Available online at www.elixirpublishers.com (Elixir International Journal)

Human Resource Management

Elixir Human Res. Mgmt. 44 (2012) 7071-7073

ISSN: 2229-712X

Occupational hearing handicap among manufacturing workers in Malaysia

Khalizani Khalid[1], Norhanarosmida Mohamad Rosli[1] and Khalisanni Khalid[2]

[1]Universiti Teknologi MARA (Perak), Faculty of Business Management 32600, Bota, Perak, Malaysia.

[2]Technical Service Centre, Malaysian Agriculture Research and Development Institute (MARDI), 43300 Serdang, Selangor, Malaysia.

ARTICLE INFO

Article history:

Received: 31 January 2012;

Received in revised form:

17 February 2012;

Accepted: 26 February 2012;

Keywords

Hearing loss,

Noise induced hearing loss,

Level of noise,

Age.

ABSTRACT

This paper highlights the prevalence factors of hearing loss among manufacturing workers in Malaysia. Due to less intention is given to this problem, the factors to noise induced hearing loss is ignored by the employers. Different workers have different level of noise threshold. However, the development of hearing loss is parallel with high noise exposure and increasing of age. As a result, workers responses on level of noise are varies and at disperse of age.

Introduction

Noise pollution can take a severe toll on human health in the long run. These effects will not become apparent immediately, but there could be repercussions later on. D'Silva (2011) explained that sound as undesirable for human hearing is call a noise. Aslam (2008) described noise as unwanted sound; yet the subjective definition as one man's sound may be different from another man's noise. The most important is that noise was psychological and subjective feeling (Kroemer et al., 2001). Supported by Aslam (2008) that argued noise has become very important stress factor in the environment of man. Suter (1991) reported that the level of noise necessary to produce adverse effects was greatly dependent upon the type of task. As a result, hearing loss is one of the most obvious and easily quantified effects of excessive exposure of noise (D'Silva, 2011). According to Celik et al. (1998) more than five million industrial workers have been subjected to occupational noise; in which induced a gradual sensor neural hearing loss.

Ronald et al. (2010) evidenced that manufacturing workers are exposed to high noise levels and may developed noise induced hearing loss. It is estimated that manufacturing sector had the greatest number of workers occupationally exposed to noise in the US (Fields, 1990). Similarly, manufacturing workers in Canada also exposed to high noise levels and at risk for NIHL (Fidell et al., 1991). Fu et al. (1998) explained that the used of machines that produced level of sound exceeds 75 dBA is an important source of noise. Clark and Bohne (1986) evidenced that individual who are exposed to more than eight hours on 85 dBA of noise will face the risk to hearing loss. According to Zahr and Traversay (1995) 43.0 percent of people with hearing loss are 65 years of age or older. By comparison, more than five million people age 18 to 64 and close to half a million children have hearing disability or loss (Aslam, 2008). Morata (1998) claimed that noise level between 85 to 90 dBA are considered as permissible exposure limits and level of noise that more that 90 dBA is considered as danger to all employees at all age groups.

Literature Review

Palmer et al. (2002) reported that age and exposure to noise are undoubtedly the two variables responsible for most cases of hearing loss in humans. He also suggested that further research should emphasized on noise level, hours of work and age in which these factors have an impact on noise induced hearing loss. Zahr and Traversay (1995) claimed that as as person ages, hearing may worsen because age related hearing loss adds to the existing noise induced hearing loss. When age related factor contributed to noice induced heraing loss, the hearing ability may continue to be worsen even after the worker stopped working in a noisy environment (Fidell et al., 1991). Celik et al. (1998) suggested that hearing loss is more common in the ageing population as compared to young adults and most occupational hearing loss is not curable once present and rehabilitative measures are the only option. Even though hearing loss is a natural process of aging but often noticeable by the age of 50 years and may be worsen in one ear than to other (Clark & Bohne, 1986). High frequency hearing loss is one of the most common hearing disorders together with other factors such as exposure to high level of noise and the intake of some antibiotic and drugs (Fu et al., 1998). Empirical findings found that the increased in the total median hearing loss was relatively small, in spite of continued exposure to noise (Aslam, 2008). Ronald et al. (2010) evidenced that the increased was even smaller than the median effect of normal ageing estimated. For this reason, Morata (1998) concluded that a clear reverse of hearing loss appeared to be invalid since the revere of hearing loss implies that noise induced hearing loss will be improved towards the aging years. As the age increased and the hearing loss level of more than 45 to 50 dBA, the assumption of additive effects of aging appears to be no longer valid (Aslam, 2008; Zahr & Traversay, 1995). In contrast, Clark and Bohne (1986) argued that some hearing loss factors can be reversed; but yet to be evidenced. However, there are some reports used limit of 55 years of age for an onset detectable age induced hearing loss.

Tele:

E-mail addresses: lyzakhalid76@gmail.com

Aslam (2008) mentioned that high noise level is considered to be the common reason of permanent hearing loss among adults. Fields (1990) stated that sounds of sufficient intensity and duration will damage the heraing ability and resulted in temporary or permanent hearing loss at any age. Sound levels of less than 75 dBA are unlikely to cause permanent hearing loss, while sound levels of 85 dBA with exposure of at eight consecutive hours per day will jeopardize hearing ability and may cause a permanent hearing loss after many years (Suter, 1991). Clark and Bohne (1986) claimed that exposure to sound intensify levels that exceed 80 dBA for eight hours a day will cause permanent loss of hearing while Malaysia Occupational Health and Safety Act 1969 regulated that exposure to 90 dBA for eight hours a day as safe and unlikely to cause noise induced hearing loss. However, past researches evidenced that noise level excesses 90 dBA can caused permanent hearing loss (Aslam, 2008). However, Ronald et al. (2010) concluded that researchers have neglected some important factors that can be helpful in finding harmful effects of noise induced hearing loss in human hearing. Morata (1998) explained that high level of noise affects physical and psychological states of workers. For this reason, Aslam (2008) concluded that workers in noisy industries such as manufacturing, transportation and construction may suffer permanenet hearing damage. Ronald et al. (2010) noted that exposure to noise can induced hearing impairment among manufacturing workers. This statements also supported by other studies that empirically evidenced that noise induced hearing loss is critical among industrial and non industrial fields workers even though the rate is still not alarming (Aslam, 2008). Zahr and Traversay (1995) stated that noise induced hearing loss is related to the loudness as well as the duration of noise exposed to and the age of the employees. Furthermore, recent studies indicated that prolonged noise exposure from 80 dBA is enough to result in noise induced hearing loss (Ronald et al., 2010)

Conceptual Research Framework

Thus, we proposed the following conceptual framework to demonstrate the relationship among employees' age and level of noise exposed and employees' noise induced hearing loss to support the hypotheses proposition as listed below. The model is shown in Figure 1.

H1: Noise induced hearing loss intensifies with worker's age in manufacturing industry

H2: Level of noise exposed motivates noise induced hearing loss among worker's in manufacturing industry

H3: The effect of level of noise on noise induced hearing loss is mediated by worker's age in manufacturing industry

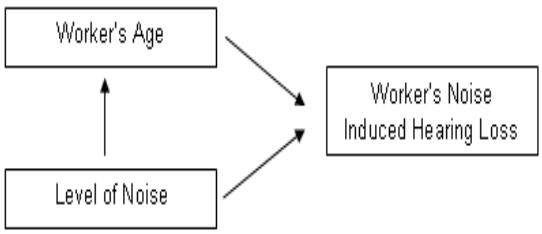

Figure 1: Conceptual Research Framework

Implication and Conclusion

The purpose of this paper is to provide a model to assess and better understand the prevalence factors of hearing loss among manufacturing workers in Malaysia. Even though workers in the older age groups were noted to have higher prevalence of hearing impairment, but empirical findings evidenced that level of noise contributed to this factor as well. The chances of developing a significance degree of hearing loss with high noise exposure increase exponentially with increasing age. Furthermore, duration of employment can be used as a control group for this study as it might significantly associated with worker's hearing impairment. Persistent exposure to noise can be dangerous because the effects of noise can be accumulated over time (McFadden & Henderson, 1999). This statement consistent with previous studies that argued exposure to high level of noise is important factor for hearing impairment (Palmer et al., 2002). According to Reilly et al. (1998) noise induced hearing loss development is slow and takes time. They evidenced that the rate of gearing loss is the greatest during the first 10 to 15 years of exposure and decrease s as the hearing threshold increases. However, age related hearing loss produces different result in which accelerates over times (ACOEM, 2003). In conclusion, the proposed conceptual model will aid for future research and the findings of the future study will highlighted the prevalence of hearing impairment among manufacturing workers.

References

ACOEM Evidence based statement. (2003). Noise induced hearing loss. *Journal of Occupational, Environmental and Medical 45(6)*, 579-581.

Aslam, M. J. (2008). Effects of noise pollution on hearing of public transport drivers in Lohore City. *Pakistan Jpurnal of Medical Sciences*, 142-146.

Celik, O., Yalcin, S., & Ozturk, A. (1998). Hearing parameters in noise exposed industrial workers. *Auris Nasus Larynx 25(4)*, 369-375.

Clark, W. W., & Bohne, B. A. (1986). Temporary hearing losses following attendence at a rock concert. *Journal of the Acoustical Society of America 79*, 548.

D'Silva, N. V. (2011, Janury 01). *Noise Pollution*. Retrieved January 26, 2012, from Buzzle.com: http://www.buzzle.com/articles/noise-pollution.html

Fidell, S., Barber, D. S., & Schultz, T. J. (1991). Updating a dosage-effect relationship for the prevalence of annoyance due to general transport noise. *Journal of the Acoustical Society of America 89*, 221-223.

Fields, J. M. (1990). A quantitative summary on non-acoustical variables effects on reactions to enviornmental noise. In Busch-Vishniac, *Reducing the annoyance of noise (ed)* (pp. 50-58). Texas: University of Texas, USA.

Fu, Q. J., Shanno, R. V., & Wang, X. (1998). Effects of noise and spectral resolution on vowel and consonants recognition: Acoustic and electric hearing. *Journal of Acoustical Society of America 6*, 3586-3596.

Kroemer, H., Kroemer, H., & Kroemer-Elbert, K. (2001). *Ergonomics: How to design for ease and efficiency 2nd ed.* New Jersey: Prentice Hall Inc.

McFadden, S. L., & Henderson, D. (1999). Recent advances in understanding and preventing noise induced hearing loss. *Current Opinion on Otolaryngol Head Neck Surgery 7(5)*, 266-273.

Morata, T. C. (19998). Assessing occupational hearing loss: Beyond noise exposures. *Scand. Audio Suppl. 48*, 111-116.

Palmer, K. T., Griffin, M. J., Sydall, H. E., Davis, A., Pannett, B., & Coggon, D. (2002). Preventing noise induced hearing loss *Journal of Occupation Enviromental and Medical 59(9)* , 634-639.

Reilly, M. J., Rosenman, K. D., & Kalinowski, D. J. (1998). Occupational noise induces hearing loss surveillance in Michigan. *Journal of Occupational, Environment and Medical 40(8)*, 667-674.

Ronald, H., Sauve, J., & Jiang, D. (2010). Noise-induced hearing loss in construction workers being assessed for hand-arm vibration syndrome . *Canadian Journal of Public Health 101(3)*, 226-229.

Suter, H. A. (1991). *Noise and its effects*. Retrieved January 26, 2012, from Noise.org: www.noise.org

Zahr, L. K., & Traversay, J. (1995). Premature infant responses to noise reduction by ear muffs: Effects on behavioral and physiological measures. *Journal Perinatal Med. 15*, 448-455.