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A CASE STUDY OF ERBİL STEEL COMPANY WORKERS IN TERMS OF NON-AUDITORY EFFECTS OF INDUSTRIAL NOISE ON WORKER PRODUCTIVITY*

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Abstract

Sound is among the significant environmental factors for people's health, it has an important role in both physical and psychological injuries, and it affects individuals' performance and productivity. The aim of this study was to determine the effect of exposure to high noise levels on the performance and rate of error in manual activities. For this purpose non-auditory effects of noise were studied among 120 workers from Erbil Steel Company. Statistical analyses of the responses gathered were analyses and reported. Descriptive statistics was carried out using SPSS version 20 and graphs were plotted using Microsoft Excel.

The statistical analysis showed that that there is so much noise at Erbil Steel Company and that company workers are at a higher risk of being disturbed by noise at work. It was seen that majority 70.5% of the respondents who indicated that the noise level at work was high showed support for noise exhausting them at work. Besides, , the responses of workers revealed that majority 85.2% of the workers who perceived the noise level at workplace to be on a high, agreed to noise having a bad effect on workmanship and quality of production. The effect of noise on the productivity of workers at Erbil Steel Company was quite high based on responses from the selected workers.

Keywords: *Noise, Industrial Noise, Non-auditory, Environment and Productivity, Erbil*

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ENDÜSTRİ GÜRÜLTÜSÜNÜN İŞÇİ VERİMLİLİĞİ ÜZERİNE İŞİTSEL OLMAYAN ETKİLERİ AÇISINDAN ERBİL ÇELİK ŞİRKETİ ÇALIŞANLARININ VAKA ANALİZİ

Özet

Ses, insanların sağlığı için önemli çevresel faktörlerden biridir, hem fiziksel hem de psikolojik yaralanmalarda önemli bir role sahiptir. Ayrıca bireylerin performansını ve üretkenliğini etkiler. Bu çalışmanın amacı, yüksek gürültü seviyelerine maruz kalmanın manuel uygulamalarda performans ve hata oranına etkisini belirlemektir. Bu amaçla çalışmada gürültünün işitsel olmayan etkileri Erbil Çelik İşletmesi'nde 120 çalışan üzerinde incelenmiştir. Toplanan cevapların istatistiksel analizleri değerlendirilmiştir. Tanımlayıcı istatistikler SPSS 20 sürümü kullanılarak gerçekleştirilmiş ve grafikler Microsoft Excel kullanılarak hazırlanmıştır.

İstatistiksel analiz, Erbil Çelik İşletmesi'nde çok fazla gürültü olduğunu ve çalışanların işyerinde gürültüden rahatsız olma riskinin daha yüksek olduğunu göstermiştir. İşyerinde gürültü seviyesinin yüksek olduğunu belirten katılımcıların çoğunluğunun % 70,5 , işyerinde onları gürültünün tükettiğini belirttiği bulgusuna ulaşılmıştır. Bunun yanında işçilerin verdiği yanıtlar, işyerinde gürültü seviyesini yüksek olarak algılayan işçilerin çoğunluğunun % 85.2 gürültünün işçilik ve üretim kalitesi üzerinde olduğunu ifade ettiğini ortaya koymaktadır. Gürültünün Erbil Çelik İşletmesi'ndeki işçilerin verimliliğine etkisi, seçilen işçilerin verdikleri yanıtlara göre oldukça yüksektir.

Anahtar Kelimeler: *Gürültü, Endüstriyel Gürültü, İşitsel Olmayan, Çevre ve Verimlilik, Erbil*

1. Introduction

Noise is presumably the most well-known work-related risk, and it likewise is a natural threat (Clark & Bohn, 1999). From the physical viewpoint, there is no difference amongst noise and sound. Actually, sound is a sensory awareness, and noise is the psychological awareness of the sound. At the end of the day, noise can be characterized as an undesirable sound (Berger & Ehrsson, 2013). Noise exists in every human action, and, thinking about the impact of noise on human wellbeing, it can be characterized into two classes, i.e., work related noise and natural noise, which incorporate music, traffic and different sources (Stansfeld & Matheson, 2003).

One purpose behind the huge number of dissensions about noise in the workplace is that noise is a physical attribute that can without much of a stretch be felt in the workplace (Persson-Waye, et al. 1997). Undesirable sound, as a standout amongst the most imperative physical factors in the greater part of production units, causes an extraordinary number of issues on mechanical laborers. Distinctive researches have demonstrated that 30 million people among the American workforce are consistently exposed to abnormal levels of noise (Belojević, et al/, 2008). Being exposed to noise is a standout amongst the most widely recognized ecological risks in industries; be that as it may, it can have different impacts with respect to the sort of occupation and the workplace (Zamanian et al., 2014).

Noise is one of the physical factors in work places which consideration is being given to its negative impacts. Subsequent to smoking and air contamination, noise is considered as the third reason for heart problems among the inhabitants of Berlin (Asakareh, 2012). World Health Organization WHO likewise sees noise as the third perilous contaminant of megacities (Nasiri, et al. 2009). In addition, ear damage, impedance in discussion, visual problems, impacts on balance system, social issue, mental and in addition anxious impacts, impacts on electrolytes, physiological impacts, and mental impacts are among the impacts of health on the human body (Nasiri, et al., 2009).

Daily, people perform different exercises in various locations and are exposed to an extensive variety of natural noises. Exposure to noise isn't limited to the workplace and may occur during exercises, transportation, and shopping (Diaz & Pedrero, 2006). To date, an extraordinary number of studies have affirmed the impact of noise on the ear. According to various research, decrease in hearing capacity and noise likewise influences the laborers' cardiovascular system and prompts hypertension, cerebral pain, weakness, anxiety, and outrage (Mohr,

et al. 2000). In addition, because of the higher noise levels in the workshops, the increase in human blunders brings about the increase in occupational related mistakes and consequently prompts a drop-in efficiency (Zamanian, et al., 2014)

In general, the impact of noise on psychological wellness and in addition proficiency has been demonstrated and upheld by modern epidemiological proof Kamp et al., 2003. Obviously, there likewise is solid proof with respect to sound-related disturbance, which is characterized as the feeling of resentment, disappointment, and despondency that happens as the aftereffect of disorders in a person's emotions, thoughts and day to day exercises (Zamanian, et al., 2013). In spite of the fact that individuals get used to noise and can adjust to high noise conditions, noise causes exhaustion and reduces the people's working ability in intellectual and in addition physical tasks (Saremi & Rohmer, 2008).

Different researches have demonstrated the genuine impact of noise on the workers' performance and efficiency (Kahya, 2007). Moreover, day by day advancements in businesses and technologies prompt an expansion in the issues identified with noise contamination, and noise, as one of the major natural stressors, can effectively affect individuals and nature. When all is said in done, one of the significant objectives of all occupations is to attain profitability and to expand the staff's proficiency and productivity; be that as it may, environmental factors can adversely affect efficiency (Ising & Michalak, 2004). To date, numerous lab and field researches have examined the impact of noise on proficiency and have demonstrated that, when hearing signal are vital in carrying out a task, the noise intensity that forestalls understanding the signals profoundly influences execution.

A strange, intense noise can prompt tumult and impedance in doing tasks, too (Cohen & Weinstein, 1981). Overall, a few mishaps can be considered as a pointer of the impact of noise on jobs. A few researches have demonstrated that high noise levels can bring about more mistakes and, therefore, increase the likelihood of accidents. This is very imperative, especially in mental exercises, which require the working memory, including focusing on a few phenomenon in complex frameworks (Zamanianet al., 2012).

In view of what was specified above, noise is one of the natural components that highly influences people's performances, and its impact can be evaluated in people who are exposed to noise in their workplace. Besides, proficiency is a standout amongst the most delicate parameters identified with the impact of noise, and it causes physical and additionally mental harm to people and influences their proficiency. Consequently, since no comparative examinations have been directed

on this issue in Erbil- Iraq, the point of this research was to evaluate the effect of noise on performance.

Since noise can have both physiological and mental consequences for people, the present examination was directed keeping in mind the end goal to explore the impacts of noise introduction on circulatory strain and heart rate in steel industry. The discoveries of this examination can give the premise to enhancing the conditions in workshops, manufacturing plants, and instructive situations and, therefore, keep the occurrence of dissatisfaction and the issues stated above.

This project is the first research on the impact of industrial noise in the productivity of the worker in Erbil City. The importance of the research is based on highlighting and showing the fundamental aspects of the problem of the industrial noise effect in the productivity of the worker. This study carries out an analysis of effect of excessive noise on factory workers.

The aim of this research is to analyze the effect of industrial noise in the productivity of the workers in Erbil Steel Company in Erbil city, Iraq. Moreover, this research aims to fill the research gap in this controversial subject.

Lack of vision about the impact of industrial noise in the productivity of the worker, because of the lack of previous studies on the subject at the level of Erbil city/ Iraq, and industrial noise is one of the most important problems facing the worker's productivity, which began to take a serious economic and health exclusion.

This research is the first research on the impact of industrial noise in the productivity of the worker in Erbil city, Iraq. The importance of the research is based on highlighting and showing the fundamental aspects of the problem of the industrial noise effect in the productivity of the worker.

2. Data and Methodology

This research will be an analytical descriptive study that deals with data collection on the phenomenon of industrial noise on the productivity of the workers in Erbil Steel Company in Erbil city-Iraq. The research methodology employed here was based on data collection through questionnaire. The objectives of the study were to investigate the non-auditory effect of occupational noise. This study also identifies its effects on worker's health by comparing the noise levels with WHO and OSHA guidelines OSHA, 1988. As far as the parameters of the questionnaire were concerned, the number of workers working in the premises has been taken into consideration during study to know the health hazards.

Survey was conducted in various units of different sections to record the personal opinion of the employees regarding their feelings and difficulties due to high occupational noise levels and its pollution.

2.1 Survey of Study Area

A survey was conducted in the Erbil Steel Company to determine workers activity and the non-auditory effect of occupational noise levels within study site.

The creation of Erbil Steel Company was initiated in the year 2006 at Erbil-Iraq. Currently they have 650 workers. Erbil Steel Company begun steel creation in December of the year 2007. Erbil Steel is a company that generates energy by itself via its 32 MW powerhouse that boasts a yearly steel generation limit of 240.000 tons. Considering its creation and employment volume, Erbil Steel Company right now is unmistakably the most substantial industry interest in its locale, delivering standard steel bars for use in the construction division.

With the consistent generation of ASTM 615 GRADE 60, Erbil Steel Company keeps on serving its clients with its expert and experienced devoted workers. It produces exactly 600 tons of steel every day from purifying of scrap press at its steel industrial facility moving plant. Having effectively brought together its sector prerequisites oriented mission with improvement concentrated on a groundbreaking vision, Erbil Steel Company has a driving role in the Iraqi steel sector.

Having started its activities in Erbil in December 2007, Erbil Steel Company creates its own power and is a huge importance for the future of the Iraqi development industry with a yearly iron and steel generation limit of 240,000 tons. Erbil Steel Company is regarded as one of the greatest and most essentially overwhelming industry investment carried out in the district with respect to workers number and production volume. The plant creates more than 600 tons of iron and steel every day and addresses the issues of the Iraqi development industry with these fundamental metals.

As the first and biggest iron and steel plant in Iraq, Erbil Steel Company works with two arrangements of enlistment heaters, each with 25-ton limit. Covering a region of 100,000 sqm and furnished with cutting edge hardware, Erbil Steel Company produces world class N12 - N32mm type steel with a qualified group of 700 experienced professionals, engineers and staff.

Erbil Steel Company creates power for its tasks with five 6.4-megawatt MW diesel generators. The plant utilizes 32 MW of power in the different phases of iron and steel creation. The power delivered is utilized as a part of the manufacturing plant to noticed piece iron and cast the steel and in the moving plant to roll fortified steel bars.

On account of its programmed remuneration framework controlled by a programmed receptive power framework the power control house outfitted with PLC programmed framework keeps the power factor within efficiency limits as far as possible required, giving unwashed, harmonically separated power to help the plant offices. In the completely coordinated electrical powerhouse, all activity and maintenance is performed by the Erbil Steel Factories in house group of qualified professionals and engineers (Erbil Steel Company, 2018).

2.2 Research Method

A survey was conducted by using questionnaire to investigate the perceptions of workers who are currently working in the Company and how this noise may affect the productivity of the workers. The selected sample size is 120 out of the total 650 workers by using the random sampling method.

A questionnaire was designed to assess the effects of noise exposure among miners. The idea for the designing of questionnaire for the assessment of non-auditory effect among miners was to generate information on all possible factors which might act in concert to cause hearing loss and to quantify those at the highest risk of non-auditory issues. For this reason, the presence of risk factors such as age, gender, occupation, medical history and non-occupational exposure were included in the questionnaire and their possible impact on the outcome evaluated.

The first step in the design of the questionnaire was to investigate current concerns regarding hear loss and sources of noise exposure among employees. The information gathered was used to determine what items should be included in the questionnaire. The main topical items that were decided to be included in the questionnaire were:

- Symptoms on non-auditory hearing issues
- Possible sources of occupational and non-occupational noise exposure
- Medical history-particularly of diseases that could cause hearing loss

Awareness, satisfaction, workplace information and other subjective effects related to health in terms of auditory and non- auditory effects were also included in the questionnaires.

A random sampling method was used to select participants from the company. All employees were given the same chance of participating in the study. This ensures a firm basis for the application of significance tests and statistical methodology.

2.3 Data Collection

The researcher will prepare a questionnaire in a standard form, so that the data can be processed statistically and to find out the relationship between its elements. The researcher used the following procedures in the design of the questionnaire:

1. Access to previous studies and research and theoretical publications related to the subject of the research.
2. Identify the most important indicators and axes related to the subject of the research.

3. Data Analysis and Results

In this chapter, statistical analyses of the responses gathered were analysed and reported. Descriptive statistics was carried out using SPSS version 20 and graphs were plotted using Microsoft Excel 2016. The chapter contains report on the socio-demographic characteristics of respondents and their perception about noise in their work center and its preventive measures.

3.1 Socio-Demographics

This section examines the socio-demographic characteristics of the study respondents. Out of the total 650 workers, there were 120 respondents in all with the characteristics measured including the respondent's age and educational level.

3.1.1 Age Distribution of Respondents

The table 3.1 shows the distribution of the respondents according to their ages. The ages were initially recorded on a nominal level but were reclassified into different age groups as follows.

Table 3. 1 Age Distribution of Respondents

Age group	**Frequency**	**Percentage %**
18 – 25	39	32.5
26 – 35	37	30.8
36 – 45	30	25.0
46 – 55	14	11.7
Total	**120**	**100**

Source: Prepared by the researcher based on the questionnaire result

It is seen from the table above that majority of the respondents were aged between 18 and 25 years representing 32.5% of the total responding population. This is closely followed by workers aged between 26 and 35 years whose percentage stood at 30.8%. Ages 36-45 and 46-55 represented 25.0% and 11.7% respectively.

Summary of Ages

Table 3.2 shows that the minimum age of Erbil Steel Company workers is pegged at 18 years while the oldest of all respondents was 52 years with an average of about 33 years and a deviation of 9.5. Meanwhile, workers of age 40 years were more than workers of any other age as indicated by the mode.

Table 3. 2 Summary of Respondents' Ages

	Minimum	**Maximum**	**Mean**	**Std. Deviation**	**Mode**
Age in years	18	52	32.1917	9.51628	40

Source: Prepared by the researcher based on the questionnaire result

3.1.2 Distribution of Respondents According to Educational Level

The table 3.3 demonstrates the distribution of the respondents according to their level of education.

Table 3. 3 Distribution of Respondents according to Educational Level

Educational Level	**Frequency**	**Percentage %**
Illiterate	12	10.0
Primary	23	19.2
Secondary	41	34.2
Preparatory	18	15.0
Bachelor	26	21.7
Total	**120**	**100**

Source: Prepared by the researcher based on the questionnaire result

It is seen from the above table that most 34.2% of the workers were secondary school graduates with some 29.2% being illiterate or primary school leavers. While 15.0% of them were in preparatory Class, 21.7% were bachelor's degree.

3.2 Level of Noise in Work Place

The table 3.4 illustrating the perception of workers concerning the level of noise in their workplace. 15.0% of workers feel that the Noise at workplace is low while 11.7% perceive that the noise level is on a medium while majority 73.3% feel that the noise level is high. It can thus be concluded that there is so much noise at Erbil Steel Company and workers are at a higher risk of being disturbed by noise

Table 3. 4 Noise Level in Erbil Steel Company

Questions	Very High	High	Medium	Low	Very Low
Are the noise levels in your business center?	27 22.5%	61 50.8%	14 11.7%	10 8.3%	8 6.7%

Source: Prepared by the researcher based on the questionnaire result

3.3 Exposure to Varying Level of Noise in Work Place

Regarding the exposure to level of noise, the study showed that 2.5% of the respondents consented that they were not exposed to varying level of noise. While majority 85.8% were exposed to varying level of noise with 11.7% being neutral about the level of noise See table 3.5.

Table 3. 5 Exposure to Varying Level of Noise in Work Place

Questions	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Are you exposed to varying noise levels in your workplace?	42 35.0%	61 50.8%	14 11.7%	3 2.5%	0 0.0%

Source: Prepared by the researcher based on the questionnaire result

3.4 Effect of Noise Level on Workers Productivity

The effect of noise level on employees' productivity is summarized in table 3.6 which shows the various effects of noise on workers' productivity. It is seen that while 3.3% opined that noise did not cause changes in their degree of nervousness, only 10.8% were being neutral on the object with majority 81.6% feeling nervousness due to the presence of noise.

Furthermore, 87.5% of the respondents agreed that they lose focus because of noise and commit errors at work while 1.7% disagreed to loosing focus at work due to noise and 10.8% were neutral about the situation of noise in relations to lose of focus and error during work.

While 3.3% of the workers do not feel exhausted due to noise at work, 79.2% usually are exhausted due to noise with 16.6% being neutral to exhaustion at work due to noise.

85.8% of the respondents were usually tired at work while 10.8% were neutral on tiredness at work with 3.3% not usually tired at work under the influence of noise.

Whereas, 76.7% were usually absent due to noise, 3.3% claimed that the noise was not enough reason to be absent from work while 20% were neutral on the subject.

77.7% usually increase their break time at work due to noise while only 3.3% still kept to their break time even with the presence of noise with about 20% being neutral.

Though, 11.7% of the respondents indicated that noise had no influence of their workmanship and level of productivity, majority 85.8% claimed that the noise level in their workplace had a bad influence on their workmanship and level of productivity. 2.5% were indifferent about the influence of noise on the level of production and workmanship.

Generally, it is seen from the responses above that noise greatly and negatively affect the level of productivity of workers at Erbil Steel Company as evident from the responses above.

Table 3. 6 Exposure to Varying Level of Noise in Work Place

Questions	**Strongly Agree**	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
Have you caused various degrees of noise prevailing in your work center any changes in the degree of nervousness?	28 23.3%	70 58.3%	13 10.8%	3 2.5%	1 0.8%
Did the different noise levels prevailing in your business center cause you to lose focus and increase errors?	41 34.2%	64 53.3%	13 10.8%	0 0.0%	2 1.7%

Did the various noise levels prevailing in your workplace cause you exhaustion?	63 52.5%	32 26.7%	20 16.6%	4 3.3%	1 0.8%
Did the various noise levels in your workplace cause you to feel tired?	31 25.8%	72 60.0%	13 10.8%	3 2.5%	1 0.8%
Did the different noise levels prevailing in your workplace cause you to increase absenteeism, hearing and work leave due to illness?	29 24.2%	63 52.5%	24 20.0%	3 2.5%	1 0.8%
Did the different noise levels prevailing in your workplace cause you to increase break time at work?	20 16.7%	72 60.0%	24 20.0%	3 2.5%	1 0.8%
Did the different noise levels prevailing in your business center cause a bad influence on workmanship and quality of production?	45 37.5%	58 48.3%	3 2.5%	11 9.2%	3 2.5%

Source: Prepared by the researcher based on the questionnaire result

3.5. Relationship of Levels of Noise on Workers Productivity

3.5.1 Noise level and Workers Nervousness

As can be seen from Table 3.7 the cross responses of workers to the effect of noise on their level of nervousness at work. It was seen that majority 70.5% of the respondents who indicated that the noise level at work was high showed support that noise increases their nervousness at work while only 3.3% disagreed to being nervous at work even under high level of noise with 25% being neutral.

While, the majority 71.4% of the respondent who indicated medium noise at work were neutral to being nervous at work, only 28.6% agreed to being nervous under medium level of noise.

Majority 55.6% of those who experience low level of noise were neutral as to whether they were usually nervous at work due to noise while the remaining 44.4% claimed to be nervous under even under the influence of low level of noise.

Generally, it can be concluded that every level of noise caused nervousness in workers at Erbil Steel Company. Although there is a reduction in nervousness level as the noise reduces as seen in the dropping percentages above.

Table 3. 7 Noise level and Workers Nervousness

Agree		**Have you caused various degrees of noise prevailing in your work center any changes in the degree of nervousness?**		
		Neutral	**Disagree**	
Noise Levels	**High**	62 70.5%	22 25.0%	4 3.3%
	Medium	4 28.6%	10 71.4%	0 0.0%
	Low	8 44.4%	10 55.6%	0 .00%

Source: Prepared by the researcher based on the questionnaire result

3.5.2 Noise level and Workers Loss of Focus and Increase Error

Referring to Table 3.8 the cross responses of workers to the effect of noise on their level of focus at work and error levels. It was seen that majority 96.6% of the respondents who indicated that the noise level at work was high had increasing loss of focus at work while only 1 person was neutral with 2 persons not losing focus at work even under high level of noise.

The majority 71.4% of those who experience medium level of noise usually lose focus at work and commit errors while 28.6% showed neutrality towards the subject.

About 55.6% of the workers who experience low level of noise experience loss of focus at work due to noise while 15.0% showed indifference to the subject.

Generally, it can be concluded that the level of noise usually causes loss of focus of workers at Erbil steel company as only 2% of respondents who experienced high level of noise were free from this challenge.

Table 3. 8 Noise level and Workers Loss of Focus and Increase Error

Agree		Did the different noise levels prevailing in your business center cause you to lose focus and increase errors?		
		Neutral	**Disagree**	
Noise Levels	**High**	85 96.6%	1 1.1%	2 1.7%
	Medium	10 71.4%	4 28.6%	0 0.0%
	Low	10 55.6%	8 44.4%	0 0.0%

Source: Prepared by the researcher based on the questionnaire result

3.5.3 Noise level and Workers Exhaustion

The cross responses of workers to the effect of noise on their level of exhaustion at work is illustrated in Table 3.9. It was seen that majority 70.5% of the respondents who indicated that the noise level at work was high showed support for noise exhausting them at work while only 5 persons representing 5.7% disagreed to being exhausted at work even under high level of noise.

While 35.7% of the respondent who indicated medium noise at work get exhausted at work due to noise, 64.3% showed indifference to exhaustion under medium level of noise.

44.4% of those who experience low level of noise get exhausted while at work under the influence of noise while 55.6% showed indifference to the subject under the influence of low level of noise.

Generally, it can be concluded that the level of noise majorly high caused exhaustion of workers at Erbil Steel Company as only 5.7% of respondents who experienced high noise did not experience this challenge while majority of them were indifferent about the level of noise and their exhaustion at work.

Table 3. 9 Noise level and Workers Exhaustion at work

Agree		**Did the various noise levels prevailing in your Work-place cause you exhaustion?**		
		Neutral	**Disagree**	
Noise Levels	**High**	62 70.5%	21 23.9%	5 5.7%
	Medium	5 35.7%	9 64.3%	0 0.0%
	Low	8 44.4%	10 55.6%	0 0.0%

Source: Prepared by the researcher based on the questionnaire result

3.5.4 Noise level and Workers Feeling Tired at Work

The Table 3.10 illustrate the cross responses of workers to the effect of noise on whether they feel tired at work. It was seen that majority 88.6% of the respondents who indicated that the noise level at work was high showed agreement to being tired under the effect of noise with only 3.4% not being affected or tired at work under the effect of high level of noise while 8.0% were indifferent concerning being tired at work due to the effect of high level of noise.

All 100.0% of the workers who experience medium level of noise were usually tired at work due to noise.

Majority 61.1% of those who experience low level of noise agree to being tired at work due to the effect of noise while 33.3% were being neutral.

Generally, it can be concluded that the level of noise caused tiredness in workers at Erbil steel company as seen from the responses above.

Table 3. 10 Noise level and Workers Tiredness at Work

Agree		**Did the various noise levels in your workplace cause you to feel tired?**		
		Neutral	**Disagree**	
Noise Levels	**High**	78 88.6%	7 8.0%	3 3.4%
	Medium	14 100.0%	0 0.0%	0 0.0%
	Low	11 61.1%	6 33.3%	1 5.6%

Source: Prepared by the researcher based on the questionnaire result

3.5.5 Noise level and Workers Absenteeism

The cross responses of workers to the effect of noise on their level of absenteeism at work is demonstrated in Table 3.11. It was seen that majority 76.7% of the respondents who indicated that the noise level at work was high showed support that noise increases their absenteeism at work while only 3.3% disagreed to being absent at work even under high level of noise with 20% being neutral.

While majority 71.4% of the respondent who indicated medium noise at work were usually absent from work, only 28.6% were neutral to being absent due to the level of noise.

Majority 61.1% of those who experience low level of noise were neutral as to whether they were usually absent from work due to noise while the remaining 38.9% claimed to be absent even under the influence of low level of noise.

Generally, it can be concluded that every level of noise caused absenteeism of workers at Erbil steel company. Although there is a reduction in absenteeism level as the noise reduces as seen in the dropping percentages above.

Table 3. 11 Noise level and Workers Absenteeism from Work

Agree		**Did the different noise levels prevailing in your workplace cause you to increase absenteeism, hearing and work leave due to illness?**		
		Neutral	**Disagree**	
Noise Levels	**High**	92 76.7%	24 20.0%	4 3.3%
	Medium	10 71.4%	4 28.6%	0 0.0%
	Low	7 38.9%	11 61.1%	0 .00%

Source: Prepared by the researcher based on the questionnaire result

3.5.6 Noise level and Workers Increasing Break Time

Referring to Table 3.12 the responses of workers to the effect of noise and their increase in break time at work. It was seen that while 4.5% of the respondents who experienced high level of noise disagreed to increasing their break time due to the level of noise, majority 85.2% of them usually increase their break time due to noise about noise while 10.2% were neutral.

While 78.6% of the respondents who experience medium level of noise consented to increasing their break time from work due to noise, 21.4% showed indifference.

Majority 66.7% of those who experience low level of noise were indifferent about increasing their break time at wok due to the level of noise while 33.3% agreed to increase their break time to stay away from the noise.

Generally, it can be concluded that most of the workers at Erbil Steel Company usually increase their break time from work in other to stay away from the noise as seen from the responses above.

Table 3. 12 Noise level and Workers Increase in break time at work

Agree		**Did the different noise levels prevailing in your workplace cause you to increase break time at work?**		
		Neutral	**Disagree**	
Noise Levels	**High**	75 85.2%	9 10.2%	4 4.5%
	Medium	11 78.6%	3 21.4%	0 0.0%
	Low	6 33.3%	12 66.7%	0 0.0%

Source: Prepared by the researcher based on the questionnaire result

4.4.7 Noise level and its bad Influence on Workmanship and Quality of Production

The Table 3.13 shows the responses of workers to the effect of noise and its bad influence on workmanship and quality of production. It was seen that majority 85.2% of the workers who perceived the noise level at workplace to be on a high, agreed to noise having a bad effect on workmanship and quality of production. 13.6% of the respondents were of the opinion that high level of noise did not have a bad influence on workmanship and quality of production with another 1.1% being neutral to the subject.

All 100.0% of the workers who experienced medium level of noise consented that the noise had a bad influence on workmanship and their corresponding level of production.

Of all respondents who perceive noise at workplace to be low, 77.8% claim that the noise had bad influence on workers' productivity and level of production while 11.1% were of a differing opinion on the claim and 11.1% on neither side of the fence.

Generally, it can be concluded that noise, at all levels, and did have a bad influence on workers' productivity as seen from the responses above.

Table 3. 13 Noise level and its bad influence on workmanship and quality of production

Agree		**Did the different noise levels prevailing in your business center cause a bad influence on workmanship and quality of production?**		
		Neutral	**Disagree**	
Noise Levels	**High**	75 85.2%	1 1.1%	12 13.6%
	Medium	14 100.0%	0 0.0%	0 0.0%
	Low	14 77.8%	2 11.1%	2 11.1%

Source: Prepared by the researcher based on the questionnaire result.

5. Conclusion

Based on the data analyse of this study, the responses of workers revealed that majority 85.2% of the workers who perceived the noise level at workplace to be on a high, agreed to noise having a bad effect on workmanship and quality of production. On the other hand, 13.6% of the respondents were of the opinion that high level of noise did not have a bad influence on workmanship and quality of production with another 1.1% being neutral to the subject. Noise is in conflict with the conditions of human life and is opposed to the increase of the productivity of the work and the quality of health of the worker, that is to say, if the employee is forced to work in noisy environments decreases his productivity by psychophysiological effects.

Furthermore, the study shows the cross responses of workers to the effect of noise on their level of exhaustion at work. It was seen that majority 70.5% of the respondents who indicated that the noise level at work was high showed support for noise exhausting them at work while only 5 persons representing 5.7% disagreed to being exhausted at work even under high level of noise. While 35.7% of the respondent who indicated medium noise at work get exhausted at work due to noise, 64.3% showed indifference to exhaustion under medium level of noise. 44.4% of those who experience low level of noise get exhausted while at work under the influence of noise while 55.6% showed indifference to the subject under

the influence of low level of noise. Unlike other pollutants, the effects of noise can be instantly unnoticed and their accumulation can lead to obvious physical

Additionally,the study demonstrates the perception of workers on whether there are Personal protective equipment and preventive measures and for noise at workplace. Majority of all the workers who experience different levels of noise disagreed that there were preventive measures put in place to cater for noise at workplace. This is evident from the 85.2%from respondents who experience high level of noise. Just a few; 6.8% and 11.1% respectively consented to having preventive measures against high and low level of noise while the rest were neutral about the measures put in place against noise. The study recommends the following to protect from auditory and most known possible non-auditory effects of noise: Pre-employment medical examination to exclude individuals with health problems that would be aggravated by noise exposure shall be made. Environmental monitoring to check sound pressure levels periodically and to institute control measures when necessary would help to solve problems of noise pollution. Periodic medical evaluation for early detection of hearing affection and other non-auditory effects is a necessity to prevent diseases. Heath education programs should be applied at all levels. Proper maintenance of machinery with the purpose of reducing noise shall be maintained.

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