	5.3	<0.001
Family income	3584									<0.001
>2000 (%)		85.6	77.1	27.9	16.9	18.7	34.5	37.1	21.3	
1200-2000 (%)		11.4	16.8	31.1	33.8	38.3	31.0	30.0	40.0	
<1200 (%)		3.0	5.5	41.0	49.4	43.0	34.5	32.9	38.7	
Parity (% nulli)	4167	60.3	62.0	67.5	42.9	40.5	55.8	56.5	46.6	<0.001

Family functioning and parenting characteristics																	
Prenatal maternal psychopathology ¹	3435	0.1 (0.2)	0.2 (0.2)	0.2 (0.5)	0.3 (0.7)	0.3 (0.5)	0.2 (0.3)	0.3 (0.4)	0.4 (0.6)	<0.001							
Postnatal maternal psychopathology ¹	3732	0.1 (0.2)	0.1 (0.2)	0.2 (0.3)	0.2 (0.4)	0.2 (0.4)	0.2 (0.2)	0.2 (0.5)	0.3 (0.5)	<0.001							
Prenatal family functioning ¹	3838	1.3 (0.6)	1.4 (0.7)	1.7 (0.8)	1.9 (0.4)	1.8 (0.8)	1.6 (0.8)	1.9 (0.7)	1.7 (0.8)	<0.001							
Parenting stress ¹	3817	0.2 (0.3)	0.3 (0.4)	0.3 (0.3)	0.3 (0.5)	0.3 (0.4)	0.2 (0.3)	0.3 (0.4)	0.5 (0.5)	<0.001							
Harsh parenting (% above cut-off)																	
Maternal report	3543	14.6	19.3	30.4	22.7	24.7	19.0	27.0	16.8	<0.001							
Paternal report	4251	13.2	22.1	23.7	23.4	18.7	21.1	27.7	18.5	<0.001							

Values are percentages for categorical variables, means (SD) for continuous, normally distributed variables and medians (IQD) for non-normally distributed

Variables

¹ Median (IQD)

Table 2 Adjusted associations between maternal ethnic background and maternal-reported Total Problems

Maternal ethnic background	Model 1	Model 2	% change ^a	Model 3	% change ^b	Model 4	% change ^b	Model 5	% change ^b	Model 6	% change ^b	Model 7	% change ^b	Model 8	% change ^b
Dutch n=3105	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
European other n=397	2.4 (1.6; 3.7)	2.2 (1.5; 3.5)	-14.4%*	2.0 (1.3; 3.0)	-22.2%*	2.0 (1.3; 3.1)	-22.2%*	2.1 (1.4; 3.3)	-10.1%*	1.9 (1.2; 3.0)	-26.4%*	2.0 (1.3; 3.1)	-19.5%*	1.5 (1.0; 2.4)	-55.5%*
Antillean n=78	4.2 (2.1; 8.4)	2.6 (1.2; 5.5)	-49.1%*	2.5 (1.2; 5.2)	-10.1%	2.6 (1.2; 5.6)	+0.2%	2.6 (1.2; 5.4)	-3.3%	2.5 (1.1; 5.4)	-9.1%	2.3 (1.1; 4.9)	-19.5%	2.1 (1.0; 4.7)	-29.4%

Cape Verdean n=94	5.1 (2.8; 9.4)	2.9 (1.5; 5.6)	2.4 (1.2; 4.8)	2.7 (1.4; 5.3)	2.5 (1.3; 4.9)	3.0 (1.5; 5.9)	2.6 (1.3; 5.1)	2.3 (1.1; 4.6)	-30.3%
Moroccan n=155	3.8 (2.2; 6.5)	2.4 (1.3; 4.4)	1.9 (1.0; 3.4)	2.0 (1.1; 3.8)	2.2 (1.2; 3.9)	2.3 (1.2; 4.2)	2.4 (1.3; 4.3)	1.8 (1.0; 3.4)	-43.8%*
Surinamese Creole n=78	1.9 (0.8; 4.9)	1.2 (0.5; 3.2)	1.2 (0.4; 3.2)	1.3 (0.5; 3.6)	1.1 (0.4; 3.0)	1.3 (0.5; 3.4)	1.1 (0.4; 2.9)	1.1 (0.4; 2.9)	-73.9%
Surinamese Hindu n=85	6.8 (3.7; 12.3)	4.7 (2.5; 8.8)	4.2 (2.2; 8.0)	3.9 (2.0; 5.6)	3.9 (2.1; 7.5)	4.6 (2.4; 8.9)	4.0 (2.1; 7.6)	3.3 (1.7; 6.6)	-37.3%*
Turkish n=290	7.0 (4.9; 10.1)	4.2 (2.7; 6.6)	3.2 (2.0; 5.0)	3.1 (2.0; 4.9)	3.9 (2.5; 6.1)	3.1 (2.0; 4.9)	4.2 (2.6; 6.5)	2.6 (1.6; 4.1)	-51.3%*

Table based on imputed dataset

Values are OR (95% CI) derived from logistic regression models modeling maternal ethnic background as the determinant and maternal-reported Total Problems as the outcome variable.

Model 1: Basic model adjusted for child gestational age, birth weight, age, gender

Model 2: Model 1+ maternal age, maternal marital status, maternal educational level, parity and family income

Model 3: Model 2 + prenatal maternal psychopathology

Model 4: Model 2 + postnatal maternal psychopathology

Model 5: Model 2+ prenatal family functioning

Model 6: Model 2+ parenting stress

Model 7: Model 2 + paternal harsh parenting

Model 8: Fully adjusted model

^a Change in odds ratio relative to model 1 for non-Dutch ethnic groups versus Dutch reference group ($100 * [OR_{\text{model 1+mediator}} - OR_{\text{model 1}}] / [OR_{\text{model 1}} - 1]$)

^b Change in odds ratio relative to model 2 for non-Dutch ethnic groups versus Dutch reference group after individual adjustment (models 3-7) or full adjustment (model 8) for family functioning and parenting factors ($100 * [OR_{\text{model 2+mediator}} - OR_{\text{model 2}}] / [OR_{\text{model 2}} - 1]$)

* p < 0.05 indicates a significant change in odds ratio after adding variable(s) to model 1 or model 2 calculated with a bootstrap analysis

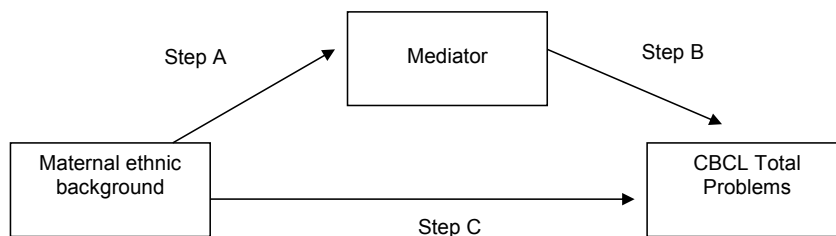


Figure 2 Causal step approach for the selection of mediators

bootstrap analysis was conducted to test the whether the strength of the association changed after addition of the mediators.³³

To assess whether results changed if we included paternal-reported Total Problems as the outcome or paternal ethnic background as the determinant, we separately repeated the analyses with this outcome and determinant (data not shown). We additionally repeated the analyses with maternal generational status (first or second generation) as the main determinant and maternal-reported Total Problems as the outcome (table 3).

Table 3 Adjusted associations between maternal generational status and maternal-reported Total Problems

	Model 1	Model 2	% change ^b	Model 3	% change ^c
Dutch n=3105	1.0	1.0		1.0	
First generation immigrants n=835	5.0 (3.8; 6.8) ^a	3.3 (2.3; 4.6)	-44.6%*	2.3 (1.6; 3.2)	-44.5% ^d
Second generation immigrants n=317	2.5 (1.6; 4.0)	1.8 (1.1; 3.0)	-47.0%*	1.3 (0.8; 2.1)	-66.0%*

Table based on imputed dataset

Values are OR (95% CI) derived from logistic regression models modeling maternal generational status as the determinants and maternal-reported Total Problems as the outcome variable.

Model 1: Basic model adjusted for child gestational age, birth weight, age and gender

Model 2: Model 1+maternal age, maternal marital status, maternal educational level, parity and family income

Model 3: Model 2+ prenatal maternal psychopathology + postnatal maternal psychopathology + prenatal family functioning + parenting stress + paternal harsh parenting

^a p<0.01 for first generation vs. second generation (reference)

^b Change in odds ratio relative to model 1 for non-Dutch ethnic groups versus Dutch reference group (100 * [OR_{model 1+mediator} - OR_{model 1}] / [OR_{model 1} - 1])

^c Change in odds ratio relative to model 2 for non-Dutch ethnic groups versus Dutch reference group after full adjustments (model 3) for family functioning and parenting factors (100 * [OR_{model 2+mediator} - OR_{model 2}] / [OR_{model 2} - 1])

^d P=0.26 for difference in odds ratio attenuation between first and second generation immigrants calculated with a bootstrap analysis

* p <0.05 indicates a significant change in odds ratio after adding variable(s) to model 1 or model 2 calculated with a bootstrap analysis

Non-response analysis

A comparison of ethnic minority children included in this study ($n = 2158$) with children who were excluded due to missing values for maternal ethnicity ($n = 525$) did not indicate any significant differences in terms of maternal educational level, marital status and child problem behaviour. We also compared the ethnic minority children included in this study to children who were excluded due to ethnic classification difficulties and small sample sizes ($n = 825$). We found that the excluded group was higher educated ($X^2=53.1$; $P<0.001$) than the ethnic minorities that were included. The groups did not differ on marital status and child problem behaviour.

RESULTS

Characteristics

Characteristics of the participants are presented in Table 1. Ethnic differences were present in almost all variables except for gestational age and gender. Ethnic differences were also found for family functioning and parenting factors e.g. paternal harsh parenting ($X^2=46.7$; $P<0.001$).

Maternal ethnic background and child problem behaviour

Compared to children born to a Dutch mother, children from six out of seven ethnic minorities had an increased risk of problem behaviour after adjustment for child gender, age, birth weight and gestational age (Table 2; model 1). The risk was the most increased in the Turkish subgroup (OR 7.0 (95% CI 4.9; 10.1)).

Mediation

All six family functioning and parenting factors that were considered potential mediators met Baron and Kenny's³² criteria for mediation. However, maternal harsh parenting was excluded as a mediator because the correlation with paternal harsh parenting was strong ($r=0.40$) and paternal harsh parenting was more strongly associated with ethnic background and CBCL Total Problems (supplement table 1s). Hence, the five factors

that we studied as mediators were prenatal and postnatal maternal psychopathology, prenatal family functioning, parenting stress at child age 1,5 years and paternal harsh parenting at child age 3 years.

Table 2 shows the adjusted associations between maternal ethnic background and CBCL Total Problems. Compared to the model adjusted for confounders, adjustment for socio-economic factors attenuated the association between ethnic background and CBCL Total Problems by up to 54.4% (Cape Verdean subgroup; $P < 0.05$). Mediation by socio-economic factors was strong but partial as the associations between ethnic background and CBCL total problems were still significant in six out of seven ethnic subgroups. Compared to the model adjusted for confounders and socio-economic factors, individual adjustments for the family functioning and parenting factors resulted in up to 39.8 % attenuation in the OR. The mediating roles of the individual family functioning and parenting factors differed per ethnic minority group. For instance, adjustment for prenatal maternal psychopathology resulted in 39.8% ($P < 0.05$) attenuation in the OR in the Moroccan subgroup while paternal harsh parenting was the strongest mediator in the Surinamese Hindu subgroup, accounting for 19.6% ($P < 0.05$) attenuation in the OR. Adjustments for all family and parenting factors combined resulted in up to 55.5% (European subgroup; $P < 0.05$) attenuations in the ORs.

We repeated the analyses with paternal reports of CBCL Total Problems ($n = 3568$; data not shown). Results were very similar to maternal reports. We also repeated the analyses with paternal ethnic background ($n = 3254$; data not shown), which also yielded similar results.

We assessed whether child problem behaviour differed between children of first and second generation immigrants compared to children classified as Dutch and whether family functioning and parenting factors mediated this association (Table 3). After adjustment for confounders, ORs for maternal-reported CBCL Total Problems compared to the Dutch subgroup were higher in children of first generation immigrants than in children of second generation immigrants and this difference was significant ($P < 0.01$). Socio-economic factors mediated the association to the same degree in the first and the second generation (i.e. attenuation in OR by 44.6% ($P < 0.05$) in the first generation and, attenuation in OR by 47.0% ($P < 0.05$) in the second generation). After adjustment for confounders and socio-economic factors, family functioning and parenting factors additionally mediated the association in both generational groups ($P < 0.05$). Although mediation appeared to be stronger in the second than in the first generation group this difference was not significant ($P = 0.26$).

DISCUSSION

This large multi-ethnic population study showed that parents from non-Dutch ethnic minorities report more problem behaviour in their 3-year-old children than parents from the Dutch majority group. Although socio-economic factors explained a substantial part of this relationship, a similar part was explained by maternal psychopathology, family functioning, overall parenting stress and paternal harsh parenting.

Before discussing the findings of this study further, some methodological considerations need to be taken into account. A strength of this study is the large number of participants from different ethnic groups and the population-based design. A limitation is that we had to rely on parent-reports of problem behaviour as the children were too young for self-reports or assessments by teachers or other informants, and because it was not feasible to obtain clinical diagnoses in such a large sample of children. However, we did have maternal and paternal reports which yielded very similar findings. In this study, some children were excluded due to missing data on ethnic background, ethnic classification difficulties or small sample sizes of some ethnic groups. We demonstrated that the excluded children had slightly higher educated mothers than the ethnic minority children included in the study. However, as no differences were observed for other socio-economic characteristics and child problem behaviour, we do not think that non-response or the exclusion of small ethnic minority groups substantially influenced our findings. An additional limitation was that the direction of causation could not be determined for the postnatal mediators (overall parenting stress and harsh parenting). To partly address this issue we repeated the mediation analysis for overall parenting stress in a subsample of children who did not present behavioural problems at 18 months ($n = 3505$; data not shown). Although the sample of children that presented problem behaviour at 36 months was substantially smaller, the findings were fairly similar to our initial findings. This substantiates the hypothesized causality of our model, that parental stress influences child problem behaviour rather than only being a consequence of it. However, as harsh parenting was measured at the same age as the outcome of our study, we were not able to check the assumed causal relation for this mediating variable. Children in this study were classified according to maternal ethnic background and some children may therefore have been misclassified. However, classifying children according to paternal ethnic background yielded very similar findings. Lastly, most of the family functioning mediators included in this study were measured during pregnancy to limit the possibility of reverse causality; that is child behaviour influencing family functioning rather than reverse. However, as a result these mediating factors were quite distal and were therefore limited in their mediating effect. Hence, future studies may want to also consider including family functioning factors measured closer to the outcome.

In the present study we found that children from non-Dutch ethnic minorities presented more problem behaviour than children born to a Dutch mother. When considering generational status, we found that the risk was particularly increased in children of first generation immigrants, though the second generation also presented more problem behaviour. A potential explanation for this finding is that immigration risk factors such as poor proficiency of the native language and cultural barriers, more common in first than in second generation immigrants, can lead to social isolation and associated stress in mothers, which may affect children's behaviour.^{1,34}

We additionally found that, besides socio-economic risk factors, differences in problem behaviour among ethnic minority pre-schoolers and pre-schoolers born to a Dutch mother could be explained by family risk factors like family functioning and parenting stress. There may be several explanations for this finding. Firstly, migration to a new country and culture often challenges familial roles and responsibilities and may also cause changes in family organisation and functioning.³⁵⁻³⁷ Leidy et al.¹¹ for instance note that one of the challenges to positive parenting is a lack of extended family members who previously helped with raising children. Changes in family organisation and functioning may in turn lead to stress which, during pregnancy, can expose the foetus to elevated levels of stress hormones and possibly influence the development of stress systems.³⁸ After birth, maternal and family stress can influence parent-child interactions which have been associated with behavioural problems.³⁹ This is supported by our finding that both prenatal and postnatal maternal psychopathology mediated the association between the ethnic minority status and child problem behaviour.

It is also possible that family functioning and parenting factors are influenced by cultural norms and values related to ethnic background. Harsh parenting was for instance the strongest mediator in the Surinamese Hindu, Antillean and Cape Verdean subgroups. In these subgroups 'machismo', a cultural value characteristic that is particularly prominent in Latino and Caribbean populations and has been linked to harsh parenting, may partly explain this finding.¹⁰ Additionally 'familism', a cultural value characteristic that is defined as "the subordination of individual interests to those of the family"⁴⁰, has also been linked to ethnic minorities.⁴¹ Studies have shown that expectations of family harmony or 'familism' may create increased distress when conflicts within the family arise.⁵ Cultural factors may also affect perceptions of a 'normally' functioning family, 'harsh' parenting and child behaviour. For instance, studies have shown that physical punishment is more accepted in some cultures than in others possibly leading to differences in the threshold to report harsh parenting.⁴²

In our study, we found that socio-economic factors mediated the association to the same degree in first and second generation immigrants. This indicates that socio-economic disadvantage affects the mental health of immigrant children in the Netherlands despite maternal generational status. Family functioning and parenting factors also explained the association between the immigrant status and problem behaviour in first and second generation immigrants. In contrast with our initial hypothesis, mediation appeared to be stronger in the second generation however, this difference was not significant. As acculturation levels may vary according to generational status and it is possible that this affects family functioning and parenting factors differently⁴³, we recommend further study into this issue.

CONCLUSION

This study showed that pre-schoolers from ethnic minorities and particularly children of first generation immigrants are at an increased risk of problem behaviour compared to children born to a Dutch mother. Although socio-economic factors were found to partly explain the association between the ethnic minority status and child problem behaviour, a similar part was explained by family functioning and parenting factors. Considering these findings, it is important for health care workers to be attentive to symptoms of parental psychopathology (e.g. depression), poor family functioning, high levels of parenting stress and harsh parenting in first and second generation immigrants with young children. With proper screening, young immigrant parents may be able to receive intervention services that will not only serve to improve their own mental well-being, but also to help prevent the development of problem behaviour in their offspring. Ideally, such screening is done early in children's lives, perhaps even before birth. Primary care doctors and nurses like general practitioners and professionals at well baby clinics, but also midwives and obstetricians might play a key role in the detection and referral of immigrant parents or parents-to-be who experience mental health problems.

SUPPLEMENTARY MATERIAL

Table 1s Associations between family functioning and parenting factors and maternal-reported Total Problems ($n=4282$)

Family functioning and parenting factors	OR (95% CI)
Prenatal maternal psychopathology	7.3 (4.4; 11.9)
Postnatal maternal psychopathology	6.3 (4.0; 10.0)
Prenatal family functioning	2.4 (1.8; 3.2)
Overall parenting stress	17.3 (9.7; 31.1)
Maternal harsh parenting	2.4 (1.8; 3.4)
Paternal harsh parenting	2.9 (2.1; 3.8)

Table based on imputed dataset

Values are ORs (95% CI) derived from logistic regression models modeling family functioning and parenting factors as the determinant and maternal-reported Total Problems as the outcome variable, adjusted for maternal ethnic background

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Chapter 3

Neighbourhood ethnic diversity and behavioural and emotional problems in 3 year olds: results from the Generation R Study

Based on: Flink, I.J.E. / Prins, R.G. / Mackenbach, J.P. / Jaddoe, V.W. / Hofman, A. / Verhulst, F.C. / Tiemeier, H. / Raat, H. Neighbourhood ethnic diversity and behavioural and emotional problems in 3 year olds: results from the Generation R Study.

PLoS ONE, in press





ABSTRACT

Background: Studies suggest that neighbourhood ethnic diversity may be important when it comes to understanding ethnic inequalities in mental health. The primary aim of this study was to investigate whether neighbourhood ethnic diversity moderated the association between the ethnic minority status and child behavioural and emotional problems.

Methods: We included 3076 pre-schoolers participating in the Generation R Study, a birth cohort study in Rotterdam, the Netherlands. At child age 3-years, parents completed the Child Behavior Checklist (CBCL/1,5-5). Individual-level data, assessed with questionnaires, was combined with neighbourhood-level data. Multi-level logistic regression models predicted the Odds Ratios for the CBCL total problems score as a function of maternal ethnic background and neighbourhood ethnic diversity, computed with the Racial Diversity Index and categorized into tertiles. Interaction on the additive scale was assessed using Relative Access Risk due to Interaction.

Results: Being from an ethnic minority was associated with child behavioural and emotional problems in unadjusted (OR 2.76, 95% CI 1.88-4.04) and adjusted models (OR 2.64, 95% CI 1.79-3.92). Residing in a high diversity neighbourhood was associated with child behavioural and emotional problems in unadjusted (OR 2.03, 95% CI 1.13-3.64) but not in adjusted models (OR 0.89, 95% CI 0.51-1.57). When stratifying by the three levels of neighbourhood ethnic diversity, ethnic inequalities in

behavioural and emotional problems were greatest in low diversity neighbourhoods (OR 5.24, 95%CI 2.47-11.14), smaller in high diversity neighbourhoods (OR 3.15, 95% CI 1.66-5.99) and smallest in medium diversity neighbourhoods (OR 1.59, 95% CI 0.90-2.82). Tests for interaction (when comparing medium to low diversity neighbourhoods) trended towards negative on both the additive and multiplicative scale for the maternal-report (RERI: -3.22, 95% CI -0.70-0.59; Ratio of ORs: 0.30, 95% CI 0.12-0.76).

Conclusion: This study suggests that ethnic inequalities in child behavioural and emotional problems may be greatest in ethnically homogeneous neighbourhoods.

INTRODUCTION

Previous studies have shown that differences in behavioural and emotional problems (e.g. attention problems) between ethnic minority and majority children can already be detected in the preschool years.¹ Understanding which factors contribute to these ethnic differences is of importance for the prevention and/or early detection of behavioural and emotional problems in minority children.

Ecological models postulate that the neighbourhoods in which children grow up influences their health and wellbeing.² In a recent review on the significance of neighbourhood context for child and adolescent health, Sellstrom and Bremberg³ found that after controlling for individual characteristics, neighbourhood socio-economic status and social climate had an impact, albeit small and moderate, on birth weight, injuries, behavioural problems, and child maltreatment.

One of the neighbourhood factors which can exert an influence on child health and development is neighbourhood ethnic diversity.⁴⁻⁸ For instance, Hurtado⁶ showed that growing up and interacting with peers in ethnically diverse settings led to more positive cognitive, social and democratic outcomes in youth. Seaton et al.⁵ showed that residing in a neighbourhood with a medium level of ethnic diversity buffered the negative association between racism and adolescent self-esteem.

Studies have suggested that ethnic background and the level of neighbourhood ethnic diversity may have a combined effect on mental health.^{5,9-11} For instance, in a Dutch study, Gieling et al⁹ found a negative association between school ethnic diversity, defined by the percentage of ethnic minority pupils, and externalizing problems, defined by “conflicts with other people and expectations for children’s behavior”¹², however, only for ethnic minority adolescents. Although it is unclear which level of ethnic diversity is most beneficial for the health of ethnic minorities, possibly due to different definitions of ethnic diversity and/or the use of different cut-offs, there is an overall agreement that the health of ethnic minorities is worst off in ethnically homogeneous settings with a relatively large percentage of the majority group.⁴ The main explanation for this has been that in these settings, ethnic minority groups are made more aware of their minority status.¹³ As a result, racist and prejudiced attitudes and beliefs may be more common and this in turn impacts the mental health of ethnic minorities.⁴ In settings which are more ethnically diverse, interactions between different ethnic groups may lead to more social integration and connectedness¹³ and perceptions of safety¹⁴ which enhances the mental health of ethnic minorities.

Although previous studies have shown that there are ethnic inequalities in child mental health^{1,15} there are, to our knowledge, no studies that have investigated whether this association depends on the level of neighbourhood ethnic diversity. Therefore, the primary aim of this study was to investigate whether neighbourhood ethnic diversity moderated the association between the ethnic minority status and child behavioural and emotional problems. Because it is unclear which level of neighbourhood ethnic diversity may be most beneficial for the mental health of ethnic minority pre-schoolers, this study was explorative in nature.

METHODS

Participants

This study was embedded in the Generation R study, a prospective population-based cohort from foetal life onwards in Rotterdam, the Netherlands¹⁶. In short, mothers were eligible to participate if they were resident in Rotterdam during their delivery date (April 2002 till January 2006). Midwives and obstetricians informed and invited eligible mothers to participate during their first prenatal visit in routine care.¹⁶ The Medical Ethics

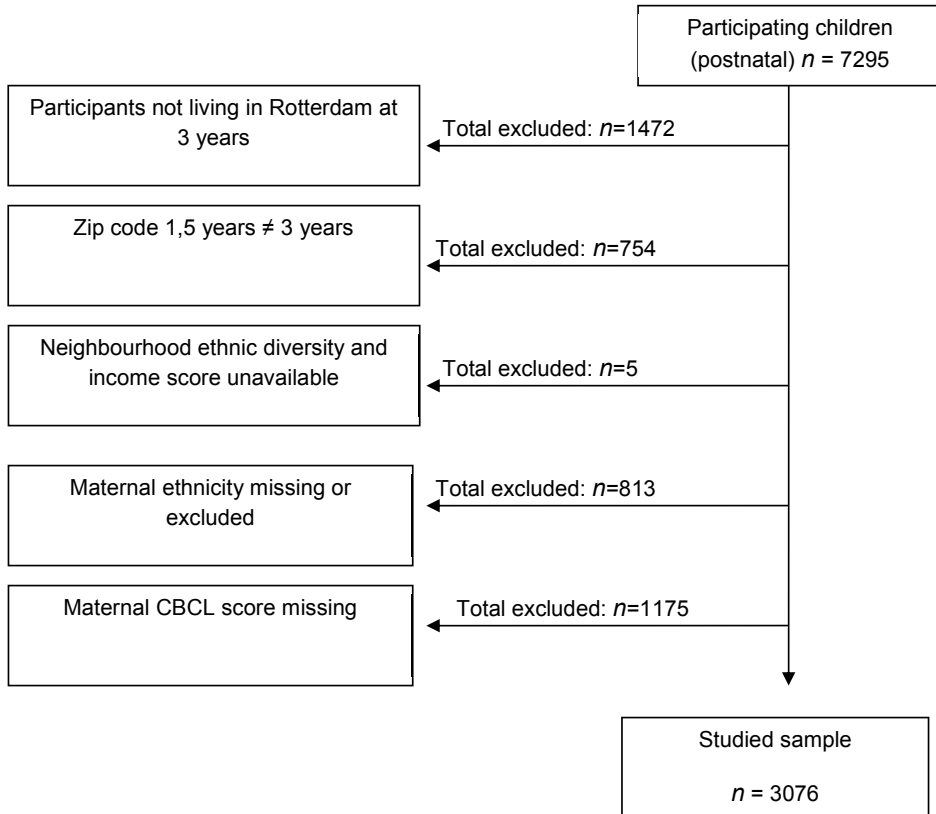


Figure 1: flowchart of the study population

Committee of the Erasmus University Medical Centre in Rotterdam approved this study. Written informed consent was obtained from all participants.

Full consent for the postnatal phase was obtained from 7295 participants. Children who did not live in Rotterdam at age 3 years ($N=1472$) were excluded. To make sure that the children included in this study were living in the neighbourhood for a sufficient amount of time, we also excluded children who did not live in the same postal code area for at least 1.5 years ($N=754$). Further excluded were those living in neighbourhoods with no ethnic diversity and income score ($n=5$) and children for whom maternal ethnic background was missing and whose mothers were from smaller or heterogeneous ethnic minority groups ($N=813$). Lastly, children with no maternal CBCL score ($N=1175$) were excluded leaving 3076 children for analysis (see figure 1).

Measures

Data for this study were retrieved from medical and municipal records, and collected by prenatal and postnatal questionnaires.

Behavioural and emotional problems

Mothers and fathers were asked to fill out the Child Behavior Checklist (CBCL/1,5-5) separately when the child was 3 years old. The CBCL/1,5-5, is a parent-report questionnaire that contains 99 problem items rated on a 3-point scale: 0 (not true), 1 (somewhat or sometimes true) and 2 (very true or often true). In this study we used the Total problems score which is the sum of the scores of the 99 problem items. Good reliability and validity have been reported for the CBCL/1,5-5.¹⁷ Internal validity of the maternal-report of the Total Problems scale in this population was $\alpha=0.93$. We chose to present maternal-reported Total problems as main findings because research has shown that mothers are usually more reliable informants when it comes to assessing the health of their children.^{18,19} Additionally, more mothers than fathers completed the CBCL at 36 months. Findings for paternal-reported behavioural and emotional problems were however included as supplementary material.

Maternal ethnic background

We classified the children in this study according to maternal ethnic background because mothers play an important role in young children's lives and their ethnic background and experiences of, amongst others; acculturation and discrimination are most likely to influence child behavioural and emotional problems.^{20,21} Maternal ethnic background was determined by the country of birth of the mother and the mother's parents, a classification employed by Statistics Netherlands.²² If the mother or one of her parents was born outside the Netherlands, this country of birth determined the ethnic background. If both parents were born outside the Netherlands, the country of birth of the mother's mother determined the ethnic background. Women with a Surinamese background were further classified as Surinamese Hindu or Surinamese Creole. Subgroups included in the study were: Dutch (N=2149), Other European (N=273), Antillean (N=53), Cape Verdean (N=74), Surinamese Hindu (N=66), Surinamese Creole (N=60), Moroccan (N=135) and Turkish (N=266); which are considered the largest ethnic minority groups in Rotterdam.²³ As individual ethnic subgroups were too small to address a cross-level interaction between neighbourhood ethnic diversity and maternal ethnic background

we grouped the ethnic subgroups into Dutch (N=2149) and non-Dutch/ethnic minority (N=927). As a sensitivity analysis, we also considered paternal ethnic background for which a similar classification was employed.

Neighbourhood ethnic diversity

As suggested by Budescu and Budescu⁴, the measure of ethnic diversity should be “sensitive to the relative proportion of each ethnic or racial group to the overall composition in a particular context”. Hence, we defined neighbourhood ethnic diversity using the Racial Diversity Index which captures both the number of ethnic groups in the neighbourhood as well as the relative representation of these groups.^{5,14} The index was computed using the following formula:

$$D_c = 1 - \sum_{i=1}^g p_i^2$$

In the formula, D_c represents the level of neighbourhood ethnic diversity and p_i the proportion of residents in the neighbourhood who belong to ethnic group i . The p_i is then summed across g groups in the neighbourhood. A higher value on the index represents higher ethnic diversity. For instance, in a neighbourhood (i.e. Blijdorpse polder) where 7.1% are Antillean, 92.9% are Dutch the diversity score is 0.13. In contrast, in another neighbourhood (i.e. Agniese buurt) where 13.3% are Surinamese, 2.8% Antillean, 4.0% Cape Verdean, 15% Turkish, 10.7% Moroccans, 35.4% Dutch, 8.1% other non-Western, 5.5% other European and 5.2% other Western the diversity score is 0.81.

Data on ethnic composition of the neighbourhoods was provided at the zip code level by the Rotterdam Centre for Statistics.²³ In our study, ethnic diversity of neighbourhoods ranged from 0.06 to 0.85. Because it has been suggested that the relationship between neighbourhood ethnic diversity and health outcomes may not be linear^{4,5}, we recoded the continuous measure of neighbourhood ethnic diversity into tertiles which is in line with other studies.^{11,24} The first category was considered low diversity and ranged from 0.06 to 0.43. The second category was considered medium diversity and ranged from 0.44 to 0.66. The third category was considered high diversity and ranged from 0.67 to 0.85.

Individual level confounders

The following individual-level factors were treated as potential confounders: gender and age of the child, maternal age, marital status (married/cohabiting or no partner); parity, maternal education, classified as 'low' (primary school, lower vocational training, intermediate general school, 3 years general secondary school), 'medium' (>3 years general secondary school; intermediate vocational training; 1st year higher vocational training), and 'high' (higher vocational training, Bachelor's degree, higher academic education and PhD); monthly net household income, classified as '<1200 €' (below social security level), '1200–2000 €' and '>2000 €' (more than modal income).

Neighbourhood level confounders

Adjustment for neighbourhood wealth is useful to mitigate area-level confounding²⁵. Hence, neighbourhood wealth, determined by the average yearly household income per zip code, was considered a potential confounder. The measure of neighbourhood wealth was provided by the Rotterdam Centre for Statistics.²³ Additionally we included the degree of urbanity as a potential confounder. Degree of urbanity was measured on a zip code level and was retrieved from Statistics Netherlands.²⁶ The measure was based on the number of addresses per km² (1=urban: more than 2499 addresses/km²; 2=semi-urban: 1500-2499 addresses/km²; 3=intermediate urban-rural: 1000-1499 addresses/km²; 4=semi-rural: 500-999 addresses/km²; and 5=rural: up to 499 addresses per km²). The urbanity index ranges from 1 to 5, with 1 including the most urban areas and 5 including the most rural areas.

Statistical analyses

To handle missing data in the individual-level confounders, multiple imputation was applied.²⁷ Ten imputed datasets were generated using a fully conditional specified model, thus taking into account the uncertainty of the imputed values. Imputations were based on the relationship between all the individual-level variables included in this study.

Frequency tables and cross tabulations were used to explore characteristics of the study population (table 1). Because the CBCL Total Problems scores were skewed and could not be normalized, we dichotomized the scores according to the 83rd percentile borderline cut-offs of a Dutch reference population.²⁸ We used multi-level logistic regression with random effects to test the association between neighbourhood ethnic diversity and

Table 1 Characteristics of the population (N=3076)

	<i>N (%)</i>	<i>Range</i>	<i>Mean (SD)</i>
Child characteristics			
Gender	2998		
Boys	1506 (50.2)		
Missing	78 (2.5)		
Age during questionnaire (months)	3076	34.0-51.2	36.6 (1.3)
CBCL total problems	3076		
Above cut-off	196 (6.4)		
Maternal/family characteristics			
Age at intake (years)	3076	16.2-46.3	31.8 (4.6)
Ethnic background	3076		
Dutch	2149 (69.9)		
Non-Dutch (<i>ethnic minorities</i>)	927 (30.1)		
Other European	273 (8.9)		
Antillean	53 (1.7)		
Cape Verdean	74 (2.4)		
Moroccan	135 (4.4)		
Surinamese Creole	60 (2.0)		
Surinamese Hindu	66 (2.1)		
Turkish	266 (8.6)		
Educational level	2973		
High	1653 (55.6)		
Mid	1118 (37.6)		
Low	202 (6.8)		
Missing	103 (3.3)		
Income	2490		
>2000	1793 (72.0)		
1200-2000	436 (17.5)		
<1200	261 (10.5)		
Missing	586 (19.1)		
Marital status	2963		
Single	229 (7.7)		
Missing	113 (3.7)		
Parity	2973		
Nulli	1596 (53.7)		
Missing	103 (3.3)		
Neighbourhood characteristics			
Neighbourhood income (x 1000 Euros)	3076	21.4-62.9	34.2 (10.6)
Level of urbanity	3076	1-5	1.51 (0.91)
Neighborhood ethnic diversity	3076		
Low diversity	988 (33.3)		
Medium diversity	1093 (35.5)		
High diversity	995 (32.1)		

Values are percentages for categorical variables, means (SD) for continuous, normally distributed variables.

Table 2 Multilevel logistic regression models of neighborhood ethnic diversity and ethnic background on maternal-reported CBCL Total Problems (N=3076)

	Model 1	Model 2	Model 3
Individual factor			
Maternal ethnic background			
<i>Dutch (ref)</i>	1.0		1.0
<i>Non-Dutch</i> ^a	2.75 (1.88; 4.04)***		2.64 (1.79; 3.92) ***
Other European	2.33 (1.39; 3.90)**		2.23 (1.33; 3.76) ***
Antillean	2.34 (0.92; 6.00)		2.20 (0.86; 5.66)
Cape Verdean	2.81 (1.30; 6.07)*		2.71 (1.24; 5.90)*
Moroccan	2.20 (1.12; 4.32)*		2.11 (1.06; 4.19)*
Surinamese Creole	1.28 (0.43; 3.58)		1.24 (0.41; 3.75)
Surinamese Hindu	5.19 (2.57; 10.51)***		5.21 (2.57; 10.58)***
Turkish	3.79 (2.25; 6.41)***		3.76 (2.57; 6.51)***
Neighbourhood factor			
Neighborhood ethnic diversity			
Low		1.0	1.0
Medium		1.47 (0.87; 2.46)	1.13 (0.69; 1.85)
High		2.03 (1.13; 3.64)*	0.89 (0.51; 1.57)

Models include 60 levels (neighborhoods). Variance (SE) null model 0.39 (0.14); p-value <0.001

Model 1 is adjusted for child gender, age, maternal age, marital status, parity, maternal educational level, family income

Model 2 is adjusted for neighborhood wealth and urbanity level

Model 3 is the fully-adjusted model

^a Models 1 and 3 repeated with maternal ethnic background categorized as Dutch vs. Non-Dutch

* p<0.05 ** p<0.01 *** p<0.001

CBCL total problems (table 2). We estimated an empty model first to determine the clustering of behavioural and emotional problems within neighbourhoods. Model 1 is the association between maternal ethnic background and CBCL total problems score adjusted for individual level confounders. Model 2 is the association between neighbourhood ethnic diversity and CBCL total problems score adjusted for neighbourhood level confounders. The last model, Model 3, is the fully adjusted model including all individual- and neighbourhood-level covariates.

Next, we tested whether neighbourhood ethnic diversity moderated the association between maternal ethnic background and child behavioural and emotional problems (table 3). When considering interaction particularly in the public health field, it is recommended to present interaction on the additive and the multiplicative scale.²⁹ Interaction on the additive scale considers absolute risk and is present when the joint effect of two risk factors differs from the sum of the individual risk factors. Interaction on the multi-

Table 3 Interaction between maternal ethnic background and neighborhood ethnic diversity on maternal-reported CBCL Total Problems (N=3076)

		Neighbourhood ethnic diversity					
		Low		Medium		High	
		N cases /controls	OR (95%CI)	N cases /controls	OR (95%CI)	N cases /controls	OR (95%CI)
Maternal ethnic background	Dutch	17/852	1.0	36/805	1.71 (0.93; 3.15)	14/425	0.96 (0.43; 2.13)
	Non-Dutch	14/105	5.24 (2.47; 11.14)***	25/227	2.72 (1.35; 5.50)**	90/466	3.03 (1.53; 6.02)**
OR (95% CI) for non-Dutch vs. Dutch within strata of neighborhood ethnic diversity			5.24 (2.47; 11.14)***		1.59 (0.90; 2.80)		3.15 (1.66; 5.99)***
Measure of interaction on additive scale RERI (95% CI)				-3.22 (-0.704; 0.59) P=0.097		-1.53 (-5.52; 2.45) P=0.449	
Measure of interaction on multiplicative scale Ratio of ORs (95% CI)				0.30 (0.12; 0.76) P=0.012		0.60 (0.23; 1.58) P=0.304	

Models include 60 levels (neighborhoods). Variance (SE) null model 0.39 (0.14); p-value <0.001

OR's are adjusted for child gender, age, maternal age, marital status, parity, maternal educational level, family income, neighborhood wealth and urbanity level

* p<0.05 ** p<0.01 *** p<0.001

plicative scale considers relative risk and is present when the joint effect of risk factors differs from the product of the effects of the individual factors. Testing for interaction on the additive and the multiplicative scale was conducted in 4 steps as recommended by Knol and VanderWeele.³⁰

1. We presented ORs and CIs for each stratum of neighbourhood ethnic diversity and maternal ethnic background with a single reference category (the lowest risk group);
2. We presented ORs with CIs and p-values of the association between maternal ethnic background and behavioural and emotional problems within strata of neighbourhood ethnic diversity;
3. We presented measures of interaction on the additive and multiplicative scale with CIs and p-values;
4. We listed the confounders for which the relation of maternal ethnic background and behavioural and emotional problems was adjusted.

As a measure of interaction on the additive scale we presented the Relative Access Risk due to Interaction³¹ calculated with the following formula³²:

$$\text{RERI} = \text{OR}_{A+B+} - \text{OR}_{A+B-} - \text{OR}_{A-B+} + 1$$

RERI=0 means no moderation or exact additivity; RERI>0 means positive moderation or more than additivity; RERI<0 means negative moderation or less than additivity.

In order to estimate confidence intervals and p-values around the RERI scores we used the Delta approach³³.

We repeated the interaction analyses with the paternal report of CBCL total problems scale (table 1s; supplementary material). We additionally repeated the interaction analyses with paternal ethnic background as the determinant and the maternal report of CBCL Total Problems scale as the outcome (table 2s; supplementary material).

All modelling was conducted in SAS version 9.2 (SAS Institute Inc. 2002-2008).

Non-response analysis

Within the Dutch subgroup, mothers who filled in the CBCL at 36 months (n = 2149) were compared with those mothers who did not fill in the questionnaire (n = 452). Data on the CBCL were more often missing in mothers who were single parents (X^2 79.4 = 190.1; $P < 0.001$) and lower educated (X^2 122.14; $P < 0.001$) but no differences in child birth weight were observed ($F=0.047$; $P=0.828$) when comparing responders to non-responders. The non-response analyses were repeated in the non-Dutch group and this indicated the same pattern: non-responders were relatively more often lower educated and single parents but children did not have a lower birth weight than responders. A comparison of ethnic minority children included in this study (N=1649) with children who were excluded due to missing values for maternal ethnicity (N=226) did not indicate any significant differences in terms of maternal educational level, marital status and child behavioural and emotional problems. We also compared the ethnic minority children included in this study to children who were excluded due to ethnic classification difficulties and small sample sizes (N=587). We found that the excluded group was higher educated (X^2 79.4; $P < 0.001$) than the ethnic minorities that were included. The groups did not differ on marital status and child behavioural and emotional problems. We further compared

RESULTS

Characteristics of the study population

Characteristics of the study population are presented in table 1. The mean age of the study participants was 36.6 months (SD 1.3) and 6.5% presented a score above the CBCL total problems cut-off. Mothers of the participants were 31.7 (SD 4.5) years on average, about half was high educated (55.3%) and the family monthly net income was mostly (70.8%) more than 2000 Euros.

Association of maternal ethnic background and neighbourhood ethnic diversity with the CBCL Total Problems score

The associations of maternal ethnic background and neighbourhood ethnic diversity with the CBCL Total Problems score are presented in table 2. Variation in behavioural and emotional problems at the neighbourhood level (the number of neighbourhoods was 60) was significant (i.e. variance (SE) null model 0.39 (0.14); p -value <0.001). In the model adjusted for individual level confounders (model 1), children from ethnic minority groups more often presented behavioural and emotional problems above the cut-off than children classified as Dutch (e.g. Turkish subgroup OR 3.79, 95% CI 2.25; 6.41, $P<0.001$). In the model adjusted for neighbourhood level confounders (model 2), residing in a neighbourhood with high ethnic diversity was significantly associated with child behavioural and emotional problems (i.e. OR 2.03, 95% CI 1.13; 3.64, $P<0.05$). In the fully-adjusted model (model 3) including all neighbourhood and individual-level covariates, the associations between the ethnic minority status and child behavioural and emotional problems slightly attenuated but remained significant (e.g. Turkish subgroup OR 3.67, 95% CI 2.13; 6.33, $P<0.001$). The association between high neighbourhood ethnic diversity and child behavioural and emotional problems was no longer significant in the fully-adjusted model (i.e. OR 0.89, 95% CI 0.51; 1.57).

Moderation by neighbourhood ethnic diversity

When comparing medium diversity to low diversity neighbourhoods, the interaction with maternal ethnic background trended towards negative on the multiplicative scale (i.e. ratio of ORs 0.30, 95% CI 0.12; 0.76, $P=0.012$; see table 3) and on the additive scale (i.e. RERI = -3.23, 95% CI -0.704; 0.59, $P=0.097$; see table 3). A similar pattern was found

for high diversity versus low diversity neighbourhoods however, interactions were not as strong. When stratifying by the three levels of neighbourhood ethnic diversity, the results of table 3 show that compared to the Dutch subgroup, the OR for behavioural and emotional problems was significantly increased for ethnic minority children residing in low diversity (i.e. OR 5.24, 95% CI 2.47; 11.14) and high diversity neighbourhoods (i.e. OR 3.15, 95% CI 1.66; 5.99) but not in medium diversity neighbourhoods (i.e. OR 1.59, 95% CI 0.90; 2.82). In other words, ethnic inequalities in behavioural and emotional problems were greatest in low diversity neighbourhoods, slightly smaller in high diversity neighbourhoods and smallest in medium diversity neighbourhoods. Additional decomposed results show that compared to the Dutch-low diversity group (the lowest risk group), the OR for behavioural and emotional problems was highest for ethnic minority children that reside in low and high diversity neighbourhoods (OR 5.24, 95% CI 2.47; 11.14 and OR 3.03, 95% CI 1.53; 6.02, respectfully) and lowest for ethnic minority children that reside in medium diversity neighbourhoods (OR 2.72, 95% CI 1.35; 5.50). Hence, there was some indication that the combined effect of being from an ethnic minority group and residing in a medium diverse neighbourhood was significantly smaller than the sum of the individual effects of being an ethnic minority and residing in a medium diverse neighbourhood.

We repeated the interaction analyses with the paternal report of the CBCL Total Problems as the outcome (N=2485); this yielded more or less similar results (supplementary material; table S1). Results show that ethnic inequalities were still the greatest in low diversity neighbourhoods however; they were smallest in high diversity neighbourhoods. We further repeated the interaction analyses with paternal ethnic background instead of maternal ethnic background and the maternal report of the CBCL (N=2796); this yielded very similar results (supplementary material; table S2).

DISCUSSION

This study showed that the association between the ethnic minority status and child behavioural and emotional problems may depend on the level of neighbourhood ethnic diversity. We found that ethnic inequalities in maternally-reported behavioural and emotional problems were greatest in low diversity neighbourhoods, slightly smaller in high diversity neighbourhoods and smallest in medium diversity neighbourhoods. Additionally, there was some indication that compared to Dutch children in low diversity neighbourhoods; minority children presented the least maternally-reported behavioural and emotional problems in medium diversity neighbourhoods.

Before discussing the results of this study it is important to address its strengths and limitations. A strength of this study is that it was embedded in a longitudinal birth cohort and as a result elaborate information on ethnic background, child and family characteristics and child behavioural and emotional problems was available. Moreover, this allowed us to select children based on their length of residence in the neighbourhood. An additional strength is that we used structural variables to characterize the neighbourhood rather than aggregate individual-level variables. Some limitations also need to be discussed. Neighbourhood characteristics such as the level of ethnic diversity and ethnic composition are likely to vary within and across countries. Though we do believe that parallels can be drawn between neighbourhoods in Rotterdam and urban neighbourhoods in other Western European countries, generalizing this study's findings to other settings should be done cautiously. It is also important to note that some families may reside on the border of two zip codes. Although this will only apply to a small group, this could have had a minor influence on the internal validity of the neighbourhood level variables. For the interaction analysis, we grouped the children in this study according to maternal ethnic minority status. Although it may have been of interest to look at individual ethnicity (e.g. Turkish), the small sample sizes of the ethnic subgroups did not allow us to do so. Nonetheless, studying the ethnic minority status is of interest as the ethnic minorities share the common characteristic that they do not belong to the ethnic majority and are perceived as culturally different. In turn, ethnic minority groups in the Netherlands often have a marginalized position in society. In this study, some children were excluded due to missing data on ethnic background, ethnic classification difficulties or small sample sizes of some ethnic groups. In a non-response analysis we showed that the excluded children had slightly higher educated mothers than the ethnic minority children included in the study. However, as no differences were observed for other socio-economic characteristics and child behavioural and emotional problems, we do not think that non-response or the exclusion of small ethnic minority groups substantially influenced our findings. We also checked for differences between responders and non-responders on the CBCL at 36 months. Non-responders were more often low educated and single parents than responders. In general, selection towards a higher socio-economic status is a limitation of the Generation R Study.¹⁶ Non-responders however did not differ from responders on child birth weight (an indicator for child health). Due to the cross-sectional nature of our study we cannot distinguish between cause and effect. It is for instance possible that there is social selection into neighbourhoods. For instance, families with children that present problematic behaviour may move to neighbourhoods where there may be more health services (e.g. low diversity neighbourhoods) or low SES neighbourhoods (e.g. high diversity neighbourhoods). It is essential that longitudinal studies are conducted to disentangle cause and effect and that the study is repeated with a larger sample.

In this study, we found that ethnic inequalities in maternally-reported child behavioural and emotional problems were greatest in neighbourhoods with a low level of ethnic diversity and smallest in neighbourhoods with a medium level of ethnic diversity. Results of other studies conducted in the US and the UK also suggest that the mental health of ethnic minorities may be poorest in homogeneous 'white' neighbourhoods.⁹⁻¹¹ Similar results have also been found in educational settings. For instance, Gottfredson et al.³⁴ found a positive relationship between the level of ethnic diversity in law schools and educational outcomes such as cognitive openness. However, the interaction with ethnic background was not tested in this study. Further in line with our findings, are the results of a Dutch study which showed that levels of externalizing problems were equal for Dutch and minority students when approximately 2/3 of the population was non-Dutch.⁹

There may be several mechanisms that support our findings that (1) ethnic inequalities were greatest in low diversity neighbourhoods and smallest in medium diversity neighbourhoods and that (2), compared to Dutch children in low diversity neighbourhoods, minority children presented the least behavioural and emotional problems in medium diversity neighbourhoods. Firstly, ethnically more diverse neighbourhoods may also be characterized by higher densities of ethnic groups. Several authors have studied ethnic density effects on physical and mental health outcomes and have noted a protective effect of high ethnic density on the health of minorities as well as the majority group.^{13,35-37} Although in our study population ethnic group densities within neighbourhoods were never higher than 25% (e.g. for the Turkish) this may still have exerted an influence on child mental health. The mechanisms through which ethnic density is postulated to influence mental health may be similar for ethnic diversity. For instance, racism and discrimination may be more prominently present in neighbourhoods with low levels of ethnic diversity which is also true for low levels of ethnic density.^{11,35} Kirkbride et al.²⁴ further note that in neighbourhoods with a large percentage of majority residents, minority residents are made more aware that they belong to a low status ethnic minority group.

The specific interplay between neighbourhood ethnic diversity and racism on mental health has been also studied by Seaton & Yip.⁵ They found that the relationship between perceived racism and self-esteem in adolescents was highest in low and high diversity settings and weakest in medium diversity settings. In young children, racism experienced by parents can influence parental affect and attachment styles which in turn can impact behavioural and emotional problems.³⁸

How can we further explain that ethnic inequalities in maternal reports of child behavioural and emotional problems and odds ratios were smallest in neighbourhoods with a medium level of ethnic diversity? One potential explanation is that in neighbourhoods with a medium level of ethnic diversity, the positive effects of social connectedness, which is postulated to increase as settings become more ethnically diverse, may enhance the mental health of ethnic minorities.¹³ However, when neighbourhoods get too diverse, it has been suggested that racial tensions can lead to a breakdown in social cohesion which influences crime rates.³⁹ Nonetheless, it should be noted that for father reports of child behavioural and emotional problems, ethnic inequalities were found to be smallest in high diversity neighbourhoods. Hence, further study, preferably with longitudinal data and a larger sample, into which level of ethnic diversity proves to be the most optimal for the mental health of minority children is required.

CONCLUSION

We found that ethnic inequalities in behavioural and emotional problems were greatest in low diversity neighbourhoods, slightly smaller in high diversity neighbourhoods and smallest in medium diversity neighbourhoods. Additionally, compared to Dutch children in low diversity neighbourhoods, minority children presented the least behavioural and emotional problems in medium diversity neighbourhoods. In order to increase our understanding of the effect of neighbourhood diversity on child behavioural and emotional problems in ethnic minorities it is necessary to conduct longitudinal analyses with a larger sample and to gain more insight into the underlying mechanism or mediators. This study suggests that ethnic inequalities in child behavioural and emotional problems may be greatest in ethnically homogeneous neighbourhoods.

SUPPLEMENTARY MATERIAL

Table s1 Interaction between maternal ethnic background and neighborhood ethnic diversity on paternal-reported CBCL Total Problems (N=2485)

		Neighbourhood ethnic diversity					
		Low		Medium		High	
		N cases /controls	OR (95%CI)	N cases /controls	OR (95%CI)	N cases /controls	OR (95%CI)
Maternal ethnic background	Dutch	34/735	1.0	42/673	1.19 (0.71; 1.97)	26/333	1.13 (0.60; 2.11)
	Non-Dutch	12/86	2.74 (1.35; 5.55)**	26/148	2.69 (1.47; 4.92)**	50/320	1.46 (0.77; 2.75)
OR (95% CI) for non-Dutch vs. Dutch within strata of neighborhood ethnic diversity			2.74 (1.35; 5.55)**		2.27 (1.31; 3.91)**		1.29 (0.72; 2.30)
Measure of interaction on additive scale RERI (95% CI)				-0.24 (-1.97; 1.49) P=0.786		-1.41 (-3.47; 0.64) P=0.179	
Measure of interaction on multiplicative scale Ratio of ORs (95% CI)				0.83 (0.34; 1.99) P=0.672		0.47 (0.19; 1.15) P=0.099	

Models include 60 levels (neighborhoods). Variance (SE) null model 0.15 (0.10); p-value <0.01
OR's are adjusted for child gender, age, maternal age, marital status, parity, maternal educational level, family income, neighborhood wealth and urbanity level

* p<0.05 ** p<0.01 *** p<0.001

Table s2 Interaction between paternal ethnic background and neighborhood ethnic diversity on maternal-reported CBCL Total Problems (N=2796)

		Neighbourhood ethnic diversity					
		Low		Medium		High	
		N cases /controls	OR (95%CI)	N cases /controls	OR (95%CI)	N cases /controls	OR (95%CI)
Maternal ethnic background	Dutch	74/415	1.0	18/201	1.40 (0.77; 2.56)	10/109	0.80 (0.36; 1.77)
	Non- Dutch	14/381	2.84 (1.27; 6.33)*	34/739	1.55 (0.73; 3.30)	20/781	1.89 (0.93; 3.84)
OR (95% CI) for non-Dutch vs. Dutch within strata of neighborhood ethnic diversity			2.84 (1.27; 6.33)*		1.10 (0.58; 1.04)		2.37 (1.21; 2.26)*
Measure of interaction on additive scale RERI (95% CI)				-1.68 (-3.93; 0.56) P=0.141		-0.75 (-3.17; 1.68) P=0.547	
Measure of interaction on multiplicative scale Ratio of ORs (95% CI)				0.39 (0.14; 1.07) P=0.068		0.84 (0.30; 2.31) P=0.729	

Models include 60 levels (neighborhoods). Variance (SE) null model 0.39 (0.14); p-value <0.001

OR's are adjusted for child gender, age, maternal age, marital status, parity, maternal educational level, family income, neighborhood wealth and urbanity level

* p<0.05 ** p<0.01 *** p<0.001

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Chapter 4

Mental health of internally displaced pre-school children: a cross-sectional study conducted in Bogotá, Colombia

Based on: Flink, I.J.E. / Restrepo, M.H. / Blanco, D.P. / Ortegon, M.M. / Enriquez, C.L. / Beirens, T.M.J. / Raat, H. Mental health of internally displaced pre-school children: a cross-sectional study conducted in Bogotá, Colombia

Social Psychiatry and Psychiatric Epidemiology. 2013 Jun;48(6):917-26





ABSTRACT

Purpose: On-going armed conflicts, like the one in Colombia, have forcibly displaced millions of people, including many young children. This study aimed to assess the mental health of internally displaced pre-schoolers in Bogotá Colombia and to identify correlates of mental health in these children.

Methods: Cross-sectional study conducted among 279 children attending four kindergartens in a deprived neighbourhood in Bogotá. Child mental health was assessed with the Child Behavior Checklist (CBCL) 1.5-5 years, a parent-report. Univariate analyses and multivariate logistic regressions were performed to assess the association between displacement and child mental health and to identify correlates of mental health in displaced children.

Results: Displaced children ($n=90$) more often met borderline cut-off scores for the CBCL scales than non-displaced children ($n=189$) (e.g. total problems 46.7% vs. 22.8%; $p<0.001$). The association between displacement and presence of CBCL total problems remained after adjustment for socio-demographic factors (Adjusted OR 3.3, 95% CI 1.5; 6.9). Caretaker's mental health partly explained the association. In displaced children, caretaker's mental health ($p<0.01$) and family functioning ($p<0.01$) were independently associated with child mental health. Exposure to traumatic events and social support were also associated with child mental health however, associations were not independent.

Conclusion: In this deprived neighbourhood in Bogotá, pre-school children registered as internally displaced presented worse mental health than non-displaced peers. Family functioning and caretaker's mental health were strongly and independently associated with displaced children's mental health.

INTRODUCTION

Armed conflicts and wars around the world have forcibly displaced millions of people.¹ The majority are forced to displace within their country or across the border to neighbouring states, with only a small fraction arriving in Western countries to seek asylum.^{1,2} In Colombia, more than four decades of an armed internal conflict have, to date, forcibly displaced at least 3.7 million people (up to 11.6 % of the population), currently making it the country with the largest population of internally displaced in the world.¹

Worldwide, nearly 25% of the displaced are children.¹ In Colombia, children make up more than 50% of the internally displaced population.³ Exposure to wartime trauma can have severe consequences for child mental health, also for very young children.⁴⁻⁶ Two studies conducted in the Gaza strip showed that exposure to war-time trauma increased the risk of PTSD symptoms and emotional and behavioural problems in pre-schoolers.^{4,6} Research on mental health and forced displacement in children has primarily focused on older refugee children residing in Western countries. Reijneveld et al.⁷ and Leavy et al.⁸ found levels of emotional and behavioural problems near or above the cut-off in unaccompanied minors and refugees. Other studies found similar results for post-traumatic stress and depression in refugee adolescents.⁸⁻¹⁰

Few studies have focused on the psychological effects of forced internal displacement. A study conducted in Nepal among internally displaced adults showed that more than half were suffering from PTSD symptoms and four fifths suffered from anxiety and depressive symptoms.¹¹ A more recent study conducted in the Jaffna District in Sri Lanka, revealed that currently displaced and recently resettled participants were more likely to report symptoms of post-traumatic stress disorder (PTSD) than long-term residents.¹² To our knowledge, no quantitative studies have assessed the impact of forced internal displacement on the mental health of pre-school children.

This study sought to address this gap. Our primary objectives were to assess the mental health of pre-school children registered as internally displaced and, to compare their mental health to a group of non-displaced peers residing in the same deprived neighbourhood in Bogotá. We hypothesized that displaced children would present worse mental health than non-displaced children. To enhance our understanding of risk and resilience, our secondary objective was to identify correlates of mental health in displaced children.

METHODS

Study design and population

A cross-sectional study was conducted between February and April 2011 in Bogotá, Colombia. Bogotá is the prime receptor municipality for displaced populations.³ A majority of the displaced in Bogotá live in deprived neighbourhoods. The study was conducted among a convenience sample in the neighbourhood of Kennedy, which has the second largest percentage of internally displaced people in Bogotá.¹³ Pre-schoolers were recruited from four kindergartens that were part of an on-going collaboration with the Universidad del Rosario which consisted of basic medical check-ups and research activities conducted by medical students. Participating children thus resided in the same neighbourhood (an important indicator of socio-economic status in Bogotá) and belonged to the same age category. All primary caretakers of pre-school children aged 2-6 years attending one of these four kindergartens were invited to participate. The primary caretaker, defined as the person with the greatest responsibility for the daily care of the child, was identified by the teachers.

Study procedure

The Medical Ethical Review Board of the Universidad del Rosario (Bogotá D.C.) approved the study protocol and consent process. All participants provided their written consent prior to data collection. Data were collected with a questionnaire by a team of 15, extensively trained, last-semester medical students. As many of the participants had a lower level of education and literacy, the informed consent form and questionnaire were read out to the participants. Participants were also given a copy of the questionnaire and consent form.

Study measures

Forced Internal Displacement

Colombian law defines the internally displaced population as “All persons that have been forced to migrate within their national boundaries, abandoning their actual residence or usual economic activities, because their life, physical integrity, safety or personal freedom are at risk or are directly violated due to one of the following: armed internal conflict, internal tensions or disturbances, generalized violence, massive human rights violations, violations of international humanitarian law or other circumstances that may alter or are altering the public order drastically”.¹⁴ In 1997, law 387 article 32 established the principle that displaced persons (fulfilling the above criteria) have the right to assistance (e.g. schooling, housing and healthcare).¹⁵ In 2000, a formal National Registry of Displaced Population (Registro Único de Población Desplazada or RUPD) was launched by the government.¹⁵ In this study, children were considered to belong to the displaced group if their families were registered as “internally displaced” by the RUPD. Within the group of displaced children, we further distinguished between first and second generation displaced. If the child was born outside Bogotá, the child was considered first generation displaced. If the child was born in Bogotá, the child was considered second generation displaced.

Child Mental health

The primary caretaker completed the Spanish-Latino version of the Child Behavior Checklist 1.5-5 years (CBCL/1.5-5)^{16,17}, a validated parent-report questionnaire that assesses problem behaviour in pre-schoolers. The CBCL/1.5-5 contains 99 problem items rated on a 3-point scale: 0 (not true), 1 (somewhat or sometimes true) and 2 (very true or often true). By summing the raw scores, seven syndromes (Emotionally Reactive, Anxious/Depressed, Somatic Complaints, Withdrawn, Sleep Problems, Attention Problems and Aggressive Behaviour) can be computed. The internalizing problems score is a summary score for items on the first four syndrome scales and the externalizing problems score is a summary score for attention problems and aggressive behaviour. In this study, scores from the two broadband scales, the total problems scale, which is the sum of all items, and the stress problems scale, a summary score of 7 items and a potential indicator for PTSD in pre-schoolers, are presented.¹⁸ Higher scores indicate greater severity. Good reliability and validity has been reported for the CBCL/1.5-5.¹⁹ In our study internal consistencies were good ($\alpha > 0.84$) and only marginally satisfactory for the stress problems scale ($\alpha = 0.57$).

Primary caretaker's mental health

The General Health Questionnaire 12 (GHQ12)²⁰, a measure of mental wellbeing in adults, was used to assess caretaker's mental health.²¹ Higher scores indicate greater severity. The internal consistency of the GHQ12 in this study was $\alpha=0.76$.

Family functioning

The General Functioning (GF) scale of the Family Assessment Device (FAD)^{22,23} was used to assess family functioning. Higher scores indicate greater severity. The internal consistency of the GF scale in this study was $\alpha=0.82$.

Child exposure to traumatic events since birth

We used a checklist of traumatic events which was based on the Kiddie-SADS PTSD traumatic event checklist.²⁴ The checklist was adapted to the Colombian context based on expert review. A few displacement-related events specific to the Colombian context (e.g. land mines) were added to the checklist and were based on previous studies on displacement in Colombia.^{25,26} As it may be of particular interest to investigate how aggregate exposure to traumatic events influences child mental we used the checklist as an index and categorized it into 0, 1 and >1 event(s).

Social support

The presence of social support was categorized as 'yes' or 'no'. We asked whether the family currently received support (financial or social) from relatives, the church, an NGO, or was receiving any other form of support. If any of these questions were answered positively, the participant was considered to receive some form of social support.

Socio-demographic factors

Measures of socio-demographics were based on the 2005 population census conducted by the Colombian National Institute for Statistics.²⁷ Assessed factors were: child gender; child age; parental age; highest attained maternal and paternal education defined as: low (no education, primary incomplete, primary complete and secondary incomplete), medium

(secondary complete or technical/vocational incomplete) and high (technical/vocational complete or university complete); family income defined as: less than 1 minimum salary monthly in 2011 (approximately 200 Euros), between 1 and 3 minimum salaries monthly, and more than 3 minimum salaries monthly; maternal work (yes/no); type of housing (room, apartment or house) and maternal ethnic descent (European vs. non-European).

Characteristics of the displacement process

The assessed characteristics were: time since displacement, categorized into <1 year, 1-5 years, 5-10 years and >10 years and; main cause of displacement. We asked respondents what the main cause of displacement was by providing them with a list of 14 potential causes (and an 'other' option) identified by previous studies on displacement in Colombia.^{25,26} Time since displacement was included in the study as a potential correlate of child mental health while cause of displacement was only included as a descriptive.

Statistical analyses

Frequency tables and cross tabulations were used to explore characteristics of the study population. Means (SDs) and percentages above borderline cut-off scores were calculated for the CBCL scales, stratified by displacement and generational status. CBCL borderline cut-off scores were based on a Peruvian normative sample of children aged 1.5 to 5.²⁸ Logistic regression was used to model the association between displacement and child mental health. A series of models for each CBCL scale was created. Model 1 was the association between displacement and the CBCL scales, adjusted for socio-demographic factors. Only those socio-demographic factors that significantly differed between the non-displaced and displaced group ($p < 0.05$) were entered into the regression model. Considering co-linearity, maternal age ($r = 0.42$, $p < 0.001$ with age primary caretaker), paternal age ($r = 0.40$, $p < 0.001$ with age primary caretaker), maternal work ($r = 0.25$, $p < 0.001$ with maternal educational level) and paternal educational level ($r = 0.50$, $p < 0.001$ with maternal educational level) were not entered. Entered factors were: child gender, child age, primary caretaker's age, maternal education, maternal ethnic descent, family income and housing. In model 2, we further adjusted for the number of traumatic events the child had been exposed to. In model 3; we adjusted for socio-demographic factors and caretaker's mental health. Logistic regression models were also used to examine the association of displacement and family characteristics with mental health in the displaced subgroup. We examined the number of events the child had been exposed to, time since displacement, family functioning, caretaker

mental health and social support as correlates. To determine whether these correlates were independently associated with child mental health, unadjusted and fully-adjusted models were compared.

Statistical analyses were performed using SPSS, version 19 (SPSS Inc., Chicago, IL). A p -value <0.05 was considered statistically significant.

RESULTS

Of the 364 approached participants, informed consent was attained from 282 participants (participation rate 77.5%). One child was excluded from the analyses because she was older than 6 years. Two other children were excluded because a secondary caretaker, instead of the primary caretaker, completed the questionnaire. Thus, the total sample included 279 children of which 90 were displaced and 189 were non-displaced.

Child and family characteristics

Table 1 presents the child and family characteristics. Half of the children were boys (52.3%). Children were 4.2 (1.0) years on average and 59.1% had been exposed to at least one traumatic event. The primary caretaker/respondent was mostly the mother (71.9%). Mothers and fathers were respectively 30.1 (7.2) and 34.5 (8.2) years on average. 24.6% of the mothers were single and most had a low educational level (39.7%). Family income was mostly one to three minimum salaries monthly (73.7%), and 49.5% of the families lived in an apartment. Of the participating families, 41.2% reported to receive some form of social support.

When stratified by displacement, displaced children were more often male ($\chi^2=6.7$, $p=0.01$) and younger ($t(275)=-8.8$, $p<0.001$) compared with the non-displaced group. Displaced and non-Displaced children differed in the number of traumatic events they were exposed to ($\chi^2=14.9$; $p<0.001$). Compared with the non-displaced group, displaced families more often belonged to the lowest income group ($\chi^2=22.3$, $p<0.001$), were lower educated (maternal education: $\chi^2=22.4$, $p<0.001$), more often shared a room ($\chi^2=14.9$, $p<0.01$), reported poorer family functioning (Mann Whitney $U=5899.0$, $p<0.01$) and caretaker mental health (Mann Whitney $U=6062.0$, $p<0.001$). Within the displaced subgroup, 48.9% of the families were displaced one to five years ago, and 44.4% reported that the main cause of their displacement was a threat from an armed group.

Table 1 Child and family characteristics

	N	Total sample n=279	Non-displaced n=189 (ref)	Displaced n=90	p- value ^a
Child characteristics					
Gender (% boys)	279	52.3	57.7	41.1	0.01
Age (years)	279	4.2 (1.0)	4.5 (0.8)	3.5 (1.1)	<0.001
Types of traumatic events child has been exposed to (% yes)					
Murder	279	4.3	2.1	8.9	<0.01
Torture	279	1.1	0.5	2.2	0.20
Natural disaster	279	38.4	44.4	25.6	<0.01
Landmines	279	0.7	1.1	0.0	0.33
Sexual abuse	279	7.5	6.7	7.9	0.71
Physical abuse	279	2.9	2.1	4.4	0.23
Domestic violence	279	16.5	16.4	16.7	0.96
Number of traumatic events child has been exposed to (%)					
0 events	279	35.1	29.6	46.7	<0.001
1 event		59.1	66.7	43.3	
>1 event		5.7	3.7	10.0	
Family characteristics					
Maternal age (years)	266	30.1 (7.2)	31.0 (7.2)	28.2 (6.9)	<0.01
Paternal age (years)	206	34.5 (8.2)	35.5 (8.3)	32.5 (7.6)	0.01
Age primary caretaker (years)	277	33.4 (11.2)	35.1 (10.9)	30.0 (10.9)	<0.001
Maternal ethnic descent (% non-European)	268	81.7	79.7	96.5	<0.001
Marital status mother (% single)	276	24.6	26.2	21.3	0.38
Primary caretaker (% mother)	278	71.7	69.7	76.7	0.23
Educational level mother ^b					
High (%)	277	14.8	19.6	4.5	<0.001
Medium (%)		39.7	43.9	30.7	
Low (%)		45.5	36.5	64.8	
Educational level father ^b					
High (%)	250	14.4	18.3	6.2	<0.001
Medium (%)		30.4	36.7	17.3	
Low (%)		55.2	45.0	76.5	
Family income ^c					
> 3 min. salaries (%)	274	6.6	8.6	2.3	<0.001
1-3 min. salaries (%)		73.7	79.1	62.1	
< 1 min. salary (%)		19.7	12.3	35.6	

Table 1 Child and family characteristics (continued)

	N	Total sample n=279	Non-displaced n=189 (ref)	Displaced n=90	p- value ^a
Work					
Mother (% no)	275	39.4	33.0	55.2	<0.001
Father (% no)	240	6.1	8.3	4.2	0.26
Type of housing					
	278				<0.01
House (%)		39.1	45.0	27.0	
Apartment (%)		49.5	48.1	52.8	
Room (%)		11.1	6.9	20.2	
Family functioning ^d	277	1.0 (3.0)	1.5 (0.6)	1.9 (1.0)	<0.01
Mental health caretaker ^d	271	1.6 (0.8)	1.0 (3.0)	2.0 (3.0)	<0.001
Social support (% yes) ^e	272	41.2	41.0	41.6	0.90
Characteristics of the displacement process					
Time since displacement (%)					
	90				
>10 years		NA ^f	NA ^f	26.7	NA ^f
5-10 years		NA ^f	NA ^f	15.6	NA ^f
1-5 years		NA ^f	NA ^f	48.9	NA ^f
0-1 year		NA ^f	NA ^f	8.9	NA ^f
Main cause of displacement					
Attack (% yes)	90	NA ^f	NA ^f	23.3	NA ^f
Threat (% yes)	90	NA ^f	NA ^f	44.4	NA ^f
Recruitment (% yes)	90	NA ^f	NA ^f	11.1	NA ^f
Kidnapping (% yes)	90	NA ^f	NA ^f	5.6	NA ^f

Values are percentages and means (SD)

^a p-values are derived from the X² test for categorical variables, the t-test for continuous normally distributed variables and the Mann-Whitney U test for non-normally distributed variables comparing displaced children to non-displaced children (ref. group)

^b High=technical complete, professional incomplete, professional complete, Mid=High school complete and technical incomplete, Low=None, primary school, high school incomplete

^c Min. salary= +/-200 Euros/month

^d Median (IQR)

^e Church, family, NGO, other

^f Data only applicable for displaced subgroup

Mental health outcomes

Mean scores on the total, internalizing and externalizing problems scales were higher for displaced children compared to non-displaced children ($p < 0.05$; Table 2). More caretakers of displaced children reported child problems above the borderline cut-off (table 2). This was the case for total problems (46.7% displaced children vs. 22.8%

Table 2 Univariate and multivariate analyses of the association between forced internal displacement and child mental health (n=279)

CBCL /1.5-5 scales	N	Mean scale score (SD)	P-value ^a	Above cut-off (%) ^b	p-value ^c	Adjusted Model 1 ^d OR (95% CI)	p-value ^e	Adjusted Model 2 ^f OR (95% CI)	p-value ^e	Adjusted Model 3 ^g OR (95% CI)	P-value ^e
Total problems											
Non-displaced (ref)	189	40.8 (20.8)		22.8		1.0 (reference)		1.0 (reference)		1.0 (reference)	
Displaced	90	49.2 (23.3)	<0.01	46.7	<0.001	3.3 (1.5; 6.9)	<0.01	3.4 (1.6; 7.3)	<0.01	2.4 (1.0; 5.4)	0.04
1 st generation	44	50.0 (23.3)	0.01	47.7	<0.01	3.9 (1.6; 9.1)	<0.01	4.0 (1.7; 9.6)	<0.01	2.2 (0.9; 5.7)	0.10
2 nd generation	44	48.9 (24.0)	0.03	47.7	<0.01	2.7 (1.1; 6.7)	0.04	2.8 (1.1; 7.1)	0.02	2.6 (0.9; 7.1)	0.07
Internalizing problems											
Non-displaced (ref)	189	11.9 (7.8)		30.7		1.0 (reference)		1.0 (reference)		1.0 (reference)	
Displaced	90	14.4 (9.3)	0.02	36.7	0.32	1.3 (0.6; 2.7)	0.50	1.3 (0.6; 2.8)	0.58	0.9 (0.4; 1.9)	0.72
1 st generation	44	15.3 (9.3)	0.01	40.9	0.19	1.8 (0.8; 4.1)	0.16	1.8 (0.8; 4.3)	0.16	1.0 (0.4; 2.6)	0.92
2 nd generation	44	13.7 (9.7)	0.19	34.1	0.66	0.9 (0.3; 2.1)	0.74	0.9 (0.4; 2.2)	0.86	0.7 (0.2; 1.8)	0.43
Externalizing problems											
Non-displaced (ref)	189	14.0 (8.3)		17.5		1.0 (reference)		1.0 (reference)		1.0 (reference)	
Displaced	90	16.9 (8.5)	<0.01	30.0	0.02	2.0 (0.9; 4.6)	0.10	2.1 (0.9; 4.9)	0.10	1.4 (0.6; 3.4)	0.40
1 st generation	44	16.8 (8.6)	0.05	25.0	0.25	1.8 (0.7; 4.7)	0.22	2.0 (0.7; 5.1)	0.17	1.1 (0.4; 2.9)	0.91
2 nd generation	44	17.0 (8.7)	0.03	36.4	<0.01	2.3 (0.8; 6.2)	0.10	2.4 (0.9; 6.6)	0.08	2.1 (0.7; 6.1)	0.16
Stress problems											
Non-displaced (ref)	189	2.7 (2.2)		12.7		1.0 (reference)		1.0 (reference)		1.0 (reference)	
Displaced	90	3.3 (2.6)	0.05	17.8	0.26	1.7 (0.6; 4.5)	0.29	1.7 (0.6; 4.5)	0.61	1.3 (0.5; 3.5)	0.61
1 st generation	44	3.6 (2.6)	0.02	22.7	0.09	2.4 (0.8; 7.0)	0.10	2.3 (0.8; 6.8)	0.22	1.6 (0.5; 4.8)	0.95
2 nd generation	44	3.1 (2.7)	0.33	13.6	0.87	1.0 (0.3; 3.5)	0.99	1.1 (0.3; 3.8)	0.22	1.0 (0.3; 3.5)	0.95

Abbreviations: CBCL, Child Behavior Checklist; CI, confidence intervals; SD, standard deviations

^a P-values are derived from t-tests for displaced compared to non-displaced group and 1st (born outside Bogotá) and 2nd generation (born in Bogotá) displaced compared to non-displaced group; ^b % refers to the percentage of sample at or above cut-off score: total problems=52; internalizing problems=14; externalizing problems=21; stress problems=5); ^c P-values are derived from X² tests; ^d Covariates in the adjusted model 1: child gender, child age, caretaker age, maternal education, income, type of housing, maternal ethnic descent; ^e P-values are based on empirical standard error estimates from logistic regression models; ^f Covariates in the adjusted model 2: child gender, child age, caretaker age, maternal education, income, type of housing, maternal ethnic descent and number of traumatic events child has been exposed to; ^g Covariates in the adjusted model 3: child gender, child age, caretaker age, maternal education, income, type of housing, maternal ethnic descent and mental health of caretaker.

non-displaced children, $\chi^2=16.4$, $p<0.001$) and externalizing problems (30.0% displaced children vs. 17.5% non-displaced children $\chi^2=5.7$, $p=0.02$).

When stratified by generational status, the mean (SD) in the internalizing and stress problems scales was significantly higher for the first generation displaced children compared to non-displaced children (e.g. mean (SD) internalizing problems: 15.3 (9.3) first generation vs. 11.9 (7.8) non-displaced, $t(231) = 1.7$, $p=0.01$). This difference was not found for the second generation group. The mean (SD) in the externalizing problems scale was significantly higher for second generation displaced children compared to non-displaced children (externalizing problems mean (SD): 17.0 (8.7) second generation vs. 14.0 (8.3) non-displaced, $t(231) = 2.1$, $p=0.03$). This difference was not found for the first generation group.

When adjusting for socio-demographic factors (table 2), differences for the displaced versus the non-displaced group remained significant in the total problems scale (Adjusted OR [aOR] 3.3, 95% CI 1.5; 6.9). Differences also remained significant for first and second generation displaced versus non-displaced children. When further adjusting for the number of traumatic events the child had been exposed to in model 2, the OR point estimate slightly attenuated in the stress problems scales for the first generation versus the non-displaced group. After adjusting for caretaker's mental health in model 3, the OR point estimates greatly attenuated in all scales for the displaced versus the non-displaced group and particularly for the first generation group. Differences remained significant for the displaced versus non-displaced group in the total problems scale (aOR 2.4, 95% CI: 1.0, 5.4).

Correlates of mental health in displaced children

In unadjusted associations, child exposure to one (OR 2.9, 95% CI 1.2; 7.2) or more than one traumatic event (OR 7.9, 95% CI 1.4; 42.8), poorer mental health of the caretaker (OR 4.3, 95% CI 2.0; 9.2) and poorer family functioning (OR 8.4, 95% CI 3.0; 23.3) were positively associated with scores above the total problems cut-off. The presence of social support was negatively associated with scores above the total problems cut-off (OR 0.4, 95% CI 0.1, 0.8). In the fully-adjusted model, caretaker's mental health (aOR 3.4, 95% CI 1.3; 8.8) and family functioning (aOR 3.9, 95% CI 1.2; 12.7) remained significantly associated with total problems.

Table 3 Correlates of mental health in displaced children (*n*=90)

Correlates	Unadjusted OR ^a (95% CI)	p-value ^b	Adjusted OR ^c (95% CI)	p-value ^b
Child exposure to traumatic events				
0 events	1.0 (reference)		1.0 (reference)	
1 event	2.9 (1.2; 7.2)	0.02	2.0 (0.6; 6.5)	0.23
>1 events	7.9 (1.4; 42.8)	0.02	1.9 (0.2; 15.1)	0.53
Time since displacement				
>10 years	1.0 (reference)		1.0 (reference)	
5-10 years	1.1 (0.3; 4.1)	0.87	3.0 (0.3; 31.8)	0.36
1-5 years	1.1 (0.4; 3.0)	0.90	3.1 (0.3; 36.2)	0.36
<1 year	0.4 (0.1; 2.2)	0.30	1.9 (0.2; 16.2)	0.55
Mental health of primary caretaker	4.3 (2.0; 9.2)	<0.001	3.4 (1.3; 8.8)	0.01
Family functioning	8.4 (3.0; 23.3)	<0.001	3.9 (1.2; 12.7)	0.02
Presence of social support				
No	1.0 (reference)		1.0 (reference)	
Yes	0.4 (0.1; 0.8)	0.02	0.6 (0.2; 1.6)	0.28

^a Odds ratios (OR) are from logistic regression models with displacement as the independent variable and CBCL total problems as the dependent variable

^b p-values are based on empirical standard error estimates from logistic regression models

^c Adjusted model includes all correlates: time since displacement, number of traumatic events, mental health of primary caretaker, family functioning and the presence of social support.

DISCUSSION

This study showed that children registered as internally displaced presented significantly worse mental health than non-displaced children residing in the same deprived neighbourhood in Bogotá. Primary caretaker's mental health and family functioning were strongly and independently associated with displaced children's mental health.

Compared to a normative sample from Peru, mean scores on CBCL scales were higher in displaced and non-displaced children which suggests that the children in this study were at a relatively high risk of mental health problems compared to Latin American peers.²⁸ Displaced children presented worse mental health than non-displaced children which is in line with related studies conducted among older populations.^{7,9,10} As also found by others^{6,29}, caretaker's mental health explained this relationship to a greater extent than child exposure to traumatic events. There may be several explanations for this finding. Firstly, both displaced and non-displaced children in this study resided in a deprived neighbourhood, where exposure to violence may be highly prevalent.³⁰ Secondly, the studied children were very young and in young children maternal proximity to traumatic events has been found to be a better predictor of infant PTSD than child

proximity.^{6,29} It is argued that young children that are exposed to a traumatic event often look for reactions of caregivers as a means of interpreting the threat.³¹ In turn maternal exposure to a traumatic event may influence maternal-child attachment which is of great importance for child mental health.⁶

Another interesting finding of this study was that children directly exposed to forced internal displacement (the 1st generation) presented different mental health problems than the 2nd generation. Compared to the non-displaced group, we found that the 1st generation group presented higher scores on the stress and internalizing problems scales while the second generation group presented higher scores on the externalizing problems scale. Though these findings need to be confirmed by research with larger samples of children, this may indicate that the impact of forced internal displacement unfolds differently in pre-schoolers that are directly and indirectly exposed to the event. Alongside the mental health differences, it is of interest that both generational groups presented significantly more problem behaviour than unexposed children. This implies that pre-schoolers that were not directly exposed to forced internal displacement are nonetheless impacted by the event; there is a so-called 'intergenerational risk'. This is in line with different studies on the intergenerational effects of war-related trauma on child mental health.³² These studies have shown that, amongst other factors, ambivalent attachment styles³³, violent and/or stressful family atmosphere and communication patterns (from silence to over disclosure) can explain how trauma can be transmitted from one generation to the other.³²

To enhance our understanding of risk and resilience, we evaluated correlates of displaced children's mental health. We found that primary caretaker's mental health and family functioning were independently associated with displaced children's mental health. As noted by Betancourt & Khan³⁴, the family can influence the mental health of war-affected children in two ways: either the family forms a 'protective shield' against hardship or a child's management of war-stress is complicated because parents or the family do not have the capacity to effectively manage stress. In pre-school children the influence of the family on child well-being may be even larger as the family is often their main frame of reference.³⁵

In unadjusted analyses we found that child exposure to more than one traumatic event was more strongly associated with mental health problems than exposure to a single traumatic event. In a study by Kohrt et al.³⁶ aggregate traumatic exposure, rather than single traumatic events, was associated with poor mental health in former child soldiers. Lastly, our study indicated that although social support was associated with mental health problems in displaced children, the association was not independent. It

is likely that families that function better and caretakers with better mental health are also more likely to seek social support, hence explaining the lack of association in the fully-adjusted model.³⁴

Some methodological issues need to be considered. First, this study was cross-sectional in design implying that the identified correlates of mental health in displaced children cannot be referred to as risk or protective factors as we are unable to determine a causal effect.³⁷ The CBCL/1.5-5 is a parent-report questionnaire and the possibility of information bias might be present. To address this issue we adjusted for caretaker's/respondent's mental health and other family variables. Although these variables mediated some of the effect, differences between displaced and non-displaced children remained significant for the total problems scale. We were unable to use standardized instruments for assessing social support and trauma exposure due to questionnaire length restrictions and/or the lack of available instruments for very young children. This may limit our findings with regard to the importance of social support and traumatic events for the mental health of displaced pre-schoolers. Furthermore, the stress problems scale of the CBCL/1.5-5 had a marginally satisfactory internal consistency in our sample. Hence, findings for this scale should be interpreted cautiously and further research on the reliability of this scale is necessary.

Defining the displacement status according to government registration limits the generalizability of this study. Approximately 23% of the displaced in Colombia do not register themselves, due to lack of knowledge or fear.³ As the benefits of registration have been associated with better mental health in war exposed children³⁴, differences between displaced and non-displaced children may have been larger had unregistered displaced also been included. It should furthermore be noted that only school-going children were included in this study. Consequently, findings may not be generalizable to 2-6 year olds that do not attend kindergartens (approximately 33% of the population in Bogotá³⁸).

This study is the first to quantify the impact of forced internal displacement on pre-school children's mental health. To further elucidate this impact, longitudinal population-based research including multiple respondents (i.e. teachers, children, caregivers and parents) is desired. Also, in-depth qualitative studies are needed to document the changes that families go through after being forcibly displaced due to an armed internal conflict. This information can be used to gain a better understanding of how forced internal displacement affects pre-schoolers and their families. Considering this study's findings, we recommend interventions that focus on building family skills for coping with forced internal displacement. This is likely to benefit child mental health

and caretaker's mental health. Additionally, it is of importance to also be attentive to intergenerational transmission of war-related trauma in internally displaced children and also include indirectly exposed children in interventions targeted at enhancing the mental health of displaced families.

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Part II

Health-related quality of life of migrant infants



Chapter 5

Health-related quality of life of infants from ethnic minority groups: the Generation R Study

Based on: Flink, I.J.E / Beirens, T.M.J. / Looman, C.W.N. / Landgraf, J.M. / Tiemeier, H. / Moll, H.A. / Jaddoe, V.W.V. / Hofman, A. / Mackenbach, J.P. / Raat, H. Health-related quality of life of infants from ethnic minority groups: the Generation R Study.

Quality of Life Research. 2013 Apr;22(3):653-64.





ABSTRACT

Purpose: To assess whether the health-related quality of life of infants from ethnic minority groups differs from the health-related quality of life of native Dutch infants and to evaluate whether infant health and family characteristics explain the potential differences.

Methods: We included 4,506 infants participating in the Generation R Study, a longitudinal birth cohort. When the child was 12 months, parents completed the Infant Toddler Quality of Life Questionnaire (ITQOL); ITQOL scale scores in each ethnic subgroup were compared with scores in the Dutch reference population. Influence of infant health and family characteristics on ITQOL scale scores were evaluated using multivariate regression models.

Results: Infants from ethnic minority groups presented significantly lower ITQOL scale scores compared to the Dutch subgroup (e.g., Temperament and Moods scale: median score of Turkish subgroup, 70.8 (IQD, 15.3); median score of Dutch subgroup, 80.6 (IQD, 13.9; $P < 0.001$)). Infant health and family characteristics mediated an important part of the association between the ethnic minority status and infant health-related quality of life. However, these factors could not fully explain all the differences in the ITQOL scale scores.

Conclusions: Parent-reported health-related quality of life is lower in infants from ethnic minority groups compared to native Dutch infants, which could partly be explained by infant health and by family characteristics.

INTRODUCTION

Available empirical evidence suggests that infants and toddlers from ethnic minority groups may be at a disadvantage with regard to various health outcomes such as the prevalence of low birth weight^{1,2}, behavioural problems³ and respiratory symptoms.^{4,5} Children from ethnic minority groups more frequently grow up in adverse social circumstances like single-parent families and low socio-economic position⁶. Based on these and other studies⁷⁻⁹, it can be hypothesized that these negative health outcomes and adverse life circumstances also result in worse health-related quality of life, even in early life.¹⁰

Some studies on the health-related quality of life of ethnic minority groups have been realized in older children. Pantzer et al.¹¹ showed that adolescents from ethnic minority groups in Spain (e.g., Latin American) reported a relatively lower health-related quality of life compared to their native counterparts. The presence of ethnic differences in health-related quality of life in early childhood has, to our knowledge, not been studied so far.

The first aim of this study was to assess whether the health-related quality of life of infants from ethnic minority groups differs from the health-related quality of life of native Dutch infants. Our hypothesis was that infants from ethnic minority groups would present worse health-related quality of life than native Dutch infants. In order to gain insight into the underlying mechanisms that may explain a potential difference, the second aim of this study was to evaluate to what extent infant health characteristics (birth weight, gestational age, presence of chronic conditions and wheezing) and family characteristics (marital status, educational level, family income and parental psychopathology) mediate the association between the ethnic minority status and infant health-related quality of life.

METHODS

Design

This study was embedded in Generation R, a prospective population-based cohort from foetal life onwards.¹² Briefly, all pregnant women living in Rotterdam, the Netherlands, with an expected delivery date between April 2002 and January 2006 were invited to

participate. The participation rate was estimated at 61 %. Written informed consent was obtained from all participants. The Medical Ethical Committee of the Erasmus University Medical Centre, Rotterdam, approved the study.

Study population

Full consent for the postnatal phase of the Generation R Study was obtained from 7,295 infants and their mothers. Women with missing data on their ethnic background ($n = 525$) were excluded. Infants for whom we did not have at least one ITQOL scale score were further excluded ($n = 1,709$). Due to small numbers of some ethnic sub-groups or classification difficulties, 555 mothers were excluded (i.e., Indonesian $n = 190$, Africans $n = 66$, U.S.A. $n = 74$, Asians $n = 112$, Oceania $n = 7$ and Surinamese other or Surinamese origin missing $n = 106$). Figure 1 gives an overview of the study population.

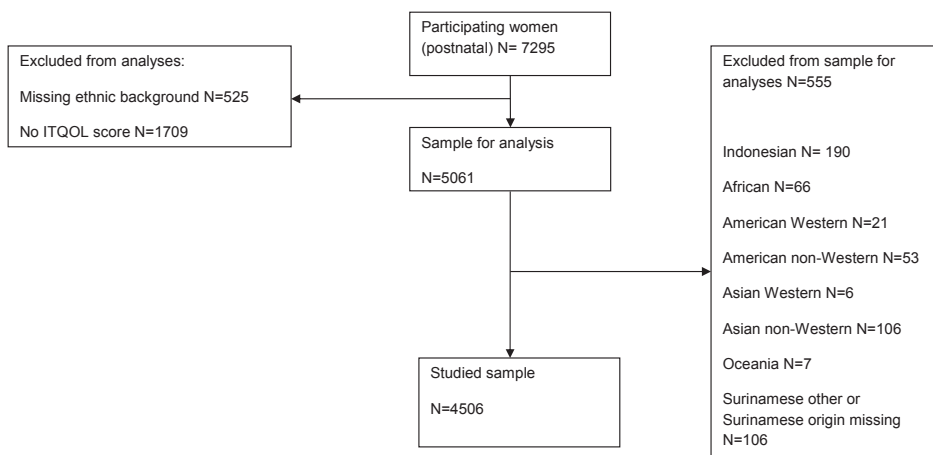


Figure 1 Flowchart of the study population

Measures

Data for this study were retrieved from medical records and collected by prenatal and postnatal questionnaires. On request, trained research assistants with varied ethnic backgrounds helped with completing the questionnaires.

Ethnic background

We classified the infants in the study population according to maternal ethnic background. A choice was made for maternal ethnic background because mothers play an important role in the lives of young children, and their cultural background and experiences of acculturation are most likely to influence their children.^{13,14} Maternal ethnic background was determined by the country of birth of the mother and the mother's parents.¹⁵ If the mother or one of the mother's parents was born abroad, this country of birth determined the national origin. If both parents were born abroad, the country of birth of the mother's mother determined the ethnic background. Women with a Surinamese background were further classified as Surinamese Hindu or Surinamese Creole, based on self-classification. Subgroups of infants in the study were as follows: Dutch (n = 3,039), Other European (n = 415), Antillean (n = 97), Cape Verdean (n = 108), Surinamese Creole (n = 89), Surinamese Hindu (n = 93), Moroccan (n = 163) and Turkish (n = 302). Besides ethnic background, infant health-related quality of life may also be related to the generational status of the mother. As such, we established the generational status of non-Dutch participants. First generation included mothers who were born abroad; second generation included mothers who were born in the Netherlands.

Infant Toddler Quality of Life

Infant health-related quality of life was measured by the ITQOL, which was included in a questionnaire that was completed by the primary care giver at the age of 12 months of the child. The ITQOL covers both physical and psychosocial aspects and the impact of child health problems on family life.^{8,16,17} The full-length research version of the ITQOL consists of 103 items (10 multi-item scales and 2 single-item scales; see Table 1) that generally refer to the situation during the past 4 weeks. Per scale, the items that have 4, 5 or 6 response options were summed up with equal weight per item (some recoded and/or recalibrated) and transformed into a 0 (worst possible score) to 100 (best possible score) scale.^{8,16,17} The ITQOL General behaviour and Getting along scales, and the single item Change in Health were not included in the study since they are relevant to children aged older than 12 months^{8,16,17}. The ITQOL questionnaire was available in Dutch, English and Turkish. The great majority (95.3 %) filled in the Dutch version, 1.3 % filled in the English version and 3.4 % filled in the Turkish version. Good reliability and validity have been reported for the Dutch and English versions of the ITQOL.^{16,18} In our sample, internal consistencies for the ITQOL scales of the Dutch version ranged from $\alpha = 0.97$ for Physical Functioning to $\alpha = 0.75$ for General Health. Internal consistencies for the ITQOL scales of the English and Turkish versions were similar to the Dutch version.

Table 1 ITQOL-scales, number of items per scale and score interpretation¹

Scale	Number of items	Description low score	Description high score
Physical functioning	10	Child is considerably limited in performing physical activities such as eating, sleeping, grasping, and playing due to health problems	Child performs all types of physical activities such as eating, sleeping, grasping, and playing without limitations due to health problems
Growth and development	10	Parent is very dissatisfied with development (physical growth, motor, language, cognitive), habits (eating, feeding, sleeping) and overall temperament	Parent is very satisfied with development (physical growth, motor, language, cognitive), habits (eating, feeding, sleeping) and overall temperament
Bodily pain	3	Child has extremely severe, frequent and limiting bodily pain/discomfort	Child has no pain or limitations due to pain/discomfort
Temperament and moods	18	Child very often has certain moods and temperaments, such as sleeping/eating difficulties, crankiness, fussiness, unresponsiveness and lack of playfulness and alertness	Child never has certain moods and temperaments, such as sleeping/eating difficulties, crankiness, fussiness, unresponsiveness and lack of playfulness and alertness
General behaviour ²	13	Parent believes child's behavior is poor and likely to get worse	Parent believes child's behavior is excellent and will continue to be so
General health perceptions	12	Parent believes child's health is poor and likely to get worse	Parent believes child's health is excellent and will continue as such
Parental impact: emotional	7	Parent experiences a great deal of emotional worry/ concern as a result of child's physical and/or psychosocial health and/or growth and development	Parent doesn't experience feelings of emotional worry/concern as a result of child's physical and/or psychosocial health and/or growth and development
Parental impact: time	7	Parent experiences a lot of limitations in time available for personal needs due to child's physical and/or psychosocial health and/or growth and development	Parent doesn't experience limitations in time available for personal needs due to child's physical and/or psychosocial health and/or growth and development
Family activities	6	The child's health and/or growth and development very often limits and interrupts family activities or is a source of family tension	The child's health and/or growth and development never limits and interrupts family activities or is a source of family tension
Family cohesion	1	Family's ability to get along is rated as 'poor'	Family's ability to get along is rated as 'excellent'
Change in Health ²	1	Child's health is much worse now than 1 year ago	Child's health is much better now than 1 year ago

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² Only applicable to children aged older than one year

Potential confounders and mediators

The following variables were considered to influence the association between maternal ethnic background and health-related quality of life in infants 12 months of age. These were selected based on current literature on determinants of health-related quality of life in children.^{7,9,10,19,20} Maternal age, parity (the number of live births the mother delivered before the participating child), the child's gender and age of the child during the questionnaire were treated as confounders. Infant health characteristics that were considered to be potential mediators were child's birth weight ($\leq 2,500$ or $> 2,500$ g)², gestational age at birth (≤ 36 weeks or > 36 weeks), or (36 weeks), presence of chronic conditions the past 6 months (< 1 or ≥ 1)²¹ and presence of episodes of wheezing the past year.²²

Family characteristics that were considered to be potential mediators were as follows: marital status of the mother (married/cohabiting or no partner); highest attained educational level of the mother—low (i.e., primary school, lower vocational training, intermediate general school or 3 years general secondary school); medium (i.e. > 3 years general secondary school, intermediate vocational training or 1st year higher vocational training); high (i.e. higher vocational training, Bachelor's degree, higher academic education or PhD)⁹—family income (low, i.e., $< 1,200$ €, which is below social security level; $1,200$ – $2,000$ €; $> 2,000$ €, which is more than modal income)^{7,20}; and level of prenatal maternal psychopathology, measured during pregnancy by the Global Severity Index of the Brief Symptom Inventory (BSI), a validated self-report questionnaire with 53 items.^{23,24} The internal consistency of the Global Severity Index, the overall score of the BSI, in this sample was $\alpha = 0.96$.

Statistical analyses

Statistical analyses were performed using SPSS for windows, version 18 (SPSS Inc., Chicago, IL). Frequency tables and cross-tabulations were used to explore characteristics of the study population, stratified by maternal ethnic background (Table 2). Median (IQR) scores on the ITQOL scales were calculated for each ethnic subgroup. Mann Whitney U tests were performed to evaluate the statistical differences in ITQOL scores between ethnic subgroups and the Dutch reference subgroup, given a non-normal distribution of some of the ITQOL scales (Tables 3, 4). To check whether generational status of the non-Dutch groups was of importance, we also compared median (IQD) scores of children whose mothers were first-generation immigrants and whose mothers were second-generation immigrants to the native Dutch group. To adjust for multiple testing, the significance level was Bonferroni corrected (α/k).²⁵

Table 2 Characteristics of the study population

	N	Dutch N=3239	Other European N=415	Antillean N=97	Cape Verdean N=108	Surinamese Creole N=89	Surinamese Hindu N=93	Moroccan N=163	Turkish N=302	p-value
Infant characteristics										
Gender (% boys)	4506	50.4	46.3	36.1	43.5	52.8	46.2	44.8	50.7	0.06
Age (months)	4493	12.6 (1.8)	12.7 (2.3)	13.1 (2.7)	12.7 (1.5)	13.2 (2.5)	12.9 (1.7)	12.8 (1.4)	12.8 (2.1)	0.24
Birth weight (% ≤2500)	4504	4.7	5.1	7.2	7.4	6.7	10.8	2.5	3.6	0.06
Gestational age at birth (% ≤ 36 weeks)	4505	3.3	3.2	3.2	1.0	2.3	1.1	1.2	3.0	0.62
Number of chronic conditions past 6 months (% ≥1)	4506	78.1	73.7	74.2	76.9	82.0	76.3	79.8	88.4	0.001
Wheezing past 12 months (% yes)	4506	29.4	27.5	26.8	32.4	27.0	28.0	23.9	34.1	0.39
Family characteristics										
Age mother at intake (years)	4506	32.0 (4.0)	31.7 (4.3)	27.6 (5.3)	28.6 (5.8)	30.2 (5.7)	28.4 (4.7)	28.9 (5.3)	27.7 (5.1)	<0.001
Educational level mother	4442									<0.001
High (%)		65.3	67.4	23.2	15.2	24.1	18.5	16.3	15.6	
Medium (%)		32.9	29.3	67.4	66.7	65.5	70.0	58.2	54.2	
Low (%)		1.8	3.3	9.5	18.1	10.3	10.9	25.5	30.2	
Family Net income (Euros)	3872									<0.001
>2000		85.3	77.5	25.0	20.2	39.7	21.6	18.0	39.5	
1200-2000		11.1	16.3	25.0	25.0	28.8	28.9	37.8	38.0	
<1200		3.5	6.2	50.0	54.8	31.5	31.6	44.1	40.4	
Marital status mother (%single)	4416	5.2	5.1	42.3	46.6	41.6	18.3	3.1	5.1	<0.001
Prenatal maternal psychopathology ^{1,2}	3724	0.12	0.15	0.26	0.36	0.19	0.28	0.27	0.38	<0.001
		(0.06,0.23)	(0.06,0.31)	(0.12,0.48)	(0.14,0.79)	(0.10,0.35)	(0.08,0.56)	(0.12,0.66)	(0.17,0.75)	
Parity (% nulli)	4425	60.7	62.6	63.5	51.9	57.3	59.8	40.7	51.0	<0.001
Respondent (% mother)	4269	85.9	82.4	83.9	87.5	92.8	84.3	82.2	87.8	0.18

Values are percentages and means (SD) (except for maternal psychopathology). P-values are for Chi-square test for categorical variables; Analysis of Variance (ANOVA) for continuous normally distributed variables and the Kruskal-Wallis test for continuous non-normally distributed variables. ¹ Global Severity Index of the Brief Symptom Inventory. ² Median (IQR)

Table 3 Median (IQD) scores on ITQOL scales stratified by maternal ethnic background

ITQOL Scale	Dutch (reference) N=3239	Other European N=415	Antillean N=97	Cape Verdean N=108	Surinamese Creole N=89	Surinamese Hindu N=93	Moroccan N=163	Turkish N=302
	Median (IQD)	Median (IQD)	Median (IQD)	Median (IQD)	Median (IQD)	Median (IQD)	Median (IQD)	Median (IQD)
PF	100 (3.7)	100 (3.3)	100 (13.0)	100 (11.1)	100 (3.3)	100 (18.5)*	100 (20.0)*	100 (16.7)*
GD	92.5 (15.0)	92.5 (15.0)	90.0 (20.0)	90.8 (17.5)	91.3 (20.0)	85.0 (22.5)*	85.0 (22.5)*	87.5 (22.5)*
BP	66.7 (13.3)	66.7 (13.3)	66.7 (13.3)	66.7 (13.3)	66.7 (20.0)*	60.0 (6.7)	66.7 (16.7)	60.0 (20.0)
TM	80.6 (13.9)	79.2 (15.3)*	77.8 (15.3)	76.4 (16.6)*	79.2 (12.5)	71.5 (16.6)*	70.8 (18.1)*	70.8 (15.3)*
GH	85.4 (15.9)	83.3 (16.8)	80.6 (16.6)*	83.3 (14.5)	84.8 (16.3)	81.3 (19.4)	77.9 (22.5)*	79.6 (20.8)*
PE	96.4 (7.1)	96.4 (10.7)	95.8 (10.7)*	96.4 (10.7)	96.4 (10.7)	92.9 (14.3)*	96.4 (10.7)	92.9 (16.7)*
PT	95.2 (9.5)	95.2 (14.3)	95.2 (14.3)	95.2 (14.3)	100 (9.5)	95.2 (19.0)	95.2 (23.8)*	90.5 (19.0)*
FA	91.7 (16.7)	91.7 (25.0)	91.7 (25.0)	88.8 (25.0)	91.7 (20.8)	83.3 (25.0)*	87.5 (29.2)*	83.3 (29.2)*
FC	85.0 (15.0)	85.0 (15.0)	85.0 (27.5)*	85.0 (27.5)*	85.0 (42.5)*	85.0 (42.5)*	85.0 (42.5)*	85.0 (42.5)*

P-values are based on the Mann-Whitney *U* test for differences in ITQOL scale scores between the subgroups and the reference group. α level is Bonferroni corrected

Abbreviations: PF physical functioning, GD growth and development, BP bodily pain, TM temperament and moods, GH general health perceptions, PE parental impact emotional, PT parental impact time, FA family activities, FC family cohesion

* P value < 0.007 indicates a statistically significant difference from Dutch subgroup

Given the non-normal distribution of some of the ITQOL scales, we conducted log transformations ($\log(y) + 1$) of all ITQOL scales. Hereafter, multivariate linear regression analyses were performed to test the association between maternal ethnic background and infant HRQOL. Model 1 was the association between maternal ethnic background and infant HRQOL adjusted for potential confounders. Subsequently, in model 2 we added infant health characteristics to model 1. In model 3 we added family characteristics to model 2. For each covariate, an interaction term with maternal ethnic background was tested for significance. Maternal educational level, marital status and family income interacted significantly ($P < 0.05$) with maternal ethnic background in close to half of the ITQOL scales. When stratifying the analyses by these variables, the associations were in the same direction and we therefore do not show stratified analyses.

The bootstrap procedure was used to estimate P values, standard errors (SE) and confidence intervals (CI). The bootstrap was also used to examine whether the strength in association between ethnic background and infant HRQOL changed significantly after adding a set of variables to the model. The bootstrap is a data-based simulation method for analysing data including hypothesis testing (P values), standard errors (SE) and confidence interval (CI) estimation that does not rely on the assumptions of normality.^{26,27} It repeatedly draws random samples from the original data, with replacement.²⁸ The bootstrap procedure was conducted in R version 2.7.1.²⁹

For each model, effect sizes representing the relative differences (%) in health-related quality of life scores of non-Dutch groups compared to the Dutch reference group were calculated using the following formula $((\exp(\beta) - 1) * 100)$. The relative differences and corresponding 95 % confidence intervals (CIs) are presented in Table 4.

Non-response analyses

Within the Dutch subgroup, mothers with no outcome for any of the ITQOL scales at 12 months ($n = 1,272$) were compared with those mothers for whom we had at least one ITQOL scale outcome ($n = 3,239$). Data on the ITQOL were more often missing in mothers who were lower educated ($X^2 = 190.1$; $P < 0.001$), single parents ($X^2 = 73.0$; $P < 0.001$) and younger than 25 years when included in the study ($X^2 = 175.6$; $P < 0.001$), as compared to mothers with at least one ITQOL outcome. The non-response analyses were repeated in all other ethnic subgroups separately and indicated the same pattern: non-responders were relatively more often lower educated, single parent and belonged to the younger age category than mothers with at least one ITQOL outcome. Mothers with missing data on ethnic background were more often lower educated ($X^2 = 9.2$;

Table 4 Relative differences (%) compared to Dutch subgroup in infant health-related quality of life by maternal ethnic background after adjustment for confounders and mediators

ITQOL Scale	Other European N=389	Antillean N=91	Cape Verdean N=96	Surinamese Creole N=86	Surinamese Hindu N=91	Moroccan N=145	Turkish N=281
PF							
Model 1	-1.0 (-7.2; 3.9)	-7.2 (-16.1; 1.2)	-32.1 (-52.4; -10.7)	-7.0 (-22.0; 5.3)	-28.3 (-46.2; -9.4)	-21.7 (-35.4; -8.8)	-21.6 (-31.4; -12.3)
Model 2	-1.2 (-7.4; 3.7)	-7.5 (-16.3; 0.8)	-32.1 (-52.4; -10.8)	-6.6 (-10.8; 5.4)	-28.0 (-46.3; -9.4)	-21.6 (-35.3; -8.7)	-21.2 (-31.2; -11.8)
Model 3	-1.8 (-2.5; 5.2)	-4.3 (-14.7; 4.8)***	-30.4 (-51.4; -7.6)	-5.8 (-22.9; 9.2)**	-18.4 (-37.9; 1.4)***	-6.3 (-19.7; 6.6)***	-11.3 (-21.8; 0.4)***
GD							
Model 1	0.2 (-1.2; 1.5)	-2.3 (-5.3; 0.6)	0.6 (-2.1; 3.5)	-1.0 (-4.3; 2.2)	-3.5 (-11.7; -0.6)	-7.9 (-16.1; -2.6)	-5.7 (-11.7; -2.0)
Model 2	0.0 (-1.3; 1.4)	-2.3 (-5.4; 0.6)	0.6 (-2.2; 3.5)	-0.9 (-4.3; 2.2)	-3.4 (-6.3; -0.6)	-8.0 (-16.2; -2.6)	-5.5 (-11.4; -1.6)
Model 3	0.4 (-0.9; 1.8)**	-1.4 (-4.6; 2.1)	3.0 (-0.3; 6.8)*	-0.3 (-4.4; 3.7)	-2.0 (-4.8; 1.2)	-7.5 (-17.0; -1.1)*	-4.1 (-10.8; 0.2)
BP							
Model 1	1.2 (-1.8; 3.7)	-2.7 (-9.3; 3.9)	4.7 (0.8; 8.9)	7.1 (1.8; 12.2)	0.8 (-5.2; 6.5)	1.4 (-2.5; 5.6)	-5.9 (-11.8; -0.2)
Model 2	0.6 (-2.2; 3.2)*	-3.0 (-9.7; 3.3)	5.2 (1.3; 9.4)	7.2 (2.2; 12.2)	0.8 (-5.1; 6.5)	1.4 (-2.5; 5.6)	-4.9 (-11.0; 0.9)***
Model 3	1.6 (-1.4; 4.2)*	-4.1 (-11.5; 3.2)	7.6 (2.9; 13.0)	8.2 (2.0; 14.3)	1.3 (-5.4; 7.8)	0.9 (-3.7; 5.8)	-4.4 (-10.5; 1.5)
TM							
Model 1	-1.3 (-2.8; 0.3)	-3.4 (-7.4; 0.4)	-2.1 (-5.1; 1.2)	-1.1 (-4.3; 1.9)	-9.0 (-13.0; -5.4)	-10.2 (-13.2; -7.0)	-10.7 (-12.9; -8.2)
Model 2	-1.6 (-3.1; 0.1)*	-3.5 (-7.5; 0.6)	-1.9 (-4.7; 1.4)	-1.0 (-4.4; 2.1)	-7.2 (-12.9; -5.4)	-10.2 (-13.2; -7.1)	-10.2 (-12.6; -7.7)***
Model 3	-0.9 (-2.3; -0.8)***	-3.2 (-8.0; 1.2)	0.5 (-3.0; 4.6)**	1.0 (-4.9; 2.6)	-7.2 (-11.9; -3.1)*	-7.9 (-11.4; -4.1)*	-7.1 (-9.9; -4.3)***
GH							
Model 1	-1.1 (-3.2; 1.0)	-5.9 (-12.4; -0.5)	-2.4 (-6.7; 1.5)	1.0 (-3.0; 4.5)	-2.3 (-6.6; 1.7)	-8.6 (-12.6; -4.9)	-4.6 (-7.4; -2.1)
Model 2	-1.8 (-3.7; 0.2)	-5.8 (-12.2; -0.6)	-1.7 (-6.0; 2.2)	0.3 (-3.0; 4.2)	-2.3 (-6.2; 1.7)	-8.8 (-12.7; -5.2)	-3.6 (-6.3; -1.1)*
Model 3	-1.0 (-3.1; 1.0)***	-6.2 (-13.5; -0.3)	0.3 (-4.6; 3.8)	0.3 (-4.0; 4.3)	-1.1 (-6.1; 3.5)	-7.9 (-11.7; -2.6)**	-1.7 (-4.5; 1.0)*
PE							
Model 1	-0.9 (-2.2; 0.2)	-4.9 (-9.1; -1.4)	-6.4 (-12.3; -1.4)	-2.1 (-6.4; 1.2)	-9.8 (-14.9; -4.7)	-3.7 (-7.4; -0.7)	-7.2 (-9.9; -4.4)
Model 2	-1.2 (-2.5; -0.1)*	-5.0 (9.3; -1.4)	-6.3 (-12.2; -1.3)	-2.2 (-6.4; 1.0)	-9.9 (-14.9; -4.9)	-3.7 (-7.5; -0.8)	-6.8 (-9.5; -4.2)*
Model 3	-0.9 (-2.4; 0.3)	-4.6 (-9.9; 0.1)	-4.3 (-11.3; 1.8)	-2.0 (-6.8; 1.8)	-7.6 (-12.8; -3.1)	-2.1 (-6.3; 1.2)	-3.8 (-6.3; -1.3)***

Table 4 Relative differences (%) compared to Dutch subgroup in infant health-related quality of life by maternal ethnic background after adjustment for confounders and mediators (continued)

ITQOL Scale	Other European N=389	Antillean N=91	Cape Verdean N=96	Surinamese Creole N= 86	Surinamese Hindu N=91	Moroccan N=145	Turkish N=281
PT							
Model 1	0.6 (-3.4; 4.2)	-9.2 (-22.9; 1.3)	-11.1 (-28.1; 4.1)	3.4 (-0.6; 7.1)	-8.6 (-22.0; 1.6)	-5.5 (-11.3; 0.2)	-13.7 (-21.8; -6.8)
Model 2	0.5 (-3.4; 4.1)	-9.4 (-23.2; 1.1)	-11.4 (-28.6; 3.8)	3.5 (-0.5; 7.3)	-8.6 (-11.0; 1.8)	-5.6 (-11.3; 0.2)	-13.5 (-21.7; -6.5)
Model 3	1.2 (-2.6; 4.9)	-12.3 (-27.2; 0.0)	-11.0 (-30.7; 7.8)	4.7 (-0.6; 10.0)	-8.3 (-23.5; 3.3)	-7.6 (-15.4; 0.3)	-12.3 (-22.5; -2.2)
FA							
Model 1	-2.7 (-6.5; 0.4)	-2.6 (-7.2; 2.3)	-5.6 (-11.8; 0.4)	1.2 (-6.3; 3.1)	-8.3 (-14.2; -2.5)	-9.3 (-15.0; -3.5)	-9.1 (-12.4; -5.5)
Model 2	-3.1 (6.8; 0.0)	-2.7 (-7.5; 2.0)	-5.5 (-11.7; 0.2)	-1.2 (-6.1; 3.1)	-8.0 (-13.8; -2.3)	-9.3 (-15.2; -3.5)	-8.5 (-11.9; -4.8)*
Model 3	-1.8 (-5.4; 1.2)**	-2.8 (-8.1; 2.8)***	0.7 (-6.7; 8.5)***	0.2 (-5.9; 5.0)	-5.6 (-12.2; 0.7)	-8.0 (-14.7; -1.1)***	-4.2 (-8.6; 0.3)***
FC							
Model 1	-5.6 (-10.6; -1.5)	-12.2 (-18.2; -6.1)	-16.1 (-21.8; -9.6)	-10.5 (-16.5; -4.9)	-10.4 (-16.4; -4.7)	-7.7 (-12.2; -3.6)	-11.4 (-17.4; -6.3)
Model 2	-5.7 (-10.6; -1.6)	-12.4 (-18.2; -6.0)	-15.9 (-22.0; -9.9)	-10.5 (-16.3; -4.8)	-11.1 (-16.4; -4.7)	-7.9 (-12.3; -3.7)	-11.4 (-17.2; -6.3)
Model 3	-4.3 (-4.7; 0.4)**	-8.9 (-15.0; -1.0)**	-8.4 (-14.0; -1.2)***	-6.8 (-13.2; 0.6)**	-6.6 (-9.4; 2.5)***	-2.9 (-7.7; 4.2)**	-6.1 (-5.5; 3.0)***

Abbreviations: PF: Physical Functioning; GD: Growth & Development; BP: Bodily Pain; TM: Temperament & Moods; GH: General Health Perceptions; PE: Parental Impact

Emotional; PT: Parental Impact Time; FA: Family Activities; FC: Family Cohesion

Values are effect sizes representing relative differences (%) in health related quality of life scores compared to the Dutch reference group and 95% confidence intervals estimated by bootstrap analyses. Relative differences calculated as follows: $((Exp(\beta)-1)*100)$. Bold values indicate a significant difference compared to Dutch group.

Model 1 is adjusted for confounders: gender, age child, age mother & parity. Model 2 is adjusted for confounders and infant health characteristics: birth weight, gestational age, presence of chronic conditions and wheezing. Model 3 is adjusted for confounders, infant health characteristics and family characteristics: maternal educational level, marital status, family income and maternal psychopathology.

*P-value <0.05. **P-value at <0.01 & ***P-value <0.001 indicate whether the strength of the association between ethnicity and infant health-related quality of life changed significantly after adding a set of variables to the model as derived from the bootstrap analysis.

$P = 0.01$), single parents ($X^2 = 12.2$; $P < 0.01$), more often belonged to the younger age category ($X^2 = 29.2$; $P < 0.01$) and reported lower scores on some ITQOL scales (e.g., General Health Perceptions Mann–Whitney $U = 273,868.5$; $P < 0.001$), relative to mothers for whom ethnic background was known.

RESULTS

Characteristics of the study population are presented in Table 2. Significant differences between the ethnic sub-groups were present in all variables, except for infant age, birth weight, gestational age, wheezing and the ITQOL respondent. Differences in maternal age ($F = 72.8$; $P < 0.001$), educational level ($X^2 = 981.4$; $P < 0.001$), family income ($X^2 = 1,528.1$; $P < 0.001$), marital status ($X^2 = 568.2$; $P < 0.001$), maternal psychopathology ($H(7) = 701.3$; $P < 0.001$) and parity ($X^2 = 43.9$; $P < 0.001$) were particularly great.

For seven out of nine ITQOL scales, infants from at least three ethnic minority groups presented significantly lower scores on health-related quality of life relative to infants classified as “Dutch” ($P < 0.007$; Table 3). Scores on the ITQOL scales were particularly lower in the following scales: Temperament and Moods, Family Activities and Family Cohesion. In the Temperament and Moods scale, the Turkish subgroup presented a median score of 70.8 (IQD, 15.3) relative to a median score of 80.6 (IQD, 13.9) in the Dutch subgroup (Mann–Whitney $U = 269,204.5$; $P < 0.001$). In general, infants from the European and Surinamese Creole subgroups presented more similar scores to the Dutch reference group than the other ethnic subgroups. This was particularly the case in the Physical Functioning scale (other European relative to Dutch: Mann–Whitney $U = 533,273.5$; $P = 0.128$) and the Growth and Development scale (Surinamese Creole relative to Dutch: Mann–Whitney $U = 136,348.0$; $P = 0.549$). Infants from the Surinamese Creole subgroup were however the only subgroup that differed significantly from the Dutch subgroup on the Bodily Pain scale (Mann–Whitney $U = 107,843.0$; $P < 0.001$).

When stratifying by generational status, median scores of the first-generation group ($n = 2,029$) were significantly lower in all ITQOL scales, including the Bodily Pain scale, compared to native Dutch infants ($P < 0.03$). In the second-generation group ($n = 847$) median scores in a majority of the ITQOL scales were significantly lower compared to native Dutch infants ($P < 0.03$). Median scores in the Physical Functioning ($P = 0.08$) and Growth and Development ($P = 0.51$) scales did not differ significantly from the Dutch group.

Table 4 provides a series of hierarchical multivariate analyses illustrating the differences in infant health-related quality of life by maternal ethnic background, adjusted for confounders, infant health characteristics and family characteristics. After adjustment for confounders, a majority of the differences in ITQOL scale scores between the ethnic minority groups and the Dutch reference group remained significant (e.g., in the Temperament and Moods scale, children from the Turkish subgroup presented a score that was -10.7 % (-12.9; -8.2) lower than the Dutch reference group). After further adjustment for infant health characteristics (birth weight, gestational age, chronic conditions and wheezing), most differences remained significant; however, differences decreased significantly in the following scales: Bodily Pain (Turkish subgroup model 2 vs. model 1, $P < 0.001$), Temperament and Moods (Turkish subgroup model 2 vs. model 1, $P < 0.001$); General Health (Turkish group model 2 vs. model 1, $P = 0.022$); Parental Impact Emotional (Turkish subgroup model 2 vs. model 1, $P < 0.001$); and Family activities (Turkish subgroup model 2 vs. model 1, $P = 0.016$). In model 3, the fully adjusted model additionally including family characteristics, further significant decreases on almost all ITQOL scales compared to model 2 were shown (e.g., Physical Functioning, Moroccan subgroup, $P < 0.001$). Most differences in infant health-related quality of life remained significant. However, the addition of family characteristics attenuated the differences to non-significance in the Physical Functioning scale (Surinamese Hindu, Moroccan and Turkish subgroups), the Growth and Development scale (Surinamese Hindu and Turkish subgroups), the General Health scale (Turkish subgroup), the Parental Impact Emotional scale (Antillean, Cape Verdean and Moroccan subgroups), the Parental Impact Time scale (Cape Verdean subgroup), the Family Activities scale (Surinamese Hindu and Turkish group) and the Family Cohesion scale (other European, Surinamese Creole, Surinamese Hindu and Moroccan and Turkish subgroups).

DISCUSSION

This large population-based cohort study showed that parent-reported health-related quality of life, even at the age of 12 months, is lower in infants from ethnic minority groups compared to native Dutch infants. Infant health characteristics (birth weight, gestational age at birth, presence of chronic conditions and presence of wheezing) and family risk factors (single parenthood, low educational level, family income and prenatal maternal psychopathology) mediated an important part of the association between the ethnic minority status and infant health-related quality of life. However, these factors could not fully explain all the ethnic differences in the ITQOL scale scores.

Methodological considerations

This study is embedded in a longitudinal birth cohort. Parents and children are studied from early pregnancy onwards. Elaborate information on ethnic background, health-related quality of life, and child and family characteristics was available. Several study limitations should be noted. In the study population, missing data were observed for maternal ethnic background and the ITQOL. The non-response analyses indicated that data on the ITQOL were more complete in children of higher educated, non-single and older mothers, a trend that was found in Dutch and non-Dutch infants. To check whether this selective attrition influenced our results, we estimated non-response probabilities and included these probabilities as weights in the comparisons of ITQOL scores (data not shown). Adjusting for this selective attrition did not substantially change the observed differences in infant health-related quality of life. Ethnic background was more often missing in participants who were younger and more often single, lower educated and those who reported lower health-related quality of life in their infants. It is possible that some of these mothers may have belonged to ethnic minority groups and that the differences that we found in terms of infant health-related quality of life may have been larger had this group been included. Our research assistants helped a few participants (all illiterate, mostly Berber and Moroccan mothers) with filling out the questionnaires. This may have influenced these participants' report of infant health-related quality of life.³⁰ Maternal ethnic background was the main determinant in this study. This meant that paternal ethnic background was not considered. We checked whether results changed if paternal ethnic background was included instead of maternal ethnic background but did not observe a substantial change in results (data not shown).

The ITQOL is a parent-reported measure. In this study, we did not assess whether parents as proxies gave reliable ratings. We did adjust for relevant parent-related characteristics in the full model (single parenthood, low educational level, family income and maternal psychopathology) and found that some differences in infant health-related quality of life between ethnic minorities and the majority group remained present. Regardless, it is possible that the differences that we found may have been affected by parent-related characteristics other than the ones that we studied.³¹ For instance, it may be possible that non-Dutch groups hold different beliefs about health and illness and may therefore report lower health-related quality of life scores in their infants.^{32,33} Studies have found that somatization, hypochondria and the expression of pain and discomfort vary by cultural background.^{34,35} Additionally, it is possible that, compared to Dutch groups, the threshold to report poor health-related quality of life is lower in non-Dutch groups.

Health-related quality of life in infants from ethnic minority groups

Our study demonstrated that infants from most non-Dutch ethnic minority groups scored lower on almost all ITQOL scales. Ethnic differences were pronounced for Physical Functioning, Temperament and Moods, and the Family Cohesion scales. This confirms the results of studies among older child populations, adolescents and adults that also showed that minority groups are likely to score lower on various health indicators and measures of health-related quality of life.^{3,36-38} Infants from the Surinamese Creole and European subgroups did not differ much from infants from the Dutch subgroup in terms of health-related quality of life. In fact, infants from the Surinamese Creole subgroup presented higher scores on the Bodily Pain scale than Dutch natives. Migration factors may explain why Surinamese Creole and European groups did not differ as much from the Dutch group, as they may have fewer difficulties adapting to the Dutch society due to the language and the longer migration history (Surinamese Creole) or culture (European).³⁹ In the other ethnic minority groups that we studied, migration factors may have played a more prominent role. Firstly, acculturation factors (e.g., language barriers, discrimination) may lead to more stress. Studies show that stress during pregnancy exposes the foetus to elevated levels of stress hormones⁴⁰ possibly influencing foetal development; for example, maternal anxiety reduces the blood flow through the uterine arteries, which affects foetal development and possibly disease in later life.⁴¹ This also explains why family risk factors and prenatal maternal psychopathology in particular explained an important part of the association between the ethnic minority status and infant health-related quality of life. Additionally, acculturation factors have been found to influence access to and usage of health care services, including services for new-borns and infants.^{6,42-44} Lack of prompt medical care may lead to more health complications and possibly more worry about infant health.⁴⁵ Acculturation factors may be more important in first generation ethnic minorities than in second-generation migrants and this may impact infant health-related quality of life.⁴⁶ In this study, we however found that both generational groups reported lower health-related quality of life in their infants compared to Dutch natives.

With regard to the parental impact scales, in our study, infants from ethnic minority groups also presented lower scores relative to those from the Dutch subgroup. On the one hand, this may reflect health issues in these children and their relatively low health-related quality of life scores. On the other hand, as noted by others^{47,48}, the relatively low scores on parental impact scales may also be due to the strong family ties within ethnic minority groups relative to the “majority” group, and consequently, the infant’s health status may have a greater negative impact on the family as a whole. It is noteworthy that the mediators that were included in our models were not always able

to fully explain the relatively low infant health-related quality of life in the non-Dutch groups. Firstly, there may be additional maternal or infant health indicators and family characteristics not considered in this study that could explain the differences that we found. Secondly, it is conceivable that genetic factors play a role in explaining the ethnic differences in health-related quality of life in infants^{49,50}.

CONCLUSION

Parent-reported health-related quality of life, even at the age of 12 months, is lower in ethnic minority groups compared to native Dutch infants and could not be explained fully by infant health characteristics and family-related characteristics like single parenthood, low educational level and maternal psychopathology. We recommend further study to gain insight into the causes that underlie these differences. Firstly, it is important to gain more insight into genetic causes of differences in health-related quality of life among ethnic groups. Additionally, more research on cultural differences in perceptions of health-related quality of life is recommended. To gain more insight into the individual effects of migration and ethnicity, we recommend gathering reference data on infant health-related quality of life from the countries of origin of large migrant populations in Europe. In general, paediatricians should be aware of the ethnic inequalities in health-related quality of life and health status, even in early life. To decrease these inequalities, improving access to health care services for new-borns and infants may be important. Additionally, programs aimed at reducing parental stress should be readily available to ethnic minority groups.

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Part III

Mental health help-seeking in migrant adolescent girls



Chapter 6

Help-seeking behaviour for internalizing problems: Perceptions of adolescent girls from different ethnic backgrounds

Based on: Flink, I.J.E. / Beirens, T.M.J. / Butte, D. / Raat, H. Help-seeking behaviour for internalizing problems: Perceptions of adolescent girls from different ethnic backgrounds

Ethnicity and Health / 2013 / May 30. E-pub ahead of print.





ABSTRACT

Objective: Although adolescent girls from ethnic minorities are at an increased risk of internalizing problems (e.g. depression), only a small fraction seeks formal help for these problems. To enhance help-seeking for internalizing problems among ethnic minority adolescent girls, insight into their help-seeking behaviour is required. This study explored the perceptions of adolescent girls from different ethnic backgrounds regarding their help-seeking behaviour for internalizing problems.

Design: A qualitative study using Focus Group Discussions (FGDs) was employed. Eight ethnic-specific FGDs were conducted with 50 adolescent girls of mostly Turkish (n=23), Moroccan (n=13), and Dutch (n=10) backgrounds recruited in Rotterdam, a multicultural city in the Netherlands. FGDs were conceptually framed within a help-seeking model, facilitated by a vignette and analysed using NVivo software.

Results: When describing the internalizing problems presented in the vignette, participants of non-Dutch FGDs tended to state the causes of the problems (e.g. lack of attention) whereas participants of Dutch FGDs mentioned the emotional state. Participants did not perceive the presented internalizing problems as severe. If participants were to face internalizing problems of their own, their decision to seek help would be hampered by negative attitudes towards professionals and school-based services. Particularly in non-Dutch FGDs the fear of parental and friend's reactions was identified as a barrier. Participants

identified their mother and a good friend as primary sources of help.

Conclusion: In this study, adolescent girls of Turkish, Moroccan and Dutch backgrounds had difficulty recognizing the severity of internalizing problems, and various barriers could hamper their decision to seek help. To enhance utilization of mental health services by youth, promoting a change in their attitudes towards mental health/school-based services is recommended. Guaranteeing confidentiality within school-based services, and training for professionals in communicating with adolescent girls, may also prove beneficial. In ethnic minorities, tackling the negative reactions of family/friends requires attention.

INTRODUCTION

Internalizing problems, defined as problems that are mainly within the self¹, like depression and anxiety, have a great impact on adolescents. Declining school performance, school absenteeism, loss of social relations and substance abuse are some of the frequently reported outcomes of internalizing problems.^{2,3} On the long run, internalizing problems can lead to co-morbidity and suicide.^{4,5} Studies have shown that adolescent females are at an increased risk of developing internalizing problems compared to male counterparts.^{6,7} The ethnic minority status has been found to place them at an even higher risk of internalizing problems.⁸⁻¹⁰ Therefore, early detection and treatment of these problems in this group is of utter importance.

Most ethnic minority adolescents do not seek formal help for mental health problems and rates of mental health service utilization are low compared to the majority group.¹¹ For example, a study in the United States found that African American and Asian American/Pacific Islander youth were half as likely to receive any type of mental health care compared to their White American counterparts, even after controlling for risk factors associated with mental health care use.¹¹ The differences were particularly large for outpatient care though differences were also found for informal care like self-help groups. A recent Dutch study revealed that Moroccan girls were less likely (RR 0.73) to use youth mental health care services than Dutch girls.¹² Shame, stigma, fear of gossip and interethnic differences in help-seeking patterns such as solving problems within the

ethnic and religious community have been suggested to contribute to the lower rates of mental health service utilization among ethnic minorities.^{13,14} For ethnic minorities residing in the Netherlands, such as the Moroccans and the Turks, it has further been suggested that “a strong commitment to Islamic religious practices”¹⁵ and a collectivistic background, which “includes a sense of interdependence and of one’s status as a participant in a larger social unit”¹⁶, as opposed to an individualistic background, which places emphasis on independence and is more common in the Dutch majority, may also contribute to differences in utilization of mental health services.¹⁵

To enhance help-seeking for internalizing problems in adolescents from ethnic minorities, it is important to explore their help-seeking behaviour for these problems. As proposed by Cauce et al.¹⁷ help-seeking behaviour should be considered a protracted process which begins with the time when a problem is first noticed. A focus on the process of help-seeking rather than help-getting will more fully account for the influence of culture and context.¹⁷ To date, a few studies have investigated the mental health help-seeking pathway of adolescents from different ethnic backgrounds^{18,19} however; none of these studies have focused specifically on perceptions of adolescent girls regarding their help-seeking behaviour for internalizing problems. Since adolescent females from ethnic minorities are considered a high risk group with regard to internalizing problems⁸⁻¹⁰ it is of interest to focus on the help-seeking behaviour of this specific group.

Hence, the aim of this study was to explore the perceptions of adolescent girls from different ethnic backgrounds regarding their help-seeking behaviour for internalizing problems.

THEORETICAL FRAMEWORK

A three-stage model for mental health help-seeking in adolescents, developed by Cauce et al.¹⁷, was used as a theoretical framework for exploring the influence of ethnic background on adolescent girl’s perceptions of help-seeking behaviour for internalizing problems (see Figure 1). Stage I in the pathway, referred to as problem recognition, takes epidemiologically defined need and perceived need into account. Stage II, the decision to seek help, consists of a coercive and voluntary process of which the latter is largely determined by attitudes and beliefs. Stage III, service selection, looks at whom adolescents and their families turn to when dealing with a mental health problem. Context and culture are hypothesized to influence all three stages of help-seeking. It is important to note that the stages defined in this model are interrelated but not necessarily

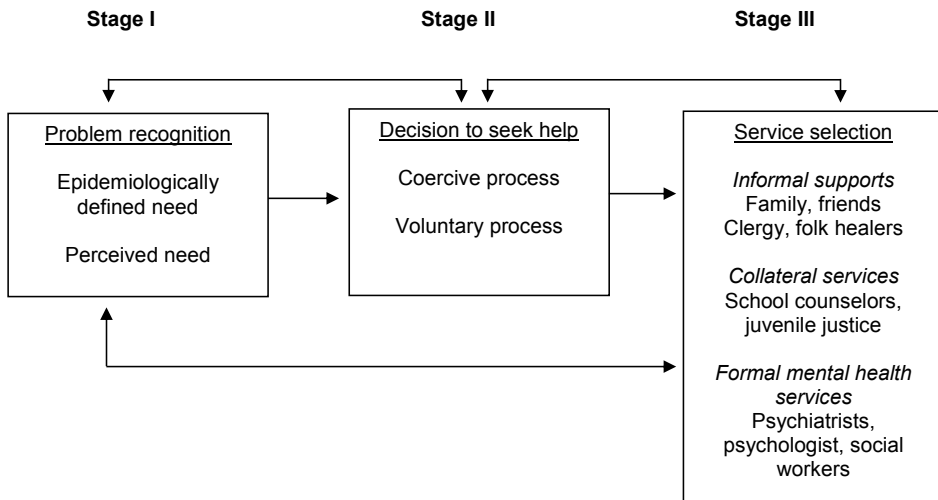


Figure 1 A three-stage model for mental health help-seeking among adolescents adapted from Cauce et al.¹⁷

sequential, indicated by the double-headed arrows pointing forward and backward. A problem may be defined differently once help has been sought. Additionally, it is not unusual for an individual to pass back to a stage more than once to consult different sources of information or help.¹⁷

In order to add depth to the three-stage model for mental health help-seeking among adolescents¹⁷, concepts from the latest version of the health belief model by Rosenstock et al.²⁰ were also taken into account. These concepts relate to perceived severity (how severe are internalizing problems), and perceived barriers and facilitating factors (what hampers or facilitates help seeking).

METHODS

Design and Participants

A qualitative study using Focus Group Discussions (FGDs) was employed. FGDs are an effective qualitative method that uses planned discussion in a non-threatening environment and makes use of the interactions between participants to obtain detailed information.²¹ The Medical Ethics Committee of the Erasmus Medical Centre gave a “declaration of no objection” for this study (MEC-2009-232).

Adolescent girls were recruited via migrant organizations and youth centres in a multicultural urban area (Rotterdam, the Netherlands) through convenience sampling. Recruitment through mental health services was avoided as the focus was on adolescent girls from the general population. Study information was sent to representatives of the entities who then invited the participants via telephone or email. Information letters were sent to the participants and their parents once they had shown initial interest. Participants were eligible to participate if their parents did not object to their participation, if they were female, aged between 12 and 20 years and with one of the following ethnic backgrounds: Dutch, Turkish or Moroccan. Turks and Moroccans made up respectively 7.8% and 6.5% of the population in Rotterdam, the Netherlands in 2011.²² After the Surinamese, the Turks and Moroccans are the largest migrant groups in Rotterdam. Most Turks and Moroccans immigrated to the Netherlands in the 1960's as guest workers. More recently, immigration took place mostly due to marital reasons. According to the latest statistics which date from 2010, Turkish and Moroccan immigrants in the Netherlands were on average lower educated and had a lower net family income than the majority population.^{23,24}

The focus group discussions (FGDs) took place in youth centres, centres for women, or mosques and were facilitated by one of two trained female researchers (IF and TB, both health psychologists) of Dutch ethnicity. A third researcher was present to take field notes. As all participants spoke Dutch, the FGDs were held in Dutch. Attention was paid to saturation of data. When no new themes arose data collection was ceased.

Ethnic background

Ethnic background was determined on the basis of the country of birth of the participant and her parents, a classification system employed by Statistics Netherlands.²⁵ If the participant's parents were both born in the Netherlands, she was considered Dutch. If one of the participants' parents was born outside the Netherlands, she was considered non-Dutch. We further distinguished between first and second generation immigrants. Participants were considered first generation if they were born abroad. Participants were considered second generation if they were born in the Netherlands but if their mother or father was born abroad. Using country of birth as an indicator of ethnic background fits with the concept of a common geographical and ancestral origin in the conceptualization of ethnicity.²⁶

Study instruments

Vignette

According to Barter and Renold²⁷ vignettes are useful in social research for three main purposes: (1) to allow actions in context to be explored; (2) to clarify people's judgments; and (3) to provide a less personal and therefore less threatening way of exploring sensitive topics". As mental health problems are seen as a sensitive topic in the Netherlands and elsewhere and the participants were selected from the general population, a vignette (presenting 'an internalizing problem') was employed to create a clear context and safe atmosphere in which to discuss the topic (Appendix 1). The vignette used for this study was based on real life stories and was reviewed by a child psychiatrist.

Focus group guide

The FGDs were structured by means of a guide/list of questions (Appendix 2). The guide comprised three sections, each corresponding to the three stages of help-seeking. The guide had both general and probing questions framed on the three stages of help-seeking, the concepts of perceived severity, barriers and facilitating factors and, the vignette. Two additional prompts explored the influence of religion and ethnic background.

Questionnaire

In order to gain an idea of the characteristics of the participants and the FGDs, participants were invited to complete a questionnaire after the FGDs had ended. This questionnaire included items on background characteristics (i.e. education, religion, living situation), and the use of health services in the past year (i.e. general practitioner, mental health services, hospital). To take psychosocial well-being into account, the Strengths and Difficulties Questionnaire (SDQ) was also included²⁸. The SDQ is a brief behavioural screening instrument that asks about children's and teenagers' symptoms and positive attributes.²⁹⁻³¹ For this study the Total Difficulties scale was of interest. A cut-off value of 16 was used for this scale with a score above 16 indicating signs of emotional and social distress.^{29,31} The results of the questionnaire per FGD are presented in table 1.

Table 1 Characteristics of the participants and the Focus Group Discussions (FGDs)

	FGD 1 'Turkish' (N=8)	FGD 2 'Turkish' (N=8) ¹	FGD 3 'Turkish' (N=8)	FGD 4 'Moroccan' (N=8)	FGD 5 'Moroccan' (N=5) ²	FGD 6 'Dutch' (N=3)	FGD 7 'Dutch' (N=6) ³	FGD 8 'Dutch' (N=4) ⁴
Generational status								
% (N) Second generation	100 (8)	88 (6)	100 (8)	75 (6)	100 (4)	0 (0)	0 (0)	25 (1)
Age (years)								
Median (IQD)	21 (2)	17 (4)	19 (5)	16 (2)	16 (2)	13 (2)	14 (2)	15 (2)
Educational level % (N)								
High	25 (2)	12 (1)	50 (4)	38 (3)	0 (0)	0 (0)	17 (1)	50 (2)
Medium	75 (6)	88 (7)	38 (3)	50 (4)	100 (4)	100 (3)	83 (5)	50 (2)
Low	0 (0)	0 (0)	12 (1)	12 (1)	0 (0)	0 (0)	0 (0)	0 (0)
Religious affiliation % (N)								
Muslim	100 (8)	100 (7)	100 (8)	100 (8)	100 (5)	N.A. ⁵	0 (0)	25 (1)
Christian	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	N.A. ⁵	33 (2)	25 (1)
Other religion	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	N.A. ⁵	17 (1)	0 (0)
No religion	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	N.A. ⁵	50 (2)	50 (2)
Living situation								
% (N) Living with both parents	100 (7)	75 (6)	88 (7)	63 (5)	60 (3)	N.A. ⁵	67 (4)	75 (3)
Health service use past year (N)								
General practitioner	3	4	8	5	2	N.A. ⁵	3	3
Mental health care	1	0	0	0	0	N.A. ⁵	0	1
Medical specialist	2	0	0	0	0	N.A. ⁵	1	0
Social worker	1	0	0	0	1	N.A. ⁵	0	1
Peer help	0	0	0	0	0	N.A. ⁵	0	1
Youth health care	0	0	0	0	0	N.A. ⁵	0	1
SDQ total difficulties score⁶								
Median (IQD)	14 (6)	9 (4)	12 (6)	6 (5)	13 (4)	14 (13)	13 (6)	13 (5)
SDQ total difficulties score >16 % (N)	25 (2)	0 (0)	0 (0)	0 (0)	0 (0)	33 (1)	33 (2)	25 (1)

¹ FGD included one participant of Colombian background; ² FGD included one participant of Bosnian background; ³ FGD included one participant of Surinamese background; ⁴ FGD included one participant of Surinamese and one participant of Moroccan background; ⁵ Data not available; ⁶ Normal range 0-16 for girls. Score >16 indicates some form of distress [179]

Content analysis

Recordings from the FGDs were transcribed verbatim and entered into the NVivo (version 8) software program by the primary researcher (IF). A directed approach to content analysis was used to analyse the data. The goal of a directed approach is to “validate or extend conceptually a theoretical framework or theory”.³²

Firstly, a coding scheme using predetermined ‘major themes’ that were based on the three stages of mental health help-seeking (i.e. problem recognition, decision to seek help and service selection) and the Health Belief Model (i.e. perceived severity, barriers and facilitating factors) was developed by the first coder (IF).^{32,33} All text that represented a ‘major theme’ was coded as such by the first coder (IF). Text that was deemed relevant for the study aim but did not fit into the coding scheme was given a new code.

In a next step, the coded text was analysed extensively by two coders (IF & TB). Firstly, all coded text was reviewed to determine whether it adequately represented the ‘major theme’. This resulted in some minor changes (e.g. one passage was moved to another ‘major theme’). Hereafter, the coders went on to identify ‘subthemes’ of the major themes. Data that were given a new code in the first step were re-analysed to determine if the data represented a new ‘major theme’ or a ‘subtheme’. This resulted in the addition of two new ‘major themes’ (i.e. consequences of not seeking help and causal attribution).

In a last step, a more quantitative approach in which frequency of categories (how many times a subtheme was mentioned) and extensiveness (how many participants mentioned the subtheme) was applied to identify the most important subthemes and potential differences between FGDs.^{34,35} As a rule, it was decided that subthemes should be discussed in a majority of the FGDs by a majority of the participants to be considered an ‘overall’ finding (table 2). As a result of this analysis framework, five ‘overall’ subthemes were excluded. The coders additionally agreed that if a subtheme arose exclusively in a Turkish, Moroccan or Dutch FGD, it was considered as specific for that ethnic group (table 2).

In total, 7 major themes were identified with 21 corresponding subthemes (table 2).

Both coders were involved in selecting appropriate passages of themes that could thereafter be translated into English by a bilingual researcher (IF). Each FGD and participant was numbered so that each selected passage could be labelled with this information.

Table 2 Major themes and subthemes identified in Turkish, Moroccan and Dutch FDGs

Major themes	Subthemes		
	'Turkish' FDGs	'Moroccan' FDGs	'Dutch' FDGs
	All FDGs (overall findings)		
Problem recognition & causal attribution		Puberty Lack of attention	
Perceived severity	Normal for teenage girls		
Perceived consequences of not seeking help	Suicide loverboys (pimps)		
Perceived barriers of help-seeking	Distrust professional help at school Negative experience with mental health care Negative attitudes towards mental health care	Fear of parental shame Fear of parental disappointment	Shame of disclosing to strangers (professionals) Fear of not being taken seriously or believed
Facilitating factors	Self-security	Fear of parental shame Fear of parental disappointment	
Service selection	Mothers Friends School (school-related problems) Formal help through mental health professional (last option)	Puberty Insecurity Anonymity (Dutch professional) Cultural understanding (Turkish professional)	'Depressed' or 'psychological' problem Anonymity (Dutch professional) Cultural understanding (Moroccan professional)

RESULTS

Characteristics of the participants and the FGDs

A total of 50 girls participated in the eight FGDs, which were organized according to the participants' ethnic background (table 1). Three FGDs were classified as 'Turkish' (FGD 1, N=8; FGD 2, N=8; FGD 3, N=8), two as 'Moroccan' (FGD 4, N=8; FGD 5, N=5) and three as 'Dutch' (FGD 6, N=3; FGD 7, N=6; FGD 8, N=4). Four participants had an ethnic background other than Turkish, Moroccan or Dutch (i.e. Colombian, Bosnian and Surinamese). In view of small numbers, these participants were excluded from the content analysis. All participants provided their informed consent.

Most of the participants in the Turkish and Moroccan FGDs were second generation immigrants and felt most affiliated to the Muslim faith (table 1). In the Dutch FGDs most participants reported to have no religion. Median age of the FGD participants ranged from 13 (IQD 2) in FGD 6 (Dutch) to 21 (IQD 2) in FGD 1 (Turkish). In the Turkish FGDs, median age of the participants was slightly higher than in the other FGDs. In a majority of the FGDs, participants had a medium level education with the exception of one Turkish and one Dutch FGD where half of the participants had a high level education. In all FGDs most of the participants reported to live with both their parents. At least one participant in all FGDs had visited a General Practitioner³⁶ the past year. A small minority had used other health services. In all FGDs the median score of the SDQ total difficulties scale was below the cut-off for psychological distress. Six participants presented a score above the cut-off.

Qualitative findings

Stage 1: Problem recognition

Participants of the FGDs recognized that the character described in the vignette had a problem. Suicide or contact with 'lover boys' (pimps) were mentioned as a possible consequence of not seeking help: "If she keeps on crying then at some point she'll probably think she doesn't want to live anymore. I think you'll get those kinds of thoughts quite quickly" (Turkish FGD 2, participant 1), "I think things are only going to get worse if she doesn't talk to anyone. It may even lead to suicide or she might get in touch with a lover boy" (Dutch FGD 8, participant 4).

Despite stating these consequences, participants of the FGDs did not perceive the problem in the vignette as severe. They indicated that it was a normal problem that every teenager has to deal with “But it could be any random girl. She’s just going through puberty. I think any girl who’s 15 feels like this” (Moroccan FGD 4, participant 5).

Ethnic background, problem recognition and causal attribution

A marked difference existed between Dutch and non-Dutch FGDs in the way participants described the problem. When asked what was ‘wrong’ with the character in the vignette, participants of Dutch FGDs more often identified the emotional state (i.e. depression) whereas the participants of Turkish and Moroccan FGDs more often named the cause. Facilitator: “So what do you think is wrong with this girl?” “I think that she’s just depressed about everything” (Dutch FGD 7, participant 5) “I think she’s getting too little attention” (Moroccan FGD 4, participant 10).

Stage II Decision to seek help

In all FGDs, distrust was identified as an important barrier to seeking help. In particular, school-based services (i.e. teachers) were identified as untrustworthy by participants: “Some teachers immediately tell others” “But of course you do have counsellors or doctors; they also come to the schools.” “Either way, you need to know how a teacher will react otherwise you’ll never tell them” (Turkish FGD 2, multiple participants). “They’re always going to tell your parents. They’ll tell you that they won’t - but they’ll phone them anyway” (Dutch FGD 7, participant 5).

In Turkish and Dutch FGDs, participants who had been in contact with formal mental health services had negative attitudes towards these services based on previous experiences. Participants indicated that professionals often “talk things into your head” which makes the problem even worse: “Well at some point I even got into a fight with the professional at the institution, I wasn’t allowed to come back. They’d ask me the same question 100 times. At some point I said: if “yes” is what you want to hear then I’ll say YES!” (Dutch FGD 8, participant 4).

Even the participants without direct experience had negative attitudes: “Well I haven’t been there myself, but a friend of mine went and she said that all those stories - that your problems only get worse and that you need to talk about your problems all the time - are true. At least that’s what I understood. It must be a method or something” (Turkish FGD 1, participant 7).

Participants of the FGDs felt that having more self-confidence would facilitate help seeking, but would also be a solution to the problem: “If you’re self-confident then things will just be better” (Turkish FGD 2, participant 1).

Ethnic background, perceived barriers and facilitating factors

The fear of negative reactions of family/friends represented a barrier for participants of the FGDs. However, in Turkish and Moroccan FGDs the fear of negative reactions was identified as a barrier more often than in Dutch FGDs. Additionally, different types of negative reactions were identified compared to Dutch FGDs; most participants of non-Dutch FGDs particularly feared disappointing, worrying or shaming their parents: “Well I think shame plays a role - but also being scared that they’re going to be too worried about you. You want to show your parents that things are going well with you - and that you’re doing well at school for instance” (Moroccan FGD 4, participant 1). Participants also feared the reactions of friends “There might be friends that will think that you’re crazy or something” (Turkish FGD 1, participant 1). Participants of Dutch FGDs preferred not to tell their parents because they thought they would not take them seriously: “I don’t even dare tell anything. I know that my mom won’t react negatively but I’m just scared that she won’t understand me” (Dutch FGD 8, participant 4).

In Dutch FGDs, participants agreed that they would not go to a professional because they are not familiar/known to you: “Well you’re not familiar with those people. You’re not really sure if the things you tell them will be interpreted in the right way” (Dutch FGD 6, participant 2).

Opinions about whether a professional should have the same ethnic background were not unanimous. Participants of Turkish and Moroccan FGDs indicated that a professional with the same cultural background would be able to help them better: “I don’t understand how someone with a different cultural background can understand me if I have problems at home that they don’t experience” (Turkish FGD 1, participant 1). However, others indicated that it did not matter to them, or that they would even prefer to visit a Dutch professional: Facilitator: “Would it help if the psychiatrist was Moroccan?” “I would be ashamed, maybe it’s family. That’s often the case in the Moroccan community” (Moroccan FGD 4, participant 1). Participants of Turkish FGDs in particular mentioned that seeking help from a Dutch professional would make help-seeking easier because the conversation is confidential and because you do not know them personally: “I would convince her to seek help from a psychologist that she doesn’t know. That’s always easier” (Turkish FGD 3, participant 1).

Stage III Service selection

When asked whom they would talk to about their problems first, participants of the FGDs said this would either be a close friend or their mother. The reason for choosing their mother was because she is trustworthy and knows you very well: “Moms can just feel everything. I, for instance, can’t lie to my mom. I find it so weird - but she always knows the truth!” (Moroccan FGD 4, participant 1). Friends were identified as the first person to talk to because you see them regularly: “I think my friends will be the first to notice that things aren’t going well with me ... so because of that I’d speak to my friends about it first” (Dutch FGD 7, participant 1).

Although participants preferred not to go to a teacher for help related to internalizing problems, school counsellors and teachers were nonetheless identified as helpful when it came to issues related to school: “Well it depends, look - if I’m not feeling well but at school everything is going all right I won’t tell a teacher. But if things aren’t going well at school either, then I’d tell them rather than keep quiet” (Moroccan FGD 5, participant 6).

Participants of the FGDs indicated that seeking help from a formal mental health service was only necessary if you have a very serious problem. They considered that the problems of the character in the vignette were not severe enough: “If you have very serious problems - not like this girl because her problems aren’t that serious - well then I’d seek some professional help” (Turkish FGD 2, participant 4).

DISCUSSION

This study showed that, although adolescent girls could clearly envision the long-term consequences of internalizing problems, the problems presented in the vignette were not identified as severe. Participants indicated that if they were to face an internalizing problem of their own, negative attitudes towards professionals and school-based services, as well as fear of certain reactions from parents and friends, might hamper them from seeking help. Despite these feared reactions, participants indicated they would first seek help from friends or their mothers when dealing with internalizing problems.

Differences between Dutch and non-Dutch FGDs were found with regard to recognition of the problem described in the vignette. Participants of Turkish and Moroccan FGDs more often referred to the cause of the problem (e.g. lack of attention) while participants of Dutch FGDs referred to the emotional state (e.g. depression). Other studies

have also shown that causal attributions may differ according to ethnic background.^{37,38} In turn, it has been found that causal attributions influence help-seeking pathways, communication with clinicians, treatment compliance and the course of illness.³⁹ In a Turkish study, Gulek⁴⁰ found that normalizing attribution (when a person looks for an external or environmental explanation of disease) negatively influences help-seeking behaviour for fibromyalgia and contributes to non-help-seeking. Han et al.⁴¹ found that attribution to an internal cause of a problem (i.e. insecurity) hampers help-seeking whereas holding a more biological conceptualizing of a disease enhances help-seeking. The differences in causal attributions found in this study may be a possible explanation for the underutilization of mental health services in ethnic minority youth.

We further found that the adolescent girls in this study had difficulty recognizing the severity of the internalizing problems presented in the vignette. This is in line with a study on suicidality and help-seeking in African American adolescents.¹⁸ A probable explanation for this finding might be that internalizing problems are more often overlooked, since they are less disruptive than externalizing problems.⁴² In addition, adolescence might be a phase of life that makes it more difficult to distinguish between puberty-related issues and serious on-going problems.

This study revealed that, should an internalizing problem arise, negative attitudes towards mental health professionals and school-based care would form a barrier to the decision to seek help. Other studies on ethnic minority groups and adolescents reported similar findings.^{43,44} We found that these attitudes are often caused by a negative experience, e.g. a teacher contacts the parents and the problem subsequently gets known by others. This also explains why our participants preferred to seek help from a friend or their mother rather than from a professional or school social worker. This study further revealed that participants of Turkish FGD's perceived seeking help from a professional, some one that is unknown to you, as a facilitating factor, whereas participants of Dutch FGDs perceived this to be a barrier. This may be because particularly in this study adolescents from ethnic minority groups feared 'shame and gossiping' and would therefore prefer to seek help from an anonymous/confidential source.

Another difference between the Dutch and non-Dutch FGDs was that participants of Moroccan and Turkish FGDs more often feared negative reactions of parents and friends than participants of Dutch FGDs, and also indicated that the reactions of parents/friends would hamper disclosure. Studies among Asian migrants in the USA and the UK reported similar results.^{13,19} One reason for this may be the differences in family roles, parenting style and stigmatization of mental health problems, which are often influenced by cultural norms.^{13,45} Though this research did not indicate a specific role of religious norms,

these factors may have also contributed to the differences in perceptions, particularly given that participants from the ethnic minority groups were mostly Muslim.

In the present study, adolescent girls preferred to firstly turn to their friends or mothers when dealing with an internalizing problem, as also reported by others.⁴⁶⁻⁴⁹ We found no differences between the Dutch and non-Dutch FGDs regarding whom adolescent girls would turn to. It is noteworthy that the fear of negative reactions from mothers and/or friends would not stop the participants in this study from seeking help from them. As found in this study and others⁴⁶ this is probably because once they have overcome the barriers, mothers and friends are the most trustworthy and accessible persons to turn to. Additionally, this may also be related to the fact that they are adolescents (i.e. neither children nor adults) and thus fall in between various social systems.¹⁷

Some methodological issues need to be addressed. A positive aspect of this study is that it included adolescent girls from ethnic minorities and the majority group hence facilitating the cross-cultural comparison of perceptions regarding mental health help-seeking. This study also had several limitations. Firstly, the facilitators were of Dutch origin, which might imply that they had more difficulty interpreting the discussions and asking appropriate questions in the Moroccan and Turkish FGDs. To reduce this influence, prompts on cultural and religious factors (e.g. whether the participants would turn to a religious clergy) were available for Moroccan and Turkish FGDs. These however proved unnecessary as the participants openly discussed these topics without the prompts. To make the FGDs as comparable as possible, a focus group guide was applied. This created a clear context but the use of these tools might also have restricted the discussion. In addition, the text used to illustrate the results of this study was translated from Dutch to English by a bilingual researcher; some information may have been lost during the translation process. Also, two of the groups had less than five respondents; the results from these groups were only used when they were confirmed in other larger groups. Four participants had an ethnic background other than Dutch, Turkish or Moroccan. Although we excluded these participants from the content analysis it should be noted that these girls nevertheless participated in three focus group discussions and they may have had a minor influence on the discussions.

The participants in this study were recruited through convenience sampling hence making it difficult to generalize this study's findings to the larger population of adolescent girls in Rotterdam with Dutch, Moroccan and Turkish backgrounds. For instance, the great majority of the ethnic minority participants included in this study were second-generation immigrants and results can therefore not be generalized to 1st generation immigrants, who are likely to vary in their levels of acculturation and help-seeking

behaviour.^{15,50} Furthermore, the presence of internalizing problems was not an inclusion criterion for participation. Findings may therefore not be representative to adolescents with internalizing problems. It should also be noted that the FGDs varied according to age and educational level. Consequently, we cannot rule out that these characteristics may have partly influenced the participant's perceptions.

This study indicates that priority should be given to making internalizing problems better known to teenage girls (e.g. via awareness-raising campaigns in schools and communities) and facilitating help-seeking from friends or mothers. School resources like peer discussion groups or parent-teacher meetings may be helpful in this regard. Besides this, little is known about the roles and perceptions of peers and mothers in the help-seeking process. More research into this issue is recommended. Considering the negative attitudes of the adolescent girls towards mental health services and school-based services found in this study, it may be beneficial to more closely match the available services to the needs of adolescent girls from diverse ethnic backgrounds. This study also showed that guaranteeing confidentiality in the school setting, and specific training for professionals in working with adolescent girls and their problems, may be important.

KEY MESSAGES

This study explored how adolescent girls with different ethnic backgrounds perceive help-seeking behaviour for internalizing problems. We found that participants of mostly Turkish, Moroccan and Dutch backgrounds had difficulty assessing the severity of internalizing problems and, should a problem arise, they would be hampered by negative attitudes towards school-based services and mental health professionals. Mothers and friends were identified as primary sources of help by all participants. In non-Dutch FGDs, participants were found to describe the internalizing problems presented in the vignette differently than participants of Dutch FGDs and the fear of reactions of their parents and friends was more often identified as a barrier than by participants of Dutch FGDs.

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APPENDIX 1 VIGNETTE

Dina, aged 15 years

Dina is from a family with four children. For some time now things haven't been going well for her. She cries a lot and doesn't sleep well. For nights in a row she lies worrying: about school, about boys and about the situation at home. At school, her classmates bully her and laugh at her. She thinks it's because she always blushes during presentations. Also, her grades are not good: there's even a possibility she won't pass this year. Her parents don't agree with this and have spoken to her teacher several times. At home they're always moaning about her low grades. Her brothers and sisters don't interfere with her life. Dina thinks they're better at everything anyway.

For some time, she hasn't been in the mood for school. She has skipped some classes already, preferring to stay in bed all day, to listen to music and to ponder.

APPENDIX 2 QUESTIONS USED AS PROMPTS DURING THE FGDS

1. What do you think is wrong with Dina?
2. Do you think it's serious/severe?
3. What could happen to Dina if she doesn't seek help?
4. Why do you think she has these problems?
5. Do you think that a Moroccan or Turkish girl could also have these kinds of problems?
6. How would your friends react if you had such a problem?
7. How would other people from your environment react (i.e. mother, father, teachers or other family members)?
8. How important do you find it is for Dina to seek help?
9. Imagine you're dealing with the same problems, who would you approach for help?
10. Which obstacles would hold you back from seeking help?
11. What would make seeking help easier?
12. Do you think Dina can seek help by herself?
13. Do you know anyone that has sought help for problems like these?
14. Can you tell us a little more about it?
15. Should Dina have sought help earlier?
16. When should she have done that?

17. Can Dina solve her problems by herself?
18. How can friends help?
19. How can parents help?
20. How can teachers help?
21. How can professionals (GPs, social workers, psychologists) help?
22. Say Dina is a Moroccan or Turkish girl, are there any members of the clergy or religious gatekeepers she can turn to?
23. Are some groups more vulnerable for these kinds of problems?
24. What do you think causes these problems?

Chapter 7

The role of maternal perceptions and ethnic background in the mental health help-seeking pathway of adolescent girls

Based on: Flink, I.J.E. / Beirens, T.M.J. / Butte, D. / Raat, H. The role of maternal perceptions and ethnic background in the mental health help-seeking pathway of adolescent girls

Journal of Immigrant and Minority Health. 2013 Apr;15(2):292-9.





ABSTRACT

Background: Mothers play a crucial role in the help-seeking pathway of adolescents. This study examined how mothers with different ethnic backgrounds perceive the issue of help-seeking for internalizing problems (e.g. depression) in adolescent girls.

Methods: Seven focus group discussions were conducted with 41 Dutch, Moroccan and Turkish mothers with a teenage daughter. Discussions were conceptually framed within a model of help-seeking and facilitated by a vignette.

Results: The internalizing problems sketched in the vignette were recognized as severe nonetheless; identified long term consequences varied per ethnic group. Negative attitudes towards General Practitioners, inaccessible mental health services and denial by daughters would hamper help-seeking. Fear of negative judgments/gossiping was considered a barrier by Turkish and Moroccan participants. Participants identified themselves and schools as primary sources of help. Turkish participants also named chaplains.

Discussion: To enhance utilization of mental health services by (minority) youth it is important to also address maternal barriers.

BACKGROUND

Internalizing problems or problems that are mainly within the self like depression and anxiety¹ greatly affect adolescents. Declining school performance, loss of social relations and substance abuse are some of the frequently reported outcomes of internalizing problems.^{2,3} A vast number of studies have shown that adolescent girls, and particularly those from ethnic minority groups, are more at risk of developing internalizing problems than their male counterparts.⁴⁻⁶ Early detection and treatment of these problems in adolescent girls is thus of utter importance. A big concern however, is that underutilization of mental health services is high in adolescents⁷ and even higher in adolescents from ethnic minority groups in Western countries.⁸⁻¹⁰

Research has shown that parents play an important role in the help-seeking pathway of adolescents. In a review by Zwaanswijk et al.¹¹ parental attitudes, beliefs, educational level and family stress were main determinants of adolescent help-seeking. In adolescent girls, maternal perceptions may be particularly important, as mothers are important figures in their lives. The aim of this study was to examine how mothers with different ethnic backgrounds perceive the issue of help-seeking for internalizing problems experienced by adolescent girls.

THEORETICAL FRAMEWORK

A model for mental health help-seeking (see Figure 1) developed by Caucé et al.¹², was used for exploring the influence of ethnic background on maternal perceptions of help-seeking. The model consists of three stages of help-seeking that are not necessarily sequential. Stage I in the pathway, referred to as problem recognition, takes into account two types of need: (1) epidemiologically defined need typically assessed according to the Diagnostic and Statistical Manual of Mental Disorders (DSM) criteria, with a clear focus on diagnosis and disease; and (2) perceived need which refers to personal perceptions of need. Stage II, the decision to seek help, consists of a coercive and voluntary process. The coercive process refers to mandated referrals, while the voluntary process refers to voluntary help-seeking which is often influenced by perceptions and attitudes. Stage III, service selection, looks at who the help-seeker turns to after identifying a problem and deciding to seek help. Context and culture are hypothesized to influence all three stages of help seeking.¹²

In order to elaborate on the three stages, concepts from the latest version of the Health Belief Model (HBM) by Rosenstock et al.¹³ were also considered. The HBM posits

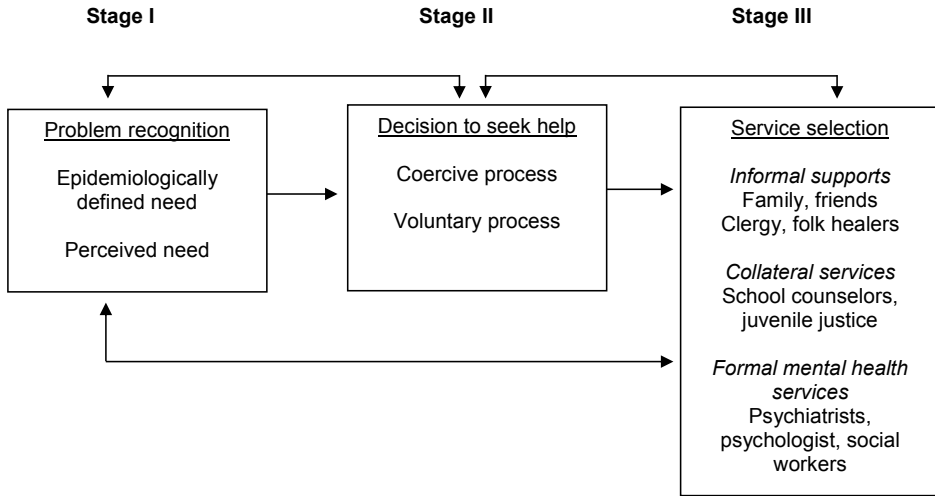


Figure 1 A three-stage model for mental health help-seeking among adolescents adapted from Cauce et al.¹²

that “prevention, screening or, control of ill health conditions are more likely if people regard themselves as susceptible to the condition, if they believe it has serious consequences, if they believe an available action will reduce their susceptibility or severity of the condition and, if the barriers to actions are outweighed by the benefits”.¹⁴ The concepts of perceived severity (how severe are internalizing problems), and perceived barriers and facilitating factors (what hampers or facilitates help seeking), were taken into account.

METHODS

Participants

A convenience sample of 41 mothers was recruited via migrant organizations, mosques and schools in a multicultural urban area (Rotterdam, the Netherlands). Recruitment via mental health services was avoided as the focus was on mothers from the general population. Participants were eligible to participate if they were mothers with a teenage daughter aged between 12 and 20 years, and with one of the following ethnic backgrounds: Dutch, Turkish or Moroccan (Turks and Moroccans being the two major ethnic minority groups in the Netherlands). Ethnic background was determined on the basis of the country of birth of the participating mother and her parents.¹⁵

Data collection

The Medical Ethical Committee of the Erasmus MC-University Medical Centre Rotterdam approved the study. All participants provided their informed consent. The focus group discussions (FGDs) were held in groups of 3 to 10 participants (clustered according to ethnic background) in schools, centres for women, or mosques. Two FGDs were conducted in Turkish. The remainder of the groups was Dutch spoken however, in these groups a Turkish or Moroccan interpreter was present. Attention was paid to saturation of data. After the seventh FGD had taken place no new themes arose, and data collection ceased. The discussions lasted one hour and 15 minutes and the participants received a small incentive for participation. All FGDs were recorded.

Measures

Vignette and focus group guide

A vignette, presenting internalizing problems in an adolescent girl, was employed (appendix 1). The Focus Group Guide (appendix 2) was based on the vignette and comprised three sections, corresponding to the three stages of help-seeking. General and probing questions were based on the three stages, perceived severity, barriers and facilitating factors.

Questionnaire

The participants completed a questionnaire after the FGDs had ended. This questionnaire included items on background characteristics (e.g. education), and the use of health services in the past year by the participants and their daughters (e.g. mental health services). As psychological well-being may influence maternal perceptions of help-seeking¹⁶, the General Health Questionnaire 12 (GHQ 12) was administered.¹⁷ The GHQ 12 screens for non-psychotic psychiatric disorders in adults.¹⁸ A cut-off score of 15 was used for defining clinical signs of distress as proposed by Goldberg.¹⁹

Analysis

The recordings from the FGDs were transcribed verbatim and entered into the NVivo software program (version 8) by the primary researcher. Systematic coding of themes

and subsequent categories was performed by one coder. Content analysis was conducted by two coders. Major themes were defined beforehand by the two coders and were based on the theoretical framework of the present study. Minor themes were derived from the data.²⁰ Member checking took place by comparing and discussing the major and minor themes. As a rule, it was decided that themes should be named or discussed by at least two participants per focus group and should arise in all groups, to be considered as an overall finding. If a theme arose exclusively in a Turkish, Moroccan or Dutch group, it would be considered as specific for that ethnic group.

RESULTS

Participant characteristics

Table 1 gives a description of the participants (N=41). Participants were of Dutch (26.8%), Moroccan (31.7 %) or Turkish (41.5%) origin. All non-Dutch participants were first generation immigrants. Age of the participants was 44.3 (Standard Deviation (SD) 6.1; range 32-64 years) and mean age of their teenage daughters (N=46) was 15.2 (SD 2.4; range 10-20 years). A majority (77.1%) reported to be Muslim. Educational level was based on the highest completed degree of the participant and was considered low when the participant completed no education or primary education, mid when the participant followed vocational or vocational preparatory education and high when the participant followed university preparatory or higher education. Participants mostly had a low level of education (52.5%), lived with their partner and children (82.9%) and reported to be housewives (53.7 %). Most had sought help from a general/family practitioner (GP) for themselves and their daughters. The mean score (SD) on the GHQ 12 was 9.1 (5.4). Five participants had a score above 15.0.

Perceptions of help-seeking

Stage I: Problem recognition and perceived severity

Most participants recognized that the character in the vignette was dealing with an emotional problem “Well, because she is being bullied and doesn’t feel like going to school, she gets emotional complaints” (Moroccan participant, FGD 1, 2). All participants

Table 1 Participant characteristics

	Mean (SD/range)	% (N)
Characteristics of participants (N=41)		
Age (in years)	44.3 (6.1) (32-64)	
<i>Ethnicity</i>		
Dutch		26.8 (11)
Moroccan		31.7 (13)
Turkish		41.5 (17)
<i>Religious affiliation</i> ¹		
Islam		77.1 (27)
Christianity		5.7 (2)
Other		2.9 (1)
No religion		14.3 (5)
<i>Highest attained educational level</i> ^{2,3}		
Low		52.5 (21)
Mid		35.0 (14)
High		12.5 (5)
<i>Employment status</i>		
Full-time		4.9 (2)
Part-time		34.1 (14)
Housewife		53.7 (22)
Unemployed		7.3 (3)
<i>Current family situation</i>		
Living with partner and children		82.9 (34)
Living alone with children		17.1 (7)
General health questionnaire 12 score ⁴	9.1 (5.4) (0-28)	
General health questionnaire score > 15		15.0 (5)
<i>Health service use for self (past year)</i>		
GP		35
Medical specialist		7
Mental health care		4
Social worker		2
<i>Health service use for daughter (past year)</i>		
GP		15
Mental health care		3
Medical specialist		4
Social worker		4
Peer help		1
Youth health care		1
Characteristics of teenage daughters (N=46)		
Age (in years)	15.2 (2.4) (10-20)	

¹Data missing for 6 participants²Data missing for 1 participant³Educational level low when the participant completed no education or primary education, mid when the participant followed vocational or vocational preparatory education and high when the participant followed university preparatory or higher education⁴Scores of about 11-12 are typical. Score >15 evidence of distress

expressed that the problem was severe “Well, lying in bed all day listening to music, pondering and skipping class is very problematic” (Dutch participant, FGD 2, 3).

Ethnic differences

Ethnic differences were found in the identified consequences of not seeking help. Turkish and Moroccan participants more often indicated that if nothing changed in the character’s situation she could commit suicide “She could go so far that she commits suicide” (Turkish participant, FGD 3, 4). Dutch participants also indicated that suicide was possible however, falling prey of a lover boy (pimp) seemed more realistic to them “I think that there is a bigger chance of her coming into contact with a lover boy than suicide” (Dutch participant, FGD 1, 3).

Stage II: Decision to seek help

Barriers to help-seeking

Although the General Practitioner (GP) was identified as an important gatekeeper to mental health services by all participants “The GP can play a big role because he can tell you where to go and who to choose: a social worker or a psychiatrist” (Moroccan participant, FGD 2), some participants expressed that the GP did not take them seriously “The GPs here are dramatic. They sit behind their computers and ask you to tell them what you have and then tell you that what you have is very common, that everyone has it. That’s how it goes” (Turkish participant, FGD 1, 3).

A majority of the participants expressed that formal mental health services were inaccessible. Dutch participants named long waiting lists and a lack overview of the available mental health services as factors that would hamper them from seeking help from a formal mental health service “My daughter had been to a, uhm, I don’t even know what it’s called. It’s confusing, one day it’s called RIAGG and the other day it’s called something else. But it all takes so long. We started going there 7 or 8 months ago and nothing has actually happened since” (Dutch participant, FGD 1, 5). Some Turkish participants complained about the treatment “I have been to a psychologist. I was asked to go back to my past, my childhood. I had to talk about things that I had done when I was 8, well that doesn’t make me feel any better, psychologically” (Turkish participant, FGD 2, 6).

In all groups, the majority of the participants mentioned that teenage girls often deny that they have a problem. As a result, their mothers find it difficult to identify problems in their daughters and to seek help “I find it a pity that girls of 14, 15 or 16 are usually not open to their moms, no matter how sweet she is. They don’t dare to tell you what’s bothering them. It’s a pity because this way you can’t help them” (Moroccan participant, FGD 2, 7).

Ethnic differences

Most Moroccan and Turkish participants expressed that they feared negative judgments/gossiping when telling anyone outside of the immediate family (e.g. neighbours) about internalizing problems experienced by their daughters “They will immediately start to gossip” “Yes, like have you heard it, she’s done this and that, it’ll go about” (Turkish participant, FGD 3, 4).

Facilitating factors

All participants indicated that a good and trustful bond with your daughter would make it easier for her to come to you when she has a problem “The important thing is having good contact with your daughter and parenting. As in, if there is something you need, come to me. For instance: a problem at school. You need to know about the problem” (Moroccan participant FGD 1, 7).

Ethnic differences

Although all Dutch participants indicated that the school should play a more prominent role in detecting problems and providing feedback concerning problems to the parents, most Dutch participants also expressed that anonymity of a conversation with a professional is of importance for teenage girls, particularly in school settings “If a child clearly states that she does not want them to tell her parents then they shouldn’t” (Dutch participant, FGD 1, 1). Some Turkish and Moroccan participants felt responsible for updating the school if anything was wrong with their daughter “If a child tells the teacher about her problems then there should be some kind of feedback to the mother. I always tell the teacher about problems as well. This way the teacher knows and can keep an eye open” (Turkish participant, FGD 1, 2).

Stage III: Selection of services

Informal services

All participants expressed that an adolescent girl should initially go to her mother so that she can help her further “At the age of 15 she can’t seek help by herself. She needs to go to a psychologist, together with her mother. This way her mother can send her to one” (Turkish participant, FGD 2, 3). After they’ve talked one on one with their daughters, most participants indicated that their next step would be to seek advice from a good friend, a family member or someone from their social network “I would ask advice from a friend or my sister. You need to find a sounding board and ask them whether they think that you’re doing the right thing or whether you are exaggerating for instance” (Dutch participant, FGD 1, 3).

School-based services

All participants had big expectations concerning the role of teachers and schools in detecting emotional or internalizing problems in children and adolescents “A teacher will notice when a child has problems. She spends more time at school than at home and they’re not blind” (Moroccan participant, FGD 2, 7).

Most participants identified school social workers as the first professional that teenage girls should seek help from because they are the most accessible “My experience is that a child first seeks help at school. She’ll have a conversation there and after that you can go to a GP, this also makes it easier for them to go to a GP” (Dutch participant, FGD 2, 3).

Formal services

If help had to be sought outside school, social workers and GPs were identified as the most accessible professionals by most participants “I hope that, in the end, a social worker is the one that gets her back on track and makes her stronger” (Dutch participant, FGD 1, 3) “I always say; even if you don’t know anything you will always be able to find the GP” (Turkish participant, FGD 1, 3).

Psychiatrists and psychologists were named as the last option by most participants because they thought that it was too big of a step for an adolescent girl “I think that

my daughter should come to me first. If we are not able to solve it amongst the two of us then I could look for external help. Possibly a psychiatrist, but only if it's really necessary. I personally find a psychiatrist a bit too much for a 15 year old" (Moroccan participant, FGD 2, 10).

Ethnic differences

Some Turkish participants also indicated that they would seek help from a chaplain because they are more accessible and easy to talk to than a Dutch professional "I would personally feel more at ease if I talked to my chaplain about these types of problems. She will give me advice" (Turkish participant, FGD 2, 6).

DISCUSSION

This study examined how mothers with different ethnic backgrounds perceive the issue of help-seeking for internalizing problems experienced by adolescent girls. Findings showed that all participants recognized the severity of internalizing problems. If their daughters were to face internalizing problems, negative attitudes towards General/Family Practitioners (gatekeepers to Dutch mental health care), inaccessible mental health care and denial by daughters, would hamper mothers from seeking professional help. In ethnic minority groups, negative judgments and gossiping were additionally perceived as barriers. Good contact with schools and their daughters would facilitate help-seeking. Participants had a preference for dealing with internalizing problems experienced by their daughters in the informal care setting (e.g. schools).

Before discussing the findings of this study further, it is important to consider its strengths and limitations. A strength is that it includes three different ethnic groups hence facilitating the cross-cultural comparison of perceptions and leading to a better understanding of differences in mental health service utilization among ethnic groups. The first limitation is one of generalizability. The findings of this study are representative for a small sample of mostly low educated Dutch, and first generation Turkish and Moroccan mothers, living in an urban area that were recruited from the general population. It is possible that findings would have been different if higher educated mothers or mothers with more experience with mental health care had been included. Additionally, solely including first generation immigrants did not permit us to look at the influence of acculturation, which has been associated with help-seeking behaviour.^{21,22}

Regardless, we do believe that parallels can be drawn with non-Western ethnic minority groups in other developed economies as they often face similar situations. Some Turkish and Moroccan participants experienced language barriers in the Dutch spoken groups. Although it was desirable to include these participants, it should be noted that some FGDs may have been dominated by those that mastered the language better. Lastly, this study only focused on ethnic background as this was our determinant of interest. It is however possible that other demographic characteristics like educational level, working status or age, which may be intertwined with the immigrant status and ethnic background, influenced perceptions of maternal help-seeking.

A clear barrier to help-seeking that arose in all FGDs was the denial by daughters when confronted with their emotional state by their mothers. Studies on eating disorders in adolescent girls, also a sensitive topic, showed similar results^{23,24,25}. Another barrier to help-seeking that was perceived in some groups was a negative attitude towards General/Family Practitioners (GPs). In the Netherlands, GPs form the gatekeepers to mental health care for adults and youth.²⁶ If parents are reluctant to go to a GP when dealing with mental health problems (their own or their child's), they may not seek help at all or will remain in informal care. This is problematic if problems get more serious.

In terms of service selection, participants' expressed a clear preference for informal care and care at school and were reluctant to seek help from formal mental health care. In general, participants expected their teenage daughters to firstly turn to them when experiencing emotional problems. Hereafter other forms of informal care could be sought. This is in line with previous research.^{27,28} It is noteworthy that participants did not mention consulting their daughter's friends as a possible source of help even though this is often whom adolescents turn to first.²⁹ This is in accordance with findings from the Access to Mental Health Care in Children study (AMHC) conducted in Switzerland and Portugal.^{30,31} In our study, the primary reason for choosing informal care over formal care was that participants thought that adolescents are too young to get involved in formal care and therefore, they preferred them to seek help at school. As suggested by other studies^{27,28,30}, it is also possible that the stigmas attached to receiving help from a mental health professional (e.g. a psychiatrist) may be an additional reason for this reluctance.

Ethnic background played a role in maternal help-seeking however, most differences were only apparent between the majority and the minority groups. Firstly, Moroccan and Turkish participants perceived different consequences of internalizing problems than Dutch participants. Turkish and Moroccan participants named suicide more often whereas Dutch participants indicated that falling prey to a loverboy (pimp) was more re-

alistic. A plausible explanation for this may lie in parenting style; Moroccan and Turkish girls are raised in a more authoritarian way and often have less freedom of movement and are thus more likely to stay at home than go out on the streets when experiencing internalizing problems.³² As all Moroccan and Turkish participants in this study reported to be Muslims, it is possible that religious norms influence family values and parenting issues.¹²

A barrier that hampered ethnic minority groups to seek help was the fear of negative judgments (i.e. gossiping) by others. Other researchers have also found this barrier to influence help-seeking for mental health problems in ethnic minority groups³³. Persisting taboos surrounding mental health problems may be a plausible reason for this fear.^{33,34}

There proved to be some discrepancy between the ethnic majority and the ethnic minority groups regarding anonymity and confidentiality in the school setting. Dutch participants clearly indicated that a conversation between a professional and an adolescent should be kept confidential. On the contrary, Turkish and Moroccan participants expressed that it was necessary to regularly inform teachers on how their children were doing and they did not mention confidentiality as important in this regard. Goncalvez et al.³⁰ also found that, according to teachers, immigrant parents greatly value communication and seek contact with teachers to vent their problems. The perceptions of Turkish and Moroccan mothers regarding confidentiality may, in part, explain why Turkish and Moroccan girls are more reluctant to seek help from, amongst others, their parents.²⁶ Regardless of these discrepancies, all participants indicated that the school should play a more prominent role in detecting and treating mental health problems in pupils and contacting parents when this proved necessary.

CONCLUSION

This study identified maternal perceptions of mental health help-seeking for adolescent girls, taking ethnic background into account. To enhance utilization of mental health services, it will be beneficial to increase parental knowledge of internalizing problems so that problems can be detected and treated in an early stage despite denial by adolescent girls. Attention should also be paid to changing maternal attitudes towards General Practitioners or other gatekeepers to mental health care. In ethnic minority groups, mental health problems should be made more discussable so that taboos can be tackled. Lastly, the school could play a more prominent role in detecting and treating internalizing problems nevertheless, confidentiality should be considered.

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APPENDIX 1 VIGNETTE

Dina, aged 15 years

Dina is from a family with four children. For some time now things haven't been going well for her. She cries a lot and doesn't sleep well. For nights in a row she lies worrying: about school, about boys and about the situation at home. At school, her classmates bully her and laugh at her. She thinks it's because she always blushes during presentations. Also, her grades are not good: there's even a possibility she won't pass this year. Her parents don't agree with this and have spoken to her teacher several times. At home they're always moaning about her low grades. Her brothers and sisters don't interfere with her life. Dina thinks they're better at everything anyway.

For some time, she hasn't been in the mood for school. She has skipped some classes already, preferring to stay in bed all day, to listen to music and to ponder.

APPENDIX 2 QUESTIONS USED AS PROMPTS DURING THE FGDS

1. What do you think is wrong with Dina?
2. Do you think it's serious/severe?
3. What could happen to Dina if she doesn't seek help?
4. Why do you think she has these problems?
5. Do you think that a Moroccan or Turkish girl could also have these kinds of problems?
6. How would your friends react if your daughter had such a problem?
7. How would other people from your environment react (i.e. teachers, other family members, and friends)?
8. How important do you find it is for Dina to seek help?
9. Imagine your daughter is dealing with the same problems, who would you approach for help?
10. Which obstacles would hold you back from seeking help for her?
11. What would make seeking help easier?
12. Do you think Dina can seek help by herself?
13. Do you know anyone that has helped her daughter to seek help for problems like these?
14. Can you tell us a little more about it?

15. Should Dina have sought help earlier?
16. When should she have done that?
17. Can Dina solve her problems by herself?
18. How can friends help?
19. How can parents help?
20. How can teachers help?
21. How can professionals (GPs, social workers, psychologists) help?
22. Say Dina is a Moroccan or Turkish girl, are there any religious gatekeepers or chaplains she can turn to?
23. Are some groups more vulnerable for these kinds of problems?
24. What do you think causes these problems?

Chapter 8

General discussion



INTRODUCTION

The studies presented in this thesis were undertaken to enhance our understanding of how migration influences mental health, health-related quality of life and help-seeking in childhood. To address this larger aim several research questions were formulated and organized into three parts.

Part I - The mental health of migrant preschool children

- a. Is there an association between the migrant status and mental health problems in preschool children?
- b. To what extent do family characteristics explain this association?
- c. To what extent does this association depend on neighbourhood characteristics?

Part II - Health-related quality of life of migrant infants

- a. Is there an association between the migrant status and infant health-related quality of life?
- b. To what extent do child health characteristics and family characteristics explain this association?

Part III - Mental-health help-seeking in migrant adolescent girls

- a. How do adolescent girls with different ethnic backgrounds perceive the issue of help-seeking for internalizing problems?
- b. How do mothers with different ethnic backgrounds perceive the issue of help-seeking for internalizing problems experienced by adolescent girls?

In the following paragraphs we firstly summarize the answers to the research questions and interpret the main findings in relation to the literature. Next, we discuss the methodological limitations of the studies. Lastly, we give recommendations for policy, practice and future research.

Main findings and interpretation

Part I - The mental health of migrant preschool children

In the first part of this thesis we studied the mental health of migrant preschool children in the Netherlands and Colombia and explored potential explanatory mechanisms for differences between migrant and non-migrant children. The answers to the three

research questions that were formulated within this part will be addressed in the following paragraphs.

Question a: is there an association between the migrant status and mental health problems in preschool children?

In *chapters 2 and 3*, we showed that the ethnic minority status was associated with problem behaviour in 3-year old children participating in the Generation R Study. This finding confirms the findings of other Dutch studies conducted among older child populations.^{1,3} In *chapter 2*, we additionally showed that although children of first and second generation migrants more often presented problem behaviour than non-migrants, the first generation was worse off than the second generation. We postulate, in line with others^{4,5}, that migration risk factors such as poor proficiency of the native language and cultural barriers, more common in first than in second generation immigrants, can lead to social isolation and associated stress in mothers and families, which may affect children's behaviour. Studies conducted among adolescents and adults found similar results and also showed that the first generation presented worse mental health than the second generation.^{6,7} In turn, studies have shown that the first generation is less likely to seek professional help for mental health problems.^{8,9} On the other hand, there are also studies which show that for other health outcomes (e.g. birth weight and smoking) and other migrant groups (e.g. Latino migrants in the US) the first generation presents better health outcomes than the second generation.¹⁰⁻¹³ This phenomenon has been referred to as the "acculturation paradox". It is argued that integration and acculturation lead to adoption of the unhealthy behaviours of the host society and loss of own cultural orientation in second generation immigrants which leads to a deterioration in health^{7,14-16} hence explaining worse health outcomes in the second generation.

In *chapter 4* an association between forced internal displacement and pre-schooler problem behaviour was found among a convenience sample of children attending kindergartens in a deprived neighbourhood in Bogotá, Colombia. To our knowledge, this association has only previously been studied in adult populations.^{17,18} The results of these studies are in line with our results and show that internal displacement is associated with mental health problems.^{17,18} Additionally, studies that focused on refugee adolescents and children residing in Europe, also found a high prevalence of internalizing, externalizing problems and post-traumatic stress symptoms among this group.¹⁹⁻²² In this thesis, there was some indication that generational status (i.e. whether the child was directly or indirectly exposed to forced internal displacement) may influence the type of mental health outcomes that children present. For instance, second generation displaced children presented more externalizing problems compared to non-displaced children while

in the first generation, internalizing and stress problems were more common. Albeit these potential differences which should be explored further, it is of interest that both generational groups presented more problem behaviour than non-displaced children as this may indicate that the psychosocial consequences of forced internal displacement trickle down to next generations. This finding is in line with the results of studies conducted among survivors of the Second World War and Vietnam War veterans.^{23,24} These studies showed that war-related trauma may have long term consequences, also affecting the psychosocial well-being of second and third generation offspring.

Question b: to what extent do family characteristics explain this association?

In addition to studying the association between the migrant status and mental health problems in preschool children, this thesis further set out to investigate to what extent family characteristics explain this association. Figure 1 gives an overview of the studied explanatory mechanisms (applicable to *part I* and *part II* of this thesis).

In *chapter 2* we studied whether prenatal and postnatal maternal psychopathology, family functioning, parenting stress and harsh parenting (summarized in figure 1 as ‘family stressors’) mediated the association between the migrant status and problem behaviour in 3 year olds independent of maternal education, family income, single parenthood, young parenthood and parity (summarized in the figure 1 as ‘socio-economic factors’). In turn, we studied whether mediation by family stressors was different for

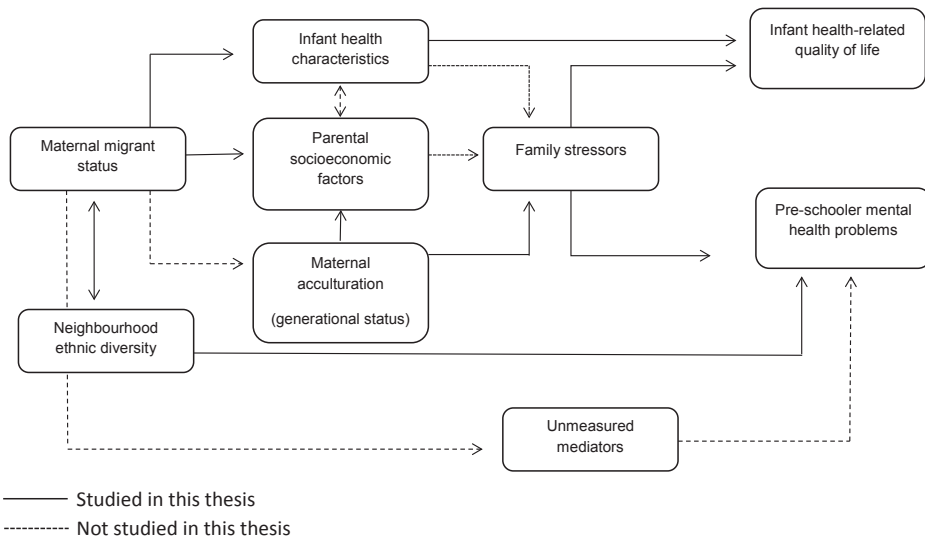


Figure 1 Schematic representation of the most important potential explanatory mechanisms studied in this thesis (part I and part II)

children of first generation immigrants compared to children of second generation immigrants. In line with other studies²⁵⁻²⁷, we found that mediation by socio-economic factors was strong but partial. We further found that family stressors explained an additional and similar part of the association. Various studies have shown that migration to a new country often challenges familial roles and responsibilities which may change family organisation and responsibility and in turn affect child mental health.²⁸⁻³¹ Leidy et al.²⁹, further note that one of the main challenges to positive parenting in immigrant families is the lack of extended family members who previously helped with parenting. In turn, as noted by Garcia-Coll et al.³², other forms of migration and acculturation stress, such as discrimination or racism, may influence family functioning and parenting and in turn affect child behaviour and development. Based on the findings of others, namely that the degree of acculturation affects family functioning and parenting^{32,33}, we hypothesized that mediation by family stressors would be stronger in the first than in the second generation group. However, we did not find a difference according to generational status and mediation by family functioning and parenting factors was therefore similar in children of first and second generation migrants.

In *chapter 4* we were limited in studying which factors explained the association between forced internal displacement and mental health problems in pre-schoolers due to a relatively small sample size. Nonetheless, we explored whether child exposure to traumatic events and mental health of the primary caretaker explained the association between forced internal displacement and mental health problems in pre-schoolers. We found that caretaker's mental health was an important explanatory factor while child exposure to traumatic events did not explain the association between the displaced status and child mental health problems. In our study both displaced and non-displaced children resided in a deprived neighbourhood where exposure to violence may be highly prevalent and which may explain why child exposure to traumatic events did not explain the association between the displaced status and child mental health problems.³⁴ Secondly, the studied children were very young and in young children maternal proximity to traumatic events has been suggested to be a better predictor of infant PTSD than child proximity.^{35,36} It has been argued that young children that are exposed to a traumatic event often look for reactions of caregivers as a means of interpreting the threat.³⁷ In turn, maternal exposure to a traumatic event may influence maternal-child attachment which is of great importance for child mental health.³⁵

Question c: to what extent does this association depend on neighbourhood characteristics?

In *chapter 3* we studied whether neighbourhood ethnic diversity moderated the association between the ethnic minority status and pre-schooler problem behaviour. We

found that an interaction was present; neighbourhood ethnic diversity moderated the association between the migrant status and problem behaviour which is in line with the results of some other studies conducted in the UK and the US.³⁸⁻⁴¹ More specifically, we found that ethnic inequalities were smallest in medium ethnic diversity neighbourhoods and greatest in low ethnic diversity neighbourhoods. In addition to this finding, we found that compared to Dutch children residing in low diversity neighbourhoods (considered the lowest risk group), the odds for the presence of child problem behaviour was greatest in low diversity neighbourhoods and lower in high and medium diversity neighbourhoods. More discrimination and prejudiced attitudes towards ethnic minorities and less social connectedness may be more prominently present in low diversity neighbourhoods and are hypothesized to explain a part of this finding.⁴²

Part II - Health-related quality of life of migrant infants

In the second part of this thesis we studied the health-related quality of life of migrant infants and explored potential explanatory mechanisms for differences between migrant and non-migrant pre-schoolers. The answers to the two research questions that were formulated within this part of the thesis will be addressed in the following paragraphs.

Question a: Is there an association between the migrant status and infant health-related quality of life?

In *chapter 5* we found that the migrant status was associated with lower/worse infant health-related quality of life. Compared to the Dutch reference, infants from most migrant groups presented worse/lower median scores on most domains of health-related quality of life. Studies conducted among older child populations, adolescents and adults found similar results and also showed that minority groups were, in comparison to the majority group, in a disadvantageous position with regard to health characteristics and measures of health-related quality of life.^{5,43,44}

It should be noted that not all migrant groups differed from the Dutch majority in terms of infant health-related quality of life. Infants from the Surinamese Creole and European subgroups did not differ much from infants from the Dutch subgroup on health-related quality of life. It was postulated that migration factors could possibly explain why Surinamese Creole and European groups did not differ as much from the Dutch group, as they may have fewer difficulties adapting to the Dutch society due to the language and the longer migration history (Surinamese Creole) or culture (European).⁴⁵ Studies

conducted in the US and Canada have also found that migrant groups may present similar or better health outcomes (e.g. birth weight) than the majority population.^{46,47}

Question b: to what extent do child health characteristics and family characteristics explain this association?

In *chapter 5* we further explored whether low birth weight, gestational age at birth, presence of chronic childhood conditions and wheezing (summarized in figure 1 as ‘infant health characteristics’) and, maternal education, family income, single parenthood and maternal psychopathology (summarized in the figure as ‘socio-economic factors’ and ‘family stressors’) explained the association between the migrant status and infant health-related quality of life. The socio-economic and family stressors explained a part of the association in most migrant groups and on most domains of infant health-related quality of life. On the other hand, infant health characteristics only explained a part of the association in a few domains of infant health-related quality of life and this only applied to the Turkish subgroup. Potential explanations for these findings are that during pregnancy, socio-economic and family stressors may expose the foetus to elevated levels of stress hormones⁴⁸ possibly influencing foetal development; for example, maternal anxiety reduces the blood flow through the uterine arteries, which affects foetal development and can lead to disease in later life.⁴⁹ In turn, it has also been suggested that these socio-economic and family stressors act as proxies for other unmeasured health factors that influence infant health-related quality of life.⁵⁰

Part III Mental health help-seeking in migrant adolescent girls

In the last part of this thesis we explored how adolescent girls and mothers with different ethnic backgrounds perceive the issue of help-seeking for internalizing problems. The focus group discussions that were conducted were conceptually framed within a model for mental health help-seeking in adolescents, developed by Cauce et al.⁵¹, and presented below (figure 2).

Additionally, three concepts from the Health Belief model⁵² were further explored namely: perceived severity, barriers and facilitating factors of mental health help-seeking. A vignette, in which an internalizing problem in an adolescent girl was described, was used to guide the focus group discussions. In the following paragraphs we discuss the answers to the two research questions that were formulated within this part.

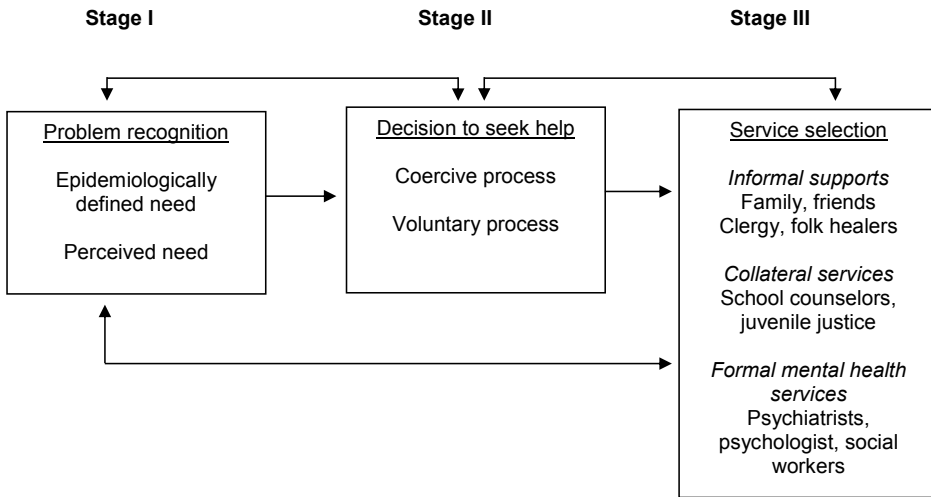


Figure 2 A three-stage model for mental health help-seeking among adolescents adapted from Cauce et al.⁵¹

Question a: how do adolescent girls with different ethnic backgrounds perceive the issue of help-seeking for internalizing problems?

In *chapter 6* we found that the participating adolescent girls did not perceive the internalizing problems presented in the vignette as severe. This finding is in line with a qualitative study on suicidality and help-seeking in African American adolescents conducted in the US.⁵³ We noted some differences between focus groups with regard to causal attribution (which causes the health problem is attributed to) of the presented internalizing problems. Participants of Turkish and Moroccan focus groups more often referred to external causes of the problem (e.g. lack of attention) while participants of Dutch FGDs referred to the emotional state (e.g. depression). Other studies have also shown that causal attributions may differ between ethnic groups; in non-Western ethnic groups attributing an event to an external cause is more common^{54,55} while Western groups have a more medicalized perspective.⁵⁵ As noted by Kirmayer et al.⁵⁶, causal attributions influence the cognitions and behaviour related to the disease and in turn the response (i.e. help-seeking). The differences in causal attributions found in this study may be a possible explanation for the underutilization of mental health services in ethnic minority youth and should be explored further.

Negative attitudes towards professionals and school-based services were identified as potential barriers to help-seeking. This finding is in accordance with other studies.^{57,58} We found that some of the perceived barriers varied according to ethnic background. In Turkish and Moroccan focus groups, anonymity and confidentiality in relation to professionals were perceived as facilitating factors. In Dutch focus groups, not knowing the

professional was perceived as a barrier. In ethnic minority groups, a stronger fear of shame and gossiping may possibly be related to these findings.⁵⁹ Additionally, differences between Dutch and non-Dutch focus groups were noted with regard to the fear of parental reactions when disclosing internalizing problems. This finding may be explained by ethnic differences in familial roles, parenting styles and stigmatization of mental health problems.⁵⁹⁻⁶¹ We further found that mothers and a good friend were identified as primary sources of help by the adolescent girls. Supported by a study by Rickwood et al.⁶² we postulate that this could be because once they have overcome the barriers, mothers and friends are the most trustworthy and accessible persons to turn to.

Question b: how do mothers with different ethnic backgrounds perceive the issue of help-seeking for internalizing problems experienced by adolescent girls?

In *chapter 7* it was shown that mothers perceived the internalizing problems presented in the vignette as severe but the perceived long term consequences when not seeking help for the problems differed between Dutch and non-Dutch focus groups. In Turkish and Moroccan focus groups suicide was named more often as a consequence of not seeking help while Dutch participants indicated that falling prey to a loverboy (pimp) was more realistic. A Dutch study has shown that, compared to Dutch girls, Moroccan girls are raised in a more authoritarian and have less freedom of movement.⁶¹ As a result, Moroccan girls may be more likely to stay home when experiencing internalizing problems which can partly explain the differences in perceived consequences. It was further found that in all groups negative attitudes towards General Practitioners, inaccessible mental health services and denial by daughters would potentially hamper help-seeking. In the Netherlands, GPs form the gatekeepers to mental health care for adults and youth.⁶³ If parents are reluctant to go to a GP when dealing with mental health problems (their own or their child's), they may not seek help at all or will remain in informal care. This is problematic if problems get more serious. Fear of negative judgments/gossiping was considered a barrier by Turkish and Moroccan participants. Lawrence et al.⁵⁹ also noted that the stigmas attached with seeking help from a psychiatrist were particularly hampering in the included ethnic minority groups in the UK. The participating mothers indicated that they would firstly seek help in the informal sphere (i.e. mothers, friends or relatives) and at school rather than seek professional help which is in line with what other studies have found.^{62,64-66}

Methodological considerations

In the following paragraphs we discuss the forms of bias applicable to the quantitative and the qualitative studies presented in this thesis.

Internal validity

Internal validity is defined as the extent to which the conclusions drawn are valid for the studied population.⁶⁷ Different forms of bias can influence the internal validity of studies.⁶⁸ The potential forms of bias mainly applicable to the quantitative studies presented in this thesis will be discussed.

Selection bias

The Generation R Study is a prospective population-based cohort study in which participants are followed from foetal life until young adulthood. The initial participation rate in this study was 61%. Non-participation was not random as pregnant women from ethnic minority groups and those with low socio-economic positions are underrepresented.⁶⁹ Selective non-participation might lead to biased results.⁷⁰ Two studies conducted within the Danish National Birth Cohort set out to explore to what extent low participation and loss to follow up induced bias in cohort studies. The first study showed that non-participation had very little influence on the associations between in vitro fertilization and preterm birth, smoking during pregnancy and birth of a small-for-gestational-age infant and pre-pregnancy body mass index and ante partum stillbirth.⁷¹ The second study, which was conducted in a later phase of the cohort study, showed that for most of the studied exposure-outcome relationships the bias was small.⁷⁰ Regardless, it should be noted that these studies did not look at the influence of selection bias on the relationships studied in this thesis. Hence, the findings of the studies embedded in Generation R (chapters 2, 3 and 5) should be interpreted cautiously.

In *chapter 4* we described the results of a cross-sectional study conducted among a convenience sample in Bogotá, Colombia. The participation rate for this study was 77.5%. Unfortunately, data on the characteristics of the non-participants could not be collected and it was therefore not possible to estimate the influence of non-participation on the results.

Information bias

Information bias occurs when study variables are incorrectly measured.⁶⁷ A form of information bias which may apply to the studies presented in this thesis is 'misclassification'. Two types of misclassification can be identified: differential and non-differential misclassification.⁶⁸ Differential misclassification occurs when the misclassification of the outcome is related to the determinant of interest or vice versa. Non-differential misclassification occurs when the measurement error is unrelated to the outcome or determinant of interest. For instance, due to a typing error in data entry.⁶⁸ It is difficult, if not impossible, to avoid non-differential misclassification entirely. In the case

of dichotomous outcomes, non-differential misclassification, if present, will dilute the association found. In the case of continuous outcomes, non-differential misclassification may exaggerate or dilute associations found.⁷²

Different ethnic groups were asked to fill in the same questionnaire and this may have led to differential misclassification. For instance, it is possible that the probability of endorsing a particular question about an outcome differs for individuals who have the same underlying level of the outcome but belong to different ethnic groups.⁷³ This has also been referred to as “differential item functioning”.⁷³ With regard to child problem behaviour, Zwirs et al.⁷⁴ showed that non-Dutch parents were able to detect fewer externalizing disorders than Dutch parents compared to clinical diagnoses. Another Dutch study showed that adolescents with Moroccan backgrounds were more likely to give an invalid response on delinquency compared to police data.⁷⁵ With regard to harsh parenting, it has been shown that physical punishment is more accepted in some cultures than in others possibly leading to differences in the threshold to report harsh parenting.⁷⁶ In general, it is recommended that more research is conducted on the cross-cultural validity of self-reported and parent-reported health instruments.

For the studies presented in this thesis, data was collected by means of parent-reported questionnaires. Therefore, the issue arises whether parents as proxies can rate their child’s health adequately. Some studies have investigated this matter in older children. For instance, with regard to health-related quality of life, Eiser & Morse⁷⁷ found that the agreement between parent-child ratings was greater for observable functioning (such as physical functioning) than non-observable functioning (such as temperament) and was better in sick than in healthy children. In general, parents were found to rate health-related quality of life of healthy children more positively than sick children.^{77,78} With regard to problem behaviour, adolescents reported higher levels of problem behaviour than their parents and larger differences were noted for older than younger adolescents.^{79,80} It is unclear how well parents can rate the health-related quality of life and problem behaviour of very young children. Van der Ende et al.⁷⁹ recommend collecting information from multiple informants to obtain a complete view of child’s problem behaviour. In the studies on child problem behaviour embedded in the Generation R Study (chapters 2 and 3) we therefore conducted analyses with both maternal and paternal reports which yielded similar findings.

Measurement of the migrant status

In this thesis we made use of the country of birth indicator to distinguish between different ethnic groups in the Netherlands which, is a standard classification employed by Statistics Netherlands.⁸¹ Although this measure is objective and stable, it is also limiting

as the third generation cannot be identified and different ethnic groups from the same country of birth cannot be distinguished from one another. In order to address the first limitation within the studies embedded in Generation R (chapters 2, 3 and 5), maternal ethnicity rather than child ethnicity was included as the prime determinant. By classifying children according to the maternal line of ethnicity some children may have been wrongly classified as 'Dutch' (i.e. when the father is non-Dutch). To account for this, the studied associations were repeated with paternal ethnicity as the determinant, which led to similar results. To address the second limitation of the Statistics Netherlands classification of ethnic background, self-classification was used to further classify the Surinamese migrants into Surinamese Creoles and Surinamese Hindus.

Confounding

In all quantitative studies presented in this thesis we adjusted for potential confounders. Confounding is referred to as "the confusion, or mixing, of extraneous effects with the effect of interest".⁷² To be a confounder, a variable must be associated with the determinant and be a risk factor of the outcome under study. However, the confounder should not be on the causal pathway.⁷² In the quantitative studies presented in this thesis the choice for which confounders to adjust for was based on previous literature and on conceptual grounds. However, the possibility of residual confounding cannot be ruled out.

Reverse causality

In the quantitative studies presented in this thesis it is possible that health characteristics affected migration instead of the reverse; reverse causality may be an issue.^{82,83} For instance, in some migrant groups selective migration (i.e. only the healthy populations migrate) by parents or previous ancestors may have led to better health outcomes in these groups compared to others.⁸² On the other hand, parental ill health may have caused migrant groups to migrate to the Netherlands in the first place.⁸⁴ The same could apply to the internally displaced population in Colombia, although it is argued that refugees and internally displaced persons are less self-selected on health than economic/voluntary migrants.⁸³

In terms of the studied mediators, it is also possible that child problem behaviour and worse health-related quality of life affected the mediators (i.e. maternal psychopathology) instead of the reverse. We attempted to limit the possibility of reverse causality by including distal mediators measured during pregnancy and taking baseline problem behaviour into account. However, this was not possible for all mediators and the possibility of reverse causality can therefore not be ruled out.

Statistical analysis

In some of the studies presented in this thesis the focus was on explanatory mechanisms or so-called “mediators”.⁸⁵ Several methods can be used to assess mediation and to date; no consensus has been reached on the appropriate technique as each has its own strengths and limitations.⁸⁶ In *chapter 2* we assessed mediation by testing the percentage change in regression coefficient. This technique has been criticized as the percentage change can be similar for different absolute changes in the regression coefficient.⁸⁷ This may be particularly a concern when studying different ethnic groups, as estimates may differ considerably. To address this issue, we additionally conducted a bootstrap to test whether the change in effect estimate relative to the previous model was statistically significant. The bootstrap procedure was also applied in *chapter 5*.

Missing data is common in epidemiological studies, particularly in studies with a long follow-up. Different approaches to addressing missing data are available and examples include a complete case analysis, imputation by the mean, adding a missing category and multiple imputation.^{88,89} Generally, the proper method to use depends on the missing data mechanism. To this end, the typology introduced by Rubin⁹⁰ is mostly used and distinguishes three mechanisms: 1. missing completely at random (no systematic differences between the missing and observed values); 2. Missing at random (systematic differences between missing and observed values can be explained by differences in observed data); 3. Missing not a random (even after the observed differences are taken into account, systematic differences between missing and observed values remain).⁸⁹ Unfortunately there is no statistical analysis which can test the missing data mechanism and the choice made is based on assumption.⁸⁹ For the Generation R Studies presented in this thesis, we considered missing to be at random. In this case, the Multiple Imputation (MI) is currently the recommended procedure.⁹¹ This procedure was applied in *chapter 2* and *chapter 3*.

External validity

An important aspect of research is whether the results can be generalized to populations that are not in the source population.⁶⁷ This is referred to as the ‘external validity’. The Generation R Study is population-based study and we presume that the results from this study can be generalized to the city of Rotterdam. However, since social context plays an important role in the studies presented in this thesis, we are cautious in generalizing our findings to other populations. For instance, the level of ethnic diversity and ethnic composition of neighbourhoods, which is the main focus of *chapter 3*, may differ between settings, even within the Netherlands. Additionally, it should be mentioned

that although the included ethnic groups constitute the largest migrant groups in Rotterdam, other migrant groups were excluded. Results can therefore not be generalized to the excluded migrant groups. In general, it is recommended that the associations studied in this thesis are replicated by other research groups.

Generalization of the Generation R results portrayed in this thesis to other Western countries should be done with great care. Studies conducted in the United States and Canada have found that some migrant groups present better health outcomes than the native population.^{47,82} Studies based in other European countries have found results that are more similar to ours.^{21,92} In any case, this illustrates that conditions of migrants in different countries as well as their migration histories may be different and that this may influence their health in a differential way.

We are limited in generalizing the results of the cross-sectional study on forced displacement conducted within Colombia (chapter 4) as the children were recruited through convenience sampling. In turn, the included children were all attending a kindergarten which is only applicable to around 65% of the 2-6 year olds in Colombia.⁹³ Lastly, Approximately 23 % of the displaced in Colombia do not register themselves, due to lack of knowledge or fear.⁹⁴ As the benefits of registration have been associated with better mental health in war-exposed children⁹⁵, differences between displaced and non-displaced children may have been larger if unregistered displaced children had also been included.

Bias in the qualitative studies presented in this thesis

Qualitative research differs from quantitative research in that it is not set up to test a predefined hypothesis but instead is set up to enhance our understanding of complex phenomena.⁹⁶ Some of the forms of bias previously mentioned may also be applicable to qualitative research. Besides this, the influence of the researcher's background is of importance when evaluating qualitative research.⁹⁶ In the first study (chapter 6), the focus group facilitators were of Dutch origin while the participants were of Turkish, Moroccan and Dutch origin. It is possible that ethnocentrism ("viewing other people's way of life in terms of one's own cultural glasses"⁹⁷) limited the discussions and interpretation in the Moroccan and Turkish discussions. In the second study (chapter 7), a Turkish researcher facilitated some of the discussions. In this case a bias may also have arisen as Turkish and Moroccan participants may have felt less comfortable with a facilitator from their own ethnic group⁹⁶. A second form of bias may have arisen due to the use of convenience sampling rather than purposive sampling.⁹⁶ It is argued that convenience

samples may be less optimal because perspectives of difficult-to-reach people may be missed and this limits the generalizability.^{98,99}

Implications for policy and practice

This thesis was embedded in the Rotterdam Academic Collaborative Centre for Diversity in Youth Policy (DWARS) which aims to improve the accessibility and effectiveness of preventive services for minority families and youth.¹⁰⁰ The studies in this thesis were undertaken to enhance our understanding of how migration influences mental health, health-related quality of life and help-seeking behaviour in childhood.

This thesis demonstrated that the migrant status is associated with problem behaviour and health-related quality of life, even in the preschool years. As it is not possible to alter the migrant status, policies and interventions that aim to reduce these inequalities should tackle the underlying mechanisms that lead to the health disadvantage.

The transmission of the adverse health impact of migration to next generations (both international and forced internal migration) which, was consistently found in the studies presented in this thesis, deserves attention. One of the first steps in addressing this issue is to broaden the definition of the term 'migrant'. Currently the Statistics Netherlands classification of ethnicity is still the most widely used for identifying migrant groups in the Netherlands but a clear drawback is that it only identifies first and second generation migrants. One way to also include next generations in scientific studies is to combine the statistics Netherlands definition with self-classification of ethnicity.¹⁰¹ A second step is to reach next generation migrants with policies and interventions. One way to do this may be through online communities or migrant organisations. A good example of an online community in the Netherlands is 'Marokko.nl' which is widely accessed by all generations of Moroccan migrants.¹⁰²

In general, socio-economic factors explain an important part of the vulnerability of migrant children but these factors are not easily amendable. Therefore, alongside the policies and interventions that tackle unemployment and other socio-economic factors, attention should also be directed to enhancing family resilience to stress. One strategy may be to screen mothers for mental health problems during pregnancy which will ensure timely support. Additionally, social workers or other health care workers could provide parenting support to "high risk" families with young children. The recently introduced Youth and Family Centres (CJG) in the Netherlands may be an ideal place for introducing these preventive strategies. Naturally, these strategies should also go hand

in hand with enhancing the parent's informal/social network so that they do not have to rely solely on a formal network. Religious entities such as churches or mosques as well as community centres may be good places to start up such initiatives.

Inequalities can also be tackled at the neighbourhood level. This thesis showed that the mental health of migrant children was worst off in ethnically homogeneous neighbourhoods. Lack of social connectedness and increased discrimination in these neighbourhoods were hypothesized to be the underlying mechanisms. Policymakers and urban planners may want to consider diversifying neighbourhoods and/or scale-up the policies and interventions that increase social connectedness and reduce discrimination and prejudiced attitudes at the neighbourhood level.

This thesis demonstrated that in order to enhance mental health help-seeking among migrant adolescent girls there are barriers that need to be addressed. Priority should be given to making internalizing problems better known to teenage girls (e.g. via awareness-raising campaigns in schools and communities), increasing parental knowledge of internalizing problems and facilitating help-seeking through friends or mothers. School resources like peer discussion groups or parent-teacher meetings may be helpful in this regard. Matching the available services to the needs of adolescent girls from diverse ethnic backgrounds and training professionals in working with the age group may also change the negative attitudes towards professional mental health care. Lastly, it was clear that participating mothers desired a more prominent role of the school in early detection and treatment of internalizing problems in adolescent girls. The recently established Care Teams (Zorg Teams) at the school level and the Care and Advice Teams (Zorg Advies Teams) as links between the school and Youth Health Care are important advancements in this regard.¹⁰³ To date, not all schools in the Netherlands house such teams and it is recommended to strive for 100% coverage.

Directions for future research

In this thesis we studied whether family and infant health characteristics explained the observed inequalities in problem behaviour and infant health related quality of life. It should be noted that these factors only provide a part of the explanation and several alternative explanations may be considered and could provide guidance for future research.

Firstly, it is conceivable that genetic factors influenced the associations that we found. If the genes that predispose children to mental health problems or health-related qual-

ity of life vary according to ethnic background then it is possible that genetic factors explain part of the associations found. Future studies that investigate the relationship between ethnicity and health within the Generation R Study and other large cohort studies should consider assessing the genetic influences.

Secondly, we were only able to touch upon acculturation and migration stress by looking at generational differences. It is of importance to study acculturation in more depth by, for instance, studying acculturation according to the model proposed by Berry¹⁰⁴. This model includes the strategies of migrant groups as well as the strategies of the larger society which enables researchers to look beyond the influences of generational status. A wide range of studies have shown that both aspects of acculturation are important for the mental and physical health of migrant groups.^{104,105} We therefore recommend investigating more profoundly the importance of maternal, paternal and child acculturation strategies (and potential differences among them) for migrant health.

Crucial to the concept of ethnicity are also shared culture and traditions¹⁰⁶. Hence, these factors may also provide an alternative explanation for the associations that were found. For instance, cultural value characteristics such as ‘familism’ which is defined as “the subordination of individual interests to those of the family”¹⁰⁷ may vary by cultural background¹⁰⁸ and can affect health differentially¹⁰⁹. In general, cultural concepts deserve more attention in epidemiological research on ethnic disparities in health.

With regard to forced internal displacement, a population-based study which also includes the most vulnerable children is needed. Ideally maternal- and paternal-reported data are then complemented with teacher-reported data. Besides this, additional insights into how families cope with forced internal displacement and war-related trauma are required.⁹⁵ It may be of particular interest to study how families communicate about forced displacement and war-related events as this potentially influences mental health.²³ It may also be of interest to study this issue among economic/voluntary migrants.

In general, research could also be directed to those migrants that present similar or better health than the majority population.³² This will give more insight into the resilience of migrants. In order to do this, the focus may need to shift away from between group differences to within group differences. Both quantitative and qualitative research techniques can be helpful in this regard.

With regard to help-seeking behaviour among adolescent migrant girls, it may be of interest to gain more insight into the role of peers in the help-seeking process. Addition-

ally, the specific role of religious and cultural factors as well as acculturation factors in the help-seeking pathway needs to be explored more profoundly.

To disentangle the influences of migration and ethnicity more reference data from the countries of origin needs to be gathered. Lastly, we recommend more research into the cross-cultural validity of instruments that measure child mental health and health-related quality of life.

CONCLUSION

Migration, be it voluntary or forced, can have multiple consequences for the mental and physical health of the individuals concerned. In addition, it is not uncommon for these consequences to be passed on from one generation to the other. In this thesis we described how migration can influence mental health, health-related quality of life and help-seeking in childhood. We confirm the findings of previous research by showing that disparities between migrants and non-migrants in mental health and health-related quality of life exist, even in the preschool years. It is of importance to address these disparities early in life to prevent them from getting larger.

Qualitative research allowed us to explore more profoundly perceptions of mental health help-seeking among adolescent girls and mothers with different ethnic backgrounds. Barriers were identified in both Dutch and non-Dutch focus group discussions which shows that access to mental health services by youth in need should be reassessed and improved. Scaling up preventive and treatment programs in schools may be a first step. In ethnic minority groups, additional efforts should be made to reduce the stigmas and taboos associated with mental health problems.

In conclusion, this thesis underlines the important influence migration can have on health, even in early life. The results of the presented studies provide potential directions for the development of strategies that tackle disparities in child health such as, a focus on improving family circumstances. However, considering the complexity of the relationship between migration and child health, further research into the underlying mechanisms is necessary. In particular, we suggest more research into how acculturation, genetic and cultural factors interact and influence the differences in child health between migrants and non-migrants as well as within-group differences.

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Chapter 9

Summary / samenvatting



INTRODUCTION

Migration, be it voluntary or forced, can bring about both physical and mental health risks which can be passed on from one generation to another. Additionally, a low socio-economic position, language and acculturation difficulties can hamper help-seeking and access to health services among migrants.

To date, most research in the field of migrant health has focused on adults or older children and it is still unclear how migration affects the mental and physical health of pre-school children and infants and which factors explain these differences. Secondly, quantitative studies on access to mental health care by youth in need show that mental health service utilization is lower among migrant youth than non-migrant counterparts. To enhance help-seeking for mental health problems in migrant adolescents, it is important to explore their perceptions towards mental health help-seeking.

RESEARCH QUESTIONS

This thesis aimed to enhance our understanding of how migration influences mental health, health-related quality of life and help-seeking behaviour in childhood. To address this larger aim, several research questions were formulated and organized into three parts.

Part I - The mental health of migrant pre-school children

- a. Is there an association between the migrant status and mental health problems in pre-school children?
- b. To what extent do family characteristics explain this association?
- c. To what extent does this association depend on neighbourhood characteristics?

Part II - Health-related quality of life of migrant infants

- a. Is there an association between the migrant status and infant health-related quality of life?
- b. To what extent do child health and family characteristics explain this association?

Part III – Mental health help-seeking in migrant adolescent girls

- a. How do adolescent girls with different ethnic backgrounds perceive the issue of help-seeking for internalizing problems?
- b. How do mothers with different ethnic backgrounds perceive the issue of help-seeking for internalizing problems experienced by adolescent girls?

Findings

In *part I* we focused on the mental health of migrant pre-school children in the Netherlands and Colombia. In *chapter two* we demonstrated that there was an association between the migrant status and the presence of problem behaviour in 3-year old children participating in the Generation R Study in Rotterdam, the Netherlands. Children of first and second generation migrants more often presented problem behaviour above the cut-off than their Dutch counterparts. Compared to children of second generation migrants, children of first generation migrants were worse off. This chapter further showed that socio-economic factors and family stressors, such as the use of harsh parenting, contributed to differences in the presence of problem behaviour between migrants and non-migrants. In *chapter three* we studied whether there was an interaction between neighbourhood ethnic diversity and the migrant status on problem behaviour in 3-year olds participating in the Generation R Study. We found that an interaction was present; neighbourhood ethnic diversity moderated the association between the migrant status and problem behaviour. More specifically, we found that ethnic inequalities in the presence of problem behaviour were smallest in medium ethnic diversity neighbourhoods and greatest in low ethnic diversity neighbourhoods. In addition to this finding, we found that compared to Dutch children residing in low diversity neighbourhoods (considered the lowest risk group), the Odds Ratio (OR) for problem behaviour was highest for ethnic minority children that reside in low diversity neighbourhoods. The OR for problem behaviour, compared to the Dutch low diversity group, was lower among ethnic minority children residing in medium and high diversity neighbourhoods.

In *chapter four* we studied the association between forced internal displacement and problem behaviour in 2-6 year olds recruited through convenience sampling in Bogotá, Colombia. We found that pre-school children registered as internally displaced more often presented problem behaviour above the cut-off than non-displaced peers. Family functioning and caretaker's mental health were strongly and independently associated with mental health in the group of displaced children.

In *part II, chapter five* we focused on the health-related quality of life of migrant infants. We found that the migrant status was associated with lower/worse infant health-related quality of life. Socio-economic and family stressors explained a part of the association in most migrant groups and on most domains of infant health-related quality of life. Infant health characteristics only explained a part of the association in a few domains of infant health-related quality of life and this only applied to the Turkish subgroup.

In *part III* we focused on mental health help-seeking in migrant adolescent girls by conducting focus group discussions with adolescent girls and mothers with different ethnic backgrounds (mostly Dutch, Turkish and Moroccan). In *chapter six*, which focused on the perceptions of adolescent girls, we found that both migrant and Dutch participants had difficulty recognizing the severity of internalizing problems presented in a vignette. However, differences between migrant and Dutch girls in problem description and causal attribution of the presented problem were noted. Various common barriers were identified. Most frequently mentioned were negative attitudes towards professionals and school-based services. The fear of parental and friend's reactions was further identified as a barrier by Turkish and Moroccan participants. Mothers and a good friend were identified as primary sources of help by migrant and Dutch participants. In *chapter seven*, which focused on mothers with a teenage daughter, both migrant and Dutch mothers were able to recognize the severity of internalizing problems presented in a vignette. Identified common barriers were: negative attitudes towards General Practitioners, inaccessible mental health services and denial by daughters. Fear of negative judgments/gossiping was considered a barrier by Turkish and Moroccan participants. Participants identified themselves and schools as primary sources of help. Turkish participants also named chaplains.

Discussion and recommendations

In this thesis we described how migration can influence mental health, health-related quality of life and help-seeking in childhood. We confirm the findings of previous research by showing that disparities between migrants and non-migrants in mental health and health-related quality of life exist, even in the pre-school years. It is of importance to address these disparities early in life to prevent them from getting larger.

Qualitative research allowed us to explore more profoundly perceptions of mental health help-seeking of adolescent girls and mothers with different ethnic backgrounds. Barriers were identified in both Dutch and non-Dutch focus group discussions which shows that access to mental health services by youth in need should be reassessed and

improved. Scaling up preventive and treatment programs in schools may be a first step. In ethnic minority groups, additional efforts should be made to reduce the stigmas and taboos associated with mental health problems.

In conclusion, this thesis underlines the important influence migration can have on health, even in early life. The results of the presented studies provide potential directions for the development of strategies that tackle disparities in child health such as, a focus on improving family circumstances. However, considering the complexity of the relationship between migration and child health, further research into the underlying mechanisms is necessary. In particular, we suggest more research into how acculturation, genetic and cultural factors interact and influence the differences in child health between migrants and non-migrants as well as within-group differences.

SAMENVATTING

Inleiding

Vrijwillige en geforceerde migratie kunnen zowel psychosociale als fysieke gezondheidsrisico's teweeg brengen die van generatie op generatie overgedragen kunnen worden. Daarnaast hebben migranten vaak een lage sociaaleconomische status en ervaren zij soms taal en acculturatie problemen. Deze factoren kunnen het zoeken van hulp en de toegang tot de gezondheidszorg belemmeren.

Tot dusver heeft het meeste onderzoek naar de gezondheid van migranten zich gericht op volwassenen of oudere kinderen. Echter, het is nog onduidelijk hoe migratie de psychosociale en fysieke gezondheid van peuters beïnvloedt en welke factoren hier aan ten grondslag liggen. Ten tweede laten kwantitatieve studies naar toegang tot de geestelijke gezondheidszorg zien dat het zorggebruik lager is onder migrantenjongeren dan onder Nederlandse jongeren. Om het hulp zoeken onder migrantenjongeren te bevorderen is het van belang om hun percepties ten aanzien van het zoeken van hulp voor psychosociale problemen in kaart te brengen.

Onderzoeksvragen

Dit proefschrift had als doel om onze kennis te vergroten over hoe migratie de psychosociale gezondheid, gezondheidsgerelateerde kwaliteit van leven en het hulpzoekend gedrag van kinderen beïnvloedt. Dit doel is bestudeerd aan de hand van verschillende onderzoeksvragen die zijn opgesplitst in drie delen.

Deel I – De psychosociale gezondheid van peuters met een migranten achtergrond

- Is er een verschil in het voorkomen van psychosociale problemen tussen peuters met een migranten achtergrond en Nederlandse peuters?
- In hoeverre verklaren gezinskenmerken deze verschillen?
- In hoeverre hangen deze verschillen af van wijkenmerken?

Deel II – Gezondheidsgerelateerde kwaliteit van leven van zuigelingen met een migranten achtergrond

- a. Is er een verschil in gezondheidsgerelateerde kwaliteit van leven tussen zuigelingen met een migranten achtergrond en Nederlandse zuigelingen?
- b. In hoeverre verklaren gezondheidskenmerken van het kind en gezinskenmerken deze verschillen?

Deel III – Hulp zoeken voor psychosociale problemen bij tienermeiden met een migranten achtergrond

- a. Hoe kijken tienermeiden met verschillende etnische achtergronden aan tegen het zoeken van hulp voor emotionele problemen?
- b. Hoe kijken moeders met verschillende etnische achtergronden aan tegen het zoeken van hulp voor emotionele problemen bij tienermeiden?

Bevindingen

In *deel I* hebben wij de psychosociale gezondheid van migrantenpeuters in Nederland en Colombia bestudeerd. In *hoofdstuk twee* hebben wij laten zien dat er een verband was tussen het hebben van een migranten achtergrond en het voorkomen van psychosociale problemen bij 3-jarigen die deelnemen aan de Generation R studie in Rotterdam, Nederland. Kinderen van eerste en tweede generatie migranten hadden vaker psychosociale problemen dan Nederlandse kinderen. In vergelijking met kinderen van tweede generatie migranten, hadden kinderen van eerste generatie migranten vaker psychosociale problemen. In dit hoofdstuk hebben wij tevens laten zien dat sociaaleconomische factoren en stress binnen het gezin, zoals een hardhandige opvoeding, de verschillen tussen migrantenpeuters en Nederlandse peuters verklaarden.

In *hoofdstuk drie* hebben we bekeken of verschillen tussen migrantenpeuters en Nederlandse peuters in het voorkomen van psychosociale problemen afhing van de mate van etnische diversiteit van wijken. We hebben daarvoor gebruik gemaakt van de Generation R studie gegevens. We vonden dat de verschillen in het voorkomen van psychosociale problemen tussen migranten en Nederlandse peuters het kleinst waren in wijken met een middelmatige etnische diversiteit en het grootst in wijken met een lage etnische diversiteit (etnisch homogene wijken). Daarnaast vonden wij dat, vergeleken met Nederlandse kinderen die woonden in wijken met een lage etnische diversiteit (beschouwd als de groep met het laagste risico), migrantenkinderen die woonden in

wijken met een lage etnische diversiteit de grootste kans hadden op psychosociale problemen. Deze kans was, vergeleken met de Nederlandse peuters in wijken met een lage etnische diversiteit, minder groot onder migrantenkinderen die woonden in wijken met een hoge en middelmatige etnische diversiteit.

In *hoofdstuk vier* hebben wij gekeken naar de associatie tussen geforceerde migratie en het voorkomen van psychosociale problemen bij 2 tot 6 jarigen uit een achterstandswijk in Bogotá, Colombia. We vonden dat de kinderen van “interne vluchtelingen” vaker psychosociale problemen hadden dan de referentiegroep (kinderen die niet waren blootgesteld aan geforceerde migratie). Een slechter functioneren van het gezin en een slechtere psychosociale gezondheid van de zorgdrager waren sterk en onafhankelijk geassocieerd met het voorkomen van psychosociale problemen onder de groep interne vluchtelingen.

In *deel II, hoofdstuk vijf* hebben wij verschillen in gezondheidsgerelateerde kwaliteit van leven bestudeerd tussen zuigelingen met een migranten achtergrond en Nederlandse zuigelingen. We vonden dat het hebben van een migranten achtergrond geassocieerd was met een lagere/slechtere gezondheidsgerelateerde kwaliteit van leven bij zuigelingen. Sociaaleconomische en gezinsstressoren verklaarden een deel van dit verband in de meeste migrantengroepen en in bijna alle domeinen van kwaliteit van leven. Gezondheid van het kind verklaarde een deel van het verband in een paar domeinen van kwaliteit van leven, maar dit was alleen het geval in de Turkse groep.

In *deel III* hebben wij het hulpzoekende gedrag voor emotionele problemen van migranten tienermeiden bestudeerd. Wij hebben daarvoor focus groep gesprekken gevoerd met tienermeiden en moeders met een tienerdochter met verschillende etnische achtergronden (voornamelijk Nederlandse, Turkse en Marokkaanse achtergronden). In *hoofdstuk zes*, dat zich richtte op de tienermeiden, vonden wij dat zowel migranten als Nederlandse deelnemers moeite hadden met het inschatten van de ernst van de emotionele problemen, die beschreven stonden in een vignet. Wij vonden enkele verschillen tussen migranten en Nederlandse tienermeiden in de manier waarop de problemen werden omschreven en waaraan de oorzaken van deze problemen werden toegekend. Er kwam ook een aantal gemeenschappelijke barrières naar voren die het zoeken van hulp zouden kunnen belemmeren. Negatieve attitudes ten aanzien van hulpverleners en hulp op school werden het vaakst genoemd als barrières. De angst voor reacties van ouders en vrienden werd tevens genoemd als een barrière door deelnemers met een migranten achtergrond. Zowel migranten als Nederlandse deelnemers wezen hun moeders of een goede vriendin aan als de belangrijkste bron van hulp bij emotionele problemen. In *hoofdstuk zeven*, dat zich richtte op moeders, vonden

wij dat zowel migrantenmoeders als Nederlandse moeders de ernst van de emotionele problemen, die beschreven stonden in een vignet, goed konden inschatten. Er werd een aantal gemeenschappelijke barrières genoemd, namelijk: negatieve attitudes ten aanzien van huisartsen, de ontoegankelijkheid van de geestelijke gezondheidszorg en ontkenning van problemen door tienermeiden. Moeders met een migranten achtergrond noemden de angst voor een negatief oordeel of roddelen als belangrijke barrière. Moeders noemden zichzelf en de school de belangrijkste bronnen van hulp voor tienermeiden met emotionele problemen. Moeders met een Turkse achtergrond noemden ook geestelijken als een mogelijke bron van hulp.

Discussie en aanbevelingen

In dit proefschrift hebben wij beschreven hoe migratie de psychosociale gezondheid, gezondheidsgerelateerde kwaliteit van leven en het hulpzoekend gedrag van kinderen kan beïnvloeden. Wij bevestigen resultaten van eerdere studies door aan te tonen dat er etnische ongelijkheden zijn op het gebied van psychosociale problemen en gezondheidsgerelateerde kwaliteit van leven, zelfs al in de peutertijd. Het is van belang om deze ongelijkheden vroeg aan te pakken, zodat we kunnen voorkomen dat ze groter worden.

Door middel van kwalitatief onderzoek hebben wij kunnen onderzoeken hoe tienermeiden en moeders met een tienerdochter met verschillende etnische achtergronden aankijken tegen het zoeken van hulp voor emotionele problemen. Tijdens de focusgroep gesprekken kwamen (gemeenschappelijke) barrières voor het zoeken van hulp naar voren. Dit geeft aan dat de toegang tot de geestelijke gezondheidszorg voor jongeren met een zorgbehoefte opnieuw geëvalueerd en verbeterd zou moeten worden. Het uitbreiden van preventieve en behandel programma's op scholen zou een eerste stap kunnen zijn. Binnen migrantengroepen zouden extra inspanningen verricht moeten worden om de stigma's en taboes die geassocieerd worden met psychosociale problemen te verminderen.

Tot slot onderstreept dit proefschrift de belangrijke invloed die migratie kan hebben op gezondheid, zelfs al in de peutertijd. De resultaten van de studies geven ons mogelijke richtlijnen voor het ontwikkelen van interventies om de etnische ongelijkheden in gezondheid bij kinderen te verkleinen. Een voorbeeld is het verbeteren van gezinsomstandigheden. Desalniettemin geven de studies in dit proefschrift ook aan dat de relatie tussen migratie en gezondheid van kinderen complex is en dat vervolgonderzoek naar de onderliggende mechanismen noodzakelijk is. In het bijzonder adviseren wij om meer

onderzoek te doen naar hoe acculturatie, genetische en culturele factoren los en in samenspel de verschillen tussen migrantenkinderen en Nederlandse kinderen kunnen verklaren. Daarnaast raden wij aan om meer onderzoek te doen naar de verschillen binnen migrantengroepen.

Chapter 10

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List of publications

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PhD. Portfolio

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ABOUT THE AUTHOR

Ilse Wittebrood-Flink was born on the 19th of October 1982 in Kigali, Rwanda. Being the daughter of a diplomat she grew up in Africa and Asia where she attended French and International schools. She attained her International Baccalaureate diploma from the Rijnlands International School in Oegstgeest, the Netherlands. Hereafter, she went on to study Health Sciences at Maastricht University and the VU University and completed two master degrees in Health Sciences, specializing in Health Education and Health Promotion and International Public Health. She started working for the Public Health department of the Erasmus MC in March 2008, firstly as a research assistant and later as a junior researcher within the Academic Collaborative Centre: DWARS. The results of her work within DWARS are presented in this thesis. During her PhD. trajectory Ilse also spent 8 months in Bogotá, Colombia.

PhD PORTFOLIO

Summary of PhD training and teaching

Name PhD student: Ilse Johanna Elisabeth Flink
Erasmus MC Department: Public Health
Research School: Netherlands Institute for Health Sciences
(NIHES)

PhD period: April 2009-December 2012
Promotor: H. Raat
Supervisor: T.M.J. Beirens

1. PhD training

	Year	Workload (Hours/ECTS)
General courses		
– Research Integrity, Erasmus MC	2012	2.0 ECTS
Specific courses (NIHES, Erasmus University)		
– Introduction to Data analysis	2009	1.0 ECTS
– Methods of Public Health Research	2009	0.7 ECTS
– Primary and Secondary Prevention Research	2009	0.7 ECTS
– Topics in Health and Diseases in the Elderly	2009	0.7 ECTS
– The Why and How of Readable Articles	2009	0.7 ECTS
– Modern Methods of Statistics	2010	1.4 ECTS
– Ethnicity, Health and Health Care	2010	1.1 ECTS
– Causal Inference	2010	0.7 ECTS
– Cohort Studies	2012	0.7 ECTS
– Repeated Measurements	2012	1.4 ECTS
Seminars and workshops		
– Attending seminars of the department of Public Health	2009-2012	100.0 hours
– Attending seminars of the department of Epidemiology	2009-2012	25.0 hours
– Attending Generation R seminars	2009-2012	50.0 hours
– PhD day	2009	6.0 hours
– PhD day	2010	6.0 hours
– Symposium ‘40 years epidemiology at Erasmus MC’	2009	6.0 hours
– Workshop ‘Transculturele verpleegkunde/zorg’, Hogeschool Rotterdam	2010	6.0 hours
– Workshop ‘Stepping stones for funding research’	2012	6.0 hours
– Workshop ‘Scientific career and beyond’	2012	6.0 hours
Presentations		
– Vraaggerichte raadpleging bij migrantenjongeren en ouders (CEPHIR/ DWARS seminar, Erasmus MC, Rotterdam)	2009	1 ECTS
– Hulpzoekend gedrag voor geïnternaliseerde problemen; percepties van tienermeiden met verschillende etnische achtergronden (Congres Jeugd in Onderzoek, Nieuwegein)	2010	1 ECTS
– Hulpzoekend gedrag voor geïnternaliseerde problemen; percepties van tienermeiden met verschillende etnische achtergronden (DWARS seminar ‘Resultaten eerste jaar’, Rotterdam)	2010	1 ECTS

– Help-seeking behaviour for internalizing problems; perceptions of adolescent girls with different ethnic backgrounds (Oral, International Conference on Transcultural Psychiatry, Amsterdam)	2010	1 ECTS
– Mental health of pre-school children exposed to forced internal displacement in Colombia (Poster presentation, II Congreso Internacional de Salud Escolar, Universidad Nacional, Bogotá)	2011	1 ECTS
– Mental health of pre-school children exposed to forced internal displacement in Colombia (School of Health Sciences seminar, Universidad del Rosario, Bogotá)	2011	1 ECTS
– Mental health of pre-school children exposed to forced internal displacement in Colombia (Department of Public Health seminar, Erasmus MC)	2012	1 ECTS
– Mental health of pre-school children exposed to forced internal displacement in Colombia (Oral, World Conference on Cultural Psychiatry, London)	2012	1 ECTS
– Family functioning and parenting factors as mediators of the relationship between the ethnic minority status and child problem behaviour (Oral, European Conference of Public Health, Malta)	2012	1 ECTS
(Inter)national conferences		
– Congres Jeugd zorg: zo!, Ede	2009	1 ECTS
– Congres Jeugd in onderzoek, Nieuwegein	2010	
– International Conference on Transcultural Psychiatry, Amsterdam, the Netherlands	2010	
– II Congreso Internacional de Salud Escolar, Universidad Nacional, Bogotá	2011	
– World Conference on Cultural Psychiatry, London, UK	2012	
– Opgroeien als samenspel, Den Bosch	2012	1 ECTS
– 2nd CHICOS workshop, Turin, Italy	2012	1 ECTS
– European Conference of Public Health, St. Julians, Malta	2012	
Reviewed papers		
– Ethnicity and Health	2010	0.4 ECTS
– Journal of Epidemiology and Community Health	2012	0.4 ECTS
Other		
– Erasmus Mundus Academic Exchange	2010-2011	30 ECTS
2. Teaching		
	Year	Workload (Hours/ECTS)
Supervising practicals and excursions, Tutoring		
– Effectiviteit van gezondheidsvoorlichting	2009	6.0 hours
– De populatie als patient	2009	6.0 hours
– De populatie als patient	2010	6.0 hours
– Community project	2012	3.0 hours
Supervising Master's theses		
– Aura Hernandez	2011	8 hours

DANKWOORD

En toen was **het allerlaatste**, maar zeker niet het minst belangrijke, loodje in zicht: **het dankwoord**. Ik wil heel graag een aantal mensen bedanken die mij hebben ondersteund tijdens mijn promotietraject. Als eerste mijn promotor **Hein Raat**. Hein, na overleggen met jou kwam ik vaak bordevol nieuwe ideeën en inspiratie naar buiten. Heel veel dank voor je ‘open mind’ en scherpe blik! Mijn co-promotor **Tinneke Beirens**. Tinneke, ik vond het heel fijn dat ik altijd bij je binnen kon lopen, vaak met kleine dingen maar soms ook met grotere onderzoeksdilemmas. Dank voor je steun daarin! De leden van de kleine commissie, **Prof.dr. H. Moll**, **Prof.dr. F. Verhulst** en **Prof.dr. T. Pels**, en de grote commissie wil ik graag bedanken voor de aandacht die ze aan mijn proefschrift hebben besteed. Zonder deelnemers was **dit proefschrift** nooit tot stand gekomen. Ik wil daarom alle **deelnemers** aan de Generation R studie, de focus groep gesprekken en de deelnemers in Colombia bedanken voor hun deelname. **Mis colegas y amigos en Colombia**, y **María Helena** en particular, muchas gracias por la cooperación tan agradable y la hospitalidad y generosidad increíble. ¡Gracias a ustedes Colombia tiene un lugar especial en mi corazón! Het DWARS team: dank voor alle vergaderingen, seminars en besprekingen van de resultaten! Alle Generation R collega’s en een paar mensen in het bijzonder. **Akhgar**, thanks for being my “roomie” and friend. I still think you are one of the strongest people I have met! **Marina**, it is always so much fun to be around you, coffee at Doppios, lunch in your room, wine evenings (though I have to switch to grape juice the coming months) glad that we still get to do this on a regular basis! **Monica** and **Viara**, our paths at Generation R only crossed shortly but I am happy they did! **Selma**, super leuk dat we elkaar nu ook buiten het werk om vaker zien 😊 **Anne**, Ik wist jou wel te vinden met mijn vragen over mediatie en interactie 😊 Dank voor je advies en luisterend oor! **Maartje**, die 40 minuten naar Utrecht maakte jij een stuk aangenamer! **Ralf**, **Agnes** en **Gijs**, jullie ook veel dank voor de gezelligheid in en buiten AE 0-29! **Claudia K.**, zonder jou waren mijn papers er nooit van gekomen. Heel veel dank voor je super snelle reacties op mijn data aanvragen en alle andere vragen daar omheen! **Patricia** en **Roos**, veel dank voor de secretariële ondersteuning! **Rukiye** en **Sabah**, als consulentes van de Turkse en Marokkaanse Generation R deelnemers, zijn jullie voor dit proefschrift onmisbaar geweest. Veel dank voor jullie toewijding! Mijn collega’s bij MGZ en een paar mensen in het bijzonder. **Lenneke**, dankzij jou heb ik me vanaf het begin heel welkom gevoeld bij MGZ! Ik ben er zeker van dat ik mede hierdoor ben begonnen aan dit avontuur. Mijn oud-kamergenoten, **Nicolien** en **Noortje**, ook jullie veel dank voor het fijne begin en alle gezelligheid in AE-134! **Caspar**, jij hebt me tot in de kleinste details geholpen met statistische

analyses. Vanuit Colombia ging dat iets lastiger maar het is toch gelukt. Ik ben je heel dankbaar voor je hulp! De oud-DGGers, JGZers en andere MGZ collega's: **Rick, Suzan en Rogier**, leuk om het EUPHA en Malta met jullie mee te maken behalve die ene busrit dan ;) **Lidy, Ilke, Marielle, Mirjam B., Mirjam S., Marieke, Esther, Amy, Ingrid, Vivian, Rienke, Teun, Else, Natasha, Jan**, ook jullie bedankt voor alle fijne gesprekken, vaak onder het genot van een capuccino of een latte bij de DE corner of al wandelend in het park! **Lady, Sandra y Anna**, gracias por la paciencia que tenían con mi español y por supuesto todos los almuerzos, cafecitos y las cenas 😊 Mijn paranimfen: **Charlot en Akhgar**, many thanks for taking on this important role. Glad that you are both standing by my side on this special day! Mijn vrienden: **Carolien, Vief, Loes, Mark, Charlot, Bastiaan, Ione, Cecile, Jojanneke en Frank**, jullie zorgden voor genoeg (sportieve) ontspanning buiten de promotiestress om. Veel dank daarvoor en super leuk dat we elkaar nog zo vaak zien! **Eva**, Jij hebt mijn proefschrift meer kleur gegeven! Heel veel dank daarvoor en natuurlijk ook voor alle gezellige etentjes, skate dates en zo veel meer. **Lia**, over een paar maandjes ben jij ook aan de beurt. Dan wordt het echt 'time to celebrate'! **Barbara, Dagmar en Marieke**, I am very happy that we are still in touch. Let's make sure we keep it that way for the coming 50 years, wherever we may be 😊 **Ellen**, heel fijn om een vriendin te hebben die zo veel gemeenschappelijke interesses heeft. Bij jou kan ik echt met alles terecht, mil gracias! **Noortje**, helaas woon je ver weg maar dankzij skype kan ik je gelukkig op de hoogte houden van alles! **Moniek**, Zullen we vanaf 2014 het hardlopen weer oppakken, dit keer met buggy's? 😊 Dan natuurlijk mijn familie. **Pap en mam**, jullie hebben van mij een wereldburger gemaakt en ik ben jullie daarvoor eeuwig dankbaar voor! Vind het heel fijn dat jullie nu dichterbij wonen en alle belangrijke mijlpalen mee kunnen maken. Dank voor jullie onvoorwaardelijke steun en liefde! **Ink, Stef, Tam en Niels**, heel fijn om zulke lieve (schoon)broers en zussen te hebben waar je altijd op kunt rekenen! **Herman & Margy**, er zijn er maar weinig die zoveel interesse hebben getoond in mijn onderzoek, van het uitknippen van krantenknipsels tot het woord voor woord lezen van mijn artikelen. Ben heel blij met jullie als schoonouders! En natuurlijk de allerbelangrijkste persoon in mijn leven: **BJ**. Je steunt mij onvoorwaardelijk in alle stappen die ik onderneem. Het is echt niet in woorden uit te drukken hoe dankbaar ik je daarvoor ben en hoeveel je voor mij betekent!

Happiness is definitely only felt when shared!

Liefs, **Ilse**

