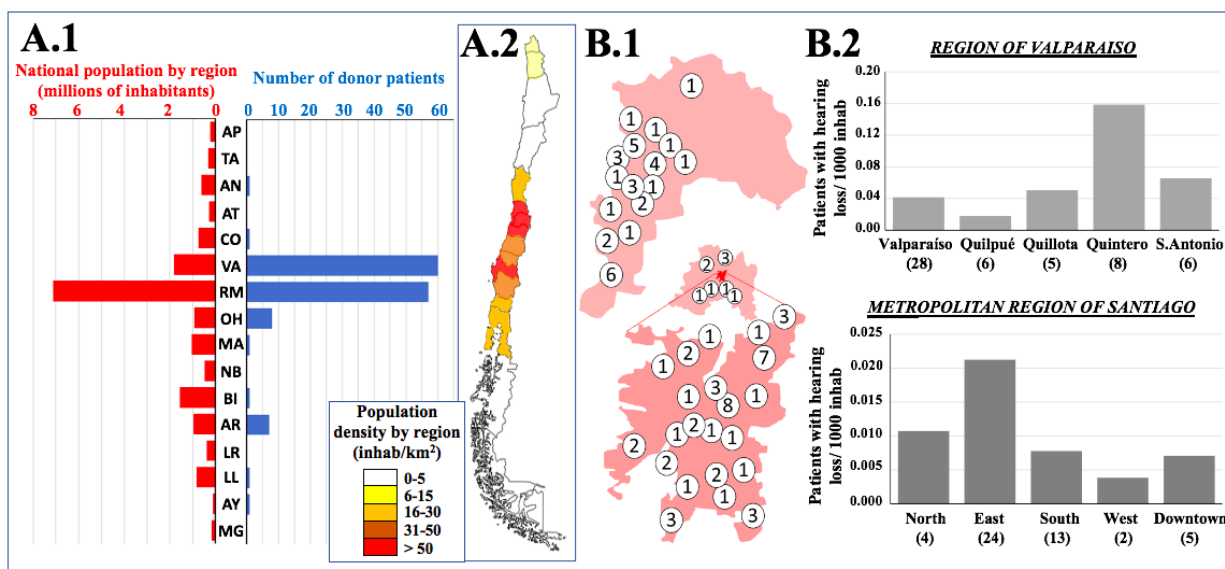


Supplementary of the article: “Sociodemographic and hearing profile of a population with sensorineural hearing loss in Chile”

Supplementary online FIGURES

Supplementary Figures

Figure S1. Origin of participants according to place of residence



A.1) Chilean population (red) and number of participants (blue), by region of residence. A.2) Population density (inhabitants per square kilometer) by region. B.1) Distribution of participants from Valparaíso Region and Santiago Metropolitan Region. B.2) Participants from Valparaíso Region and Santiago Metropolitan Region, distributed by conurbations. Normalized numerical value per 1000 inhabitants. (National Institute of Statistics (INE), <http://resultados.censo2017.cl>).

Supplementary online TABLES

Table S1. Inclusion and Exclusion criteria

Inclusion criteria

- Chilean Nationality.
 - Age between 0 to 45. If patient is over 45 years old, must have a clinical history of SNHL due to probable genetic cause, and must be referred from the ENT specialist.
 - Congenital, Childhood, progressive or late onset SNHL¹ with genetic or unknown etiology.
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Exclusion criteria⁵

- Conductive Hearing Loss (CHL).
 - Isolated external and/or middle ear malformation.
 - Meniere's Disease.
 - Autoimmune Disease.
 - Presbycusis.
 - Sudden hearing loss (one-sided acute installation in less than 72 hours).
 - Sequelae trauma associated with the onset of SNHL (e.g: Skull fracture, acoustic trauma, barotrauma).
 - Noise induced Hearing Loss (NIHL).
 - Diagnosed syndrome. Exceptions are those cases where there is evidence of association with mutation in the GJB2² gene. (e.g., Keratitis Ichthyosis Deafness).
 - Antibiotics (AB) aminoglycosides (ag.) or other ototoxic drugs (e.g: Cisplatin, Furosemide). Includes administration of AB ag. for 7 days or more in NICU³ context.
 - Severe hyperbilirubinemia. Bilirubin blood levels 20 mg/dl or more. Blood transfusion needed.
 - NICU for 5 days or more.
 - Prenatal TORCH⁴ infection.
 - Meningitis.
 - Severe and/or sequelae perinatal asphyxia, which explains or is associated with the onset of SNHL.
 - Intracranial hemorrhage.
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Inclusion and exclusion criteria. 1: Sensorineural hearing loss; 2: Gap Junction Beta 2 gene; 3: Neonatal Intensive Care Unit; 4: Toxoplasmosis, Rubella, Cytomegalovirus, Herpes Virus. 5: These criteria were established in order to exclude any environmental, non-genetic or syndromic causes of hearing loss and to better orient SNHL cases of unknown etiology and/or probable genetic cause. The application of these criteria was based on the medical diagnosis and/or information recorded by the treating physician in the patient's clinical record.

Table S2. Variables description**TABLE S2**
Variables description

Indicator	Conceptual definition	Variable Operationalization
Age (years)	Age in years attained on the date of collection of the sample	Only numbers
Age (months)	In children under 1 year of age, age is given in months reached at the time of the study	Only numbers
Biologic sex	Biological sex of the volunteer participant.	Female. Male.
Region	Territorial area where the volunteer participant lives at the time of the study. Mayor Politic division of Chilean territory, analog to state or province.	Name of the Regions of Chile
Commune	Territorial area that belongs to a region where the volunteer participant lives at the time of the study. Minor Political division of Chilean territory, analog to borough or county.	Name of the communes of Chile
Occupation	Occupation of the volunteer participant at the time of the study.	Students. Professionals. Technicians. Directives. Office employees. Sales workers. Farmers, stockbreeder, fishermen. Drivers. Artisans and factory workers. Construction Workers. Urban services workers. Housekeepers. Retiree. Others. Unemployed or unoccupied.
Education level	Refers to the educational level of the volunteer participant at the time of the study.	Adults with any formal educational qualifications. Unschoolled (<4 years). Preschool. Elementary education (from first to eight grade). High school education. Undergraduate. Graduate (Master and PhD degrees).
Education modality	Refers to the type of education received by the volunteer participant during the school period	Regular. Regular with school integration project. Special education (school for the deaf).
Highest educational level achieved	Refers to the highest educational level attained by the volunteer participant at the time of the study	Adults with any formal educational qualifications. Uncompleted preschool. Completed preschool. Uncompleted Elementary education. Completed Elementary education. Uncompleted Highschool education.

		Completed Highschool education. Uncompleted technical education. Completed technical education. Uncomplete undergraduate education. Completed undergraduate education. Uncompleted graduate. Completed graduate (Master and PhD degrees).
Per capita income (p.c.i)	Per capita monthly income at the time of the survey, expressed in Chilean Pesos (CLP)	Only numbers
Health insurance system	Health insurance system of the volunteer participant at the time of the study.	No Health Insurance System. Public Health Insurance System (FONASA). Private Health Insurance System (ISAPRE).
National (Chilean) disability record	Registration of the voluntary participant in the National (Chilean) Disability Record.	Yes. No. Does not know.
Hospital or collaborating center	Main center where the participant receives hearing implementation and/or Otorhinolaryngological (ENT) treatment. Except for the "Otte-School for the deaf".	Barros Luco Trudeau Hospital. Universidad de Chile Hospital. Otte-School for the deaf INDESOR. Las Condes Clinic. Carlos Van Buren Hospital. Gustavo Fricke Hospital. CAFUV ¹ . Other.
Gestational age	Total length of gestation in weeks.	Only numbers
Birth weight	Total birth weight in grams.	Only numbers
Family history of sensorineural	History of hearing loss in a relative up to the third degree.	Yes. No. Does not know.
Hearing loss (SNHL)		
Age at audiological diagnosis (years)	Age at first audiological diagnosis of the volunteer participant (in years).	Only numbers
Age at audiological diagnosis (months)	Age at first audiological diagnosis of the volunteer participant (in months).	Only numbers
Audiological diagnosis ²	Audiological diagnosis (WHO classification of hearing impairments, 1991), according to available audiological tests: tonal audiometry, electrophysiological tests, or others. If audiometry was available, the air conducted Pure Tone Average (PTA) value (frequencies 500, 1000 and 2000 Hz) was used to determine the degree of hearing loss. If there was no response at any frequency, the PTA value was stipulated as 125 dB HL. In cases where at least one value was available at frequencies 500, 1000 and 2000 Hz, the PTA was calculated assuming the missing values as the maximum output of the equipment (120 dB HL) and the average obtained was approximated to the highest multiple of 5. If only electrophysiological test results (BERA Click, BERA Tone Burst and/or ASSR) were available, the worst available threshold was considered to determine the degree of severity.	Normal hearing: hearing threshold from -10 to 20 dB HL. Mild hearing loss: hearing threshold from 21 to 40 dB HL. Moderate Hearing loss: hearing threshold from 41 to 60 dB HL. Severe Hearing Loss: hearing threshold from 61 to 80 dB HL. Profound Hearing Loss: hearing threshold 81 dB HL or above. Anacusis: no response at any of the frequencies evaluated by PTA.
Pure Tone Average (PTA).	Mean value for air thresholds in tonal audiometry between the frequencies 500, 1000 and 2000 Hz.	Whole numbers without decimal place, not approximated

Electrophysiologic threshold <i>Click</i>	Electrophysiological threshold (wave V) obtained by Brainstem Auditory Evoked Potential Test (BERA) using " <i>Click</i> " stimulus.	numbers, not approximated If it exceeds the maximum output of the equipment, the value is set to 110 dB nHL
Electrophysiologic threshold <i>Tone Burst</i>	Electrophysiological threshold (wave V) obtained in Brainstem Auditory Evoked Potential Test (BERA) using " <i>Tone Burst</i> " (<i>TB</i>) stimulus for frequencies 500, 1000, 2000 y 4000 Hz.	numbers, not approximated If it exceeds the maximum output of the equipment, the value is set to 110 dB nHL
Estimated threshold <i>ASSR</i>	Estimated thresholds in Auditory Steady-State Responses (ASSR) using Modulated Tones (MT) at frequencies 500, 1000, 2000 and 4000 Hz.	numbers, not approximated If it exceeds the maximum output of the equipment, the value is set to 130 dB eHL
Audiometric pattern	Audiometric patterns** obtained by tonal audiometry (Martin et al. 1997): "Sloping: difference between PTA of 4+6+8 kHz (PTA de 4-8 kHz) and that of 0.5 + 1+2 kHz (PTA 0.5-2 kHz) greater than 10 dB HL. Ascending: low frequencies (average 0.25, 0.50 y 1 kHz) is worse than high frequencies (2.0, 4.0 and 8.0 kHz) by 10 dB HL or more. Flat: differences between any of the frequencies tested smaller than 10 dB HL. U-shaped: mid-range frequencies (average values of 1.0, 2.0 and 4.0 kHz) worse than lower and higher frequencies (0.5 y 8.0 kHz, respectively) by 15 dB or more. Residual: No response above 1.0 kHz" <u>Other Patterns:</u> Anacusis: no auditory threshold response at any frequency. Others: Audiometric configuration that do not meet any of the patterns described above.	Sloping. Ascendent. U-shaped. Residual. Flat. <u>Other Patterns:</u> Anacusis. Other.
Right-Left Hearing Symmetry	Refers to symmetry of hearing loss severity between ears.	Yes No
Hearing loss Progressivity	Refers to progressivity of the hearing loss severity over time. It is aimed at determining whether the severity of SNHL has been progressing or has remained constant over time.	Yes No
Age at first-hearing Assistive Device use (years)	Age at first implementation (in years)	Only numbers
Age at first-hearing Assistive Device use (months)	Age at first implementation (in months)	Only numbers
Age at first cochlear implantation (years)	Age at first cochlear implant (CI) implementation (in years).	Only numbers
Age at first cochlear implantation (months)	Age at first cochlear implant (CI) implementation (in months).	Only numbers
Hearing Assistive Device (HAD)	Type of hearing implementation currently used by the volunteer participant.	No HAD. Hearing aid. Cochlear implant.
Hearing Assistive Device (HAD) Funding	Source of funding for hearing implementation	PHIP <i>GES 77</i> : SNHL coverage on child under 4 years old.

PHIP *GES 59*: SNHL coverage on preterm newborns.
PHIP *GES 56*: SNHL coverage on adults over 65 years old.
SPHIP: *FONASA-MINSAL*.
SPHIP: *Ricarte Soto*.
SPHIP: *JUNAEB*.
SPHIP: *SENADIS*.
Self-Funded.
Other.

Table S2: Specification of studied variables. 1: Speech-Language Pathology Care Center - Universidad de Valparaiso. 2: (WHO classification of hearing impairments, 1991), in Olusanya et. al 2019. 3: Audiometric patterns taken from Martini et al. 1997 (classification derived from Liu and Xiu 1994). PHIP: Public Health Insurance Program, SPHIP: Special Public Health Insurance Program.