



Impact of Noise-Induced Hearing Loss on Occupational Performance and Job Satisfaction: A Study among Industrial Workers in Karachi.

¹Dr. Hira Kaleem, ²Dr. Murtaza Ahsan Ansari, ³Syed Waleed Ali Warsi

¹FCPS Trainee, ²Associate Professor, ³Human Resource Strategist

¹Department of ENT, Head & Neck Surgery,

¹Dow International Medical College, DUHS, Karachi, Pakistan

Abstract : Noise-induced hearing loss (NIHL) is a serious occupational health issue that affects industrial workers in a number of ways, including their well-being and job performance. A primary objective of this study is to determine whether occupational performance and job satisfaction are adversely affected by NIHL among industrial workers in Karachi. In order to gain comprehensive insight into this issue, we used a mixed-methods approach, which included quantitative surveys and qualitative interviews in order to obtain comprehensive results. According to the results of this study, NIHL has a detrimental effect on a variety of aspects of occupational performance as well as job satisfaction. The findings suggest that there is a need for effective preventive measures, better workplace policies, and increased awareness to mitigate the adverse effects of NIHL on industrial workers' overall quality of life and their ability to perform their job well.

I. INTRODUCTION

Noise exposure in the workplace is a common hazard in industrial settings, causing noise-induced hearing loss (NIHL), a preventable yet prevalent medical condition that is commonly attributed to occupational noise. The effects of NIHL can be felt not only on the physical health of workers, but also on their occupational performance and job satisfaction as a result of its far-reaching effects. In this study, we will determine whether or not NIHL impacts the job performance of industrial workers in Karachi, Pakistan in terms of their job satisfaction, as well as their job performance.

II. LITERATURE REVIEW

The issue of noise-induced hearing loss (NIHL) is a common occupational health concern that affects workers in industrial settings throughout the world. It is important to realize that the negative impacts of NIHL extend beyond physical health, impacting a variety of aspects of occupational performance and job satisfaction as well. A literature review was conducted with the aim of exploring existing research on the relationship between occupational performance, job satisfaction, and NIHL among industrial workers, focusing mainly on the Karachi context and how it relates to NIHL.

The term noise-induced hearing loss (NIHL) refers to hearing loss caused by prolonged exposure to high levels of noise at work. It is characterized by sensorineural hearing loss primarily affecting higher frequencies. Manufacturing, construction, and mining are particularly high-risk sectors for occupational noise exposure (Kerr et al., 2017).

The concept of occupational performance and its dimensions refers to the ability of an individual to perform the tasks required by their occupation in an efficient and effective manner. In addition to productivity, communication, teamwork, cognitive abilities, and safety, it encompasses a wide range of dimensions. These dimensions can be impacted by NIHL by reducing auditory awareness and communication effectiveness (Canty et al., 2019).

Job Satisfaction and Its Components: Employee job satisfaction is a measure of their overall satisfaction with their jobs, which is influenced by a variety of factors, such as work conditions, interpersonal relationships, and employment prospects. Makarova et al. (2016) suggest that NIHL may negatively impact job satisfaction because it hinders communication, increases stress, and reduces opportunities for career advancement.

The Link between NIHL, Occupational Performance, and Job Satisfaction: There is a strong correlation between NIHL and occupational performance, as well as job satisfaction, according to research. As a result of NIHL's adverse effects on communication and cognitive abilities, there can be a reduction in efficiency, an increase in errors, and a decrease in job satisfaction. Furthermore, the social isolation that results from communication difficulties may negatively affect teamwork and morale at work (Le et al., 2018).

Previous Research Studies: A number of studies have examined the impact of NIHL on occupational performance and job satisfaction. According to Dawes et al. (2018), individuals with NIHL experience reduced cognitive performance, which may impact

their ability to complete tasks accurately and efficiently. A study by Tuncay et al. (2019) reported that industrial workers with NIHL reported a lower level of job satisfaction due to communication challenges and increased stress.

Context of Karachi: There is a wide range of industrial sectors in Karachi, Pakistan, contributing to noise exposure among workers. A limited number of studies have been conducted on the effects of NIHL on occupational performance and job satisfaction in this context.

III. METHODOLOGY

1) STUDY DESIGN

A mixed-methods research design was chosen to provide a comprehensive understanding of the research problem. Quantitative data were collected through structured surveys, while qualitative insights were gathered through in-depth interviews.

2) PARTICIPANTS

There were 300 industrial workers from various sectors in Karachi who participated in the study. The participants were selected based on convenience sampling according to their exposure to occupational noise for at least two years prior to the study.

3) DATA COLLECTION

A structured questionnaire was used to collect quantitative data, which included sections on demographics, occupational noise exposure, NIHL assessment, occupational performance, and job satisfaction, among other things. There was a qualitative data collection process that involved semi structured interviews with a subset of participants (n=20), which explored their perceptions and lived experiences regarding the impact of NIHL on the performance and satisfaction of their occupations.

4) DATA ANALYSIS

A quantitative analysis of the data was done using descriptive statistics, correlation analysis, and regression analysis in order to examine the relationships between variables in the data. We conducted a thematic analysis of the qualitative data in order to identify the recurring themes and patterns in the narratives of the participants.

IV. RESULTS

1: Demographic Characteristics of Participants

- 83.3% of participants were male, and 16.7% were female.
- The mean age of the participants was 35.2 years with a standard deviation of 6.4.
- The average years of employment were 9.8 years with a standard deviation of 3.2.
- The mean daily noise exposure duration was 8.6 hours with a standard deviation of 1.9.

2: Prevalence of Noise-Induced Hearing Loss Severity

- 40.0% of workers had normal hearing, while 26.7% had mild hearing loss.
- 16.7% of workers experienced moderate hearing loss, and 13.3% had severe hearing loss.
- Only 3.3% of participants had profound hearing loss.

3: Impact of Noise-Induced Hearing Loss on Occupational Performance

- Workers with normal hearing reported a mean occupational performance score of 8.6 with a standard deviation of 1.2.
- Those with mild hearing loss had a mean score of 7.2 with a standard deviation of 1.5.
- Participants with moderate, severe, and profound hearing loss had mean scores of 5.9, 4.3, and 2.8, respectively.

4: Impact of Noise-Induced Hearing Loss on Job Satisfaction

- Workers with normal hearing reported a mean job satisfaction score of 8.4 with a standard deviation of 1.3.
- Those with mild hearing loss had a mean score of 7.0 with a standard deviation of 1.6.
- Participants with moderate, severe, and profound hearing loss had mean scores of 5.5, 4.1, and 2.5, respectively.

5: Quantitative Findings:

The quantitative analysis revealed a significant negative correlation between the severity of NIHL and participants' self-reported occupational performance ($r = -0.49$, $p < 0.01$). Similarly, there was a significant negative correlation between NIHL severity and overall job satisfaction ($r = -0.41$, $p < 0.01$). Regression analysis indicated that NIHL severity significantly predicted both occupational performance ($\beta = -0.38$, $p < 0.01$) and job satisfaction ($\beta = -0.28$, $p < 0.05$).

6: Qualitative Findings:

Based on the thematic analysis of the qualitative interviews, several key themes were identified related to the impact of NIHL on occupational performance and job satisfaction. Communication and teamwork were reduced, stress and fatigue increased, concentration and productivity decreased, and career prospects diminished due to communication challenges.

V: DISCUSSION

According to the findings of the present study, noise-induced hearing loss (NIHL) is implicated in a substantial decline in occupational performance among industrial workers in Karachi, as well as reduced job satisfaction and personal well-being among these workers. We combined quantitative survey data with qualitative insights from interviews in order to gain a comprehensive understanding of the complexity of this issue through the use of a mixed-methods approach. Discussions will be devoted to the implications of the results, how they relate to existing literature, what possible factors are contributing to the results, and what interventions need to be implemented in order to achieve successful outcomes.

Quantitative Findings: Based on the quantitative analysis of the data, significant negative correlations were found between the severity of NIHL and both self-reported occupational performance and overall job satisfaction. The findings of this study confirm those of previous research which has highlighted the negative effects of NIHL on individuals' cognitive abilities, communication skills, and overall well-being (Dawes et al., 2018; Tuncay et al., 2019). A regression analysis was carried out to further emphasize the predictive nature of NIHL severity, which supports the notion that the extent of hearing loss directly affects the job-related outcomes of the individual.

Qualitative Insights: The qualitative interviews enriched our understanding of the lived experiences of industrial workers grappling with NIHL. Themes emerged that align closely with the quantitative findings, emphasizing the challenges posed by reduced communication and teamwork, increased stress and fatigue, decreased productivity, and limited career advancement opportunities. These qualitative insights corroborate the quantitative evidence, providing a more holistic perspective on the real-world impact of NIHL in the workplace.

Comparative Analysis: The results of our study are in accordance with existing literature suggesting that NIHL negatively affects occupational performance and job satisfaction. The alignment of these issues demonstrates the universality of the problem across industries and geographical contexts. The consequences of NIHL on occupational performance cascade through various dimensions, leading to a reduction in efficiency, an increase in errors, and an overall decline in job satisfaction (Le et al., 2018).

Implications and Interventions: It is clear from this study that the implications are far-reaching, emphasizing the urgent need to formulate proactive measures in order to address the problem of NIHL among industrial workers in the near future. In order to reduce noise exposure levels, preventive measures, such as engineering controls, personal protective equipment, and hearing conservation programs, are imperative (Kerr et al., 2017). The workplace policies should include regular hearing evaluations and education about the risks associated with NIHL in their workplace policies. In addition, providing access to hearing aids and assistive technologies may also be able to mitigate some of the adverse effects of NIHL on communication and performance on the job.

VI: Conclusion

The purpose of this study was to reveal the substantial impact of noise-induced hearing loss on occupational performance and job satisfaction among industrial workers in Karachi as a consequence of noise-induced hearing loss. We were able to gain a comprehensive understanding of the issue through a combination of quantitative and qualitative approaches, allowing us to capture both statistical trends and the lived experiences of participants, allowing a nuanced understanding of the issue.

The results of this study emphasize the importance of multifaceted interventions that address NIHL comprehensively and in a comprehensive manner. There are many ways in which industries can safeguard the well-being of their workforce, improve employee satisfaction, and maintain maximum performance by focusing on preventive measures, workplace policies, and awareness programs. This study underlines the importance of prioritizing employee health and implementing holistic strategies in order to mitigate the adverse effects of NIHL on an industrial worker's overall quality of life and the performance of his or her job on a day-to-day basis.

There are a number of limitations to this study, including its cross-sectional nature and the possibility of self-report bias, which merit consideration for future research. There is the possibility that longitudinal studies can provide insight into the causal relationships that exist between NIHL, job performance, and job satisfaction. While the study's findings contribute to the growing body of knowledge about NIHL's far-reaching consequences, we believe it emphasizes the importance of collaborative efforts in order to protect the health and well-being of industrial workers in Karachi and in other parts of the world.

VII. KEYWORDS

Noise-induced hearing loss, occupational performance, job satisfaction, industrial workers, Karachi, mixed-methods, prevention, workplace noise management.

V. ACKNOWLEDGMENT

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Thanks to your contributions, we have gained a deeper understanding of the impact of NIHL on industrial workers, and we have also laid the groundwork for potential interventions to improve their overall well-being, job performance, and job satisfaction.

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