INTRODUCTION

Deafness and other degrees of hearing impairment affect all aspects of life and health for people of all ages. Globally, hearing loss is estimated to be the fourth most leading contributor to years lived with disability.\(^1\) When estimating years lived with disability, hearing disability is listed as being the third most common globally.\(^2\)

The causes of deafness and hearing impairment vary globally in different regions of the world, as do the risks for hearing impairment. The lowest risk has been found in high-income countries such as those located in mostly Western and Northern Europe and
Northern America. Higher risks have been found in Central and Eastern Europe, Sub-Saharan Africa, Latin America and Asian regions, mostly south Asia. Worldwide, it is estimated that a total of half a billion people are affected with a disabling form of hearing loss, which is around 7% of the global population.\(^1\)\(^,\)\(^2\)

Hearing impairment has been studied in different countries. Studies in the United States have found a prevalence of mild to severe hearing impairment of 3.1% among children and adolescents.\(^3\)

An American study concluded that hearing loss was underestimated among immigrants, as hearing impairment is not detected in many immigrant children, a phenomenon that was most evident for children from Mexico and China.\(^4\)

Earlier Swedish studies have studied children and adolescents that included both children aged 1–6 and those up to 18 or 20 years of age.\(^5\)\(^,\)\(^6\)\(^,\)\(^7\)\(^,\)\(^8\) In a study from 2020, the prevalence of unilateral and bilateral hearing impairment >20 dB was estimated at 3.6 per 1000, a figure that is at the same level as in other high-income countries.\(^9\)\(^,\)\(^10\) However, there is a shortage of studies concerning hearing impairment among immigrants, including second-generation immigrant children and adolescents. The advantage of studying second-generation immigrants is that many environmental factors are similar compared to native Swedes. It is also of importance as hearing impairment may hamper the integration of second-generation immigrants and their families into Swedish society. Therefore, we hypothesised that there would be no differences in the prevalence of hearing impairment.

Accordingly, the aim of this nationwide study was to estimate the risk of hearing impairment in children and adolescents with foreign-born parents, compared to children and adolescents with Swedish-born parents. We adjusted for socioeconomic status as well as co-morbidities using national register data in our analyses.

## METHODS

### 2.1 Design

We used the Total Population Register and the National Patient Register at Statistics Sweden for this study. Individuals aged 0–17 years were included at baseline to compare children with foreign-born parents to children with native Swedish-born parents. The follow-up period ran from 1 January 1998 until hospitalisation or outpatient treatment for a diagnosis of hearing impairment, death, emigration or the end of the study period on 31 December 2017, whichever came first. Outpatient diagnoses were included nationwide from 2001 and onwards from specialist open care, but not primary health care, as these diagnoses are not included in the National Patient Register. A unique pseudonymised serial number for everyone was used to avoid double-counting.

### 2.2 Outcome variable

Hearing impairment using ICD codes (H90, H91, H83.3) categorised as the following conditions were included: conductive hearing impairment (CHI; H90.0-H90.2), sensorineural hearing impairment (SNHI; H90.3-H90.5), noise-induced hearing impairment (NIHI; H83.3) and other hearing impairment (H91.2-H91.9). For most analyses, we included sensorineural hearing impairment, noise-induced hearing impairment, which is a specific type of hearing impairment, and other types mostly of sensorineural hearing type impairments into an extended sensorineural hearing impairment group. We used the first registered diagnosis as a diagnosis might be registered several times (Table S1). One diagnosis was registered in 48% of all cases, and up to three diagnoses in 79% of cases.

### 2.3 Co-morbidities

We identified the following co-morbidities with ICD-10 codes: Tinnitus (H93.1); Cerebral palsy (CP; G80); Intracranial trauma (S06); Malignant brain tumour (D32, D33, C70, C71); Cancer (C00-C97, with C70 and C71 excluded, and categorised into the brain tumour group); Diabetes (E10-E14); and Visual impairment (H54).

### 2.4 Demographic and socioeconomic variables

Age was used as a continuous variable in the analysis. Marital status was defined as married or not.

Educational attainment was categorised as up to nine years (partial or complete compulsory schooling), 10–12 years (partial or complete secondary schooling) and more than 12 years (attendance at college and/or university). Geographic region of residence was included to adjust for possible regional differences in healthcare and was categorised as: large cities with surrounding regions; southern Sweden (southern and middle part of Sweden); northern Sweden (the five most northern counties). Large cities were defined as municipalities with a population of more than 200,000 and comprised the three largest cities in Sweden: Stockholm, Gothenburg and Malmö.
2.5 | Neighbourhood deprivation

Neighbourhood socioeconomic status (NSES): This index was categorised into four groups: more than one standard deviation (SD) below the mean (low deprivation level or high SES), more than one SD above the mean (high deprivation level or low SES) and within one SD of the mean (moderate SES or moderate deprivation level) used as reference group, and unknown neighbourhood SES.

2.6 | Statistical analysis

Baseline data are presented with categorical variables as counts and percentages. We used Cox regression analysis to estimate the relative risk (HR with 99% CI) of incident hearing impairment, categorised as conductive hearing impairment HI or extended sensorineural hearing impairment (noise-induced hearing impairment and other types), in different groups of children and adolescents with foreign-born parents compared to the control group (native Swedes) during the follow-up time. All analyses were stratified by gender. Two models were used: Model one with adjustment for age; and Model two with adjustment for age, region of residence, educational level of parents, marital status of parents, neighbourhood SES and relevant co-morbidities such as tinnitus, cerebral palsy (CP), intracranial trauma (as a proxy for severe fall injuries), malignant brain tumour, cancer, diabetes and visual impairment.

3 | RESULTS

In total, 1,923,590 individuals were included, (51.4% boys) and displayed in Table 1. Of these, 20,514 cases (11,019 boys and 9495 girls) with extended sensorineural hearing impairment, also including noise-induced hearing impairment and those from other causes, and 6172 cases (3084 boys and 3,088 girls) with CHI were registered.

Regarding background factors, higher educational level among parents was associated with a lower risk of hearing impairment among both individuals with foreign-born parents and natives (Table S1). By contrast, higher neighbourhood deprivation level was associated with a higher risk only among natives. For the different co-morbidities, the risk was increased for both conductive hearing impairment and extended sensorineural hearing impairment for tinnitus and intracranial trauma for both individuals with foreign-born parents and natives; for cerebral palsy except for natives with conductive hearing impairment; for brain tumour and visual impairment except for conductive hearing impairment among individuals with foreign-born parents; and for cancer and diabetes only for extended sensorineural hearing impairment. We also analysed the number of diagnoses during the time period (Table S2), that is with one diagnosis noted in 48.1%, two diagnoses in 19.9% and three diagnoses in 11.2%; cases of hearing impairment (Table S3), with sensorineural hearing loss being most common with 55.3% and conductive hearing loss second most common with 23.1%; and finally acute diagnoses during the period, in total 11% were registered, and for CHI 20% (Table S4).

The risk of conductive hearing impairment among boys with foreign-born parents was lower in general (Table 2), but in Model 1 it was lower only for boys with parents from Nordic countries and Latin America. The risk of extended sensorineural hearing impairment was lower among boys with parents from Nordic countries, South Europe and North America, and higher among boys with parents from Asia (all number of events are shown in Table S5).

The risk of conductive hearing impairment among girls with foreign-born parents was lower in general and among girls with parents from Nordic countries (Table 2). In Model 1, it was lower only among girls with parents from Eastern Europe. The risk of extended sensorineural hearing impairment was lower only in Model 1 among girls with foreign-born parents in general, and with parents from Nordic countries. When analysing data regarding boys and girls with parents from specific countries, a significantly higher risk was found among those with parents from Iraq.

When categorising into the four different types of hearing impairment, conductive hearing impairment, sensorineural hearing impairment, noise-induced hearing impairment and other types, for boys and girls together (Table 3), a lower risk of conductive hearing impairment was found among individuals with parents from Nordic countries, Eastern Europe, Central Europe and Latin America; a lower risk of sensorineural hearing impairment among those from Nordic countries; and a lower risk of other types among those with parents from the Southern Europe. A higher risk of sensorineural hearing impairment was found among those with parents from Asia.

4 | DISCUSSION

The main findings of this study were a higher risk of extended sensorineural hearing impairment among boys with parents from Asia, and specifically from Iraq, and a lower risk in boys with parents from Nordic countries, South Europe and North America. For conductive hearing impairment, the risk was lower for boys and girls with parents from Nordic countries.

Earlier studies among immigrant children have found that, in the USA, children from Mexico and China showed a higher risk; however, this was true for first-generation immigrant children. The risk in second-generation immigrant children, which could reflect more of hereditary cases, has been sparsely studied. As regards genetic causes, sensorineural hearing impairment is most common according to an American study.

As we studied second-generation immigrant children and adolescents, many environmental factors during childhood are likely to be similar compared to natives. Thus, genetic factors could be expected to be of greater importance in second-generation immigrant children and adolescents. The healthy migrant effect, which is the theory that migrants tend to be healthier than their compatriots in the country of origin, could have affected the parents, but with a probably smaller effect on their children.
Canadian studies have shown that many school children have not been tested properly for hearing impairments, and for some groups, such as especially economically disadvantaged or immigrant families, medical access and follow-up audiology services may be limited.

In regard to co-morbidities, these showed higher risks especially for sensorineural hearing impairment. Tinnitus was largely over-represented, and paediatric tinnitus differs from adult tinnitus in different ways, with lower association with hearing loss and higher likelihood of improvement or even resolution.

| TABLE 1 Study population and incident hearing impairment categorised by gender and divided into conductive hearing impairment and extended sensorineural hearing impairment (including also noise-induced hearing impairment and 'other types') |
|---------------------------------------------------------------|
| **Boys** | Conductive hearing impairment | Extended sensorineural hearing impairment | **Girls** | Conductive hearing impairment | Extended sensorineural hearing impairment |
| Population | No. | % | No. | % | No. | % | No. | % | No. | % |
| Total population | 988759 | | 3084 | 21.0 | 11019 | 35.4 | 934831 | 3088 | 29.5 |
| Age (years) | | | | | | | | | |
| 0–4 | 222607 | 22.5 | 936 | 32.6 | 2688 | 24.4 | 211036 | 22.6 | 9495 | 25.7 |
| 5–9 | 328721 | 33.2 | 1114 | 36.1 | 3879 | 35.2 | 310963 | 33.3 | 9495 | 35.9 |
| 10–17 | 437431 | 44.2 | 1034 | 33.5 | 4452 | 40.4 | 412832 | 44.2 | 9495 | 38.4 |
| Educational level of parents | | | | | | | | | |
| ≤ 9 | 271121 | 27.4 | 842 | 28.6 | 3194 | 29.0 | 256306 | 27.4 | 846 | 27.4 |
| 10–11 | 336957 | 34.1 | 1133 | 36.1 | 3950 | 35.8 | 319848 | 34.2 | 1203 | 39.0 |
| ≥ 12 | 380681 | 38.5 | 1109 | 36.0 | 3875 | 35.2 | 358677 | 38.2 | 1039 | 33.6 |
| Region of residence | | | | | | | | | |
| Large cities | 454848 | 46.0 | 1468 | 47.6 | 4866 | 44.2 | 431017 | 46.1 | 1463 | 47.4 |
| Southern Sweden | 319816 | 32.3 | 1026 | 33.3 | 3549 | 32.2 | 302929 | 32.4 | 1036 | 33.5 |
| Northern Sweden | 214095 | 21.7 | 590 | 19.1 | 2604 | 23.6 | 200885 | 21.5 | 589 | 19.1 |
| Marital status of parents | | | | | | | | | |
| Married | 640887 | 64.8 | 1901 | 61.6 | 7060 | 64.1 | 605148 | 64.7 | 1856 | 60.1 |
| Not married | 347872 | 35.2 | 1183 | 38.4 | 3959 | 35.9 | 329683 | 35.3 | 1232 | 39.9 |
| Neighbourhood deprivation | | | | | | | | | |
| Low | 155170 | 15.7 | 464 | 15.0 | 1751 | 15.9 | 147280 | 15.8 | 510 | 16.5 |
| Middle | 456452 | 46.2 | 1630 | 52.9 | 5481 | 49.7 | 432762 | 46.3 | 1609 | 52.1 |
| High | 127467 | 12.9 | 464 | 15.0 | 1555 | 14.1 | 119706 | 12.8 | 452 | 14.6 |
| Unknown | 249670 | 25.3 | 526 | 17.1 | 2232 | 20.3 | 235083 | 25.1 | 517 | 16.7 |
| Hospital diagnosis of tinnitus | 6977 | 0.7 | 107 | 3.5 | 939 | 8.5 | 5013 | 0.5 | 120 | 3.9 |
| Hospital diagnosis of cerebral palsy | 2754 | 0.3 | 20 | 0.6 | 147 | 1.3 | 1989 | 0.2 | 9 | 0.3 |
| Hospital diagnosis of intracranial trauma | 59463 | 6.0 | 294 | 9.5 | 960 | 8.7 | 40454 | 4.3 | 236 | 7.6 |
| Hospital diagnosis of brain tumour | 1348 | 0.1 | 13 | 0.4 | 100 | 0.9 | 1255 | 0.1 | 10 | 0.3 |
| Hospital diagnosis of cancer | 5873 | 0.6 | 24 | 0.8 | 163 | 1.5 | 6021 | 0.6 | 30 | 1.0 |
| Hospital diagnosis of diabetes | 9595 | 1.0 | 30 | 1.0 | 185 | 1.7 | 7718 | 0.8 | 28 | 0.9 |
| Hospital diagnosis of visual impairment | 1237 | 0.1 | 14 | 0.5 | 67 | 0.6 | 1476 | 0.2 | 12 | 0.4 |
The co-existence of both hearing and visual impairment, which is often referred to as the so-called dual sensory impairment,\(^\text{17}\) is of special interest and importance. The National Health Interview Survey in America found a prevalence of 6.4 per 1000 for hearing loss and 1.6 for blindness.\(^\text{18}\) Cerebral Palsy is also an important disability, which we found was over-represented among individuals with hearing impairment, especially among those with foreign-born parents. Childhood cancer survivors have also been studied in the USA, with an increased incidence rate ratio (IRR) of hearing or vision loss of 5.1, and those children showed a substantially increased disease burden.\(^\text{19}\) Thus, the increased disease burden of different co-morbidities is certainly a challenge for healthcare to recognise and manage.

To grow up as a child with foreign-born parents might be a challenge, especially if that same child also has a hearing impairment. Thus, it is important to identify children and adolescents with hearing impairments early and to put supportive measures in place.

An earlier Swedish study from Region Stockholm based on the database Audiohab, which used audiometric screening, found a prevalence of moderate to profound hearing impairment of 3.6 per 1000.\(^\text{10}\) In contrast, an American study found a prevalence of mild or severe hearing impairment of 3.1%.\(^\text{10}\) We had no access to audiometric data hence why it is difficult to compare our incidence rates with these numbers, but we could have identified milder cases, possibly also reversible cases of hearing impairment, especially for conductive hearing impairment.

### TABLE 2 The incidence of hearing impairment in boys and girls with foreign-born parents vs native boys of Swedish natives expressed as hazard ratios (HR) with 99% confidence intervals (99% CI)

|                  | Conductive hearing impairment | Extended sensorineural hearing impairment |
|------------------|-------------------------------|------------------------------------------|
|                  | Model 1                       | Model 2                                  | Model 1                           | Model 2                           |
|                  | Obs. HR 99% CI                | Obs. HR 99% CI                           | HR 99% CI                         | HR 99% CI                         |
| **Boys:**        |                               |                                          |                                  |                                  |
| Sweden           |                               |                                          |                                  |                                  |
| All countries    | 2474 1                        | 8501 1                                   |                                  |                                  |
| Nordic countries | 610 0.79 0.69 0.90            | 2518 0.95 0.89 1.01                      |                                  |                                  |
| Southern Europe  | 169 0.79 0.63 0.99            | 612 0.80 0.71 0.90                      |                                  |                                  |
| Western Europe   | 28 0.92 0.54 1.58             | 60 0.55 0.38 0.80                        |                                  |                                  |
| Eastern Europe   | 20 0.67 0.35 1.29             | 97 0.97 0.73 1.30                        |                                  |                                  |
| Baltic countries | 85 0.81 0.59 1.11             | 345 0.96 0.82 1.13                      |                                  |                                  |
| Central Europe   | 1 0.45 0.03 7.77              | 8 1.08 0.39 2.96                         |                                  |                                  |
| Africa           | 24 0.64 0.36 1.14             | 124 0.94 0.72 1.21                      |                                  |                                  |
| North America    | 41 0.77 0.49 1.21             | 154 0.86 0.68 1.08                      |                                  |                                  |
| Latin America    | 9 0.51 0.19 1.40             | 25 0.47 0.26 0.83                        |                                  |                                  |
| Asia             | 21 0.52 0.28 0.99             | 103 0.77 0.58 1.02                      |                                  |                                  |
| Russia           | 207 0.88 0.72 1.08            | 963 1.22 1.11 1.34                      |                                  |                                  |
| **Girls:**       |                               |                                          |                                  |                                  |
| Sweden           | 2509 1                        | 7407 1                                   |                                  |                                  |
| All countries    | 579 0.74 0.65 0.85            | 2088 0.91 0.85 0.98                      |                                  |                                  |
| Nordic countries | 150 0.68 0.54 0.87            | 570 0.86 0.76 0.98                        |                                  |                                  |
| Southern Europe  | 26 0.78 0.44 1.40            | 76 0.81 0.58 1.13                        |                                  |                                  |
| Western Europe   | 28 0.96 0.56 1.65             | 67 0.75 0.53 1.07                        |                                  |                                  |
| Eastern Europe   | 74 0.70 0.50 0.98             | 291 0.94 0.79 1.11                      |                                  |                                  |
| Baltic countries | 4 0.61 0.15 2.54             | 6 0.46 0.21 2.90                       |                                  |                                  |
| Central Europe   | 21 0.53 0.28 1.00             | 97 0.84 0.69 1.12                       |                                  |                                  |
| Africa           | 40 0.73 0.46 1.16             | 135 0.87 0.68 1.12                      |                                  |                                  |
| North America    | 13 0.83 0.37 1.83             | 38 0.82 0.51 1.30                       |                                  |                                  |
| Latin America    | 23 0.58 0.31 1.07             | 85 0.74 0.54 1.01                       |                                  |                                  |
| Asia             | 195 0.84 0.68 1.04            | 697 1.04 0.92 1.16                      |                                  |                                  |
| Russia           | 7 1.20 0.41 3.52             | 15 0.88 0.42 1.83                       |                                  |                                  |

Note: Model 1: Adjusted for age; model 2: Adjusted for age, region of residence in Sweden, educational level, marital status, neighbourhood deprivations, and co-morbidities.
**TABLE 3** The incidence of hearing impairment in children and adolescents with foreign-born parents vs Swedish natives expressed as hazard ratios (HR) with 99% confidence intervals (99% CI)*

|                          | Conductive hearing impairment | Sensorineural hearing impairment | Noise-induced hearing impairment | Other types of hearing impairment |
|--------------------------|-------------------------------|---------------------------------|---------------------------------|-----------------------------------|
|                          | Obs  | HR     | 99% CI | Obs  | HR     | 99% CI | Obs  | HR     | 99% CI | Obs  | HR     | 99% CI |
| **Sweden**               | 4983 | 1      |        | 11547| 1      |        | 292  | 1      |        | 4069 | 1      |        |
| **All countries**        | 1189 | 0.83   | 0.75   | 0.91 | 3219 | 0.98   | 0.92   | 1.04 | 92     | 1.17   | 0.81   | 1.69   | 1295 | 0.98   | 0.89   | 1.08   |
| **Nordic countries**     | 319  | 0.79   | 0.67   | 0.93 | 799  | 0.83   | 0.75   | 0.92 | 28     | 1.13   | 0.63   | 2.03   | 355  | 0.95   | 0.81   | 1.12   |
| **Southern Europe**      | 54   | 0.95   | 0.63   | 1.41 | 101  | 0.78   | 0.59   | 1.04 | 2      | 0.61   | 0.08   | 4.59   | 33   | 0.60   | 0.36   | 0.99   |
| **Western Europe**       | 48   | 0.91   | 0.60   | 1.38 | 111  | 0.89   | 0.68   | 1.17 | 5      | 1.59   | 0.44   | 5.77   | 48   | 0.98   | 0.64   | 1.48   |
| **Eastern Europe**       | 159  | 0.76   | 0.60   | 0.96 | 463  | 1.01   | 0.88   | 1.16 | 16     | 1.37   | 0.63   | 2.96   | 157  | 0.94   | 0.74   | 1.19   |
| **Baltic countries**     | 1    | 0.28   | 0.02   | 4.81 | 7    | 0.81   | 0.28   | 2.38 | 1      | 6.00   | 0.34   | 105.04 | 4    | 1.08   | 0.26   | 4.48   |
| **Central Europe**       | 45   | 0.61   | 0.39   | 0.93 | 155  | 0.95   | 0.75   | 1.19 | 4      | 0.65   | 0.12   | 3.39   | 62   | 0.90   | 0.62   | 1.31   |
| **Africa**               | 81   | 0.85   | 0.62   | 1.18 | 184  | 0.90   | 0.72   | 1.12 | 4      | 1.02   | 0.24   | 4.33   | 101  | 1.10   | 0.82   | 1.48   |
| **North America**        | 22   | 0.80   | 0.43   | 1.49 | 48   | 0.78   | 0.51   | 1.17 | 1      | 0.76   | 0.04   | 13.19  | 14   | 0.54   | 0.25   | 1.16   |
| **Latin America**        | 44   | 0.62   | 0.39   | 0.96 | 118  | 0.77   | 0.59   | 1.00 | 5      | 1.40   | 0.38   | 5.12   | 65   | 0.93   | 0.65   | 1.33   |
| **Asia**                 | 402  | 0.96   | 0.82   | 1.13 | 1192 | 1.26   | 1.15   | 1.38 | 23     | 1.15   | 0.60   | 2.19   | 445  | 1.14   | 0.98   | 1.32   |
| **Russia**               | 11   | 1.16   | 0.49   | 2.75 | 25   | 1.11   | 0.62   | 1.96 | 1      | 2.37   | 0.14   | 41.47  | 7    | 0.71   | 0.24   | 2.08   |

*Fully adjusted: Adjusted for age, sex, region of residence in Sweden, educational level, marital status and neighbourhood deprivations and co-morbidities.
4.1 | Strengths and limitations

There are certain limitations of the study. We used data from the National Patient Register, with diagnoses based on a clinical diagnosis, and we did not have access to more detailed information, such as data on audiometric measurements. Thus, we cannot categorise our cases into different levels of hearing impairment. There may be both under- and over-diagnoses. Conductive hearing impairment, although reversible, may have been misdiagnosed. However, we also analysed acute diagnoses in relation to the registered diagnoses of hearing impairment, and it is unlikely that there should be a large number of incorrect diagnoses. Compared to the earlier mentioned study by Uhlén et al, our numbers are higher, and most probably included a higher number of mild cases, as in an American study. In addition, diagnoses from outpatient clinics were not included prior to 2001.

There are also strengths such as the large nationwide study population. The Swedish social security number allows linking between different Swedish registers. Furthermore, the national Swedish registers are known to exhibit high quality in general, with almost complete datasets, both the Total Population Register and the National Patient Register.

5 | CONCLUSION

In conclusion, we found a higher risk of extended sensorineural hearing impairment among boys with parents born in Asia, and in particular in Iraq, compared to Swedish natives. A lower risk for extended sensorineural hearing impairment was found for boys with parents from the Nordic countries, Southern Europe and North America, and a lower risk for conductive hearing impairment was found for girls with parents from the Nordic countries. The differences in hearing impairment detected with regard to socioeconomic factors call for further studies. Future studies in immigrant groups in Sweden are warranted, and preferably with a possibility to categorise the hearing impairment into different levels, as hearing is of vital importance for the integration of these children into Swedish society.

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CONFLICT OF INTEREST

The authors have no conflicts of interest to report.

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REFERENCES

1. Wilson BS, Tucci DL, Merson MH, O’Donoghue GM. Global hearing health care: new findings and perspectives. Lancet. 2017;390(10111):2503-2515.
22. Ludvigsson JF, Andersson E, Ekbom A, et al. External review and validation of the Swedish national inpatient register. BMC Public Health. 2011;11:450.

SUPPORTING INFORMATION
Additional supporting information may be found online in the Supporting Information section.

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