Preventive Strategies for Occupational Hearing Loss: An Integrative Literature Review

Francis Thomas
frankmt2009@gmail.com

Follow this and additional works at: https://via.library.depaul.edu/nursing-colloquium

Part of the Nursing Commons


This Event is brought to you for free and open access by the School of Nursing at Via Sapientiae. It has been accepted for inclusion in Grace Peterson Nursing Research Colloquium by an authorized administrator of Via Sapientiae. For more information, please contact digitalservices@depaul.edu.
Preventive Strategies for Occupational Hearing Loss
Francis Thomas
DePaul University, School of Nursing, FY-17 Cohort

Background
➢ Occupational hearing loss is the third most common chronic condition in the US, and most commonly affects manufacturing industry workers.
➢ A integrative literature review was performed to evaluate qualitative and quantitative research on prevention strategies for occupational hearing loss in manufacturing industries.
➢ The objective of this review is to determine which prevention strategies have been described in the literature, and which strategies have been shown to be effective and evidence-based.

Methods
➢ The Health Belief Model (HBM) was used as a conceptual framework to guide this review.
➢ The HBM is based on the belief that a behavioral change can occur if successfully realizing its six concepts: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy.

Results – Hearing Loss
➢ Various risk factors like advancing age, male gender, noise exposure, and mutations in genes like EAY4 were associated with higher noise-induced hearing loss (NIHL).

Limitations
➢ This literature review is largely restricted to industrial and agricultural professions.
➢ Review is limited in making any correlations to other professions involving increased noise such as musicians or the aviation community.

Conclusions
➢ Hearing protective device (HPD) use is a very effective method to prevent NIHL.
➢ Appropriate education in the HPD use plays a pivotal role in ensuring this protection.

Search Results
➢ A thorough literature search including articles studying adult manufacturing industry workers using the PubMed and CINAHL databases.

Results – Hearing Loss
➢ In-center audiograms were the most commonly used screening method for NIHL in occupational settings.
➢ At-home self-administered screening methods like Earcheck may be an easy screening tool for NIHL.

Figure 1: The Health Belief Model

Table 1: Variations of EAY4 and NIHL

<table>
<thead>
<tr>
<th>Variable</th>
<th>Genotype</th>
<th>Case</th>
<th>Control</th>
<th>Odds Ratio</th>
<th>95% CI</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthy</td>
<td>neg</td>
<td>162</td>
<td>96</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>gen</td>
<td>EAY4</td>
<td>191</td>
<td>105</td>
<td>1.89</td>
<td>1.34</td>
<td>0.57</td>
</tr>
<tr>
<td>gen</td>
<td>EAY4</td>
<td>66</td>
<td>42</td>
<td>1.28</td>
<td>0.72</td>
<td>0.57</td>
</tr>
</tbody>
</table>

Figure 3: Earcheck Online Audiometry Screening

Figure 4: Hearing Protection Devices

Figure 5: Other Sources of NIHL