Public Health in Practice 11 (2026) 100732

Contents lists available at ScienceDirect

Public Health in Practice

journal homepage: www.sciencedirect.com/journal/public-health-in-practice

Parental socioeconomic status and other sociodemographic determinants of health disparities among children and adolescents in Austria

Maximiliane Dozler [a], Michael Berger [a,b], Susanne Mayer [a,*]

[a] Department of Health Economics, Center for Public Health, Medical University of Vienna, Vienna, Austria
[b] Department Health Economics and Health Policy, Institute for Advanced Studies, Vienna, Austria

ARTICLE INFO

Keywords:
Child and adolescent
Parent-reported health
Special healthcare needs
Socioeconomic

ABSTRACT

Objectives: Poor childhood health is a key predictor of adverse health and socioeconomic outcomes, emphasizing the need to address early-life disparities. This study aims to examine parental socioeconomic and sociodemographic factors associated with child and adolescent health in Austria, addressing the gap in European research on this topic.

Study design: This a retrospective analysis based on representative data from the 2019 Austrian Health Interview Survey including 5605 participants under the age of 18.

Methods: Logistic regression analyses were conducted to examine parent-reported health status (PRHS) and the presence of chronic conditions, assessed with the Children with Special Healthcare Needs Screener. Explanatory variables included parental education, income, employment status, migration background, and family structure, controlling for age, gender, and siblings.

Results: PRHS was rated as excellent in 80.92 % of cases, while 19.08 % reported fair to very poor health. Special healthcare needs were present in 8.35 %. Higher income (OR: 1.39, 95 % CI 1.14–1.69), marital partnership (OR: 1.43, 95 % CI 1.09–1.89), and the absence of a migration background (OR: 1.22, 95 % CI 1.02–1.46) were positively associated with PRHS. For special healthcare needs, only migration background showed a significant association, with the absence of a migration background being linked to a higher chronic disease risk (OR: 1.32, 95 % CI 1.01–1.73).

Conclusions: PRHS in Austria is shaped by socioeconomic and sociodemographic factors, while special healthcare needs are primarily linked to parental migration background, possibly reflecting underdiagnosis due to access barriers. Our findings suggest that policy measures should address income inequalities and enhance culturally sensitive healthcare access.

1. Introduction

The persistent burden of preventable health disparities, including illness, lost opportunities in education and the labor market due to poor health, and reduced life expectancy among socially disadvantaged populations remains a substantial challenge for policymakers. Despite advancements in health care, disparities in health and mortality endure with varying intensity. In the U.S., evidence indicates that socioeconomic disparities in mortality among adults aged 40–50 are steadily increasing [1–3]. In many European countries, declines in all-cause mortality have been reported among adults with lower socioeconomic status [4].

A large body of the research on health disparities in morbidity and mortality has focused on adult populations [5–8]. At the same time, it is poor childhood health that is a critical predictor of adverse health outcomes in adulthood [3], potentially reflecting the intergenerational transmission of socioeconomic disadvantages [9]. Previous research on the impact of parental socioeconomic status on the offspring's general health, chronic diseases and mental health highlights the influence of various factors, including parental education [10,11], income [12–14], and employment status [15]. European studies show mixed findings compared with the extensive U.S. literature on socioeconomic status and child health and tend to have a somewhat different focus, often focusing on mortality [16] and mental health problems [17].the well-established association between parental education and various child health indicators has been replicated [9,15]. However, in Finland [17], neither

* Corresponding author. Department of Health Economics, Center for Public Health, Medical University of Vienna, Kinderspitalgasse 15/1, 1090, Vienna, Austria.
E-mail address: susanne.mayer@meduniwien.ac.at (S. Mayer).

https://doi.org/10.1016/j.puhip.2026.100732
Received 14 July 2025; Received in revised form 17 December 2025; Accepted 12 January 2026
Available online 13 January 2026
2666-5352/© 2026 The Authors. Published by Elsevier Ltd on behalf of The Royal Society for Public Health. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

chronic conditions nor parent-reported child health were associated with parental education or other socioeconomic factors such as income or employment status. German data [18] similarly reveal only a limited effect—income predicts self-rated health among girls but not boys—which contrasts with the robust patterns documented in the U.S. literature [12,13].

Findings regarding parental employment status are also inconsistent. Associations with adolescents' self-rated health have been observed in Denmark [15] and Germany [18], and links with chronic conditions have been reported in Nordic countries [19] more broadly. In contrast, research from Slovakia [20] does not show a clear relationship. Furthermore, previous European research on ethnicity [21], migration background [22–24], or parental marital status [25] has largely focused on infant and perinatal health outcomes, while evidence on the health of older children and adolescents remains comparatively scarce.

Early disadvantages in physical health [9,26] and mental health [27] are linked to long-term negative impacts on both health and socioeconomic prospects, highlighting the importance of identifying and addressing disparities in early life [28]. Thus, understanding determinants of childhood health that can mitigate health disparities throughout the life course is essential for informing and shaping equitable health policies.

The aim of this study is to comprehensively investigate the relationship between parental socioeconomic and sociodemographic factors and the health status of children and adolescents aged 0 to 17 in Austria, focusing on general health and special healthcare needs due to chronic diseases. Our study thereby provides empirical insights into the relationship between parental socioeconomic status and chronic conditions in a Central European country with universal healthcare.

2. Methods

2.1. Data and variables

This study uses data from the cross-sectional 2019 Austrian Health Interview Survey (ATHIS) [29], which is based on the European Health Interview Survey (EHIS) and publicly available [30]. The survey was conducted by Statistics Austria between October 2018 and September 2019. The parent providing the information about health indicators and socioeconomic and sociodemographic variables was randomly selected from the Austrian Central Population Register [29]. The survey collected information on all children under 18 living in the same household (n = 5605 children) based on the responses of the selected parent – regardless of their caregiver role or socioeconomic status.

Data quality assurance was implemented through various data processing measures and systematic plausibility checks. Furthermore, imputations were carried out for individual non-responses, mainly relevant for income. Finally, Statistics Austria conducted a step-wise weighting procedure using known population benchmarks (population size of the supply regions by gender, five-year age groups, educational level, citizenship and income groups). The child-related observations were assigned the weight of the surveyed parent, which was then adjusted according to the number of children, by age and gender [31]. This child-level weight was applied in all statistical analyses to obtain estimates representative of the Austrian child and adolescent population.

The study draws on two outcome variables: parent-reported health status (PRHS) and the presence of chronic diseases requiring special healthcare. PRHS was originally assessed in five categories: very good, good, moderate, poor and very poor [29]. For our analysis, the categories very poor to good were combined (0) and contrasted with cases rates as very good PRHS, summarized as excellent health (1). The screening tool *Children with Special Health Care Needs (CSHCN) Screener* [32] was used to measure a permanent need for special healthcare services among children and adolescents, indicating the presence of one or more chronic diseases. The CSHCN Screener comprises 14 questions. A child is considered to have a special long-term care need if at least one of the five main questions about health issues, including one respectively two sub-questions on the reason and duration, is confirmed. The five topics are listed in Table 1, which provides an overview and descriptions of all the variables used in the statistical analyses. The chronic conditions recorded are not distinguished between physical and mental health issues, nor does the outcome allow conclusions about disease etiology (e.g., congenital versus acquired).

The explanatory variables included parental education, net equivalent income, employment status, migration background and family structure, all referring to information about the surveyed parent (Table 1). Education was classified into three categories based on the ISCED (International Standard Classification of Education) system [33]. Higher parental education is associated with better child health [34] and may improve children's health through several pathways as it improves adults' health, including greater health knowledge and literacy, more effective health-related decision-making, better use of preventive care and reduced exposure to health risks in the home environment [35].

Net equivalent income was grouped according to the poverty risk threshold of 60 percent of the median of the net equivalent income. This binary classification captures individuals' actual poverty risk, rather than merely ranking households by income as, e.g., with quintiles. Higher household income is associated with better children's health as it enables parents to invest in "better inputs into their children's health," including nutrition, housing quality, and medical care, thereby reducing the accumulation of health disadvantages over childhood [12].

Employment status was grouped into a binary variable, comparing employed individuals with a group of individuals who are either unemployed or not employed (retired, permanently unable to work, pupil/student, homemaker, civilian service or other). Parental employment status is associated with child health as stable employment reflects economic stability providing access to material and psychosocial resources, effects that go beyond income alone [36].

Migration background of the surveyed person, i.e., the parent, was defined based on their own parents' countries of birth and classified as present (both of their parents born outside of Austria) or absent. The variable migration background therefore describes the origin of the child's grandparents. Furthermore, this coding classifies individuals with a German migration background – who share a common language with Austrians – together with migrants from other countries. As the dataset does not separately identify German origin but instead aggregates Germany within a broader category of "EU-15 excluding Austria, including European Economic Area and Switzerland," we categorized these individuals as having no migration background in a sensitivity analysis. Family structure was divided into three groups depending on parental marital and cohabitation status. Cultural differences in families, as well as family structure and stability may affect a child's position in society and are possibly intertwined with parental education, income and employment status [37].

Control variables included the child's age at the time of the survey and gender, the surveyed parent's age at the time of the survey and gender, and whether a sibling of the child was included in the study. The child's age was classified in five and the parent's age into four age categories, providing information about further demographic factors and possible phenomena such as intergenerational transmission [9] or the steepening gradient with increasing age [13] that may contribute to health disparities in children.

2.2. Statistical analyses

The statistical analysis was conducted in *Stata 19.0,* applying Stata's survey commands to account for sampling weights and complex survey design. We estimated three binary logistic regression models for each outcome variable to examine the association between parental socioeconomic and sociodemographic factors and PRHS as well as the children's special healthcare need. The results of the survey regressions are presented as odds ratios (ORs) with their 95 % confidence intervals

Table 1
Variables used in regression analyses.[1].

Variable	Expression of variable	Further explanation
Dependent variables		
Parent-reported health status	very poor – good (ref.)	1) Health status rated as very poor, poor, moderate or good by the surveyed parent
	excellent	2) Health status rated as very good by the surveyed parent
Special healthcare need	no need for special healthcare according to CSHCN screener[1] (ref.)	Topics covered in the CSHCN screener: 1) medication use 2) medical care, psychosocial and educational support
	need for special healthcare	3) functional limitations 4) special therapy needs 5) emotional, developmental or behavioral disorders
Explanatory variables		
Parental education	ISCED[2] 0–2 (ref.)	1) ISCED 0: Early childhood education, ISCED 1: Primary education, ISCED 2: Lower secondary education
	ISCED 3-4	2) ISCED 3: Upper secondary education, ISCED 4: Post-secondary non-tertiary education
	ISCED 5-8	3) ISCED 5: Short-cycle tertiary education, ISCED 6: Bachelor's or equivalent level, ISCED 7: Master's or equivalent level, ISCED 8: Doctoral or equivalent level
Parental net equivalent income	<60 % of the median (ref.)	1) Below the poverty risk threshold of 60 percent of the median of the net equivalent income
	>60 % of the median	2) Above the poverty risk threshold of 60 percent of the median of the net equivalent income
Parental employment status	not employed (ref.)	1) unemployed, retired, permanently unable to work, pupil/student, homemaker, civilian service, other
	employed	2) currently employed parent
Parental migration background status	yes (ref.) no	1) Presence of migration background: both parents (of the surveyed parent) are born outside of Austria 2) Absence of migration background: one or both parent(s) (of the surveyed parent) is/are born in Austria
Family structure	single-parent family (ref.)	1) single-parent family: no partner living in the same household, regardless of legal marital status
	non-marital partnership	2) non-marital partnership: partner living in the same household, unmarried
	marital partnership	3) marital partnership: partner living in the same household, married or registered partnership
Control variables		
Gender of the child	male (ref.) female	
Age of the child	0–2 years (ref.) 3–6 years 7–10 years 11–13 years 14–17 years	
Sibling	no sibling included in the study (ref.) one or more siblings included	The variable 'sibling' describes whether a child's sibling was included in the study, which is restricted to siblings under 18 years living in the same household.
Gender of the parent	male (ref.) female	
Age of the parent	15–29 years (ref.) 30–39 years 40–49 years 50+ years	

Note: (ref.) = reference category in regression analyses, [1]CSHCN: Children with Special Health Care Needs Screener, [2]ISCED: International Standard Classification of Education.

(CIs). A p-value of < 0.05 was considered statistically significant.

We report results from both unadjusted and adjusted weighted models to provide a baseline benchmark of the crude relationship between health and socioeconomic as well as sociodemographic factors. This approach helps identify potential confounding factors that may mediate the association between health status and social position. The three estimated models include the following variables:

1) Model 1 (unadjusted): education, income, employment status, migration background, family structure
2) Model 2 (adjusted): education, income, employment status, migration background, family structure; adjusted for gender, age, sibling status, parent's gender, parent's age
3) Model 3 (adjusted; by gender): education, income, employment status, migration background, family structure; adjusted for age, sibling status, parent's gender, parent's age – for girls and boys separately.

3. Results

3.1. Study sample characteristics

A descriptive overview of the weighted study population is presented in Table 2. Regarding PRHS, 80.92 % of the children and adolescents were rated as having excellent health, while the remaining 19.08 % were reported to have less than excellent health, including good (15.88 %), moderate (2.61 %), poor (0.41 %) and very poor health (0.18 %). According to the CSHCN screener, 8.35 % of children and adolescents had special long-term care needs, whereas 91.65 % did not.

3.2. Regression analyses

3.2.1. Parent-reported health status (PRHS)

In the unadjusted model 1 (Table 3), higher education was related to a higher PRHS (OR 1.33, 95 % CI: 1.01–1.75). Likewise, parental income was associated with a higher PRHS (OR: 1.33, 95 % CI: 1.14–1.67), similar to the results of the adjusted model 2 (OR: 1.39, 95 % CI: 1.14–1.69). Parents without a migration background had higher chances to rate their child's health as excellent (model 2: OR: 1.21, 95 % CI: 1.02–1.46). Non-marital and marital parental partnership compared to a single-parent family structure showed a statistically significant association with excellent PRHS (model 1: OR: 1.54, 95 % CI: 1.12–12.14; OR: 1.79, 95 % CI: 1.36–2.34). In the adjusted model 2, only marital partnership remained statistically significant (OR: 1.43, 95 % CI: 1.09–1.89).

In the adjusted gender-stratified regressions (model 3, Table 4), the boys' PRHS was statistically significantly related to marital partnership (OR: 1.50, 95 % CI: 1.02–2.19), whereas among girls there was a statistically significant link between an excellent PRHS and having a higher parental income (OR: 1.52, 95 % CI: 1.15–2.01) and no migration background (OR: 1.30, 95 % CI: 1.00–1.67).

Table 2
Study sample characteristics (n = 5605).

Variables		n	n (weighted)	% (weighted)
Parent-reported health status (PRHS)	very poor – good	1018	289,271	19.08
	excellent	4687	1,226,826	80.92
Special healthcare need	no need	5137	1,389,503	91.65
	need for special healthcare	468	126,594	8.35
Education	ISCED[a] 0-2	569	179,961	11.87
	ISCED 3-4	2927	770,177	50.80
	ISCED 5-8	2109	565,959	37.33
Net equivalent income	<60 % of the median	1113	323,232	21.32
	>60 % of the median	4492	1,192,865	78.68
Employment status	not employed	1213	352,493	23.25
	employed	4392	1,163,604	76.75
Migration background	yes	1369	510,773	33.69
	no	4236	1,005,324	66.31
Family structure	single-parent family	444	121,894	8.04
	non-marital partnership	871	219,379	14.47
	marital partnership	4290	1,174,824	77.49
Gender of the child	male	2913	779,577	51.42
	female	2692	736,520	48.58
Age of the child	0–2 years	992	258,798	17.07
	3–6 years	1262	337,180	22.24
	7–10 years	1248	331,419	21.86
	11–13 years	907	250,459	16.52
	14–17 years	1196	338,241	22.31
Sibling	no sibling included in the study	1553	427,539	28.20
	sibling included in the study	4052	1,088,558	71.80
Gender of the parent	male	2351	686,792	45.30
	female	3254	829,305	54.70
Age of the parent	15–29 years	474	126,594	8.35
	30–39 years	2291	621,448	40.99
	40–49 years	2231	600,526	39.61
	50+ years	609	167,529	11.05

Note.
[a] ISCED: International Standard Classification of Education.

3.2.2. Need for special healthcare

For children with long-term diseases requiring special healthcare according to the CSHCN Screener (Table 3), no statistically significant associations with the three parental socioeconomic variables (education, income, employment status) emerged in models 1 and 2. However, children of parents without migration background had a higher risk to develop a chronic disease requiring special healthcare (model 1: OR: 1.37, 95 % CI: 1.05–1.78, model 2: OR: 1.32, 95 % CI: 1.01–1.73). Parents cohabiting with a partner had a decreased risk of having a child needing special healthcare (OR: 0.54, 95 % CI: 0.34–0.84; OR: 0.62, 95 % CI: 0.43–0.90) according to model 1, however, not in the adjusted model 2.

In model 3 (Table 4), the gender-stratified analyses, no statistically significant associations emerged, with one exception. For girls, the model indicated a lower risk (OR: 0.65, 95 % CI: 0.43–1.00) for the need of special healthcare with a higher parental income.

In the sensitivity analysis, in which children whose parents were born in EU-15 countries were additionally classified as having no migration background, the results remained unchanged.

4. Discussion

This study is first to comprehensively assess the link between parent-reported health status (PRHS) and parental socioeconomic and sociodemographic factors among a representative sample of children and adolescents in Austria. Excellent PRHS (80.92 %) compared to very poor to good PRHS (19.08 %) was statistically significantly associated with higher education, income, the absence of a migration background of the surveyed parent and parental marital partnership, but not parental employment status. Special healthcare needs due to chronic diseases as measured by the CSHCN screener were present in 8.35 % of the children and adolescents. No significant associations were found with the three parental socioeconomic variables, but migration background emerged as the only statistically significant factor. Notably, children whose parents had no migration background were more likely to have at least one chronic disease requiring special healthcare.

Our findings align with some international research, but conflict with others. In line with previous research [12–14], we observed the well-established link between higher income and better parent-reported health. In contrast to a recent German study [18], we do not find gender differences for health and household income in the Austrian data. Empirical evidence from the U.S. points to a similar picture for chronic conditions, with a consistently higher prevalence of special healthcare needs among children from households with low income [13,38]. Note that evidence from European countries suggests that access problems are generally less pronounced than in the U.S. [39], making comparisons within Europe inherently more appropriate. In Austria, the evidence is ambiguous: using the CSHCN Screener, we observed an association between parental income and chronic conditions for girls, but not for boys. In our analysis, parental education was not associated with PRHS, in contrast to the well-documented association between maternal educational level and PRHS in the U.S. [10,40]. Furthermore, we detected no correlation between parental educational level and special healthcare needs. This result aligns with a Finish study [17], which reported no

Table 3
Association between parent-reported health status (PRHS)/special healthcare need and parental socioeconomic and sociodemographic factors, n = 5605.

Model 1 (unadjusted) + Model 2 (adjusted)[1]		Model 1: PRHS	Model 2: PRHS[1]	Model 1: Special healthcare need	Model 2: Special healthcare need[1]
		OR (95 % CI)			
Education (reference = ISCED 0–2)	ISCED 3-4	1.070 (0.823–1.390)	1.006 (0.778–1.230)	0.988 (0.690–1.414)	1.076 (0.754–1.536)
	ISCED 5-8	1.328 (1.010–1.746)*	1.208 (0.922–1.581)	0.936 (0.646–1.358)	1.034 (0.713–1.499)
Net equivalent income (reference = <60 % of the median)	>60 % of the median	1.381 (1.139–1.674)*	1.391 (1.143–1.692)*	0.893 (0.677–1.179)	0.908 (0.681–1.210)
Employment status (reference = not employed)	employed	1.170 (0.966–1.416)	1.201 (0.975–1.479)	1.040 (0.787–1.376)	1.040 (0.768–1.407)
Migration background (reference = yes)	no	1.177 (0.986–1.405)	1.221 (1.021–1.460)*	1.370 (1.052–1.784)*	1.322 (1.010–1.730)*
Family structure (reference = single-parent family)	non-marital partnership	1.544 (1.115–2.140)*	1.144 (0.824–1.588)	0.539 (0.335–0.844)*	0.781 (0.496–1.229)
	marital partnership	1.786 (1.363–2.341)*	1.433 (1.087–1.890)*	0.622 (0.430–0.900)*	0.805 (0.555–1.168)

Note: *: $p < 0.05$. [1]Adjusted for age, gender, siblings, parental age, parental gender (not reported).

Table 4
Gender-stratified association between parent-reported health status (PRHS)/special healthcare need and parental socioeconomic and sociodemographic factors (boys: n = 2913; girls: 2692).

Model 3 (adjusted)[1]: Gender-stratification		PRHS - male	PRHS - female	Special healthcare need - male	Special healthcare need need - female
		OR (95 % CI)			
Education (reference = ISCED 0–2)	ISCED 3-4	0.948 (0.663–1.356)	1.062 (0.736–1.533)	0.921 (0.591–1.435)	1.063 (0.744–1.518)
	ISCED 5-8	1.155 (0.795–1.677)	1.244 (0.843–1.836)	0.849 (0.535–1.348)	1.035 (0.714–1.501)
Net equivalent income (reference = <60 % of the median)	>60 % of the median	1.276 (0.970–1.678)	1.520 (1.149–2.010)*	1.166 (0.789–1.723)	0.653 (0.427–1.000)*
Employment status (reference = not employed)	employed	1.175 (0.884–1.562)	1.228 (0.902–1.673)	1.050 (0.715–1.542)	1.004 (0.615–1.640)
Migration background (reference = yes)	no	1.156 (0.901–1.483)	1.295 (1.002–1.673)*	1.399 (0.985–1.985)	1.181 (0.777–1.780)
Family structure (reference = single-parent family)	non-marital partnership	1.378 (0.860–2.206)	0.971 (0.612–1.541)	0.995 (0.546–1.811)	0.576 (0.288–1.150)
	marital partnership	1.498 (1.023–2.194)*	1.375 (0.919–2.058)	1.012 (0.619–1.655)	0.625 (0.362–1.080)

Note: *: $p < 0.05$. [1]Adjusted for age, siblings, parental age, parental gender (not reported), stratified by the gender of the child.

effects of the three socioeconomic variables on chronic conditions in children.

Our results add to the ambiguous empirical evidence on association between parental employment status and chronic conditions and general health status of the children in Europe. Studies from Denmark [15] and Germany [18] show links between parental employment status and self-rated health of adolescents. Similarly, data from five Nordic countries [19] point out a higher prevalence of chronic conditions when both parents were previously unemployed. In contrast, a Slovakian study [20] found no clear association between long-term conditions and parental unemployment. However, it did identify long-term unemployment of at least one parent or short-term unemployment of both parents as significant predictors of poorer self-rated health. These mixed findings could help explain our results, as we used a variable that did not account for unemployment duration and only reflects employment status of the surveyed parent. This could explain the lack of statistically significant associations observed for both chronic conditions and PRHS.

Findings from the Nordic countries [19] showed that the prevalence of chronic illnesses in childhood was not associated with migration background. In our analysis, the absence of migration background was linked to better PRHS, yet children from native Austrian families showed a higher risk of special healthcare need due to one or more chronic diseases. These divergent results may be related to differences in health-seeking behavior and access to healthcare. Barriers of healthcare utilization were previously observed for adult refugees in Austria, as well as migrants and refugees in European countries, however, with only limited data for children [41,42]. Research from Portugal revealed that language and cultural barriers faced by immigrant families could hinder diagnosis of chronic illnesses, leading to greater reliance on emergency care instead of preventive primary care [43]. This dynamic may contribute to perceptions of poorer general health while chronic conditions may nonetheless remain undetected.

In our study, family structure, defined by parental cohabitation and legal marital status, emerged as statistically significantly associated with PRHS, with poorer health reported for children in single-parent families. Notably, family structure appeared to have a stronger effect on boys' PRHS. This is consistent with a German study [18] that reported an almost twofold effect of paternal absence as a mediator explaining the association of socioeconomic variables with self-rated health among male adolescents compared to females. Our results also align with findings from Norway [44], where adolescents with non-cohabiting parents reported worse self-reported health. Regarding chronic conditions, research from Nordic countries [19] indicated better health outcomes for children growing up in traditional families compared to single-parent families or stepfamilies.

Similarly, U.*S. data* [45] showed an increased prevalence of special healthcare needs among children from single-parent households. In our analysis, however, the association between family structure and special healthcare need lost its statistical significance after adjusting for age, gender and siblings. A possible explanation is that Austria's comprehensive social welfare and universal healthcare systems might mitigate the potential disadvantages of single-parenthood or non-traditional family structures on chronic diseases by ensuring a low threshold to access primary care. PRHS, on the other hand, may conceivably be influenced by broader sociocultural factors that extend beyond healthcare access, but this is beyond the scope of our analysis.

4.1. Limitations

A limitation of our study is the use of cross-sectional survey data, which does not allow to estimate quasi-causal relationships over time. Another limiting factor is the reliance on proxy reporting, where the surveyed parent provides information about their child. Proxy surveys are subject to general response bias as well as low response rates, and additionally, parental health status may influence responses [12]. Differences between parent and child reports are particularly pronounced for mental symptoms as opposed to externally observable health issues [46]. Overall, PRHS is considered to have a similar predictive power compared to other measures of health including chronic conditions, bed days and hospitalizations [12]. In our study, chronic conditions were assessed using a screening tool [32] designed to quantify the permanent need for special healthcare services. However, it does not differentiate between mental disorders and physical diseases, nor does it provide information about the diseases' etiology. Another study limitation stems from the restricted set of explanatory variables that come with several limitations. Also, only one parent participated in the survey, hence not capturing both parent's socioeconomic status. Furthermore, according to the definition of migration background used in the ATHIS survey, following the criteria of the United Nations Economic Commission for Europe (UNECE) [47], a parental migration background was only recorded if both their parents were born abroad. This narrow definition may reduce the ability to capture cultural differences in migrant families, potentially underestimating the diversity of migration-related influences on child health. Notably, children without a parental migration background were more likely to have at least one chronic disease requiring special healthcare. Finally, in the survey, parents with German origin who share a common language and similar culture with Austrians were grouped in a broad group of European countries. A relevant sensitivity analysis confirmed the main findings.

4.2. Research and policy implications

Our analysis revealed that in international comparison [10,13,40], parent-reported health is generally high for Austrian children and

adolescents with only a minority reporting poor (0.54 %, n = 30) or very poor health (3.1 %, n = 171). Yet, in Austria reporting excellent compared to worse PRHS is also related to higher parental socioeconomic status and sociodemographic factors. Albeit potentially counter-intuitive at first glance, special healthcare needs due to chronic conditions were primarily prevalent in children whose parents did not have a migration background. A possible explanation for this finding could be a tendency of underdiagnosis for these children due difference in healthcare seeking behavior and access barriers for parents with migration background [42].

The observed discrepancy between PRHS and special healthcare needs warrants further investigation to better understand their respective associations with socioeconomic and sociodemographic factors. Given the challenges in identifying an appropriate measure of child health, expanding analyses to include additional subjective and objective health indicators could provide valuable insights. Furthermore, future research should, among others, aim to incorporate information from both parents and focus on gender differences to develop a more comprehensive understanding of family health dynamics.

Our diverging results between PRHS and special healthcare needs, along with their respective associations, may be explained by several factors, implying possible targets for policy measures. Chronic diseases are diagnosed and treated by healthcare professionals, making them a comparatively objective measure and policy target, as the connection to healthcare access barriers is straight-forward. In contrast, PRHS is a subjective measure as reported by parents and hence influenced by their individual perceptions and existing cultural norms. Parental perceptions of their child's health partly reflect their own physical and mental health or expectations [48], making it challenging for social and health policy measures to fully mitigate these subjective factors.

To address these health disparities, policy measures should aim beyond the healthcare system. Our findings point to the potential in strengthening socioeconomic equity by promoting educational attainment and integration on the labour market of vulnerable population groups. Another possibility would be to increase disposable incomes through targeted social transfers, potentially earmarked for healthcare purposes to reduce financial access barriers and steer health seeking behaviour. Moreover, our findings suggest a gap between special healthcare needs for chronic illnesses and parental migration status. If indeed chronic conditions are underdiagnosed in migrant populations, then facilitating access to culturally sensitive healthcare services for parents with migrant status could address this issue by lowering the threshold to receive diagnoses. Additionally, implementing psychosocial support programs for family stability and promoting health literacy can help mitigate the influence of stress, stigma, and cultural norms on PRHS.

Ethical statement

The analysis was based on anonymized secondary data from the Austrian Health Interview Survey (ATHIS), collected by Statistics Austria. The Ethics Committee of the Medical University of Vienna confirmed that formal ethics approval was not required for this study.

Funding

None.

Declaration of competing interest

None declared.

Data availability

The data underlying this article are available from Statistics Austria, at https://www.statistik.at/services/tools/services/amdc-mikrodaten-fuer-die-wissenschaft/scientific-use-files#c15273.

References

[1] B. Bosworth, Increasing disparities in mortality by socioeconomic status, Annu. Rev. Publ. Health 39 (1) (April 2018) 237–251.
[2] A. Case, A. Deaton, Rising morbidity and mortality in midlife among white Non-Hispanic Americans in the 21st century, Proc Natl Acad Sci U S A. 8. Dezember 112 (49) (2015) 15078–15083.
[3] J. Currie, H. Schwandt, Inequality in mortality decreased among the young while increasing for older adults, 1990-2010, Science. 6. Mai 352 (6286) (2016) 708–712.
[4] J.P. Mackenbach, I. Kulhánová, B. Artnik, M. Bopp, C. Borrell, T. Clemens, a u, Changes in mortality inequalities over two decades: register based study of European countries, Br. Med. J. 353 (11) (April 2016) i1732.
[5] N.E. Adler, T. Boyce, M.A. Chesney, S. Cohen, S. Folkman, R.L. Kahn, a u, Socioeconomic status and health. The challenge of the gradient, Am. Psychol. 49 (1) (1994) 15–24.
[6] P. Braveman, Health disparities and health equity: concepts and measurement, Annu. Rev. Publ. Health 27 (2006) 167–194.
[7] A. Lleras-Muney, The relationship between education and adult mortality in the United States, Rev. Econ. Stud. 72 (1) (2005) 189–221.
[8] I. Moor, J. Spallek, M. Richter, Explaining socioeconomic inequalities in self-rated health: a systematic review of the relative contribution of material, psychosocial and behavioural factors, J. Epidemiol. Community Health 71 (6) (2017) 565–575.
[9] A. Case, A. Fertig, C. Paxson, The lasting impact of childhood health and circumstance, J. Health Econ. 24 (2) (2005) 365–389.
[10] E.M. Lawrence, R.G. Rogers, R.A. Hummer, Maternal educational attainment and child health in the United States, Am J Health Promot AJHP 34 (3) (2020) 303–306.
[11] M.I. Jackson, T. Kihara, The educational gradient in health among children in immigrant families, Popul. Res. Pol. Rev. 38 (6) (2019) 869–897.
[12] A. Case, D. Lubotsky, C. Paxson, Economic status and health in childhood: the origins of the gradient, Am. Econ. Rev. 92 (5) (2002) 1308–1334.
[13] J. Currie, M. Stabile, Socioeconomic status and child health: why is the relationship stronger for older children? Am. Econ. Rev. 93 (5) (2003) 1813–1823.
[14] A. Currie, M.A. Shields, S.W. Price, The child health/family income gradient: evidence from England, J. Health Econ. 26 (2) (2007) 213–232.
[15] L. Lindholdt, T. Lund, J.H. Andersen, M. Labriola, Labour market attachment among parents and self-rated health of their offspring: an intergenerational study, Eur. J. Publ. Health 30 (3) (2020) 600–605.
[16] A. Jensen, G. Greisen, L.G. Stensballe, Socioeconomic background affects mortality in Danish children with severe chronic disease. Acta Paediatr Oslo nor 1992, Dezember 111 (12) (2022) 2393–2399.
[17] S.M. Siponen, R.S. Ahonen, P.H. Savolainen, K.P. Hämeen-Anttila, Children's health and parental socioeconomic factors: a population-based survey in Finland, BMC Public Health 11 (2011) 457.
[18] P. Rattay, M. Blume, B. Wachtler, L. Wollgast, J. Spallek, S. Hoffmann, a u, Socioeconomic position and self-rated health among female and male adolescents: the role of familial determinants in explaining health inequalities. Results of the German KiGGS study, PLoS One 17 (4) (2022) e0266463.
[19] C. Reinhardt Pedersen, M. Madsen, Parents' labour market participation as a predictor of children's health and wellbeing: a comparative study in five Nordic countries, J. Epidemiol. Community Health 56 (11) (2002) 861–867.
[20] M. Sleskova, F. Salonna, A.M. Geckova, I. Nagyova, R.E. Stewart, J.P. van Dijk, a u, Does parental unemployment affect adolescents' health? J Adolesc Health Off Publ Soc Adolesc Med 38 (5) (2006) 527–535.
[21] A.C.J. Ravelli, J.M. Schaaf, M. Eskes, A. Abu-Hanna, E. de Miranda, B.W.J. Mol, Ethnic disparities in perinatal mortality at 40 and 41 weeks of gestation, J. Perinat. Med. 41 (4) (2013) 381–388.
[22] E.J.W.M. Troe, V. Bos, I.M. Deerenberg, J.P. Mackenbach, I.M.A. Joung, Ethnic differences in total and cause-specific infant mortality in the Netherlands, Paediatr. Perinat. Epidemiol. 20 (2) (2006) 140–147.
[23] S.F. Villadsen, L.H. Mortensen, A.M.N. Andersen, Ethnic disparity in stillbirth and infant mortality in Denmark 1981-2003, J. Epidemiol. Community Health 63 (2) (2009) 106–112.
[24] Rasmussen T. Damsted, S.F. Villadsen, Andersen P. Kragh, Jervelund S. Smith, A. M. Nybo Andersen, Social and ethnic disparities in stillbirth and infant death in Denmark, 2005-2016, Sci. Rep. 11 (1) (2021) 8001.
[25] C. Dello Iacono, M. Requena, M. Stanek, Partnership, living arrangements, and low birth weight: evidence from a population-based study on Spanish mothers, BMC Pregnancy Childbirth 22 (1) (2022) 925.
[26] A. Case, C. Paxson, The long reach of childhood health and circumstance: evidence from the whitehall II study, Econ J Lond Engl. 121 (554) (August 2011) F183–F204.
[27] J. Currie, M. Stabile, Child mental health and human capital accumulation: the case of ADHD, J. Health Econ. 25 (6) (November 2006) 1094–1118.
[28] A. Case, L. Kraftman, Health inequalities. Oxf open econ. 1, Juli 3 (Supplement_1) (2024) i499–i528.
[29] Statistik Austria, Österreichische Gesundheitsbefragung 2019 - Hauptergebnisse des Austrian Health Interview Survey (ATHIS) und methodische Dokumentation, Bundesministerium für Soziales, Gesundheit, Pflege und Konsumentenschutz (2020) [Internet]. [cited 30 April 2021]. Available at: http://www.statistik.at/web_de/services/publikationen/4/index.html?includePage=detailedView&sectionName=Gesundheit&pubId=794.

[30] Statistik Austria, Scientific use files - Austrian Health Interview Survey [Internet]. [cited 10 April 2025]. Available at, https://www.statistik.at/services/tools/services/amdc-mikrodaten-fuer-die-wissenschaft/scientific-use-files.
[31] Statistik Austria, Standard-Dokumentation Metainformationen (Definitionen, Erläuterungen, Methoden, Qualität) zur Gesundheitsbefragung 2019, 16 [Internet]. [cited 7 October 2022]. Available at: https://www.statistik.at/fileadmin/shared/QM/Standarddokumentationen/B_1/std_b_gesundheitsbefragung_2019.pdf.
[32] C.D. Bethell, D. Read, R.E.K. Stein, S.J. Blumberg, N. Wells, P.W. Newacheck, Identifying children with special health care needs: development and evaluation of a short screening instrument, Ambul Pediatr Off J Ambul Pediatr Assoc. Februar 2 (1) (2002) 38–48.
[33] UNESCO Institute for Statistics, International Standard Classification of Education (ISCED) 2011 [Internet]. Available at: http://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-isced-2011-en.pdf.
[34] J. Currie, E. Moretti, Mother's education and the intergenerational transmission of human capital: evidence from college openings, Q. J. Econ. 118 (2003) 1495–1532.
[35] D.M. Cutler, A. Lleras-Muney, Understanding differences in health behaviors by education, J. Health Econ. 29 (1) (2010) 1–28.
[36] N.E. Adler, J.M. Ostrove, Socioeconomic status and health: what we know and what we don't, Ann. N. Y. Acad. Sci. 896 (1999) 3–15.
[37] R.H. Bradley, R.F. Corwyn, Socioeconomic status and child development, Annu. Rev. Psychol. 53 (2002) 371–399.
[38] V. Udalova, V. Bhatia, M. Polyakova, Association of family income with morbidity and mortality among US lower-income children and adolescents, JAMA 328 (24) (2022) 2422–2430.
[39] R. Osborn, D. Squires, M.M. Doty, D.O. Sarnak, E.C. Schneider, In New survey of eleven countries, US adults still struggle with access to and affordability of health care, Health Aff Proj Hope. 1. Dezember 35 (12) (2016) 2327–2336.
[40] S. Allin, M. Stabile, Socioeconomic status and child health: what is the role of health care, health conditions, injuries and maternal health? Health Econ. Pol. Law 7 (2) (2012) 227–242.
[41] J. Kohlenberger, I. Buber-Ennser, B. Rengs, S. Leitner, M. Landesmann, Barriers to health care access and service utilization of refugees in Austria: evidence from a cross-sectional survey, Health Policy 123 (9) (September 2019) 833–839, 1.
[42] A. Lebano, S. Hamed, H. Bradby, A. Gil-Salmerón, E. Durá-Ferrandis, J. Garcés-Ferrer, a u, Migrants' and refugees' health status and healthcare in Europe: a scoping literature review, BMC Public Health 20 (1) (30. Juni 2020) 1039.
[43] Z. Muggli, T.E. Mertens, R. Amado, D. Vaz, H. Loureiro, M.R.O. Martins, Patterns of healthcare use among children with immigrant and non-immigrant backgrounds in 2019 and 2020: evidence from the CRIAS cohort study in the metropolitan area of Lisbon, Portugal, BMC Public Health. 18. Dezember 23 (1) (2023) 2531.
[44] H.J. Breidablik, E. Meland, T.L. Holmen, S. Lydersen, Role of parents in adolescent self-rated health: norwegian nord-trøndelag Health study, Adolesc. Health Med. Therapeut. 1 (6. September 2010) 97–104.
[45] P.W. Newacheck, B. Strickland, J.P. Shonkoff, J.M. Perrin, M. McPherson, M. McManus, a u, An epidemiologic profile of children with special health care needs, Pediatrics 102 (1 Pt 1) (1998) 117–123.
[46] J.W. Varni, D. Thissen, B.D. Stucky, Y. Liu, B. Magnus, J. He, a u, Item-level informant discrepancies between children and their parents on the PROMIS(®) pediatric scales, Qual Life Res Int J Qual Life Asp Treat Care Rehabil. 24 (8) (2015) 1921–1937.
[47] United Nations Economic Commission for Europe (UNECE), Conference of european statisticians recommendations for the 2020 censuses of population and housing [Internet] [cited 13 March 2024]. Available at: https://unece.org/info/Statistics/pub/21844.
[48] S.H. Kaplan, M. Shaughnessy, M.A. Fortier, M. Vivero-Montemayor, S.G. Masague, D. Hayes, a u, The role of parental health and distress in assessing children's health status, Qual Life Res Int J Qual Life Asp Treat Care Rehabil. 31 (12) (2022) 3403–3412.