The senses and the mind

Scientific studies on the myths of the mental health of people who are deaf or deafblind

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First things first: Prevalences among adults with hearing loss

Have one mental disorder	10.2 (76)	6.1 (1098)*
Have more than one mental disorders	5.9 (44)	1.7(300)*
Most serious mental disorder (among those with one mental disorder)		
Drug and alcohol related	1.3 (1)	0.9 (10)
Psychosis	1.3 (1)	2.6 (28)
Depression and bipolar disorders	34.2 (26)	41.3 (453)
Stress and anxiety disorders including OCD and PTSD	25.0 (19)	37.8 (415)
Personality disorders	1.3 (1)	1.1 (12)
Autism spectrum disorders	1.3 (1)	1.4 (15)
ADHD	3.9 (3)	3.3 (36)
Eating disorder	1.3 (1)	1.6 (18)
Other mental disorder	27.6 (21)	9.7 (107)*
Do not know or did not respond	2.6 (2)	0.4 (4)
Receives treatment for mental disorder (for those with one mental disorder) (yes)	57.9 (44)	67.9 (746)
Have one or more children with physical or mental disorder/s (yes)	13.7 (47)	10.8 (1253)

* $p < 0.01$

Dammeyer, J., & Chapman, M. (2017). Prevalence and characteristics of self-reported physical and mental disorders among adults with hearing loss in Denmark: a national survey. *Soc Psychiatry Psychiatr Epidemiol*,*52*, 807–813

Prevalences among adults with congenital deafblindness

Number of mental and behavioral disorders and etiology among 95 individuals with congenital deafblindness. Only main diagnose is listed.

	n (%)	Aetiologies (*n*)
Mental retardation	32 (34)	Chromosomal or genetic (11), prenatal infection (7), unknown/other (14)
Pervasive developmental disorders (Autism)	2 (2)	Unknown/other (2)
Psychosis	12 (13)	Chromosomal or genetic (4), prenatal infection (6), unknown/other (2)
Mood (affective) disorders	10 (11)	Chromosomal or genetic (3), prenatal infection (5), unknown/other (2)
Obsessive-compulsive disorder (OCD)	5 (5)	Chromosomal or genetic (1), prenatal infection (3), unknown/other (1)
Anxiety	4 (4)	Chromosomal or genetic (3), unknown/other (1)
Behavioral disorders (hyperkinetic and/or conduct disorders)	5 (5)	Chromosomal or genetic (1), prenatal infection (1), unknown/other (3)
No mental or behavioral disorders	25 (26)	
Total	95 (100)	

Dammeyer, J. (2011). Mental and behavioural disorders among people with congenital deafblindness. *Research in Developmental Disabilities*, *32*(2), 571-575.

Myth #1: The deaf and dumb

- Aristoteles: The deaf can't think.
- The middle ages: Not able to hear the word of God.
- American Annals of the Deaf and Dumb (until 1886)

- It started to change with the Enlightenment and the first school for the Deaf in Paris: Optimism and fascination.

- Dammeyer, J. (2014). Literacy Skills among Deaf and Hard of Hearing Students and Students with Cochlear Implants in Bilingual/Bicultural Education. *Deaf Education International*,*16*(2), 108-119.

Oliver

Links between sensory loss and autism spectrum disorder

- Next to intellectual impairment, autism spectrum disorder has also been associated with congenital hearing loss.
- Further, studies among children with vision loss has reported a high prevalence of symptoms of autism.

However, comparing with a relevant control groups, we do often not find any difference

Table 1 Comparison of scores on ABC subscales and total score for the study sample, subsamples and samples from the Krug et al. (1980) and Eaves et al. (2000) studies

Samples and subsamples	Sensory (ABC facet 1) *M(SD)*	Relating (ABC facet 2) *M(SD)*	Body and Object Use (ABC facet 3) *M(SD)*	Language (ABC facet 4) *M(SD)*	Social and Self-Help (ABC facet 5) *M(SD)*	ABC Total score *M(SD)*
All deafblind this study ($N = 69$)	3.8 (4.0)	10.4 (8.3)	5.8 (7.1)	5.2 (5.8)	4.9 (4.2)	30.1 (23.4)
Deafblind without residual hearing or vision ($n = 5$)	3.0 (3.3)	11.8 (7.7)	7.6 (11.0)	4.6 (7.2)	4.8 (5.6)	31.8 (27.8)
Blind and residual hearing or deaf and residual vision ($n = 30$)	3.6 (3.6)	11.7 (8.2)	5.9 (7.8)	6.1 (6.5)	5.5 (4.5)	32.7 (26.7)
Residual vision and hearing ($n = 34$)	4.1 (4.4)	9.0 (8.6)	5.6 (5.9	4.6 (4.9)	4.4 (3.7)	27.6 (19.9)
Deafblind without intellectual disability ($n = 21$)	2.8 (3.9)	8.8 (9.3)	5.1 (7.1)	3.7 (5.3)	4.0 (4.3)	24.5 (23.0)
Deafblind with intellectual disability ($n = 48$)	4.3 (4.0)	11.1 (7.9)	6.1 (7.1)	5.9 (5.9)	5.3 (4.1)	32.6 (23.4)
Deafblind ($n = 100$) Krug et al. (1980)	7.2 (3.5)	13.5 (6.4)	6.8 (6.7)	6.3 (3.9)	7.6 (4.2)	41.4 (16.9)
Diagnosed autism ($n = 172$) Krug et al. (1980)	12.7 (5.2)	24.0 (7.8)	15.8 (8.3)	12.2 (6.8)	12.8 (5.7)	77.5 (20.0)
Severe intellectual disability ($n = 423$) Krug et al. (1980)	7.0 (4.2)	14.3 (7.7)	7.1 (5.2)	7.3 (3.5)	8.2 (4.0)	44.0 (18.9)
Diagnosed autism ($n = 104$) Eaves et al. (2000)	10.1 (5.7)	18.5 (7.9)	13.1 (8.5)	12.5 (6.6)	13.9 (5.4)	68.2 (23.8)
Another developmental disorder than autism ($n = 32$) Eaves et al. (2000)	4.5 (4.0)	8.9 (6.3)	3.5 (4.2)	6.3 (5.6)	7.3 (5.0)	30.6 (17.8)

It is partly about validated assessment tools

Assessment of dementia

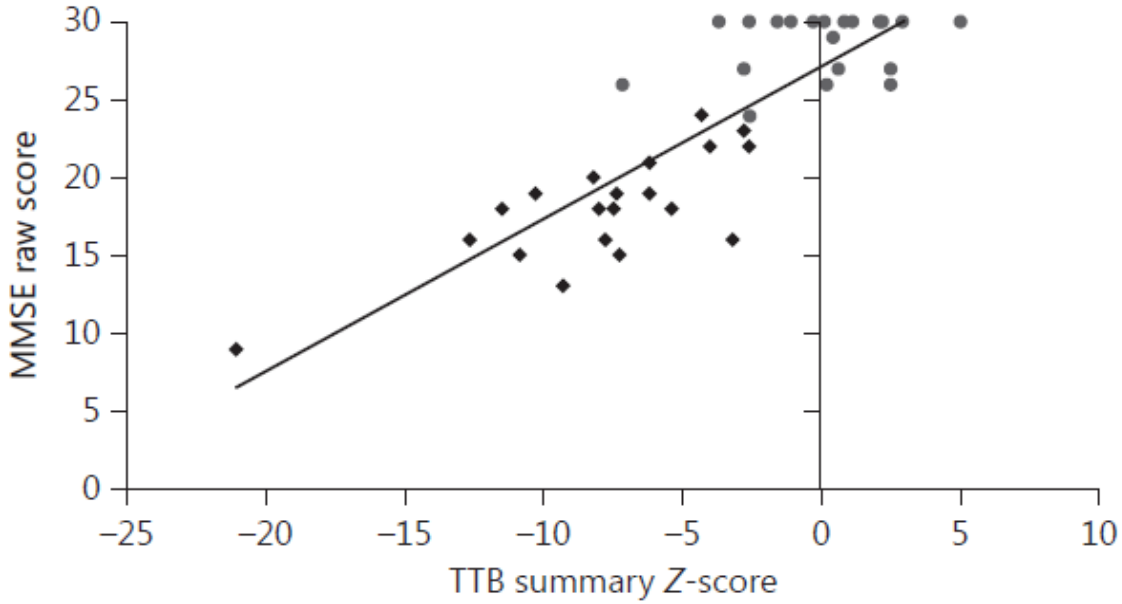
Table 2. Mean test scores for the MMSE and the 5 tests in the Tactile Test Battery of the 3 groups: participants with dual sensory loss, dementia, and controls

Test	Dual sensory loss (n = 20)	Dementia (n = 20)	Controls (n = 20)	Dual sensory loss vs. controls, p	Dementia vs. controls, p	Dual sensory loss vs. dementia, p
Tactile Test Battery						
Spatial learning	11.5±5.6	3.9±2.0	13.2±5.0	ns	<0.001	<0.001
Spatial recall	4.9±2.3	1.3±1.0	5.7±2.1	ns	<0.001	<0.001
Tactile form board (total time), s	449±168	513±116	397±200	ns	0.001	ns
Clock reading test	20.7±3.4	13.2±7.1	20.3±3.4	ns	0.002	0.001
Naming tests	25.0±1.4	21.7±4.4	25.2±1.5	ns	0.001	0.001
MMSE	–	18.1±3.59 (9–24)	29.0±1.96 (24–30)	–	<0.001	–

Data are presented as mean ± SD (range). $p > 0.05$ (two tailed) was considered not significant (ns).

Table 3. Specificity and sensitivity of the Tactile Test Battery (TTB) (cut-off –3.0) for participants with dementia and controls

	No dementia (MMSE)	Dementia (MMSE)	Total
No dementia (TTB)	17 (true negative)	3 (false positive)	20
Dementia (TTB)	2 (false negative)	18 (true negative)	20
Total	19	21	40



Assessment of depression

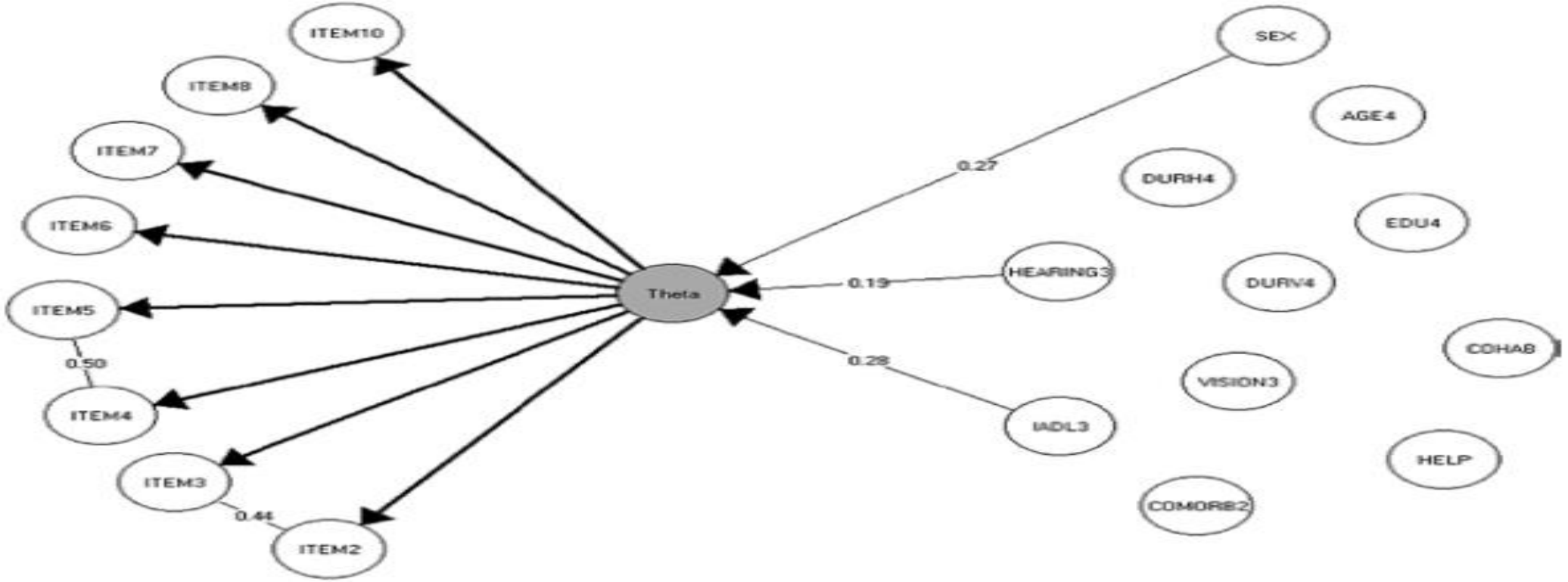


Figure 1. The graphical log-linear Rasch model for the 8-item major depression inventory.

Hovaldt, H, Nielsen, T., & Dammeyer, J. (2018). Validity and reliability of the Major Depression Inventory for persons with dual sensory loss. *Innovation in Aging.* doi:10.1093/geroni/igy01

Myth #2: It is all about communication

The two routes to mental disorder

1) Sensory loss → stress, communication difficulties etc. → mental disorder

2) Disease → sensory loss + mental disorder

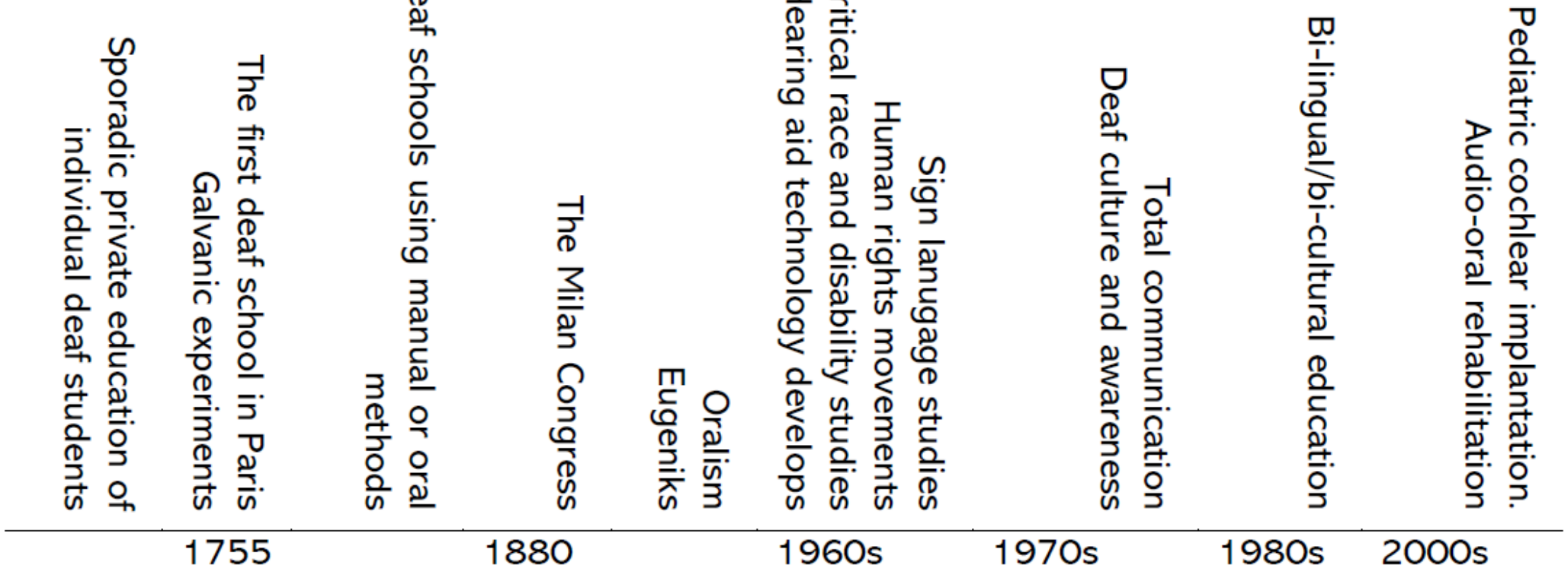
But then again, the quality of the communicative support matters

Communication/instruction systems:

- Oral language (for example Dutch)
- Manual methods (sign systems supporting oral language)
- Total communication
- Sign language (for example Flemish Sign Language)

- For most approaches: linguistic ethnocentrism.

An overview of deaf education history



A closer look at the post World War Two history

- Human rights
- Deinstitutionalization and parent-child relationship

- Sing language research
- Total communication (child-centred approach)

- Critical disability theories
- Racial and minority rights movements

Bi-lingual/bi-cultural education programs

- Full recognition of sign language and Deaf culture
- Complete sign language education programs

- However, 90% of deaf children have hearing parents

Did the bi-lingual/bi-cultural programs work? Yes, it looks like, but still barriers in the hearing majority society:

Table 1. Educational levels of deaf individuals in Denmark before and after the introduction of the bilingual–bicultural period as compared to the general population

	35–64 years old (before bilingual–bicultural education)		25–34 years old (received bilingual–bicultural education)	
	Deaf	Hearing (national cohort)	Deaf	Hearing (national cohort)
	% (*n*)			
Low educational level (below bachelor's degree)	77.1 (222)	58.1 (7,901)	65.8 (79)	46.8 (1,143)
High educational level (bachelor's degree or higher)	22.9 (66)	41.9 (5,708)	34.2 (41)	53.2 (1,298)

Dammeyer, J., & Marschark, M. (2016). Level of educational attainment among deaf adults who attended bilingual/bicultural programs. *Journal of Deaf Studies and Deaf Education*, *21*(4), 394-402.

Table 2. Descriptive comparisons of deaf individuals with low (lower than bachelor's degree) and high level of educational attainment (bachelor's degree or higher)

	Low educational attainment (n = 288)	High educational attainment (n = 120)
Gender (male), n (%)	141 (49.0)	46 (38.3)
Age (years), M (SD)	45.9 (11.7)	42.1 (11.0)
Kind of school attended (range 1–5), M (SD), 1 = school for the deaf, 5 = mainstream only	1.9 (1.3)*	2.8 (1.7)
Additional disability (yes), n (%)	90 (31.7)	27 (22.5)*
Signed language ability (range 1–5), M (SD), 1 = very bad, 5 = very good	4.3 (0.7)*	4.5 (0.8)
Spoken language ability (range 1–5), M (SD), 1 = very bad, 5 = very good	3.7 (1.1)*	4.3 (1.0)
Degree of hearing loss (range 1–4), M (SD), 1 = profound, 4 = moderate	1.8 (0.8)	1.6 (0.7)
Parent with hearing loss (yes), n (%)	42 (15.0)*	31 (26.1)
Satisfaction with life (range 1–5), M (SD), 1 = very dissatisfied, 5 = very satisfied	3.9 (0.8)	4.1 (0.9)

Note. *Significantly lower than the other group, $p < .05$, by t test, Kolmogorov–Smirnov, or chi-square.

- With a (minority) language follows:

  Culture

  Identity

  Discrimination

Identity and discrimination

Table 1. Descriptive analysis of the psychological well-being score and the other variables for each of the identity groups

	Identity group			
	Deaf ($n = 246$)	Hearing ($n = 189$)	Bicultural ($n = 256$)	Marginal ($n = 51$)
Psychological well-being (range 0–100, 0 = low) *M*(*SD*)	65.5 (18.4)	66.0 (18.1)	66.9 (18.6)	46.9 (16.9)[a]
Gender (male) *n*(%)	120 (48.8)	94 (49.7)	122 (47.7)	17 (33.3)
Age (years) *M*(*SD*)	38.9 (13.8)[b]	47.0 (14.4)	45.1 (13.4)	40.2 (13.7)[c]
Type of school attended (range 1–5, 1 = Deaf school) *M*(*SD*)	1.5 (1.0)[a]	4.4 (1.2)	2.4 (1.7)[b]	3.1 (1.7)[c]
Additional disability (yes) *n*(%)	67 (27.2)	69 (36.5)	87 (34.0)	27 (52.9)[c]
Sign language (range 1–5, 1 = very good) *M*(*SD*)	1.4 (0.6)[a]	2.4 (0.8)	1.8 (0.7)[b]	2.1 (0.7)
Hearing loss (range 1–4, 1 = profound) *M*(*SD*)	1.5 (0.7)[a]	2.0 (0.8)	1.8 (0.8)[c]	1.8 (0.8)
Education level (range 1–8, 1 = lowest) *M*(*SD*)	4.6 (2.1)[c]	5.2 (2.2)	4.4 (2.2)[c]	4.8 (2.1)
Parents' hearing loss (yes) *n*(%)	48 (19.5)	47 (24.9)	40 (15.7)	9 (17.6)
Feel discriminated (range 1–4, 1 = always) *M*(*SD*)	2.3 (0.8)[b]	2.8 (0.9)	2.6 (0.9)[c]	2.0 (0.7)[b]
Cochlear implant (yes) *n*(%)	41 (16.7)[a]	99 (52.4)	81 (31.6)[c]	20 (39.2)

Chapman, M., & Dammeyer, J. (2017). The significance of deaf identity for psychological well-being. *Journal of Deaf Studies and Deaf Education*, *22*(2), 187-194.

Cochlear implants

- Technological innovations is another significant factor in the history of deaf education and mental health.
- With the introduction of peadiatric cochlear implantation, the situation is fundamentally different for many children with congenital deafness.
- But issues with social cognition and identity seem not to have disappeared for all and the difficulties might be different including the different developmental trajectories and risk factors.

Myth #4: A welfare state truly cares for people with sensory loss

- A monocultural universal welfare does not naturally support minority languages and cultures: But humans right, total communication, and sign language research have made a difference.

- Disability theories – and how majorities learn from minorities: Cultural-historical activity theory of disability (Bøttcher & Dammeyer, 2015). Crip theory (Dahl & Dammeyer, 2023)

- A dialogue between Deaf Studies and Critical Disability Theory: Towards a positive understanding of disability.