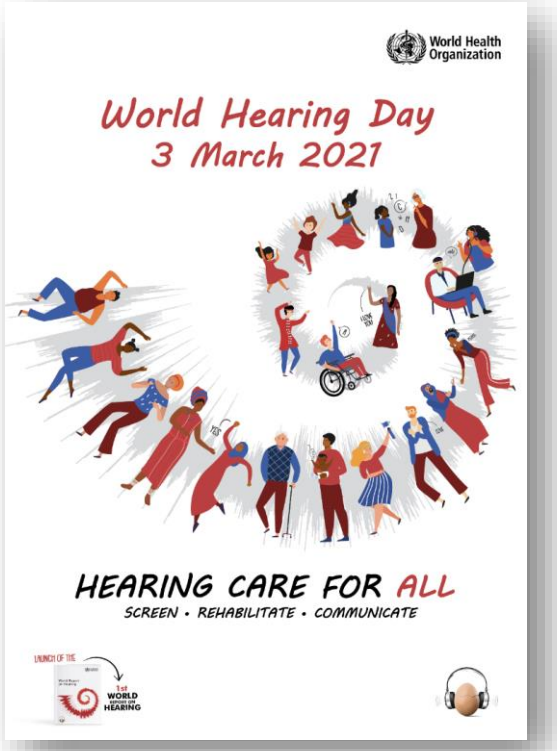
Hearing screening and hearing care for young active people with hearing loss – studies and new findings

Mark Laureyns

AEA – European Association of Hearing Aid Professionals

WHO – Make Listening Safe Workgroup

Thomas More University College – Department of Audiology – Antwerp



AEA European Association of Hearing Aid Professionals · EFHOH European Federation of Hard of Hearing People · EUROCIU · ehima

Virtual Lunch Debate
"HEARING CARE FOR ALL"
Host: MEP Alex Agius Saliba (Malta, S&D)

Wednesday the 3rd of March 2021 - 12:30-14:30h

S&D · Parlamentum Europaeum

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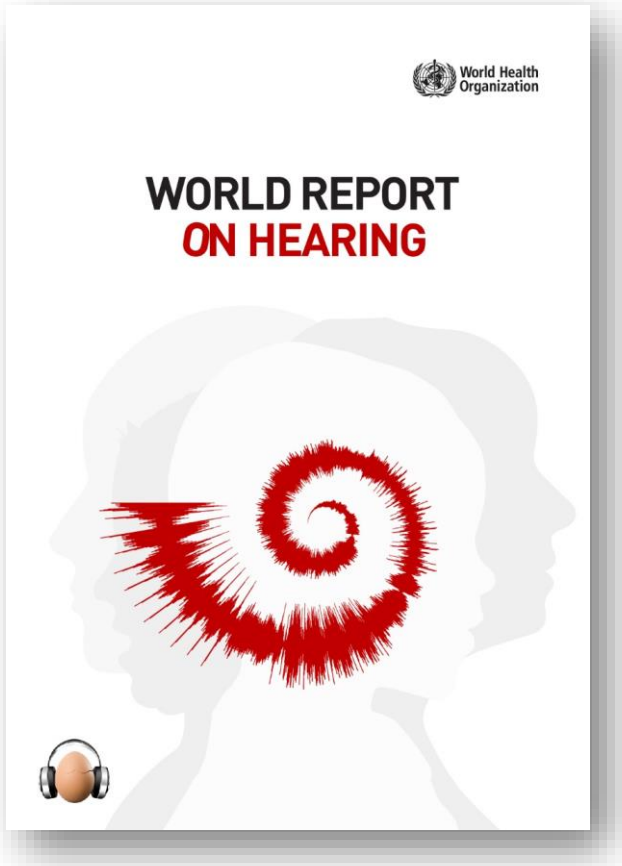
World Report on Hearing: Hearing loss and dementia!



Cognition: Language deprivation risks delayed cognitive development in children, which can be avoided if they receive suitable intervention during the initial years of life. Even unilateral hearing loss, occurring in children, affects the development of cognitive skills. The impact on cognition is not limited to children but is clearly evident in adult-onset hearing loss as well. **Hearing loss is the largest potentially modifiable risk factor for age-related dementia**

*"**Unaddressed hearing loss may be responsible for over 8% of cases of dementia among older adults**, with potentially a slightly higher risk contribution in high-income countries, and significantly increases the relative risk of dementia and cognitive impairment"*

Effectiveness of hearing screening in older adults: …. Adult hearing screening and early intervention **become even more relevant given the links between hearing loss and dementia** in older adults, and that addressing hearing through these devices may have a positive influence on an individual's cognition.

In children, timely intervention with hearing aids and implants leads to better hearing, spoken communication and quality of life, which further translates into better educational outcomes. **The use of hearing aids can also protect against cognitive decline and dementia.**

WHO – World Report on Hearing – 3rd of March 2021

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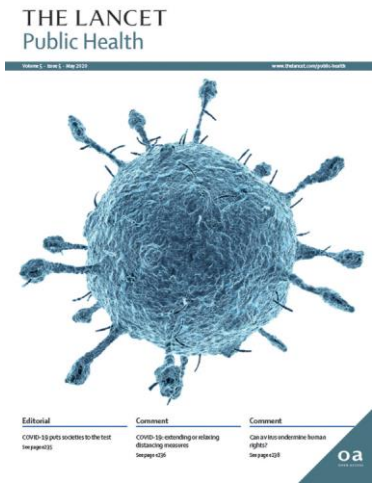
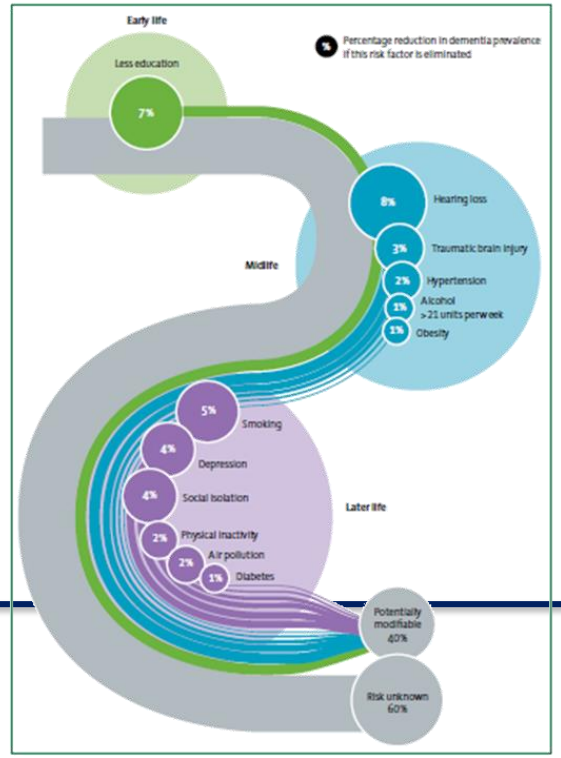
Hearing loss is a modifiable risk factor for dementia!

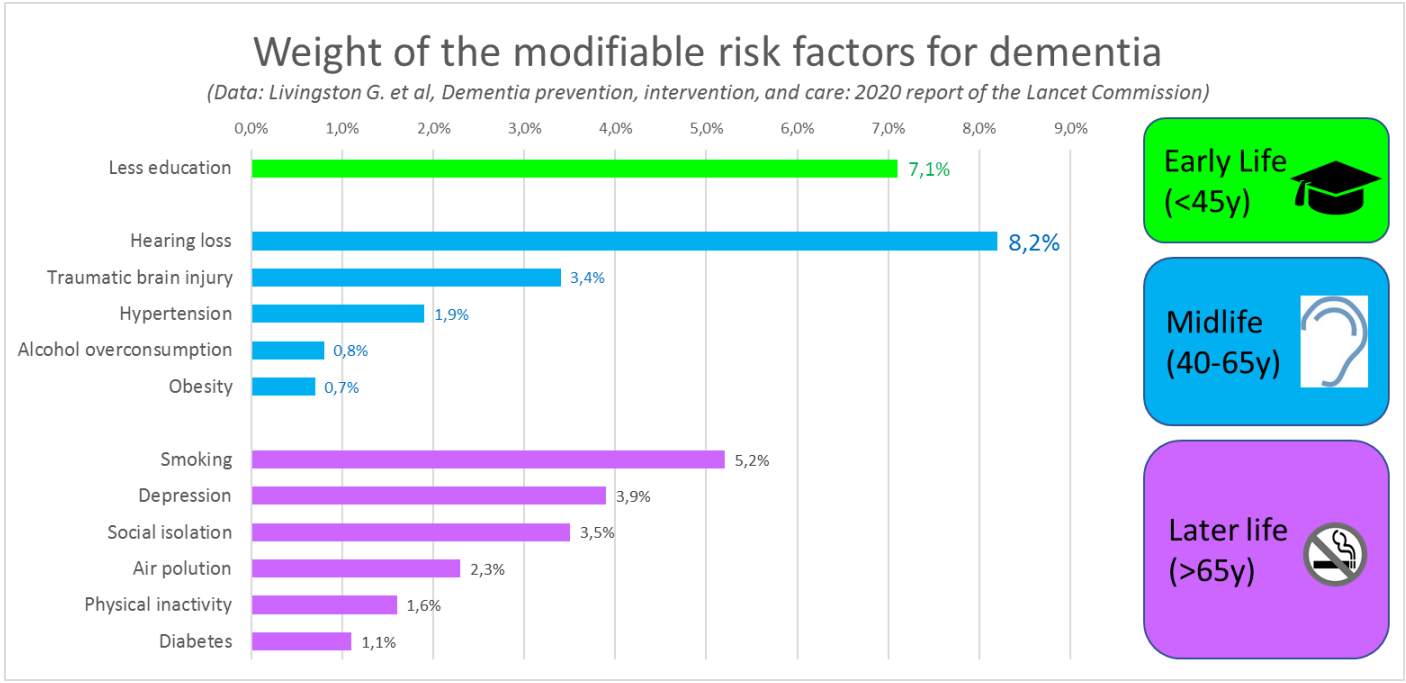
Dementia prevention, intervention, and care: 2020 report of the *Lancet* Commission

Gill Livingston, Jonathan Huntley, Andrew Sommerlad, David Ames, Clive Ballard, Sube Banerjee, Carol Brayne, Alistair Burns, Jiska Cohen-Mansfield, Claudia Cooper, Sergi G Costafreda, Amit Dias, Nick Fox, Laura N Gitlin, Robert Howard, Helen C Kales, Mika Kivimäki, Eric B Larson, Adesola Ogunniyi, Vasiliki Orgeta, Karen Ritchie, Kenneth Rockwood, Elizabeth L Sampson, Quincy Samus, Lon S Schneider, Geir Selbæk, Linda Teri, Naaheed Mukadam

Livingston G. et al, Dementia prevention, intervention, and care: 2020 report of the Lancet Commission. Lancet 2020; 396: 413–46







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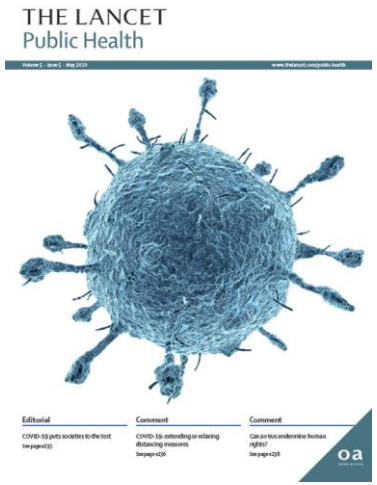

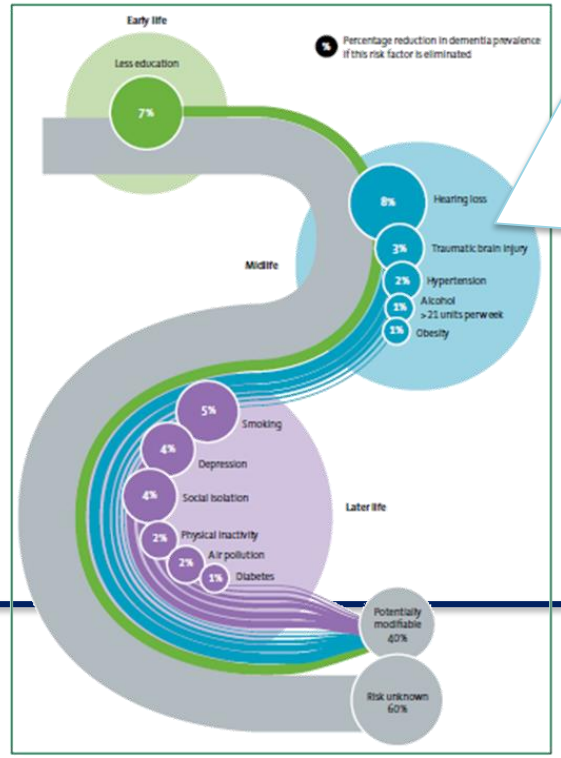

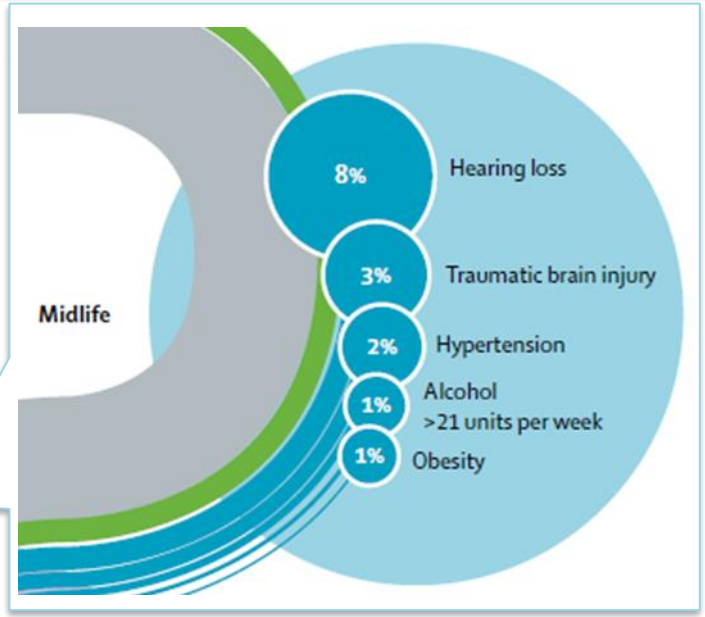

Livingston G. et al, Dementia prevention, intervention, and care: 2020 report of the Lancet Commission. Lancet 2020; 396: 413–46

Modifying 12 risk factors might prevent or delay up to 40% of dementias. **At Midlife (age 45–65 years), Hearing Loss represents 8% of 40% of modifiable risk factors**

Specific actions for risk factors across the life course: **Encourage use of hearing aids for hearing loss** and reduce hearing loss by **protection of ears from excessive noise exposure**.

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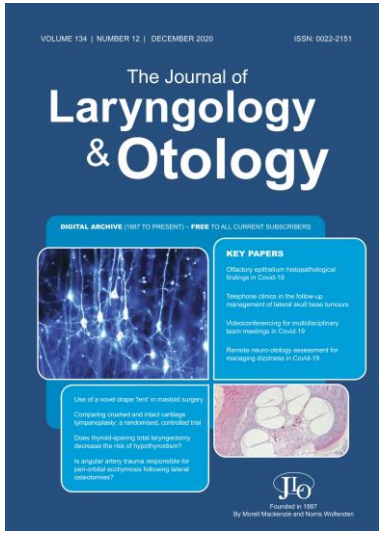
Is hearing loss related to (un-)employment?

The Journal of Laryngology & Otology

cambridge.org/jlo



Hearing loss and employment: a systematic review of the association between hearing loss and employment among adults

A Shan[1], J S Ting[1], C Price[2], A M Goman[1], A Willink[1,3], N S Reed[1,4] and C L Nieman[1,5]

Shan A, Ting JS, Price C, Goman AM, Willink A, Reed NS, Nieman CL. Hearing loss and employment: a systematic review of the association between hearing loss and employment among adults. J Laryngol Otol 2020;134:387–397

Systematic review, starting with 13.144 articles, 243 underwent full-text review and 25 met the inclusion criteria

Conclusion. The highest quality studies currently available indicate that **adult-onset hearing loss is associated with unemployment.**

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Is hearing loss related to (un-)employment?

Hearing ability and its relationship with psychosocial health, work-related variables, and health care use: the National Longitudinal Study on Hearing

J. Nachtegaal,[1] J.M. Festen,[1,2] S.E. Kramer[1,2]

Questionnaires were sent to 1796 people of whom 88% returned the questionnaires. Hearing ability was determined by The National Hearing Test, an adaptive speech-in-noise test using digit triplets presented against a background noise.

Nachtegaal J., Festen JM. & Kramer S.E. Hearing ability and its relationship with psychosocial health, work-related variables, and health care use: the National Longitudinal Study on Hearing. Audiology Research 2011; volume 1: e9 p 28-33.

Conclusion. The results indicate that **limitations in hearing** have **an impact on psychosocial health and work in young and middle-aged adults** and young-elderly.

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Is hearing loss related to (un-)employment?

Socioeconomic differences in hearing among middle-aged and older adults: cross-sectional analyses using the Health Survey for England

Shaun Scholes,[1] Jane Biddulph,[1] Adrian Davis,[2] Jennifer S. Mindell[1]

Hearing was measured using an audiometric screening device in the Health Survey for England 2014 (3292 participants aged 45 years and over). Using sex-specific logistic regression modelling, we evaluated the associations between SES and hearing after adjustment for potential confounders.

Scholes S, Biddulph J, Davis A, et al. Socioeconomic differences in hearing among middle-aged and older adults: cross-sectional analyses using the Health Survey for England. BMJ Open 2018;8:.p1-10

Conclusion. While the burden of hearing loss fell highest among men in the lowest SES groups, current hearing aid use was demonstrably lower. **Initiatives to detect hearing loss early and increase the uptake and the use of hearing aids may provide substantial public health benefits and reduce socioeconomic inequalities in health.**

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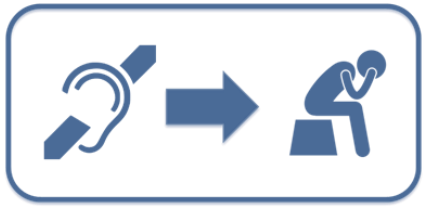
What about hearing loss, tinnitus and depression?

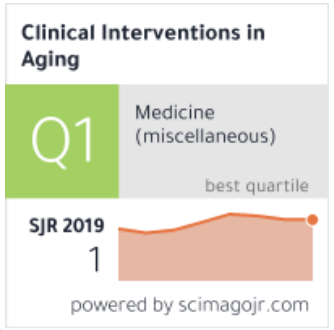


Open Access Full Text Article

REVIEW

Depression in elderly patients with hearing loss: current perspectives

Suzanne Cosh[1]
Catherine Helmer[2]
Cecile Delcourt[2]
Tamara G Robins[3]
Phillip J Tully[4]



UNE
UNIVERSITY OF NEW ENGLAND

Cosh S. et al. Depression in elderly patients with hearing loss: current perspectives. Clinical Interventions in Aging. 2019 Aug 14;14:1471-1480.

Hearing Loss increases the likelihood of experiencing clinically relevant depression symptoms in the older adult population both cross-sectionally and over time, although the impact on symptom severity and major depression disorder (MDD) is less clear

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EAA European Association of Hearing Aid Professionals

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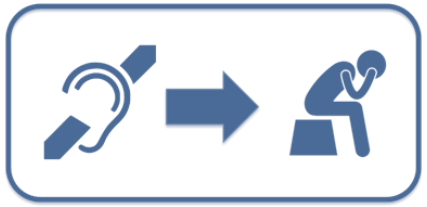
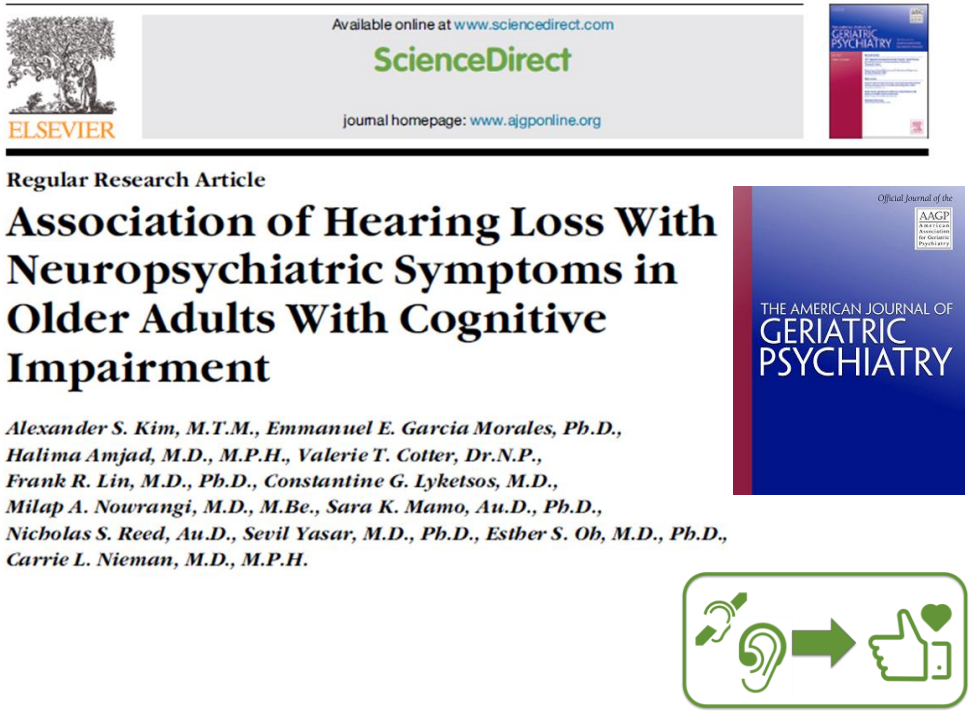
What about hearing loss, tinnitus and depression?





Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.ajgponline.org

Regular Research Article

Association of Hearing Loss With Neuropsychiatric Symptoms in Older Adults With Cognitive Impairment

Alexander S. Kim, M.T.M., Emmanuel E. Garcia Morales, Ph.D., Halima Amjad, M.D., M.P.H., Valerie T. Cotter, Dr.N.P., Frank R. Lin, M.D., Ph.D., Constantine G. Lyketsos, M.D., Milap A. Nowrangi, M.D., M.Be., Sara K. Mamo, Au.D., Ph.D., Nicholas S. Reed, Au.D., Sevil Yasar, M.D., Ph.D., Esther S. Oh, M.D., Ph.D., Carrie L. Nieman, M.D., M.P.H.

Kim A. et al, Association of Hearing Loss With Neuropsychiatric Symptoms in Older Adults With Cognitive Impairment. 2020 The American Journal of Geriatric Psychiatry Oct 14; S1064-7481(20)30510-8. Online ahead of print. p. 1-10

Positive **association between audiometric hearing loss and depressive symptom severity** (b = 1.5 per 10 dB; p = 0.01) after adjustment for demographic and clinical characteristics. Additionally, **the use of hearing aids was inversely associated depressive symptom severity** (b = -2.94; p = 0.05).

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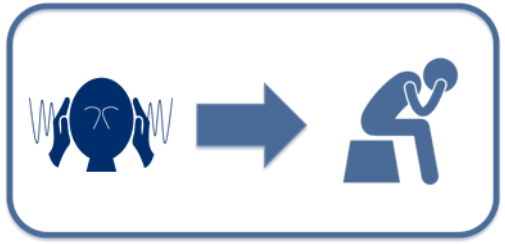
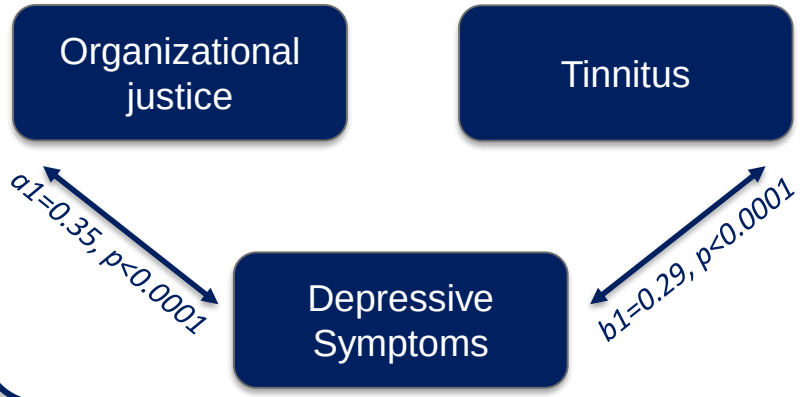
What about hearing loss, tinnitus and depression?



Associations of Organizational Justice with Tinnitus and the Mediating Role of Depressive Symptoms and Burnout—Findings from a Cross-Sectional Study

Raphael M. Herr[1,2] · Adrian Loerbroks[3] · Jos A. Bosch[1,2] · Max Seegel[1] · Michael Schneider[1] · Burkhard Schmidt[1]



Herr R. et al, Associations of Organizational Justice with Tinnitus and the Mediating Role of Depressive Symptoms and Burnout. International Journal of Behavioral Medicine 2016 Apr;23(2):190-197.

Results. **Depressive Symptoms were positively associated with tinnitus** (b1=0.29, p<0.0001).

Cross-sectional data from a sample of 1632 employees were used. Tinnitus was assessed by self-report (n=207). Organizational justice and its subcomponents, burnout, and depressive symptoms were measured by validated questionnaires.

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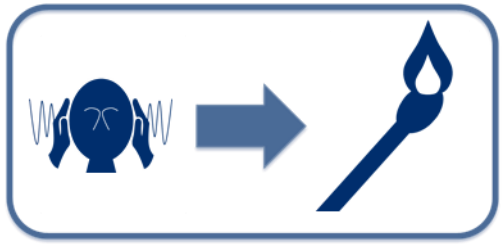
What about hearing loss, tinnitus and burn-out?



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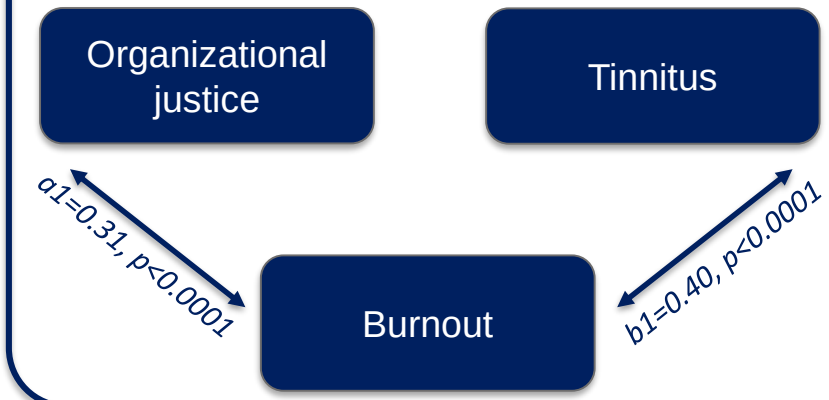

Herr R. et al, Associations of Organizational Justice with Tinnitus and the Mediating Role of Depressive Symptoms and Burnout. International Journal of Behavioral Medicine 2016 Apr;23(2):190-197.

Results. **Burnout was positively associated with tinnitus** (b1=0.40, p<0.0001).

Cross-sectional data from a sample of 1632 employees were used. Tinnitus was assessed by self-report (n=207). Organizational justice and its subcomponents, burnout, and depressive symptoms were measured by validated questionnaires.

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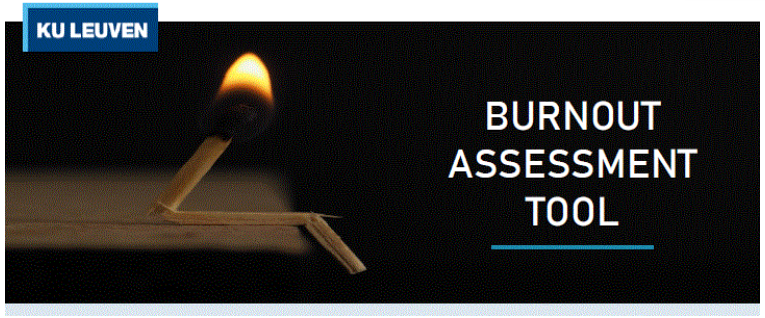
What about burnout?



International Journal of *Environmental Research and Public Health*

Schaufeli W., Desart S. & De Witte H. Burnout Assessment Tool (BAT)—Development, Validity, and Reliability. International Journal of Environmental Research and Public Health. 2020, 17, 9495; p 1-21

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What about hearing loss, tinnitus and burn-out?

Laureyns M, Estenbergh A, Ouderits J, Van Ginkel H & Dellaert E, Association between self-reported hearing functionality, audiometry and burn-out signals. Unpublished thesis Thomas More University College 2020.

Results. Primary **Burnout Signals were positively associated with self-reported hearing loss**
(r=0.12, p<0.01) – total group n = 430

Results. Primary **burnout Signals were negatively associated with self-reported noise acceptance**
(r=-0.28, p<0.001) – working group n = 154

Results. Primary **Burnout Signals were negatively associated with self-reported understanding speech in noise**
(r=-0.22, p=0.003) – working group n = 154

Results. Primary **Burnout Signals were positively associated with self-reported tinnitus**
(r=0.20, p=0.005) – working group n = 154

THOMAS MORE

Schaufeli W., Desart S. & De Witte H. Burnout Assessment Tool (BAT)—Development, Validity, and Reliability. International Journal of Environmental Research and Public Health. 2020, 17, 9495; p 1-21

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What about noise acceptance, open offices and burn-out?

Primary **Burnout Signals were negatively associated with self-reported noise acceptance** (r=-0.28, p<0.001) **–** working group n = 154

Impact of activity-based workplaces on burnout and engagement dimensions

Rianne Appel-Meulenbroek
Department of the Built Environment, Eindhoven University of Technology, Eindhoven, The Netherlands

Theo van der Voordt
Department of Management in the Built Environment, Faculty of Architecture, Delft University of Technology, Delft, The Netherlands and Center for People and Buildings, Delft, The Netherlands

Rik Aussems
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Theo Arentze
Department of the Built Environment, Eindhoven University of Technology, Eindhoven, The Netherlands, and

Pascale Le Blanc
Industrial Engineering and Innovation Sciences, Eindhoven University of Technology, Eindhoven, The Netherlands

Burnout and engagement dimensions

Appel-Meulenbroek R. et al, Impact of activity-based workplaces on burnout and engagement dimensions. Journal of Corporate Real Estate, Vol. 22 No. 4, 2020, pp. 279-296.

Self-reported noise acceptance is negatively correlated with **ANL (Acceptable Noise Level) test** (r=-0.45, p<0.0001)

Subjects with a **poor ANL** (Acceptable Noise Level) **have more problems functioning in open space offices!**

There are more and more studies and reports, that **open space offices** (with more office distraction), lead to **more individual strain** (r=-0.282**) and **interpersonal strain** (r=-0.176*), which **can result in more burnout problems.**

This will be even more problematic for people with untreated hearing loss!

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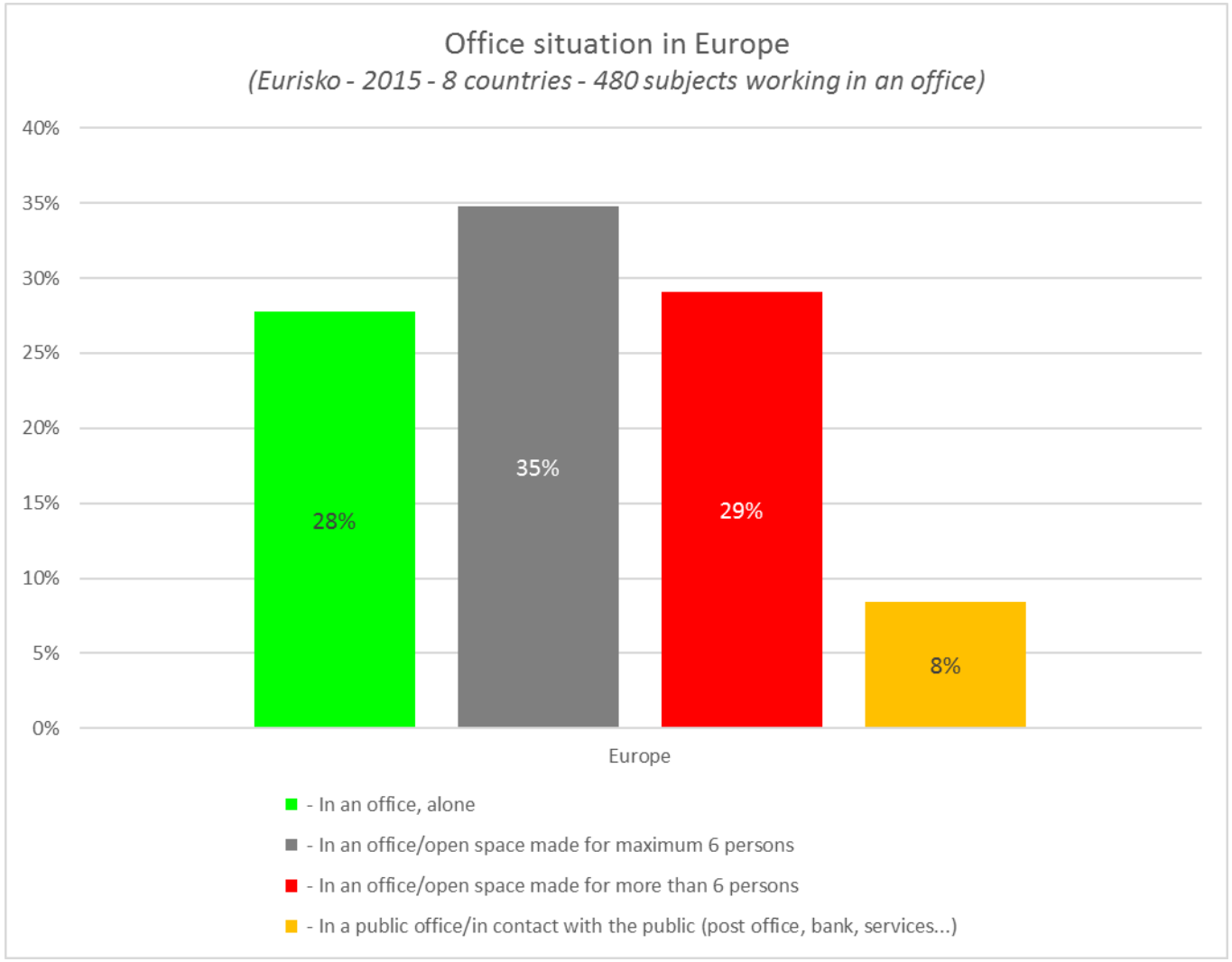
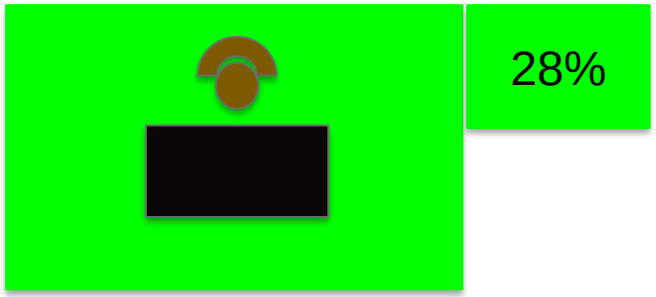
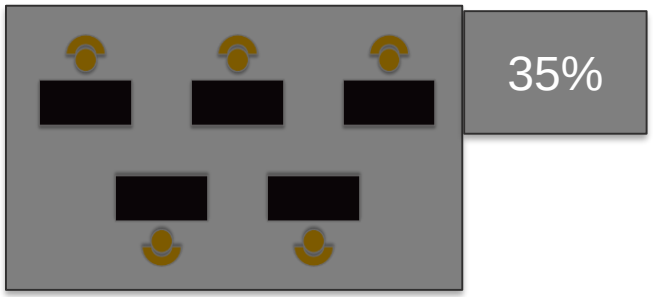
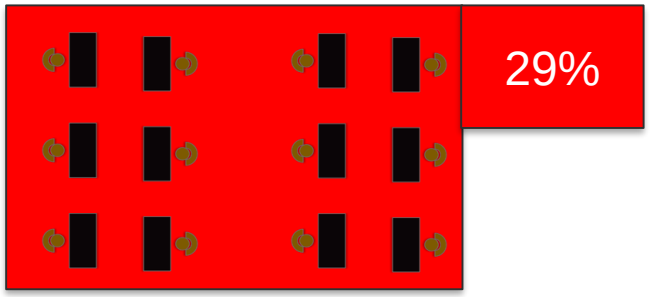
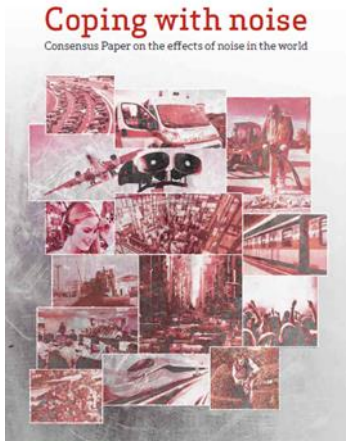
What about open offices?











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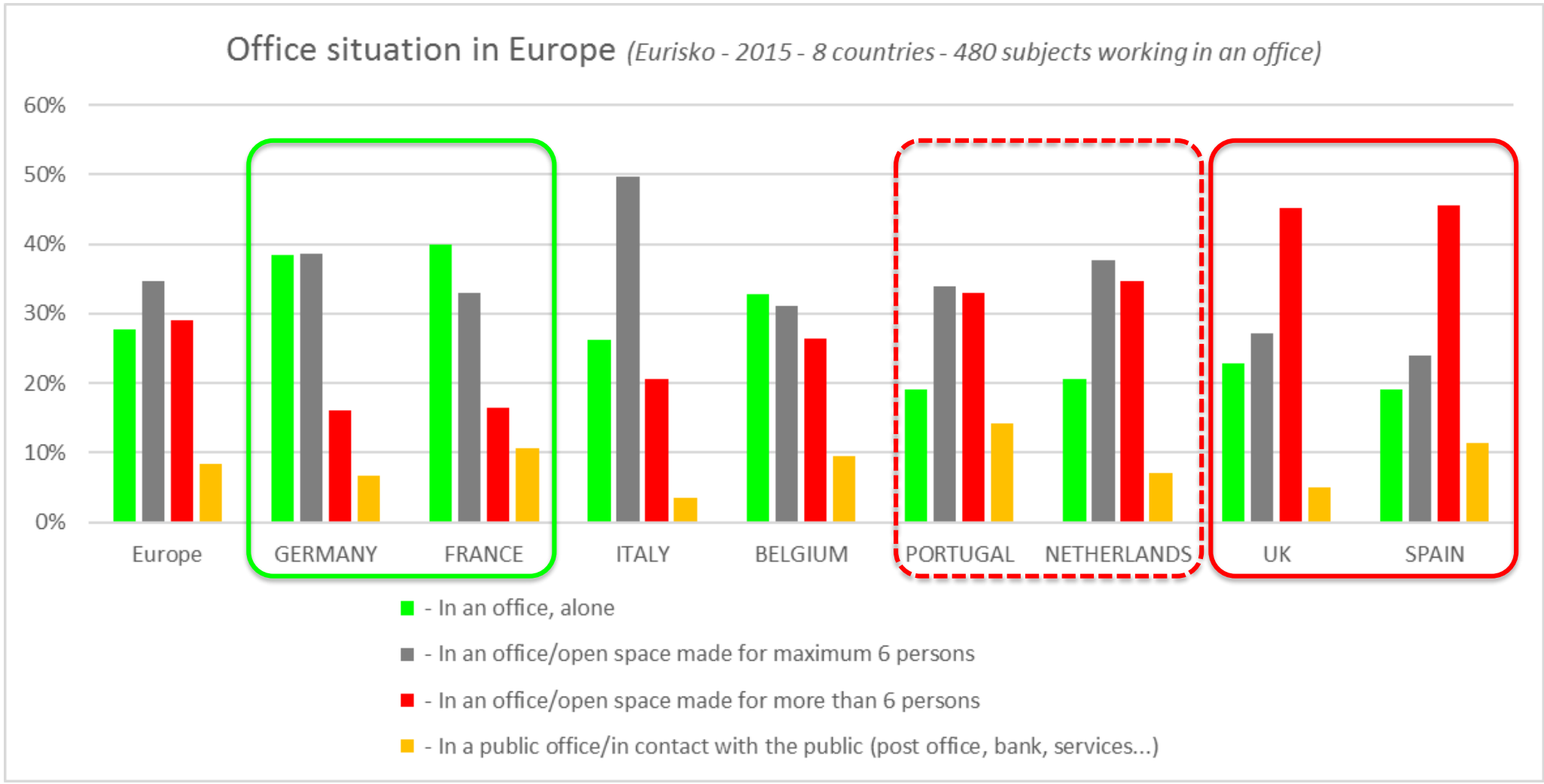
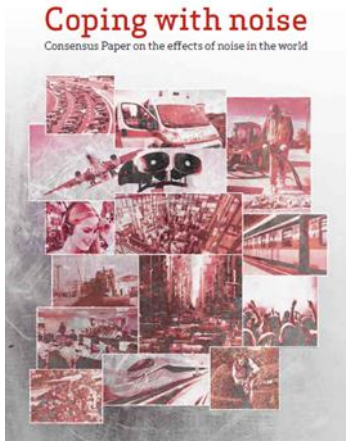
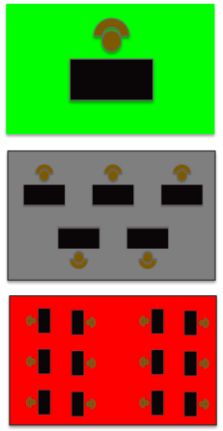
What about open offices?

Open offices with more than 6 persons are most used in Spain and the UK … but also very present in Portugal and The Netherlands.







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Conclusions

- **Hearing loss** is a **modifiable risk factor for dementia** … **encourage the use of hearing aids** for hearing loss and reduce hearing loss by **protection of ears** from excessive noise exposure **at mid age (45 – 65 y)!**
- The highest quality studies currently available indicate that **adult-onset hearing loss is associated with unemployment**.
- Limitations in hearing have an **impact on psychosocial health and work** in young and middle-aged adults
- Initiatives to **detect hearing loss early and increase the uptake and the use of hearing aids** may provide substantial public health benefits and reduce socioeconomic inequalities in health
- **Hearing Loss** increases the likelihood of experiencing clinically relevant **depression symptoms** and the **use of hearing aids reduced** the severity of **depression symptoms.**
- **Depressive Symptoms** were positively associated with **tinnitus**
- **Burnout** was positively associated with **tinnitus**
- **Burnout** Signals were positively associated with self-reported **hearing loss**, self-reported **noise acceptance** and self-reported speech **understanding in noise**
- **Open space offices**, which represent 29% of the offices in Europe, (with more office distraction), lead to more individual strain and interpersonal strain, which **can result in more burnout problems** … **even more so for people with hearing loss**!

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Hearing screening and hearing care for young active people with hearing loss – studies and new findings

Mark Laureyns

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WHO – Make Listening Safe Workgroup

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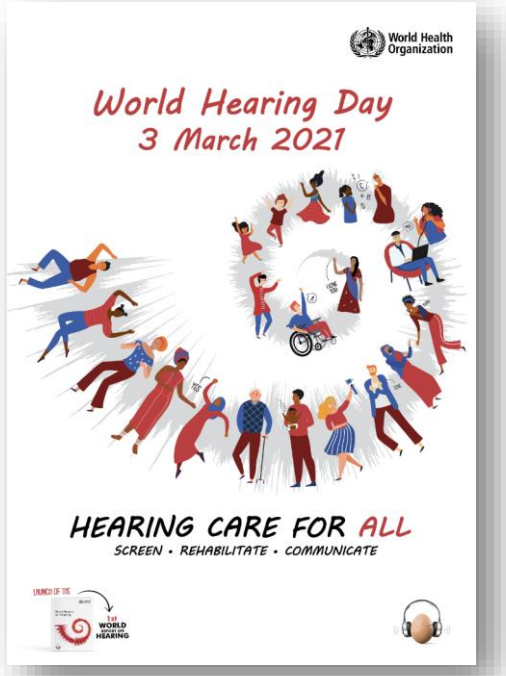
Create a world where nobody's hearing is put in danger due to unsafe listening

Join the "Make Listening Safe" LinkedIn group

https://www.linkedin.com/groups/13903493/



https://www.aea-audio.org/portal/index.php/aea-action-plan

We need to start earlier! Thank you ☺

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Download the app

Check your hearing!

References

- *Livingston G. et al, Dementia prevention, intervention, and care: 2020 report of the Lancet Commission. Lancet 2020; 396: 413–46*
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Links for more information

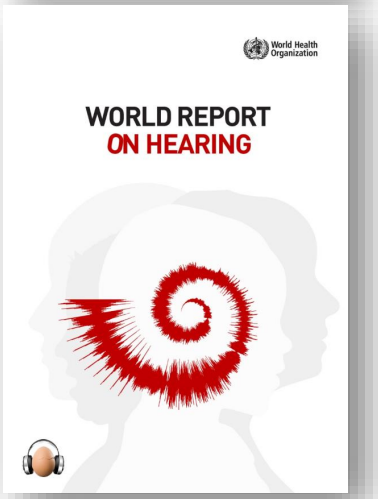
Links to share with all participants:

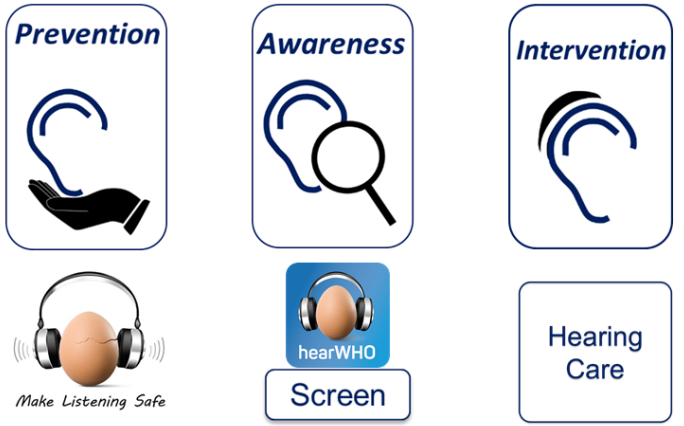
Here you can download the World Report on Hearing:
https://www.who.int/publications/i/item/world-report-on-hearing

More information on "Make Listening Safe":
https://www.linkedin.com/groups/13903493/
https://www.aea-audio.org/portal/index.php/make-listening-safe

More information on the WHO Hearing Test:
https://www.who.int/deafness/news/hearWHOApp-news/en/
https://www.who.int/health-topics/hearing-loss/hearwho

More information on professional hearing care:
https://www.aea-audio.org/portal/index.php/aea-action-plan





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