



DIABETES RISK, NOISE EXPOSURE AND UNEXPOSURE WITH RESPECT TO OCCUPATIONAL AS WELL AS ENVIRONMENTAL CONDITIONS

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Abstract:

Background: Every type of pollution disturbs our daily life. Noise pollution is also one of them. This issue does not just link to any one country but it is widely spread all over the world. The noise effects the whole body. It disturbs both mental and physical activities of the human body system. Due to mental and physical stress, many harmful diseases generated inside our body and leaves dangerous effects.

Aim: This study was aimed to know the difference between occupational connect of noise and its relationship with diabetes.

Methodology: To calculate accurate results, different types of methods are used such as a cross sectional study was held between 304 workers. They divided them into two separate groups and each group contains 152 members. Group 1 was named as Noise Exposure Group and other was known as Exposure To Noise. Members of both groups were different, as group 1 workers were doing their duties in day shift and were working on fixed position but on the other hand, members of group 2 were working in night shifts and was performing some different duties as they collect data and generate results.

Results: After applying different types of methods, the different number of results were calculated as the level of sound for group 1 was 88 Db and for group 2, it was 45 Db. As by calculating the results related to exposure and no exposure to noise, they also calculate the number of workers got effected with it. About 25 works was linked with group 1 and 15 workers was linked up with group

Conclusion: After discussing all these points and results, they conclude that noise pollution is not that much linked with diabetes. They conclude that risk of diabetes does not increase with respect to noise. Further researches are needed to exactly know this factor that either noise is linked with diabetes or not.

Keywords: Diabetes Risk, Noise Exposure, Occupational, Environmental Conditions.

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INTRODUCTION:

Diabetes is a disease which is increasing day by day in all countries of the world [1]. Yearly millions of people got effected with this disease and some of them died due to its severe side effects [2]. If we calculate its range then we will be able to know that about 426 million people effected with this disease worldwide [3]. They also assume that in coming years, it will reach to 694 million people [4]. This increasing rate of diabetes should be controlled otherwise it will be unbearable and results in huge disaster [5]. Diabetes is considered as a serious disease because it continuously starts ruining the organs of the human body and patients feel weakness and unable to perform their daily tasks [6]. It was estimated that about 4 Million people died every year with diabetes or we can say that in every 8 seconds, one person dies who suffers from diabetes [7]. Some other points were raised as the level of diabetes in people increase due to unhealthy diet habits, continuous stress and hygiene issues [8]. The noise pollution can be controlled on a large scale by changing those machines which make noise [9]. Noise pollution show alarming effects [10]. About 251 million people are working in a noisy area and exposed to about 86 dB of a sound level which cause harmful effects on human life [11]. The increasing level of noise pollution leads to serious diseases such as disturbance in sleep patterns, hearing issues, Heart attacks and many other issues which effects human health badly [12]. This study is also research base to find out the relationship of noise with diabetes [13]. Environmental noise as noise of traffic is less effective as compared to occupational noise [14].

METHODOLOGY:

A study was held in Lahore’s hospital to know the side effects of noise on workers and its relationship with diabetes. This study was conducted with duration of 3 months. They took about 304 workers as a sample equally separated them into two groups. In group 1, there were those workers who

work in day shift and work on fixed position but group 2 includes workers who were working with their routine life. Their gender and ages were calculated and add to the given data. They also check their medical history and all other issues related to their health. Some medical issues were neglected in this study to measure the level of diabetes and noise pollution. They collected data after discussing all points. They ask them different questions about their lives, measure their biological and physical attitudes and then make results. Questions they ask to them are related to their physical fitness, medical issues, diseases, family and their routine life. Some of these workers were agreed to take part in this study so they took them as a sample for study. They calculated results by checking out several aspects as consumption of cigarette and alcohol and its duration. They also study their work load and stress level during working hours. Their eating patterns were also checked in this study. They separate them into further groups by their eating patterns and the number of calories they are taking. Measurement of height and weight of these workers taken and add in calculated data. They gave them the condition of fasting; in this way they will check their level of glucose in the blood. They took their blood as a sample for laboratory tests. Data was collected and symbolize with mean and median and some other ranges of sound. They measure data by calculating different levels as mean, median binary fission, sound and is frequency etc. All type of variables were collected and get added in data to make results.

RESULTS:

Members of both groups are divided equally and have 152 members in each group. There ages were between 24-59 years and most of them were males as compared to females. In Table no 1 they have done their comparison to check the similarities and differences between them.

Variables	Exposed group		Unexposed group		p
	Number	%	Number	%	
Study level:					0.02
primary	11	6.8	28	18.5	
secondary	73	48.7	65	43.5	
higher	70	46.7	61	38.9	1.0
Married	106	70.5	106	68.0	
Unmarried	45	31.5	45	31.5	0.63
Number of children					
Less than 2	109	72.5	105	70.1	
More than 2	44	29.5	48	34.5	

Smokers					
YES	83	55.7	66	67.9	0.08
NO	69	46.5	83	32.2	
Activity of physical fitness					
yes	45	10.5	16	9.8	0.86
Intake of energy					
Less eaters	48	3.5	11	11.3	0.05
Large eaters	78	48.8	59	35.7	
Stress					
YES	85	24.3	18	56.7	10.0
NO	66	78.9	134	19.5	
Occupation					
worker	60	38.1	67	11.4	10.0
Engineers	27	17.3	7	4.1	

About 55% people was consuming tobacco and cigarette. Some of them was from group 1 as exposed to the noise and others was from group 2

as non-exposed to the noise. Physical activities were measured with different percentages in both groups.

Variables	Exposed groups Number	%	Unexposed group Number	%	<i>p</i>
Family history					
Strokes	74	48.6	38	25.4	10.0
Diabetes	79	52	56	37.8	0.02
Heart issues	7	5	14	8.5	0.08
Personal histories:					
Heart issues	11	6.7	7	5	0.31
Diabetes	13	7.8	11	6.7	0.66
Diabetes					
YES	108	71.7	122	81.0	0.14
NO	21	14.3	17	10.5	0.14
	MEAN MEDIAN		MEAN MEDIAN		
BMI Level	28-29	3.6	4.9	27.3	0.02
	5.36		5.14		
Level of sugar at the time of fasting	2.4-2.8		4.0-16.5		0.04

Their technical abilities were also checked as a percentile for group 1 workers was 40% and for group 2 it's 21%. They also measure stress level in these patients and it was reported as 56% and 19%. Level of sound was measured as 88db for EG group and 45% for NED group. As they asked them about their diet and intake of energy level. About 18% of group 1 was excessive eaters and 56% of them was from group 2. Both groups were calculated with their eating habits and intake of energy level.

After the comparison of noise and diabetes or the relationship present between them was about 25 workers was exposed to noise and 15 workers was unexposed towards noise pollution. In Table no 2 they separate both groups according both biological and clinical affairs.

In the Table 3 they analyze that diabetes was linked with physical fitness, intake of energy level, their way of living and stress level.

Variables	Exposed group Number	%	Unexposed group Number	%	<i>p</i>
Study level:					
primary	11	6.8	28	18.5	0.02
secondary	73	48.7	65	43.5	
higher	70	46.7	61	38.9	

Married	106	70.5	106	68.0	1.0
Unmarried	45	31.5	45	31.5	
Number of children					0.63
Less than 2	109	72.5	105	70.1	
More than 2	44	29.5	48	34.5	
Smokers					0.08
YES	83	55.7	66	67.9	
NO	69	46.5	83	32.2	
Activity of the physical fitness					0.86
yes	45	10.5	16	9.8	
Intake of energy					0.05
Less eaters	48	3.5	11	11.3	
Large eaters	78	48.8	59	35.7	
Stress					10.0
YES	85	24.3	18	56.7	
NO	66	78.9	134	19.5	
Occupation					10.0
worker	60	38.1	67	11.4	
Engineers	27	17.3	7	4.1	

Their physical activities were measured as about 0.37 and intake of energy was 3.16, job level 1.016

and noise level related to their job was 3.034. It was explained in the Table no 4.

Variable	<i>p</i>	ORA	CL
Intake of energy	0.04	0.34	0.15-0.20
job	0.03	3.14	1.5-1.8
Stress level	0.01	1.56	1.0-1.1
Physical activities	0.00	3.89	1.5-1.6

DISCUSSION:

This Study was based on the relationship between occupational and environmental level [15]. They said that their occupational study level or level of noise was not having any relationship with diabetes [16]. But on the other hand, many other environmental hazards and noise pollution effects the diabetes [17]. Without proper studies, they conclude the results that diabetes is linked with noise pollution, not only on occupational level, but mainly on environmental level [18]. In further studies, they were able to know that workers in different countries were effected with noise pollution [19]. Workers, who were working under stressful conditions was effected with higher risk of diabetes [20]. Mostly, diabetic patients were related to old ages as they were about 65-66 years of age [21]. Most of them was men and were effected with diabetes at higher risk [22]. They ask different questions to calculate the results as how they got connected with this disease and they have family histories of diabetes or not? [23]. Due to noise exposure, with diabetes many other diseases also got generated [24]. Diabetic patients feel uncomfortable at noisy place [25]. The relationship

between noise pollution and diabetes was also checked and examined [26]. They calculated the measurements of noise pollution of traffic and also do studies on the basis of previous studies [27]. They calculate the results between those who was living near the roads and to those who living far away from this environment [28]. They exposed out that risk of diabetes was increased in those patients who was working or living near noisy environment or linked with roads [29]. They always suffer from noise pollution [30]. The higher risk of diabetes was noted down in those people who was living near roads or in busy areas [31]. Their stress and sleep level was also disturbed [32]. In this way, they will be able to calculate the actual cause of spreading diabetes continuously [33].

CONCLUSION:

In this study, they did not got clear results about this relationship.. Some results was positive towards this term, but other was not showing clear results. Occupational and environmental level results were different.

DATA AVAILABILITY:

Data used in this study were provided from the author through email in which he calculated all the expected points.

CONFLICTS OF INTEREST:

Author give clearance about it that no number of conflicts of interest was seen in this study.

SUPPLEMENTARY MATERIALS:

Supplementary documents and file was attached with this study.

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