Journal for Re Attach Therapy and Developmental Diversities
eISSN: 2589-7799
2023 January; 6 (1s): 216 - 220

Effect Of Noise On The Physical And Psychology Health Of Working Of Employees

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ABSTRACT

Noise is an underestimated threat that can cause a number of short-term and long-term health problems. When sound turns into noise, it's one of the major environmental elements affecting people's health and plays a big part in injuries to the body and mind. In order to identify solutions to the noise pollution issue, suggestions were solicited from those who worked in various locations and lived in residential neighborhoods. There was noise level monitoring at each of the 11 study sites. The Central Pollution Control Board's allowable noise levels had been surpassed.

Keywords: Noise, Pollution, health, Physical, Psychological.

INTRODUCTION

Noise is a very big factor that interferes in the personal and professional works of the people. People live in daily surroundings where noise is a common occurrence. When sound turns into noise, it becomes one of the major environmental elements affecting people's health. It plays a major part in both physical and psychological injuries, and it also has an impact on people's productivity and performance. Employee accuracy and focus can be compromised by noise. The purpose of this study was to ascertain how excessive noise levels affected the accuracy and mistake rate of manual tasks. It's normal to anticipate high performance from your staff. But the problem is when you expect your staff to work well in unjustifiable circumstances. Even while it won't cost much in the long run, making a modest change to the office ceiling tiles will make the workplace healthier and the employees happier. There is always some risk of noise in the job, as practically all of them do. It is the most prevalent health risk in sectors like industry, entertainment, agriculture, education, food and beverage establishments, construction sites, metalworking, and woodworking, among others. The usage of large machinery, transportation, loud music, a variety of working tools, etc. are some of the sources of noise at the workplace. Inappropriate inner environment has also a negative effect on human performance and their comfort during working hours. It has been estimated that inappropriate working environment causes millions of dollars losses (Lister et al, 1998).

MATERIALS AND METHODS

In order to investigate how different characteristics of noise pollution affect participants' job effectiveness in their particular locations, a total of 515 subjects completed a questionnaire survey. The noise level was determined using a sound level meter.

Additionally, the noise level was measured from roadside offices, businesses, and organizations that were situated at various locations and in close proximity to buildings from the road's center. The following seven statements from the questionnaire have been used to determine the results.

- I can concentrate despite of high noise
- I don’t feel good when there is quiet all around.
- Noise and sound are natural parts of environment and society.
- Traffic noise is not disturbing.
- It is easy for me to ignore high noise levels anywhere.
- Over the period, I have become comfortable with high noise level.
- When I can’t get rid of high noise levels, I feel helpless

RESULTS AND DISCUSSION

There was noise level monitoring at each of the 11 study sites. The Central Pollution Control Board's allowable noise levels had been surpassed. One of the most important issues Chandigarh faces is the heavy traffic and noise they cause. Tables 1, 2, and 3 show the determined influence of noise on human labor efficiency. Anova was used to assess the significance and validity of the regression models. Every model was shown to be important and reliable.

Table 1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.181a	.033	.031	2.61341
2	.257b	.066	.062	2.57073
3	.284c	.081	.075	2.55256
4	.300d	.090	.083	2.54260
5	.312e	.097	.089	2.53441
6	.327f	.107	.096	2.52366
7	.339g	.115	.103	2.51444

a. Predictors: (Constant),Do people who visit your area make noise
b. Predictors: (Constant),Do people who visit your area make noise, Noise Source - Small Vehicles
c. Predictors: (Constant), Do people who visit your area make noise, Noise Source - Small Vehicles, Noise from Animals
d. Predictors: (Constant), Do people who visit your area make noise, Noise Source - Small Vehicles, Noise from Animals, Problem of noise pollution in your area
e. Predictors: (Constant), Do people who visit your area make noise, Noise Source - Small Vehicles, Noise from Animals, Problem of noise pollution in your area, Construction activity in your area
f. Predictors: (Constant), Do people who visit your area make noise, Noise Source - Small Vehicles, Noise from Animals, Problem of noise pollution in your area, Construction activity in your area, Noise Source - Large Vehicles
g. Predictors: (Constant), Do people who visit your area make noise, Noise Source - Small Vehicles, Noise from Animals, Problem of noise pollution in your area, Construction activity in your area, Noise Source - Large Vehicles, Noise Source - Religious Places

Table 2: ANOVA[a]

Model	Sum of Squares	df	Mean Square	F	Sig.	Model Sum of Squares
1	**Regression**	117.950	1	117.950	17.270	.000b
	Residual	3490.085	511	6.830		
	Total	3608.035	512			
2	**Regression**	237.630	2	118.815	17.979	.000c
	Residual	3370.405	510	6.609		
	Total	3608.035	512			
3	**Regression**	323.901	4	80.975	12.526	.000e
	Residual	3284.134	508	6.465		
	Total	3608.035	512			
4	**Regression**	351.450	5	70.290	10.943	.000f
	Residual	3256.586	507	6.423		
	Total	3608.035	512			
5	**Regression**	385.383	6	64.231	10.085	.000g
	Residual	3222.652	506	6.369		
	Total	3608.035	512			
6	**Regression**	415.222	7	59.317	9.382	.000h
	Residual	3192.814	505	6.322		
	Total	3608.035	512			

a. Dependent Variable: Level of Work Efficiency Due to Noise
b. Predictors: (Constant),Do people who visit your area make noise
c. Predictors: (Constant),Do people who visit your area make noise, Noise Source - Small Vehicles

d. Predictors: (Constant), Do people who visit your area make noise, Noise Source - Small Vehicles, Noise from Animals
e. Predictors: (Constant), Do people who visit your area make noise, Noise Source - Small Vehicles, Noise from Animals, Problem of noise pollution in your area
f. Predictors: (Constant), Do people who visit your area make noise, Noise Source - Small Vehicles, Noise from Animals, Problem of noise pollution in your area, Construction activity in your area
g. Predictors: (Constant), Do people who visit your area make noise, Noise Source - Small Vehicles, Noise from Animals, Problem of noise pollution in your area, Construction activity in your area, Noise Source - Large Vehicles
h. Predictors: (Constant), Do people who visit your area make noise, Noise Source - Small Vehicles, Noise from Animals, Problem of noise pollution in your area, Construction activity in your area, Noise Source - Large Vehicles, Noise Source - Religious Places

Table 3: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.542	.262		-9.696	.000
	Do people who visit your area make noise	-.916	.220	-.181	-4.156	.000
2	(Constant)	-1.275	.394		-3.235	.001
	Do people who visit your area make noise	-.924	.217	-.182	-4.260	.000
	Noise Source - Small Vehicles	-.331	.078	-.182	-4.256	.000
3	(Constant)	.459	.718		.640	.523
	Do people who visit your area make noise	-.922	.215	-.182	-4.284	.000
	Noise Source - Small Vehicles	-.285	.079	-.157	-3.627	.000
	Noise from Animals	-1.965	.683	-.125	-2.878	.004
4	(Constant)	.701	.724		.969	.333
	Do people who visit your area make noise	-.939	.215	-.185	-4.376	.000
	Noise Source - Small Vehicles	-.276	.079	-.152	-3.517	.000
	Noise from Animals	-1.917	.680	-.122	-2.818	.005
	Problem of noise pollution in your area	-.203	.091	-.095	-2.235	.026
5	(Constant)	1.590	.839		1.894	.059
	Do people who visit your area make noise	-.956	.214	-.189	-4.467	.000
	Noise Source - Small Vehicles	-.298	.079	-.164	-3.771	.000
	Noise from Animals	-2.286	.701	-.145	-3.261	.001
	Problem of noise pollution in your area	-.206	.091	-.096	-2.274	.023
	Construction activity in your area	-.257	.124	-.092	-2.071	.039
6	(Constant)	2.089	.863		2.420	.016
	Do people who visit your area make noise	-1.006	.214	-.199	-4.695	.000
	Noise Source - Small Vehicles	-.234	.083	-.129	-2.804	.005
	Noise from Animals	-2.306	.698	-.146	-3.303	.001
	Problem of noise pollution in your area	-.218	.090	-.102	-2.406	.016
	Construction activity in your area	-.311	.126	-.111	-2.474	.014
	Noise Source - Large Vehicles	-.185	.080	-.106	-2.308	.021
7	(Constant)	1.697	.879		1.932	.054
	Do people who visit your area make noise	-.977	.214	-.193	-4.567	.000
	Noise Source - Small Vehicles	-.270	.085	-.149	-3.185	.002
	Noise from Animals	-2.172	.698	-.138	-3.110	.002
	Problem of noise pollution in your area	-.206	.090	-.096	-2.278	.023
	Construction activity in your area	-.319	.125	-.114	-2.549	.011
	Noise Source - Large Vehicles	-.227	.082	-.130	-2.755	.006
	Noise Source - Religious Places	.202	.093	.098	2.172	.030
a. Dependent Variable: Level of Work Efficiency Due to Noise						

The relative contributions of constants and predictors, respectively, to the specified regression models are shown in this table. A strong negative correlation between noise predictors and work efficiency is indicated by negative beta values. It

can be further explained that a major reduction in work efficiency is occurring with every increase in the noise predictor level.
Critical health impacts have been listed by the World Health Organization, along with the noise levels and exposure duration that correlate to each setting.

WHO guideline for community noise:
There are other short- and long-term health issues that noise can bring about, making it an underappreciated hazard. It is becoming more and more of a risk to one's bodily and mental health as well as one's overall wellbeing (Goswami et al 2011). People's everyday tasks are hampered by excessive noise at work, school, home, and during leisure time.
A study's conclusions also demonstrated that the rate of errors rose in tandem with noise intensity. The findings showed that there was a statistically significant difference between the error rates recorded at 110 dB and those recorded at 70 dB and 90 dB. Nevertheless, there was no discernible difference between the mistake rates recorded at 90 dB and 70 dB of sound pressure. Furthermore, there was a substantial difference between the male and female individuals in terms of the assessed mistakes (Farahnaz et al 2016).
Additionally, a few studies have demonstrated the link between industrial workers' psychological distress and the response dose of noise exposure (McDonald 1989). Therefore, noise has a detrimental impact on employees' job satisfaction (Leather et al., 2003), which in turn has a negative impact on employees' performance and productivity (Shikdar and Das, 2003). It can lead to cardiovascular and psychophysiological effects, impair performance, elicit irritation reactions, and alter social behavior in addition to disrupting sleep.(WHO,2011).
According to Clark and Bohn (1999), noise is arguably the most prevalent occupational hazard as well as an environmental one. As a result, controlling noise will be harder in these delicate places where extra caution is needed. People's everyday tasks are hampered by excessive noise at work, school, home, and during leisure time. All human activities involve some level of noise, which can be divided into two groups based on their impact on health: occupational noise and environmental noise, which includes noise from traffic, music, and other sources (Stansfeld and Matheson, 2003). Since noise is a physical phenomena that is immediately felt in the workplace, this is one of the reasons why there are so many complaints about noise in the workplace.(Persson-Waye et al,1997).
All scientists believe that loud noises activate our neurological system, which causes our blood pressure to rise and stress hormones to be released. Your hearing will be harmed over time by excessive noise levels. It's possible for this to occur so quietly and painlessly that you won't notice the slight decline day by day. Working in an environment with excessive noise puts one's hearing and other health at risk. Pollutants are the ones that do harm covertly and without warning. Because of a lack of knowledge on the potential health risks, noise pollution control is often overlooked in favor of other forms of pollution, such as air and water pollution.

There are two main contexts in which noise is generated: industrial and community settings. Noise coming from all sources, with the exception of industrial workplace noise, is referred to as community noise (also known as environmental noise, home noise, or household noise). The main causes of noise pollution in communities are vehicles, building sites, public address systems, outdoor events, fireworks, etc. An adult may become mildly irritated at 50 dB, and extremely irritated at 55 dB (Berglund et al., 1999).

Uninterruptions all the time might make it difficult to concentrate, which can raise stress levels. Employees may find it difficult to speak with clients or consumers over the phone, and the quality of work produced throughout the region may deteriorate. The company's financial line may suffer if employee absenteeism increases. It was possible that the irritation caused only slight annoyance or that it was severe enough to interfere with their work. Motor vehicles are the primary source of ambient noise (Banerjee et al., 2008). In recent years, there has been a considerable increase in traffic noise pollution due to a number of factors including growing traffic, increasing demand for transportation, an increase in vehicles, and road congestion. An unfamiliar, intense noise can lead to agitation and interference in doing tasks, as well (Cohen et al, 1981; Ising and Michalak, 2004)

A questionnaire asking about attitudes was used to survey 515 people in the city. Subjects ranged in age from 17% to 22%, with the majority (60%) being between 31 and 50 years old. The origin and current level of noise pollution were determined by statistically estimating the amounts of pollution in every area. There have been recorded noise pollution levels over the suggested allowable limits. Workplace noise levels have a detrimental impact on employee productivity, which in turn lowers organizational productivity and lowers the amount and quality of services and goods produced. Thus, it is advised to regulate workplace noise levels and bring them down to a standard level (less than 85 dB) in order to improve worker comfort and productivity. Nevertheless, lighting and noise level effect on human productivity were noticed and changes in lighting did not have a relationship with changes of human productivity while noise affects the productivity of occupants in Automotive Assembly Industry.(Jafar et al,2013).

CONCLUSION

Enforcing laws prohibiting noise pollution must be done strictly. To educate individuals about the negative impacts of noise pollution, business associations and resident welfare associations must be incorporated. One can reduce exposure to excessive noise in the workplace in a variety of ways: Reducing the impacts of noise pollution can be achieved by soundproofing rooms, using less technology that produces sound, and using hearing protection, such as earplugs or ear muffs, in areas where noise levels are high.

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