INVESTİGATİON OF THE EFFECT OF NOİSE ON STRESS

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ABSTRACT

The aim of this study is to investigate the effect of industrial noise on stress. The sample of the study is 680 workers working in garment workshops in Beyoğlu, Bağcılar and Esenler district of İstanbul. Demographic information form and Stress Scale were applied to the participants. The noise in the workplace was measured with the Sanometer device. The data were analyzed using SPSS (Statistical Package for Social Sciences 25.0) and Cronbach Alpha and Gutman Reliability Analyzes, Regression, t-test and One-Way Variance Analysis (ANOVA) were used. According to the results, 85 dB noise level does not significantly explain the stress level and 85 dB noise level significantly explains the stress level of 225%. According to the results of the t-test, men are more exposed to noise than women. Noise on the stress varies according to the age variable and to serve as a worker statistically significant

KEYWORDS: Noise, Stress, Garment Workshops, Decibel, Sound

1. INTRODUCTION

Exposure to unwanted noise or noise is known to have adverse effects on mental and physical health. One of the most important negative effects of noise on mental health is its effect on stress. In industrial environments, exposure to noise has been found to be related to a number of physical health symptoms, including, for example, cardiac problems, a persistent disease state and fatigue. Similarly, McDonald (1989) reported that there was a dose-response relationship between blue-collar workers among the symptoms of professional noise and psychological distress. For example, laboratory studies have shown significant increases in cardiovascular and neuroendocrine functioning when individuals are exposed to noise during difficult mental tasks. This noise has a negative effect on job satisfaction (Leather, Beale and Sullivan, 2003).

Office workers have stated their complaints about the ability to focus especially in the working environment without the noise and other attention effects. Many studies have shown that the negative effects of exposure to occupational noise depend on the characteristics of the occupational task or the characteristics of the work place. For example, it has been reported that pregnancy complications in women working under very noisy conditions are exacerbated when they are subject to additional demands of shift work. Indeed, the interactive effect of occupational noise exposure and shift work on various health indices is a theme that is constantly reported in the literature (Jansen, 1961).

Studies have shown a positive relationship between noise exposure and diastolic blood pressure among workers. Like its effects on health outcomes, the impact of occupational noise exposure on

performance has been found to depend on a number of factors, including the nature of the noise and the type of task involved. Essentially, there are several laboratory studies of the negative effects of noise on performance. As a result of these studies, the effects of unpredictable noise are more severe than foreseeable noise. Second, the negative effect of noise increases according to the complexity of the task (Sundstrom, 1986).

While shift workers work in noisy occupational settings compared to relatively quiet conditions, they are similarly exposed to a higher risk of health complaints. Parallelism between noise and job satisfaction increases job dissatisfaction among workers who are dissatisfied with noise works. Similar interaction between windows at work and work stress also increases job dissatisfaction between noise and stress (Leather, Pyrgas, Beale, and Lawrence, 1998).

1.1. Stress concept

The concept of stress has become a common concept today. The word stress is used as a universal word in many cultures. It refers to a negative feeling or a negative feeling felt in our lives. In business life, the decrease in work performance, lack of concentration, the situation that causes disturbing the order and flow of business life is defined as a disease according to some thinkers and therefore it is a problem that needs to be treated or resolved. The concept of stress defines physiologically and psychologically as a response to the body and its response to the effect on the body. Therefore, in order to fight against the problems, it is the state that the individual exhibits and exhibits many behaviors in the individual (Bal, 2018).

In line with these descriptions, stress is defined as a reflection of the response of people to overload and pressure, triggering danger and triggering of mental and physical health problems (Soysal, 2009).

1.2. Stress Resources

Traumatic events are the most prominent sources of stress. Natural disasters, the sudden death of family members, the disease or the person never expects the compliance process difficult. However, people who do not experience trauma can also experience stress in their lives. The perception of what is happening as stressful is caused by different structural characteristics of the person. These structural factors limit the likelihood of being monitored, the predictability and the possibilities of individuals. It was claimed that the level of stress increased if the individual could not interfere with his / her experiences. An individual's desire to change his / her experience, not being able to struggle, being unable to change or feeling helpless in this situation may cause an increase in stress level (Bal, 2018).

1.3. Work and Stress

Determining the level of business success in the work life is done by stress situation analysis in four main basic points. On the basis of the study, stress has an impact on the individual in terms of performance. Stress sources change in the business environment. For example, the excessive

workload, the administrative problems, the inability to work conditions, the personality structure of the individual can cause stress in the work environment. In addition to these, it may cause additional problems to the individual in working conditions other than work life. Therefore, the individual tries to combat additional problems while working. The individual can also interpret as a stressful situation when there is a decrease in business success. In short, the work itself can be considered a stress. This can be concluded from this. There is a relationship between stress load and working performance. Therefore, it is necessary to check the effects of stress in business life. If the individual is stressed in his / her business life, he / she may have negative behaviors towards his / her environment. They may experience some emotional problems and their relationships may be adversely affected. In particular, it has an indirect and direct effect on the work efficiency of the individual. In this context, there is an inconsistency between the productivity of the employee and the productivity of the employee behind the changes in the work life, physical and psychological problems, and negatively affecting the behaviors of the individual. These problems together with the reduction of the resources related to the work competence of the employee and the interactional problems emerge emotional, physical and social problems. (Soysal, 2009).

The relationship between environmental noise exposure and physiological stress reactions is analyzed according to the physiological characteristics of the hearing system. Environmental noise has a high potential for causing stress reactions and depends on how noise is interpreted in the central nervous system. Occupational and environmental studies have shown that stress reactions have occurred and that some medical data, such as increased blood pressure, may be caused by prolonged noise exposure (Rylander, 2004)

1.4. Sound

Sound is a pressure wave. Objects vibrate to create sound. In air, water and other environments, it compresses, compresses and advances in waves. The sound travels at different speeds depending on the characteristics of the medium. 330 m / s in the air travels at a speed of 1,490 m / s in water and at a maximum speed of 5,000 m / s. The frequency is what the sound vibrates in the environment in which the sound moves in the form of waves. Hertz is the number of vibrations per second. The formula is expressed as 1 Hertz = 1 Cycle / second. The frequency range that we can hear is between 20-20000 Hz. The human ear cannot hear it above and below this frequency range. The sound waves apply a force to the unit area according to the nature of the medium in which it passes with energy. This force is called the intensity of the sound is called. The formula is watt / m2. The calculation of a certain ratio of sound is called decibel. Sound pressure and frequency information are needed to measure noise in the work environment. Measure sound pressure is based on the source of the sound with the individual to measure. The person hears between 20 .Pa and 200 Pa. If 20 adlandırıl Pa hearing threshold is 200 Pa, it is called the pain threshold. This is expressed in the decibel unit to assess the sound pressure in two ranges (Kürklü, Görhan and Burgan, 2013).

1.5. Noise

Noise is expressed as unpleasant, unwanted sound. Nowadays noise has been an inevitable element of modern life along with industrial development. It has become one of the most important results of environmental pollution. Noise is detected by the hearing system from our sense organs. For this reason, it affects both the hearing system and the individual's mental and physical health. As a stress factor, noise is an environmental factor that has a negative impact on the hearing and the general physical health. Many studies have also been used to express negative feelings of discomfort with noise. On the other hand, noise leads to intensities in biological response to persistent diseases and persistent metabolic problems. However, the individual may be exposed not only to noise but also to very different noise levels. Noise is caused by different devices and products in the industrial environment. The level of noise is therefore different according to the device and the system of the machine. This depends on the location and distance of the device, the noise source of the noise source, the size of the ground and the distance to the noise source of the individual. However, the noise does not cause the same disturbance in the individual and therefore varies from individual to individual

1.6. Noise in Industrial Environment

In order for the noise to be measured correctly, a goal and purpose should be determined. In other words, it is necessary to determine and plan what the measurement is for. What is important here is the source of the noise and the properties of the ear level and the environment. Measurement instruments used for measurement are performed by noise dosimeters and frequency analysis. The noise dosimeters range from personal and ambient dosimeters. The devices used in the measurement of noise measure the intensity or intensity and level of the sound. The Sanometer is also called the sound level meter. In the measurements, the intensity of the sound is expressed in terms of density dB and there are three filters in the form of A-B-C. With the help of these filters, it measures the sound of the ear as it senses. What is important here is that measurements should be carried out at a distance of one meter from the sound source of the measuring devices and at the equivalent level of the individual.

Measurements can be made according to the continuity and change of the noise from the dosimeter source. Measurements can be taken separately or all of the noise from the source. In addition, since the measurements are made in decibels, the obtained logarithmic expressions are not valid with simple arithmetic collection.

Mapping of the study areas is more effective for the study. A 3-decibel increase in sound pressure is twice as high as the sound power, especially in noisy environments. This measurement in industrial environments is valid for other measurements. For example, an increase of 10 dB will increase the power of the sound 10 times. In addition, the intensity decreases in parallel with the square of the distance. In other words, if the distance is 2, the volume decreases by 6 dB. This means that. Noise from the noise level source will not exceed 100 dB + 100 dB = 200 dB

They are also physically affected by individuals who are constantly exposed to severe noise, except for the effects of noise on stress. One of the most important physical effects caused by noise is hearing loss. Hearing loss occurs in two ways. First, the deterioration of the airway conduction is a disorder in the transmission of sound due to damage to the outer ear and middle ear. The damage is called airway damage or conduction disorder. Sudden type of deafness may consist of an explosion of the eardrum caused by a loud noise.

The second type of hearing loss is caused by damage to the inner ear. This causes damage to the inner ear resulting in nerve conduction damage. It causes malfunction of the auditory nerves due to the deterioration of the liquid in the inner ear. This type of hearing loss is a sudden deafness caused by loud or loud sounds. Hearing loss in this way is difficult to treat or has no treatment. In subjects exposed to noise, attention deficit, distractibility, fatigue, sleep problems, damage to the nervous system, dizziness, headache or mental problems may occur.

In addition, digestive and hormone problems, pupils, heartbeats, internal organs, hardening of the arteries, birth problems, disability may cause noise in children or stillbirth. When exposed to sudden and severe noise, digestion, circulating blood pressure and breathing may lead to an increase in blood pressure. As the noise increases, there may be some disruption in communication. For example, there may be a need to shout an individual to communicate. Above all, it can cause work accidents to increase in places where noise is present.

Different spectra of noise cause hearing loss. For example, in the weaving industry where there are machines in industrial environments, 4 mHz noise is very effective. This type of noise is a wide band noise type. On the other hand, there is less effect on narrow band noise with less frequency change. The noise affects the perception of noise in the individual as well as the hearing loss. In addition, the individual may hear the sound, but his voice may also have difficulty understanding. These individuals may also have complaints of tinnitus and headache. Generally, high-frequency sounds are reported. But sounds may be at low frequency. For example, bee buzzing or blowing, wave sound, pinging sound or a click may sound like. Tinitus usually occurs when there is little noise from the environment.

Patients experience sleep problems and concentration problems due to tinnitus. Noise increases the blood pressure through the autonomic nervous system because it affects the pituitary hormone. Therefore, the higher the noise, the higher the autonomous responses. Research on alpha and beta receptors has shown that blood pressure increases due to noise. Although it is controversial that the noise may cause problems with the health of the baby, the negative effect of ultrasound and infrastructural research is known to cause hearing loss. In experimental studies, it was observed that guinea pigs died due to ultrasonic sounds. However, these animals are thought to be due to overheating of their fur. However, infrasonic sounds seem to reduce blood pressure as a result of

stimulation of the vestibular system. Therefore, ultrasonic and infrasonic sounds are known to cause physical and mental damage (Güler & Çobanoğlu, 1994)

1.7. Noise Types

The type of noise depends on the frequency bands having the noise, the time varying depending on the volume and the environment in which the sound is located.

(i) According to Frequency Band (Spectrum):

• Continuous band noise (White Noise): This noise type has a continuous-spectrum sound with all frequencies, such as machine noise.

• Continuous narrow band noise: There are only some frequencies. Saw sound is an example.

(ii) By Time:

• Stable Noise (Noise Noise): No noise change in noise level.

• Unstable Noise: Noise level is a type of noise that changes too much.

• Wavy Noise: Noise level is a type of noise which is very high and continuous change.

• Discrete Noise: the noise level is a type of noise that is falling rapidly and rising again and is more than 1 s or constant. Traffic noise may be given as an example.

• Knock Noise (Noise Noise): A type of noise that lasts less than 1 s. Hammer noise is an example.

1.8. The Effect of Noise on Health

The effects of noise on health are diverse. Unrest in the individual, communication problems, decrease in performance and causes problems with memory. It also leads to sleep, behavior, personality and mood disorders. In the school environment, noise related to learning may adversely affect learning activities.

Children especially have difficulty in doing homework and other tasks in a noisy environment. The sound of more than one sounds difficult to understand and the ability to solve problems in the child slows down. The effect of sound on human beings causes behavioral changes in particular. The individual's duration of resistance to prolonged voice decreases. As the process progresses, the negative effect is revealed. Sudden sound damage to the individual permanent damage. The effect of sudden and severe sound in the individual is more than the effect of sound known in advance. Sudden sound causes panic and fear in the individual. Some sounds make a masking effect against sudden or continuous sound. Especially in these cases, music suppresses sudden sounds and reduces the effect of sudden sound. Playing music in a calm soft tone can calm the individual. On the other hand, it has a lower negative effect compared to the voice that can be controlled.

1.9. National and international regulations

According to the international ISO standards directive, the noise exposure limit should be at the highest sound level of 85-90 dB (A) for eight hours. According to the European declaration, this period is defined as 87 dB (A) leg. This limit varies in different countries. In the United States 90- European countries, 85 and only 3 dB in France and Spain are allowed. This means that if the rate of

change is 3 dB and exceeds 3 dB, the individual will be exposed to a ½ ratio of noise. Similarly, this figure is 87 dB in the UK in line with the 2005 EU declaration.

Developed countries have adopted the proportions of these countries in developing countries without any need for regulation. In India, this rate was set at 90 dB and the factories throughout the country were organized as 36 hours weekly. In short, the rate of exposure to noise is determined as 48 hours per week, but this rate is quite high compared to developed countries. On the other hand, according to the ratio determined by OSHA in 1995, the duration of exposure to noise was determined to be 90 dB for an eight-hour period. The overrun limit for this period allowed a change of 5 dB (https://www.silvent.com/en).

1.10. Noise Levels and Negative Effects

It affects the disturbance, aggression, sleep and focusing of the noise levels of the individual between the first degree 30 dB (A) and 65 dB (B).

(ii) Secondary degree of the individual: L = 65 to 90 dB (B) of noise levels of biological problems; increase in blood and heart pressures, rapid increase in breathing, decrease in fluid pressure in the brain and sudden reflexive reactions.

(iii) The third degree of the individual: L = 90 to 120 dB (B) causes noise problems, especially the pain of the pain.

(iv) Fourth degree of the individual: L = 120> Damage to the inner ear and vestibular system of noise levels above 90 dB (B).

(v) Degree: L> 140 dB (B) noise level due to brain damage and damage due to different complications occur.

The volume of sound that human beings can hear is between 0 and 50. This level does not cause discomfort to the individual. However, a sound intensity above 85 dB is disturbing. Prolonged exposure to this volume may result in damage to the ear and brain

Prolonged exposure to this ear

Decibel intensity levels of noise vary according to the intensity of sound. This ratio is stated below

dB	
0	Audible volume
30	Normal sound level of the house
40	Average sound level of the house
50	Speech volume

70	Normal traffic volume
85	The volume at which the ear feels discomfort
90	Intensive traffic volume
95	Volume of the air compressor
120	Sound level of a jet plane from about 500 meters

(Güler ve Çobanoğlu, 1994).

1.11. Homeostasis and allostasis model

The Homeostasis model has made a significant contribution to the theory and practice of scientific medicine, and it is scientifically meaningless to criticize the model. However, each model has limitations. Another model explains the limitations of the previous model. In physiology, evidence suggests that parameters are not constant, rather than error, variations are modeled to reduce error. There is an increase in major diseases in medicine. For example, it is insufficient to explain the cause of type 2 diabetes and high blood pressure as homeostasis medlar. Unlike diabetes, which is caused by the compressed renal artery-induced hypertension and the immune destruction of insulin-secreting cells, these new disorders are not clearly flawed. The medication used as a treatment method fails to treat the disease as a problem.

The second model, allostasis, defends the opposite view. It argues that the purpose of the regulation is not constant, but compatibility under natural selection. Compliance ensures that regulations are avoided and the damage minimized. In both cases, it anticipates the requirement and then adapts to all these parameters by adjusting all parameters to comply with these parameters.

It has been suggested that prolonged exposure to stress in different studies may cause the development of disease, especially in individuals with weak immune systems. The most important theoretical model explaining the process of disease development as a result of the present stress is the allostasis model (Schulkin et al., 1994). This model assumes that the organism is attempting to function through change. The organism responds to any stimulus or situation that may cause an individual to change (physically or psychologically) or even at risk of being killed. When the threatening situation is over, stress reactions decrease and the organism calms down. The wear and tear on body systems that provide physiological changes in response to stress continues.

Exposure to environmental stress, including the production of stress-associated hormones, changes many physiological processes in the organism. The body consumes more energy to reduce stress. In the short term, this process is quite coherent, but it is difficult for the organism to make much effort

in the long term. These 'allostatic burdens' may include osteoporosis, coronary heart disease, hypertension, atherosclerosis, diabetes and immune-related diseases (McEwen,1998).

Although other body systems are involved, the activity of the hypothalamuspituiter-adrenal (HPA) axis appears to play a central role in this process. While corticotropin-releasing hormone and adrenocorticotropin (ACTH) may contribute to the development of these disorders, cortisol, which is the end product of this endocrine axis, appears to be closely related to the majority of symptoms observed in stress-related health problems. Environmental conditions applying an allostatic load on the body leading to chronically increased HPA activity may therefore contribute to the onset and / or progression of the disease. Noise, as a major environmental stress, should be examined as a potential source for allostatic load. Changes in HPA activity caused by exposure to continuous or intermittent noise are very important for both the primary researcher and the clinician. Accumulated evidence shows that the measurement of cortisol in saliva reliably reflects the biologically active fraction of the major HPA effector hormone, so there are biological effects of noise stress. (Kischbaum & Hellhammer, 1999).

Figure 1 - Brain Blood Pressure circulatory system
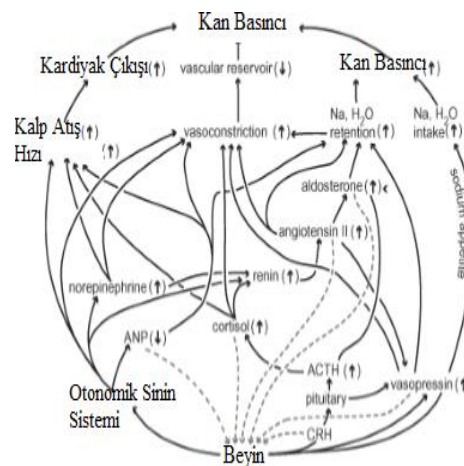
When the brain predicts the most likely demand, it resets the blood pressure that it must obey. To do this, the brain directly modulates the three basic effects: the nerves signal to the heart to pump faster, narrow the blood vessels and try to keep the kidneys salt and water. These direct neural messages are supplemented by additional signals moving in parallel (Figure 4). For example, the nervous system activating the primary effectors also releases multiple hormones that send the same message. The hormones that give the counter message are suppressed.

2. METHOD
2.1. Purpose of the study

Although stress is known to be a disease of today, it is known that stress is a part of life from past ages to the present. The causes of stress have changed with changing living conditions. In the past, the protection of wild animals, fighting them, some epidemics, natural disasters were seen as the cause of stress, while the conditions of the industrial revolution and the factories and the challenges of the economy are the dimensions of stress. For this reason, the causes and stress of stress change, but the effect on human beings continues (Yılmaz & Ekici, 2003). In this context, the aim of this research is to investigate the effect of industrial noise on workers.

2.2. The importance of the Research

The stress in business life causes both physiological and psychological problems. Stress can negatively affect work performance and efficiency, especially due to the negative impact on administrators. People who work under stress are more irritated and quickly get angry because of no effect. This situation causes social and emotional problems in the individual. The sleep pattern of the individual, eating habits deteriorate. The negative habits of these people increase gradually. In particular, she starts having problems with smoking, problems with her family, negative reaction to children and problems with her colleagues. There is a constant doubt and a desire to control others. Tension increases in the individual.

Blood pressure, learning, memory and memory problems. The symptoms of stress are often confused and inconsistent. In this context, the symptoms of stress manifest as physical, dynamic and spiritual. Symptoms vary from individual to individual. In the process, the symptoms gradually worsen by multiplying. On the other hand, some symptoms spontaneously decrease or disappear completely. However, these symptoms may occur in different symptoms (Köse, 2015). Stress sources change in business life. Blocked ambitions, job performance, individual stress sources, organizational resources. However, there are very few publications in the field as a stress factor in noise. In this context, this study is thought to have important contributions to this field.

2.3. Hypothesis of research
Ho: Industrial noise has no effect on stress.
H1: Industrial noise has an impact on stress.
2.4. Sub-problems of research
  i.   The effect of industrial noise on stress varies according to the gender variable.
 ii.   The effect of industrial noise on stress differs according to education variable.
iii.   The effect of industrial noise on stress differs according to the marital status variable.
 iv.   The effect of industrial noise on stress differs according to the economic variable.

2.4. Methodology of research
The aim of this study was to determine the noise in the garment workshops and to determine the stress levels of the workers. No intervention was made on the workers who were working in this research. For this reason, the employees were not affected by any questions. In this context, this

research is descriptive and based on comparison between groups, relational screening method is used as the type of comparison, relational screening and correlation type. The relational scanning model is the general screening method. General screening models; contains a large number of variables. The characteristic of this model is the general judgment about the universe and the screening patterns made from a group of samples or samples taken from the entire universe or the universe. Relational screening models within this group are; It is used for research models that enable the determination of two or more variables together or their degree (Ekici and Hevedanli, 2010: 99).

2.5. Data Collection Tools Used in Research
The survey method was used as a data collection tool. Because of the economic and more effective method of the survey, it was preferred in our research in order to get faster information about the individuals' thinking, belief, perception, behavior and motivational characteristics. (Ural and Kilic, 2006: 56, Yazicioglu and Erdogan, 2004: 51).

2.6. Personal Information Form
In order to collect data about the independent variables of the study, the level of education, ecomic level, working status and marital status of the individuals who are determined by the researcher to determine the demographic characteristics of the individuals (Table 1).

2.7. Stres Ölçeği
In this study, 82 item stress scale was used. The stress scale used is a scale developed by Tatar (2009) and prepared for evaluating stress experiences in the work environment (Business Environment Stress Scale-ISOS). In relation to stress experiences, 82 items related to the physical, psychological and behavioral stress symptoms of this scale were included in the questionnaire and items for the work environment were used. As a result of the internal consistency analysis, the Cronbach alpha internal consistency coefficient for the stress scale was found to be 0.96. 0.93 for the first half and 0.93 for the second half. The scale was included in the analysis of the total score.

2.8. Sanomotry noise scale
The Cem Dt 805 Decibel Gauge (Sound Level Meter) measures the surrounding sounds very precisely. This device has a digital display and all the parameters of the measurement can be monitored via the display. The desired brightness can be reached by the light setting of the display. It can be used both inside and outside office, factory, congress halls. A and C frequency can be measured on the device. The measurement of the device allows you to access the measured values again via the recording feature. By keeping the measured values on the screen constant on the device, the required values can be re-used for the effectiveness of the investigation. It also allows the measurement of the device in slow and fast mode. Thus the measurement can also be used in different situations.

2.9. Process

At the beginning of the research process, the literature review was done and the content and model of the research were formed and the implementation phase was started.

The participants were briefed about pre-application research and explained that the participation in the research could be with their consent. In this respect, participants were given an information form with an approval form and a check box at the top of the demographic information form. The noise measurement device used in the study was positioned according to the ear level of the participants.

2.10. Analysis Techniques of Data

After the data collection phase was completed, all data were entered into the cells by using SPSS 22 package program and the total scores of the basic and sub-factors in the personality tests were taken. Then, depression, empathy and stress inventory were entered on the basis of substance. Correlation, regression, t-test and variance analysis were used to evaluate the relationships between the two inventory in accordance with the purpose of the study. Before the above-mentioned analyzes were made, it was checked whether any missing data was present in the cells. In addition, in order to test the suitability of the data for analysis, frequency analyzes were applied and the data were tested whether the data were in accordance with the assumptions and distributions of multivariate analyzes. No extreme value was found, normality and linearity values were found satisfactory.

3. RESULTS

As a result of the analysis of the data in this section of our study, the findings are explained in 95% confidence interval and 0.05 significance level. The data obtained from the study were analyzed by SPSS 22.0 for Windows package program. The results of the analyzes are presented below.

Table 1. Descriptive Statistics of Demographic Characteristics of Participants

Variable		**n**	**%**
Gender	Male	458	67.35
	Female	222	33.00
Toplam		680	135
Educational background	Primary school	125	18.38
	Secondary School	156	22.94
	High School	350	51.47
	University	49	7.20
Total		680	100

Marital status	Married	589	86.61
	Single	67	9.8
	Divorced	24	3.5
Total		680	100
Economical situation	Bad	228	33.52
	Middle	340	50.00
	Good	112	16.47
Total		680	100
Child Numbers	1 child	72	10.58
	2 Children	241	35.4
	3 Children and up	259	38.08
Total		680	100
Duty Years	**1 year**	542	79.70
	2 years	112	16.47
	3 ears and up	26	3.8
Toplam		680	100
Office position	Manager	12	1.7
	Worker	603	88.67
	Other workers	65	9.5
Total		680	100

According to this study, 125 of the 688 participants (67.35%) were primary school graduates, 156 (33.00%) were secondary school students, 350 (51.47%) were high school graduates and 49 (7.20%) university graduate. Of the participants, 589 (86.61), 67 (9.8) were single and 24 (3.5) were divorced-widows. 228 (33.52) poor, 340 (50.00) middle and 112 (16.47) participants stated that they had good economic level.

While 72 of the participants (10.58%) had one child, 241 (35.4%) had two children and 259 (38.08%) had three or more children. 542 of the participants (79.70) 1 year, 112 (16.47) 2 years, 26

(3.8) 3 years and over the term of duty is seen. It was observed that 12 (1.7) of the respondents served as managers, 603 (88.67) workers and 65 (9.5) as intermediaries. (Table 1).

Table 2. Stress Scale Reliability Analysis Table

N	680
Number of items	0.70
Correlation two Half-part	0.81
Guttman Split-Half reliability coefficient	0.88
Equal two half Spearman-Brown coefficient	0.96
1st Half Alpha value	0.91
2st Half Alpha value	0.88
Alpha	0.92

As a result of the internal consistency analysis, the Cronbach alpha internal consistency coefficient obtained for the stress scale was found to be 0.92. The two-half reliability of the scale (Guttman Split Half) was determined as 0.88. This result was 0.96 for each half. Table 3.

Descriptive Statistics Results of Sanometry Measurement

dB	N	Minimum	Maksimum	Meas	Standard deviation
0-30	680	333.02	422.01	377.515	1.133
30-40	680	541.01	754.07	647.54	1.393
40-50	680	4121.08	4985.06	4553.07	11.838
50-70	680	5121.04	6897.03	6009.015	1.346
70-85	680	7025.03	8797.06	7911.045	1,252
90-95	680	9754.06	9832.08	9793.07	1.007
120	680	124.07	129.07	126.57	1.040

It is seen that the minimum values of 0-30 dB minimum values of the measurements in the workplace are 333.02 and 377.515. Respectively, the average value is 30-40 dB 647.54, 40-50 dB 4553.07, 50-70 dB 6009.045, 70-85 dB 7911.045, 90-95 dB 9793.07 and 120 bB 126.07 average. According to these results it is understood that the lowest 120 dB and the highest average value is 9793.07 and 90-95 dB.

Table 4. Regression Model for Testing the Effect of Noise Levels on Employee Stress Level

Dependent Variable	Inependent Variable	B	Standart Error B	Beta	T	P	F	Model (p)	Model R^2
Empathy	Constatnt	1,204	116	244	2,826	0,000	13,697	**0,000**	**,225**
	0-30 dB	,071	28	,155	2,511	**0,063**			
	30-40 dB	056	32	-0,15	-,223	0,824			
	40-50 dB	091	53	,141	2,136	**0,433**			
	50-70 dB	048	87	-124	2,058	**0,115**			
	85 üzeri	115	74	,196	2,814	**0,000**			

According to the results of the analysis, it was observed that noise significantly predicted stress (F (13, 697) = 2,826, p <.01) and explained variance by% 225,%. According to these results, when the noise increases by 1 unit, the stress level increases by 115 units. The noise levels of 0-30 dB, 30-40 dB, 40-50 dB and 50-70 dB do not have a significant effect on stress. However, it is seen that the noise level of 85 and above dB explains the stress by 0.171.

According to these results, it is observed that noise level below 85 dB has no significant effect but noise level of 85 dB and above has a significant effect on stress.

Table 5. Independent Sample t-Test Results of the Effect of Noise on Stress

Değişkenler	Cinsiyet	N	Ortalama	ss	t	p
Gürültü	Kadın	222	452.26	2.318	.1120	.027
	Erkek	458	578.03			

Levene t- test was used to test the homogeneity of the variance of the two groups and to find that their variance was homogeneous (L =, 060; p> .05). As a result of the t-test, the noise levels of the participants differed according to gender (t = 1120; p = 0.027 <0.05). Men (MD = 578.03) and women (MD = 452.26) are differentiated according to noise levels. According to these results, men were exposed to more noise levels than women

Table 6. The Results of Variance Analysis of the Stress Scale in Terms of the Demographic Variables of the Noise

Variables			N	Mean	Ss	F	p
Noise	Educational Level	Primary	188	326.05	2.307	2.146	.065
		Secondary	48	336.60			
		High	50	337.99			
		University	26	321.40			
		Total		**1322.05**			
	Ekonomic Situation	Bad	188	3.84	2.308	0.389	.246
		Middle	48	3.97			
		Good	50	3.91			
		Total	**26**	**11.72**			
	Marital status	Married	188	397.06	2.308	1.259	.290
		Single	48	406.03			
		Divorced	50	407.06			
		Total	26	**1210,15**			
	Age Level	18-30	188	222.41	2.308	2.484	**.016**
		31-40	48	250.02			
		40 Üzeri	50	269.41			
		Total	**26**	**235.52**			
	Duty Years	1 year	188	21.92	2.421	2.149	**.025**
		2 years	48	20.00			
		3 years and up	50	28.06			
		Total	26	22.85			
	Office position	Maneger	183	2.39	2.298	2.335	.074

		Workesrs	45	2.41			
		Other workers	50	2.48			
		Total	26	3.66			

There was a statistically significant difference according to the age variable in evaluating the effect of noise on the stress of the participants (F (2.308) = 2.484; p <0.05). According to the results of the Tukey göreB (Post Hoc) multiple comparison, which group is different from the group, it is observed that there is more stress on the employees due to noise over 3 years. A statistically significant difference was found in terms of the duration of the study in terms of the effect of stress on participants' stress (F (2.421) = 2.149; p <0.05). When it is evaluated in terms of the task of the participants, it is seen that the workers are experiencing more stress.

4. CONCLUSION AND RECOMMENDATIONS

In this study, t-test and variance analyzes were evaluated in order to determine the stress effect of the measured noise levels on the employees and the regression analysis and the sociodemographic differences.

In a study, the work environment, table, cabinet and other materials used in the work productivity, functionality, especially the quality and comfort of the work environment, in addition to the environmental factors in the work environment, air, light, noise and other factors to be negative in the spirit, body and biological structures of working individuals negative effect.

These factors increase the stress level of the individual. Increased stress causes irritability, panic, and anger. These negativities stated in a study decrease the pace of work and efficiency of work. In addition, the mentioned factors cause psychological and physical illnesses, stomach and skin diseases, and work accidents and continue to work in the future causes problems.

Considering the broad scope, the negativity in the workplace causes problems in the home and work environment. Especially stress, attention distortion, migraine, lack of appetite, indifference caused by the noise can be listed as. Most importantly, it causes family problems to be experienced because of the reflection of all these problems on family members and negatively affected by this situation (Cam, 2004).

According to the data obtained in the study, the noise level in the working environment is observed to be 0-30 dB minimum values in the workplace and the maximum values of 0.02 dB are in the value of 422.01 and 377.515. Respectively, the average value is 30-40 dB 647.54, 40-50 dB 4553.07, 50-70 dB 6009.045, 70-85 dB 7911.045, 90-95 dB 9793.07 and 120 bB 126.07 average. According to these results it is understood that the lowest 120 dB and the highest average value is 9793.07 and 90-

95 dB. When these results are evaluated in the context of national and international regulations, it has been seen that the noise level in the workplace is above the legal limits compared to Europe and other countries. In a study, in the evaluation of the noise in the workplace environment, unlike the frequency distribution, A-weighted equivalent continuous sound level values are also used. In this study, the equivalent sound level of the weaving machines ranged from 97.1 to 105.5 dBA, whereas these values were between 89.7 and 93.9 dBA for the yarn manicures. These values are above the limits of warning and danger, which are defined by ICC and accepted in many countries.

The human ear is sensitive to 4,000 Hz. In a study, the sound level of the weaving machines in the garment workshops was found to be 87.7 to 98.1 dB, and the sound level of the yarn devices was found to be 81.2 - 88.8 dB (Ege, Sümer and Sabancı, 2003). Similar results were found in our study. According to the results of the study, the determined values are high and these values can cause mental and physical damage to human health and work life.

When the results of the study are evaluated, it is seen that noise has a significant effect on stress and% of its variance is 225%. According to these results, when the noise increases by 1 unit, the stress level increases by 115 units. The noise levels of 0-30 dB, 30-40 dB, 40-50 dB and 50-70 dB do not have a significant effect on stress. However, it is seen that the noise level of 85 and above dB explains the stress by 0.171.

According to these results, it is observed that noise level below 85 dB has no significant effect but noise level of 85 dB and above has a significant effect on stress.

When the time of exposure of the participants to noise is examined, it is seen that the stress level is higher in individuals over 40 years of age. Although it is thought that this situation is formed with the advanced age, it is undeniable that exposure to continuous noise has an effect. In a study p 300 responses prolong the age as the age progresses. The latency period in elderly individuals is particularly prolonged. In a study conducted in adults, P 300 responses were found to be successful in distinguishing auditory in a quiet environment (Erdoğan & Akdaş, 2015).

Working in an environmentally noisy environment in confection workshops causes a decrease in productivity both in the physical and work place. Noise directly affects the individual negatively. Although stress is a part of life, moderate and excessive stress rate affects the functionality of the individual negatively. Noise was found to be a factor increasing stress in this study.

Permanent measures should be taken to reduce the impact of noise, as noise affects severely the psychological and physical health of human beings. In our study, men were more affected by noise than women. Continuous exposure to noise may adversely affect the effects of noise over eight hours due to adverse health effects.

On the other hand, women were more affected than men. Although this is a positive effect, it is recommended for women to take precautions in terms of health.

It is observed that the sounds produced by the devices established in the garment workshops are high compared to the national norm. In order to prevent noise from the devices by the supervisors, preventive materials should be used to reduce the intensity of sound.

It is seen that the workers working in the workshops are exposed to more noise than the staff and administrative personnel. In this study, the effect of noise on health was found to cause more stress on workers. This effect is inevitable if the workers are considered to be closer to the devices. However, the use of masks that will not be affected by noise during normal working hours will reduce the effect of noise. When looking at the precautions that workers should take, ear plugs reduce the effect of noise.

REFERENCES

Bal, F. (2018). Engelli çocuğa sahip bireylerin kişilik özelliklerinin depresyon ve stres üzerindeki etkisinin incelenmesi, Akademik Sosyal Araştırmalar Dergisi, 79(6), 71-90.

Cam, E. (2004). Çalışma Yaşamında Stres ve Kamu Kesiminde Kadın Çalışanlar. İnsan Bilimleri Dergisi, 1(1), 1303-5134.

Ege, F., Sümer, K Ve Sabancı, A. (2013). Tekstil fabrikalarında gürültü düzeyi ve etkileri. Türk Tabipler Birliği, Mesleki Sağlık ve Güvenlik Dergisi.

Ekici, G. ve Hevedanlı, M. (2010). Lise Öğrencilerinin Biyoloji Dersine Yönelik Tutumlarının Farklı Değişkenler Açısından İncelenmesi. Türk Fen Eğitim Dergisi, 7(4), 97-109.

Erdoğan, A.A. ve Akdaş, F.N. (2015). Normal İşiten Kişilerde Gürültünün İşitselP300 Kortikal Potansiyel Üzerindeki Etkisi. Türkiye Klinikleri Journal Health, 2(1),95-103.

Gökhan Kürklü, G., Gökhan Görhan, G., Burgan, H.İ., (2013). Çalışma Hayatında Gürültünün Etkisi ve İnşaat Teknolojileri Eğitimi Açısından Değerlendirilmesi. SDU International Technologies Science 5(1), 22-35.

Güler, Ç ve Çobanoğlu, z. (1994). Gürültü. Ankara: Çevre Sağlığı Temel Kaynak Dizisi. Sağlık Bakanlığı.

Ilgar, R. (2012). Çanakkale şehir içi trafiğindeki araç kaynaklı gürültü kirliliğine yönelik ön çalışma. Zeitschrift für die Welt der Türken Journal of World of Turks, 1(4), 253-267.

Jansen, G.(1961). Adverse effects of noise on iron and steel workers, The hand book of hearing and the effects of noise. New York: Academic press.

Kirschbaum,C.,&Hellhammer, D.H. (1999). Noise and stress - salivary cortisol as a non-invasive measure of allostatic load. Noise % Health, A Biomonthly Inter-disciplanry International Journal, 4(1),57-65.

Köse, H. (2015). Örgütlerde stres kaynakları ve stres yönetimi. Anadolu Bil Meslek Yüksekokulu Hakemli Dergi, Erişim adresi: http://www.haticekose.com.tr.

Leather, P, Beale, D ve Sullivan, L. (2003). Noise, psychosocial stress and their interaction in the workplace. Journal of Environmental Psychology,23(2), 213-222

P. Leather, M. Pyrgas, D. Beale, C. Lawrence (1998). Windows in the workplace: Sunlight, view and occupational stressEnvironment & Behavior, 30, 739-762

Rylander, R. (2004). Physiological aspects of noise-induced stress and annoyance. Journal of Sound and Vibration, 277(3), 471-478.

Schulkin, J., McEwen, B.S. and Gold, P.W. (1994) Allostasis, amygdala, and anticipatory angst. Neurosci Biobehav Rev. 18(3), 385-396

Soysal, A.(2009). İş Yaşamında Stres. Çimento İşveren dergisi 23(3), 17-39.

Sundstrom (1986). Work places: The psychology of the physical environment in offices and factories. New York: Cambridge University Press.

Tatar, A. (21-23 Mayıs 2009). Doğrulayıcı faktör analiziyle iş ortamına yönelik stresi ölçmek üzere bir ölçek geliştirme çalışması: iş ortamı stres ölçeğinin (İOSÖ) Güvenirlik ve Geçerliliği. 17. Ulusal Yönetim ve Organizasyon Kongresi. Eskişehir: Türkiye.

Ural, A., Kılıç, İ. (2006). Bilimsel araştırma süreci ve SPSS ile veri analizi. Ankara: Detay Yayıncılık.