Development and validation of a questionnaire to help determine the prevalence of noise induced hearing loss in Malta

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ABSTRACT

Objectives: To develop and validate (against an audiometric standard), a questionnaire to help determine the prevalence of noise induced hearing loss in the vernacular (language) of a developing country.

Methods: The questionnaire was first developed and translated. Out of 688 workers from three companies based in Malta 250 participated in this study. The questionnaires were then verbally administered by the author in a face-to-face interview. Otoscopic examination was followed by pure-tone audiometry which was carried out to determine the hearing thresholds in the conventional frequencies 0.25, 0.5, 1, 2, 4 and 8 kHz for both ears of each respondent.

Results: The sensitivity of the hearing loss questionnaire (part two) in detecting noise induced hearing loss is 32% while its specificity is 79%. Its positive predictive value is 76% while its negative predictive value is 36%. The single question: “Do you feel you have hearing loss?” was found to have similar sensitivity and positive predictive value for NIHL as the second part of the hearing loss questionnaire.

There is evidence to suggest good agreement (r = 0.523) between the total number of years worked in noisy jobs and NIHL (p = 0.01). There is also evidence to suggest good agreement between the total noise exposure and noise induced hearing loss.

The sensitivity of the question: “Do you consider the noise level where you now work high?” in detecting noise induced hearing loss is 80.2% while its specificity is 12.7%. Its positive predictive value is 66.3% while its negative predictive value is 23.1%.

Approximately two thirds of workers from the three companies studied have been found to be suffering from noise induced hearing loss

Conclusions: The questionnaire developed in this study was found to have a low sensitivity for noise induced hearing loss. The single question: “Do you feel you have a hearing loss?” could substitute this questionnaire since there was found evidence of good
correlation between them. Pure tone industrial audiometry needs to be used (and more widely than it currently is) to screen for noise induced hearing loss in Malta and a questionnaire such as the one studied here cannot be a valid substitute.