

SUMMARY



Hearing impairment is a common chronic condition in human populations. Although the prevalence is highest in older age groups, there is still a large number of younger people experiencing auditory disabilities. There is relatively very little known about the impact of hearing loss in young and middle-aged adults. Individuals may experience a range of disabilities resulting from their hearing loss. Among the consequences reported are the negative influence on psychosocial health and restrictions in participation in work. To gain more insight into the relationship between hearing ability and psychosocial health, participation in work, and health care use in hearing impaired individuals aged 18 to 70 years, the National Longitudinal Study on Hearing (NL-SH) was set up in 2006. The NL-SH is a prospective cohort study in which both normally hearing and hearing impaired people participate. Hearing ability is measured by means of the Internet version of the National Hearing Test, a speech-in-noise test using digit triplets presented against a background noise. Data about psychosocial health status, work situation, and health care use are collected by means of a set of online questionnaires. This thesis describes the first, mostly cross-sectional, results of the NL-SH.

Chapter 2 depicts the study examining the association between hearing ability and psychosocial health. Data of 1511 participants were analyzed using regression models. Six factors each reflecting an element of psychosocial health were assessed: distress, depression, somatisation, anxiety, loneliness, and self-efficacy. After adjustment for confounding variables, significant adverse associations between hearing ability and distress, somatisation, depression, and loneliness were found. Additionally, different age groups exhibited different associations, with loneliness being an issue particularly in the youngest age group (18-30 years). The number of significant associations was highest in the middle-aged group (40-50 years).

The next two chapters focus on hearing impairment and its possible effect on work. Chapter 3 describes the data of 925 normally hearing and hearing impaired working adults (aged 18-65 years) working 12 hours or more during a week are. The relationship between hearing ability and need for recovery after work was

studied, as well as the role of hearing ability in the relationship between psychosocial work characteristics (i.e. job demands and job control) and need for recovery. Regression models revealed a significant association between hearing ability and need for recovery after work, with poorer hearing leading to an increasing need for recovery. Additionally, poorer hearing led to a higher odds for risky levels of need for recovery. Hearing ability did not influence the significant relationship between psychosocial work characteristics (i.e. job demand and job control) and need for recovery after work. Implications for clinical practice, such as the necessity of having adequate enablement programs for this specific group of patients, are discussed.

As high levels of need for recovery after work are found to be a predictor of sick leave, the relationship between hearing ability and sick leave was investigated in a subsequent study. The results are described in Chapter 4. This study also examined the association between hearing ability and both work productivity and perceived health-caused limitations at work. Data were collected at baseline and at each month during a subsequent period of three months. The sample comprised 748 normally hearing and hearing impaired workers. Regression models revealed a significant adverse relationship between hearing ability and absolute and differential productivity. Poorer hearing seems to lead to a lower absolute productivity among workers experiencing little social support. For workers with less than two other chronic conditions, differential productivity also decreased significantly with decreasing hearing ability. A significant relationship between hearing ability and sick leave was found when not adjusting for confounders. This association could partly be explained by a higher need for recovery among people with hearing impairment, for which a trend for a mediating effect in this relationship was observed. Other contributing factors were educational level and the presence of other chronic conditions.

Chapter 5 presents the results of a study in which health care use of participants with and without hearing impairment and the related costs were compared. Five types of care were distinguished: primary, secondary, psychosocial, occupational, and complementary care. A further distinction was made between health care

contacts directly related to hearing and non-hearing related contacts. Data were collected at the baseline measurement of the NL-SH, and at each month during a subsequent period of six months. Data of 1295 normally hearing (n=634) and hearing impaired subjects (n=661), aged 18-65 years were analyzed. Adjusting for confounders, regression models showed that hearing impaired respondents had significantly more contacts and higher costs for primary, secondary, and occupational health care than normally hearing respondents. However, the differences were due to a larger number of health care contacts for which hearing impairment was the main motive to seek help. After excluding these hearing related contacts, the differences in health care use and costs between the groups were not significant anymore. This suggests that adults with hearing loss (compared to normally hearing peers) do not make more use of health care resources over and above their hearing related health care contacts.

Finally, a discussion of the main findings of this dissertation, methodological considerations, implications for clinical practice, and recommendations for future research are presented in Chapter 6. The first, cross-sectional results of the NL-SH presented in this thesis indicate that limitations in hearing do have an impact on psychosocial health and work in young and middle-aged adults. As such, these findings underline the need to further address and explore the adverse effects of hearing loss in these age groups, both in research and clinical practice. With the continuation of the NL-SH, longitudinal data can be collected. Such data are indispensable to obtain insight into the effects of *changes* in hearing ability on psychosocial health, work and health care use.