



ST. MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES

**THE RELATIONSHIP BETWEEN EMPLOYEES' PERCEIVED NOISE POLLUTION
AT WORK PLACE AND TIMELY WORK DELIVERY
AT SELECTED CONSULTANCY FIRMS**

BY
NETSANET YEMSHAW

MAY, 2017
ADDIS ABABA, ETHIOPIA

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**A THESIS SUBMITTED TO ST. MARY'S UNIVERSITY, SCHOOL OF GRADUATE STUDENTS
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AT WORK PLACE AND TIMELY WORK DELIVERY: THE CASE OF
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NETSANET YEMSHAW

APPROVED BY BOARD OF EXAMINERS

DEAN, GRADUATE STUDIES

SIGNATURE AND DATE

EXTERNAL EXAMINER

SIGNATURE AND DATE

INTERNAL EXAMINER

SIGNATURE AND DATE

ADVISOR

SIGNATURE AND DATE

DECLARATION

I hereby declare that this research is my original work towards the partial fulfillment of the requirement for the Masters of Business Administration and that to the best to my knowledge has not been submitted previously for a degree or any other award in any university elsewhere.

Netsanet Yemshaw

Signature _____

Date _____

STATEMENT OF CERTIFICATION

This is to certify that Ms. Netsanet Yemshaw has carried out her research work on the topic entitle “The relationship between employees’ perceived noise pollution and timely work delivery: the case of selected consultancy firms located in Addis Ababa” under my supervision. This work is original in nature and it is sufficient for submission for the partial fulfillment for the award of Masters of Business Administration.

Dr. Tesfaye Wolde

Signature _____

Date _____

DEDICATION

In loving memory of my father.

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Abstract

This study is conducted with the main purpose to determine the association between employees' perceived noise pollution at work place and timely work delivery. Most people at one time or another has found themselves irritated or distracted by the background noise in their work place. This irritation might have resulted in minor aggravation or may have been dramatic enough to hinder their work. This leads us to ask whether or not occupants' perception to noise pollution at their work place has an association with their ability to deliver their work on time. In an effort to answer this question, the study intends to see the association where noise pollution is relatively assumed to be most destructive that is among consultancy firms, whose work force are knowledge workers who are engaged in a mental process work. Conducting this study helps organizations to have considerations in controlling sources of noise in the office. For this reason, this study took a sample of 82 consultants randomly drawn from five consultancy firms. Subjective assessment for the study is solely obtained from the administration of questionnaires and interviews. It is used in order to get the employees' perceptions on their work place noise pollution and the level of their concentration, communication, emotional stability and job satisfaction when they perceive the various sources of noise at their work place. Data is analyzed quantitatively using the SPSS and Microsoft Excel and presented with the aid of frequency distributions, pie charts, tables and graphs. The research identified the existence of a positive and strong relationship between employees' perceived noise pollution and timely work delivery through the hypotheses it has set to prove. The study also confirms from employees' perspective that music, chattering, outside traffic noise and office machinery sounds are the main source of noise pollution at work place. Finally, based on the overall study analysis, substantial recommendations such as; consideration of work place layout design, noise related code of conduct in the office, reducing dense environment and white noise are proposed to help those who are exposed to noise at their work places.

Key words: *Employee's perceived noise pollution, Timely work delivery, Knowledge worker*

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CHAPTER ONE

INTRODUCTION

1.1 Background of the study

All around us the world is so loud and filled with sound. Silence, which was a standard in earlier days, is now a luxury. Be it an alarm clock or horn of a vehicle, it has the capability to create excessive and troublesome noise. From the physical perspective, there is no difference between sound and noise. In fact, sound is a sensory perception, and noise is the mental perception of the sound. The word "noise" is derived from the Latin word "nausea" meaning seasickness and scholars have defined noise as an unwanted sound, accordingly it can be considered as the wrong sound in the wrong place at the wrong time (Kiely, 1997).

Noise pollution is a universal problem that is found in almost all countries and recognized as a major problem that affects the quality of life (Krishna, Ahmad, Sanjay and Deepak, 2007). Road traffic, vehicles motors, air planes, trucks, construction works, manufacturing processes and market areas are some of the major sources of this an unwanted sound that are routinely transmitted in to the air (Birgitta, Berglund and Lindvall,1995). All these problems are resulting from the rapid growth of population, self centered human mentality, fast life style, number of vehicles, use of large number of instruments in daily life, excessive exploitation of natural resources, rapid rate of urbanization and industrialization. The problem with noise is not only that it is unwanted, but also that it negatively affects human health and well-being (O'Neill, 2007).

Noise is probably the most common occupational danger that highly affects individuals' performances in their work place, for instance, moving vehicles on the road around work place , noise in the office building, heating, ventilating, air conditioning, fax machines, music, chattering in the office can potentially cause annoyance and concentration problem for workers in the office (Amira & Shehla , 2009). This leads to the realization that noise distraction can possibly contributes to the decline in employees productivity. Studies have shown effects of noise pollution on employee's health. Industrial and technological developments lead to an increase in the problems related to noise pollution and can have significant effect on employees and environment as well (Kahya , 2007).

In fact, exposure to noise is not restricted to the work environment. Individuals perform various activities in different places and are exposed to a wide range of environmental noises during their free time activities, in transportation and shopping times as well. In developed countries, controlling noise effects have been given a great concern and a number of anti noise regulations, laws and policies are in place (Ahmad, 1998). However, such action remains limited in the developing countries.

The major goal of all occupations is to achieve the maximum profit by increasing the staff's efficiency and productivity; however, environmental conditions can disturb employees' performance to a great extent. As of now, studies have investigated the effect of noise on individuals and have shown that, when hearing signals are necessary in performing a task, the intensity of the noise that prevents understanding the signals highly affects performance. An unfamiliar, intense noise can lead to disturbance and interference in doing tasks as well (Ising & Michalak, 2004).

However, people's perception to noise varies from one person to the other and the reaction to noise is not only related to the loudness of the sound. The range of sound we can hear is phenomenal; some people can literally hear a pin drop and yet most can still tolerate loud sounds such as heavy machinery. Often it is the tone of the sound to each person which is distressing rather than the volume of the sound and levels of loudness that cause discomfort differs from person to person. Psychological and social factors affect our response to sound level and whether we even consider the sound to be noise (Nigel, 2015).

Although employees get used to noise and can adapt to high noise environments, noise causes fatigue and decreases the individuals' working capacity in intellectual as well as physical occupations (Saremi & Rohmer, 2008). Employees timely work delivery is a great factor for organizations success that employees making the most of the time they have enables them to be as efficient and successful as possible in their work place. In order to meet assignment deadlines and to keep up with schedules related to their work, employees must engage with their various abilities and deliver a complete and quality work. To help employees achieve this, organizations must have strategies on factors that make employees unhappy there by adding value to themselves and increasing organizational performance. If employees are not satisfied with their work place they tend to pull their effort in completing their task on time or move to other organizations with better work places (Huges, 2007).

Constant exposure to environmental stressors in the workplace can lead to adverse effects on employees performance as they would cause problems in concentration and adverse health outcomes (O'Neill, 2007), which all affect workers' ability to perform their work , hence this leads to a loss of profit for the firm (Kahya,2007).

Consultancy firms are knowledge intensive firms where the majority or the entire workforce consists of knowledge workers who are engaged with mental process works, which is often characterized by creativity and problem solving (Mats, 2004). Knowledge workers therefore tend to have considerable choice and latitude regarding their place of work as they expect to have considerable comfortable work place which includes avoidance of noise. Complaining about noise in the work place can seem trivial to some, but unwanted sound can affect the physical and mental conditions of employees especially knowledge workers. In general, whether the noise is coming from inside or outside and whatever the noise level is, once the sound is unwanted and disturbing to a worker then it is noise to him or her and its effect can lead to disturbed emotions and delayed work results.

As a result, this study aims to identify whether or not there is an association between employees' perceived noise pollution at work place and timely work delivery in consultancy firms located in Addis Ababa and further discusses the possible solutions to avoid noise pollution at work place. The findings of this study can provide the basis for improving conditions in work places to prevent the occurrence of problems mentioned above.

Background of consultancy firms

The five consulting firms considered in this study are named as Veritas Consulting, Deloitte Ethiopia, Precise Consult International, WAAS International and SART Consult. And in this study employees who are only engaged with knowledge intensive works (consultants) are considered. Background of each firm is discussed as follows;

Precise Consult International

Precise is a premiere management consultancy firm established in 2007 specializing in finance, investment, business intelligence and private sector development programs and projects with a well-endowed energetic young professionals and large pool of affiliated consultants. Precise Consult International works with local and international private investors representing many different

countries in all its major areas of activity. The firm also works with local and international NGOs who would like to strengthen their management capacity for better impact. Its services include performing multi-disciplinary research and development, strategy formulation, program intervention, and policy analysis, design and implement innovative private sector development programs, preparing legal opinions and initiate discussion on the creation of a more conducive business environment (Precise consult, 2017).

The company's mission is to provide world class, timely and professional research based solutions to help clients make better informed decisions. And its vision is to become the leading and influential strategic advisory firm in Africa. Precise is located around Atlas road, Addis Ababa, Abyssinia plaza, 10th floor (Precise consult, 2017).

The company's office setup is an open space design with few partitioned office rooms. In addition, the office building is located next to vehicle traffic road. Though the firm has work related policies, there are no explicitly stated policies regarding noise pollution in the office. Noise is usually dealt with a friendly reminder to keep the volume down, encourage people to speak in lowered voices and to carry on conversations where they will not disturb others.

SART Consult (Sub Saharan African Research and Training center)

SART consult (Sub Saharan Africa Research and Training) is an independent research and training center established in 2007. The company is a full service research and training house dedicated to conduct marketing, development, social, health and educational researches in Ethiopia and the rest of East Africa with an advanced analytic team that applies its expertise to deliver excellent work results (SART, 2017).

SART's mission is to provide quality, efficient, reliable and innovative research and training services in Ethiopia and the rest of Africa. Its vision is to become the leading research, training and field work company in Ethiopia and the rest of Africa with core values of quality, excellence, commitment, integrity, innovation, social responsibility (SART,2017) .

The firm is located around Atlas road, Addis Ababa, Abyssinia plaza, 4th floor. Though the office is partitioned with walls, each room has a densely populated setup and the building is located next to vehicle traffic road. In addition, since the office building doesn't have elevator, noise coming from others who passes by the firm gets in the office. The firm doesn't have explicitly stated policies regarding noise pollution in its office.

Deloitte Ethiopia Consulting

Deloitte has established presence in Ethiopia through HST Consulting. Deloitte has been represented by HST & Co., an Associate firm of Deloitte since 2003. HST Consulting is an Ethiopian business consulting firm, a related company of HST Chartered Certified Accountants, which was established by three independent audit firms. It is the first professional accounting partnership in Ethiopia and has a combined experience of over 20 years in the market (Deloitte Ethiopia, 2017).

Deloitte Ethiopia serves all types of organizational establishments that include governmental institutions; international development agencies; public sector organizations; multi-nationals; local and international private companies. It also provides clients with Tax and Accounting, Corporate Finance, Consulting (Human Capital, Public Sector, Strategy & Operations, and Technology Advisory), Enterprise Risk Management, and Financial Advisory Services market (Deloitte Ethiopia, 2017).

Deloitte has a mission of helping clients and make people excel. Deloitte has the vision of becoming the standard of excellence. The vision is realized through being the first choice of the world's most coveted talent, drawn by our eminence, culture, and diversity and the most sought-after clients in each market, attracted by the breadth and depth of our world-class expertise and the quality of our service market (Deloitte Ethiopia, 2017).

Deloitte Consulting /HST Ethiopia is located in Addis Ababa on the Ethio-China Friendship Avenue at Wello sefer, Mina Building 10th floor.

The company's office has an open office design set up where all employees (Consultants) are working in one room and there is no partitioned arrangement to separate rooms. However, the partners (including the managers) are only working in the separate offices from the rest of the employees. Although the multinational service giving firm has wider global outreach, it maintains general code of conduct whereby all the member firms are governed with. The firm stated various ethical principles in its code of conduct such as respect and fair treatment among colleagues, competence, integrity and others. However, it has no written section mentioning about noise pollution policy at work place in its code of conduct.

WAAS consulting

WAAS International is established in 1990. The company is owned and operated by professional Ethiopian researchers with the help of established freelance expat research consultants.

WAAS is the preferred research partner in Ethiopia for well-known multinational research companies (WAAS consulting, 2017).

It has a proven track record in handling large and complex qualitative and quantitative studies as well as small to large scale market and social research studies. The department is responsible for all surveys undertaken by the firm include designing, data collection instruments, recruiting and training data collection personnel, sampling, data collection, data entry processing and analysis, and report writing (WAAS consulting, 2017).

The Company's mission is to promote cross-disciplinary dialogue generative of original ideas and integrated perspectives that comprehend the root causes and effective remedies for the common problems, while furthering those currents of thought and social movement that affirm the value of human dignity and equitable development (WAAS consulting, 2017).

The Company's vision is to more effectively direct the intellectual, moral and scientific capabilities for world peace, global security, human dignity and social justice (WAAS consulting, 2017).

The firm is located at the heart of Addis Ababa at Bole Medhanialem Cathedral Church next to Hayat Hospital. There is external noise coming from School located nearby around the office and the various restaurants in the area. WAAS maintains adequate office space to manage large projects. Though WAAS is an international company that operates in different countries with its own code of conduct, it has no written internal procedure related with the noise pollution at its work place.

Veritas consulting

Veritas Consulting, PLC is management consultancy firm, established in 2014 with two managing partners who possess extensive expertise in delivering consulting, financial and legal services to multinationals and leading local companies, international development agencies and government institutions. The company focuses on the private and public sectors of Ethiopia. Its services include development and private sector consulting services with an emphasis on: management advisory for government ministries and agencies; private sector market entry and advisory; investment regulation, reform and economic policy formulation; transaction services; legal and tax advisory; and corporate and public finance. Veritas is located at Bole road, Addis Ababa, Saay building, 5th floor (Veritas Consulting, 2017).

The office has an open plan office design in which employees' space is not partitioned but with small individual cubicles. Moreover, the building is located next to a high vehicle traffic road.

Though the company has other work related policies and procedures, it has no written or oral code of conduct regarding noise pollution at work place.

1.2 Statement of the problem

Noise is concisely defined as an “unwanted sound” which is a silent killer problem growing day by day (WHO, 1980). Noise has been increasing over the years, particularly in large metropolitan areas. Along with the above mentioned rapid development changes in Addis Ababa, office work is also rapidly changing, as new developments in computer technology come along to make jobs easier and the new open office design that lets offices to have a wide space that eliminates partitions. These changes have resulted to high increase in noise pollution and this increase can also be observed in work places.

Environmental pollution, particularly noise pollution is a significant problem facing the modern era, an era of advanced and sophisticated technology, so instead of human activities being consistent with this progress and development, it took place at the expense of the environment. Exposure to these noisy environment can cause feeling of annoyance and irritation, damage to auditory mechanisms, number of health related effects like physiological disorders, psychological disorders, affect communication, disturbances of daily activities and performances, hypertensions and schematic heart diseases (Louis, 1998). And employees with sensitivity to noise are not immune to such environments.

Employee satisfaction is extremely important in the work place as it influences the organization’s success and performance by improving morale. This, in turn, reduces staff turnover (Dole & Schroeder, 2001). It has been shown that employees who are comfortable with their working environment are more likely to generate better work as the physical environment affects their job perception, attitudes and job satisfaction (Lee & Brand, 2005). This shows that employees are more interested to deliver better work in a better working environment (Tietjen & Myers, 1998). As a result, careful attention must therefore be paid in work place environments in order to facilitate better work outcomes in a timely manner.

In countries like Ethiopia, the acoustic design of workplace environment significance and its related issues are significantly ignored. There has been no or very less attention paid to the sensitivity of workplace noise and moreover, employers and employees are not aware of the influence and hidden dynamics of workplace noise. Such circumstances are affecting the employees in the form of delay

in work completion. Unwanted levels of noise often can cause difficulties at work (Perham, Banbury & Jones, 2007). Since the production force in any office consists primarily of people, anything that affects them including noise will affect their work (Sykes, 2004).

Very often managers, team leaders and supervisors are left frustrated and unsatisfied when their employees do not complete tasks they are responsible for. The key question to ask here is then what can be changed in order for it to be completed in a better quality and timely fashion in the future. There have been previous researches showing impacts of noise on employees overall performance which is done based on the actual measurement of the noise level, more specifically in industrious or factory occupations (Jones & Broadbent, 1998) and educational institutions (Zenith, 2014), but less adequate research has been done based on employees' perception to noise pollution at work place.

Moreover, most of the studies give big emphasis on the health impacts of exposure to occupational noise, not that it's not important, but the association noise pollution has with employees' timely work delivery is also a major issue that needs adequate study. Despite the importance of the topic, the fact that this issue hasn't been studied in Ethiopia particularly in the case of knowledge workers, who possess or own the organization's primary means of production that is knowledge, particularly in consultancy firms makes it an important topic that needs to be studied. Therefore, it is perhaps more appropriate within a knowledge-work setting to provide the necessary enabling context that will facilitate efficient knowledge work deliverance.

Accordingly, this research aims to determine the association between employees' perceived noise pollution at work place and timely work delivery.

The necessity of addressing the issue in hand is that in today's competitive business world, firms' most critical goal is to be successful by being productive and employees are the foundation for it. Organizations success greatly depends on their employees' effective participation, as it will certainly drive its profitability (Carslen, 2003). Unfortunately, employees' perception to noise at work place is not considered as the major possible obstacle for employees' to deliver their work timely by firms. As a result, it's very important to raise this study issue so that firms as well as employees can realize the association that their perception to noise pollution at their work place has with delivering their work in time.

1.3 Research question

This research intends to answer the following research questions;

- Is there any relationship between employees' perceived noise pollution at work place and timely work delivery?
- Does employees' perceived noise pollution have relation with their concentration and communication ability?
- What is the relationship between employees' perceived noise pollution and job satisfaction?
- Does employees emotional stability related with their perceived noise pollution?
- Does the collaboration of employees' concentration, communication, emotional stability and job satisfaction have relation with employees' ability to deliver their work on time?

1.4 Research hypothesis

This research sets the following hypotheses to test;

H1: Employees' perceived noise pollution has statistically significant relation with concentration

H2: Employees' perceived noise pollution has statistically significant relation with communication

H3: Employees' perceived noise pollution has statistically significant relation with emotional stability

H4: Employees' perceived noise pollution has statistically significant relation with job satisfaction

H5: concentration, communication, emotional stability and job satisfaction has significant relation with timely work delivery

H6: Employees' perceived noise pollution has statistically significant relation with timely work delivery

1.5 Objective of the study

1.5.1 General objective

The general objective of this study is to determine whether or not there is association between employees' perceived noise pollution and timely work delivery. And this will be done in selected consultancy firms located in Addis Ababa.

1.5.2 Specific objectives

- To determine the association between employees perceived noise pollution at work place and concentration
- To determine the association between employees perceived noise pollution at work place and communication
- To determine the association between employees perceived noise pollution at work place and emotional stability
- To determine the association between employees perceived noise pollution at work place and job satisfaction
- To determine the association between concentration, communication, emotional stability and job satisfaction with timely work delivery

1.6 Significance of the Study

The major importance why this study is crucial is that the findings attempt to help identify the relationship that once perceived noise pollution in office has with his/her timely work delivery; and this helps organization to have considerations in controlling sources of noise in the office. In fact, employees are the main asset and resource of the company sustaining their capacity is significant not only for deficient performance issues in the work environment but also for the quality of employees' lives at work place. Moreover, from a financial standpoint, the higher the exposure to noise in the workplace, the greater the likelihood that the company will lose efficient work results from its employees, which ultimately affect its bottom line. Therefore, this study would help companies to revisit their work place convenience for their employees.

The findings of this study can also provide the basis for management and policy makers in noise pollution related issues that they will consider the significant impact of noise in work place and other related environments.

It also mass contributes to the knowledge pool of other noise related studies and can benefit anyone directly or indirectly.

1.7 Scope of the study

Effects of noise pollution can be seen in many aspects in the society but the scope of this study is limited to the consultancy firms, whose work force is engaged with mental process or knowledge works, located in Addis Ababa. Moreover, noise pollution at work place has various associations with employees' performance; however, in this study the focus is the association noise pollution has with employees timely work delivery. Despite the scope, this study is believed to help employers of all nature in managing their workforce performance through comfortable work place environment.

1.8 Organization of the study

The study is organized in such a way that it would give coherent flow of ideas to the basic results. It is totally presented in five chapters. Chapter one introduces the work and deals with the background to the study, statement of problem, research objectives, research questions, relevance , scope of the study. Chapter two situates the work within the scholarly context by examining literature pertaining to several aspects of the work and after going through the literatures conceptual framework of the study will be developed. The methodology adopted for the work is outlined in chapter three. Chapter four presents the results of the fieldwork and the accompanying discussions. The last chapter, chapter five, looks at the summary, conclusions and recommendations emerging from the work. It also proposes areas for further study and limitation.

CHAPTER TWO

LITERATURE REVIEW

This chapter reviews and explores prior literatures with the related concepts and gives more meaning to the theoretical foundations as well as empirical issues underpinning the phenomena being studied.

The body of this literature review consists of three parts. The first part contains review of some conceptual grounds that have conceptual frameworks on the issue under study. The second part includes the empirical review which is the review of related empirical studies that have similar idea to this study in the existing literature. Finally, the study tries to provide the knowledge gap while reviewing the literature as a conclusion in the last section.

2.1 Conceptual Review

2.1.1 Noise

There have been a lot of definition that have been given to noise depending on the knowledge and understanding of individuals. The basic definition of sound is a pressure variation the human ear can detect and humans perceive sound when pressure variations within the air are detected by Physiological hearing functions means (Alajilan, 2013). Frequency, which is measured in hertz (Hz), represents the number of variations or cycles that occur each second. The produced sound wave determines the actual sound, which includes sound intensity and sound frequency. The frequency, as stated above, is variations per second, the normal range of frequency for human is typically between 20 and 20,000 Hz (NIOSH, 1998). Due to the high sensitivity of the human ear, it perceives pressure variations as loudness (WHO, 1999). The human ear, which acts as a microphone or transducer, is the organ responsible for receiving sound.

Noise in this study can be defined as sound that is unwanted to human and since it is human who are the recipient of the sound then they are the ones to judge either the sound can be called noise or not. Sound waves are known to induce a range of physical, physiological and psychological effects in humans. It is also widely accepted that unwanted sound, noise, affects people's health and wellbeing, mental state and performance in many ways (O'Neill, 2007). Noise is also one of the top causes of dissatisfaction and loss of productivity in the workplace, the psychological impact of noise is the

main cause of concern in office environments (Nigel, 2015). In offices, noise can result in annoyance, heightened stress levels and reduced performance (Kahya, 2007).

2.1.2 Perceived sensitivity to noise

Noise sensitivity, considered as a stable personality trait that is relatively invariant across noise level, is a strong predictor of noise annoyance (Zimmer, 1999). Stansfeld (1992) described two key characteristics of noise sensitive individuals. First, they are more likely to pay attention to sound and evaluate it negatively (e.g., as threatening or annoying) and second, they have stronger emotional reactions to noise, and consequently, greater difficulty habituating. According to him noise sensitivity can be determined by emotional response to noise, so it is not surprising that those who rate themselves as noise sensitive are then more annoyed than others by what they perceive as noise.

Each individual perception to noise varies and sensitivity has a large impact on noise annoyance ratings by lowering annoyance thresholds (Miedema, 2003), and a study of individuals exposed to low frequency noise in the workplace showed noise sensitive individuals were more annoyed by a low frequency noise than a broadband reference noise, while noise-resistant subjects reported that both noises were equally annoying this resulted that noise sensitivity is not strongly correlated with objective sound level, because some people are simply more sensitive to the same sound levels (Waye, 2002). However, while there is a strong correlation between noise sensitivity and annoyance, the correlation between noise sensitivity and noise level is weak, echoing the marginal relationship found between noise annoyance and noise level (Miedema, 2003).

2.1.3 Timely work delivery

Timely work delivery can be described as delivering assigned tasks in full within the stated time frame and employees' ability to deliver their tasks in a timely manner can greatly contribute to the organization's success (Optimum Design Associates, 2014)

Workspace quality affects the attitude of employees and increases their work performance and that help them finish their work in a timely manner since acoustic quality interferes with their ability to get their job done, otherwise employees lack of focus tend to snowball and lead to a generally lower quality of work. People who feel stressed and distracted are more likely to make mistakes and overlook details (Huges, 2007).

The quality and completeness of employee's work also depends upon healthy working conditions by determining employee's job behavior; organization's physical climate is an important indicator of employee behavior as a combination of social and psychological factors as it is found that working conditions are attached with employees' job involvement and job satisfaction that ultimately leads to better work results (Scott, Jusanne & Steven, 2000).

Many of us agree that working in a better workplace environment produces better results since people tend to perform well in good environments (Tietjen & Myers, 1998). The performance of an employee is actually measured by the output that the individual produces in time and it is related to productivity (Dorgan, 1994). Productivity is a broad measure of a variety of aggregate behaviors and it can be said that it increases when there is less absenteeism, less work delays, less inaccuracy and less dissatisfaction (Amina & Shehla, 2009). Because much of the success of any organization relies upon its workforce, employee timely work delivery is an important consideration for businesses (Carslen, 2003).

On time work delivery can be impair by various situations such as; the speeds with which tasks are performed, the level of stress encountered by workers, the accuracy with which tasks are performed, the amount of down time and sick time and various attitudinal measures that is, a high rate of satisfaction with workplace conditions usually correlates with it (Sykes, 2004).

2.1.4 Source of noise pollution

Noise at work place can be constant sounds which come and goes, steady such as the continuous hum from a ventilation system or a computer or impact sounds of short duration, such as the snap of an electric stapler. Today, sources of work place noise can come from many kinds of sources such as air conditioning, obnoxious ringtones, outside traffic, aircrafts, nearby construction, and people's voices (Amira & Shehla, 2009). Moreover, office machines such as computers, printers, fax machines, copiers, phones and traffic noise from the outside and noise from machinery and people chattering elsewhere in the building can be sources for work place noise (Lone, 1996). Some of these sources can be minimized with minor adjustments and others may need major alterations of the entire building system. Although equipment generated noises are usually temporary and the sensitivity to equipment sounds varies from person to person, it may be a distraction to people in adjacent work spaces (Mouri Akiyama & Ando, 2001).

The urban areas are generally noisier than rural areas, urban noise levels are a complex mixture of noise from transportation, construction, factories, industries, machines, and people. Work places located near to vehicle roads greatly affected by the noise coming from it (Zenith, 2014); the main contributor to transportation noise is automotive traffic. At speeds in excess of 60 miles/h (mph), tire noises are most discernible, whereas at lower speeds, engine noises tend to dominate. The road gradient can also have an effect on vehicular noise emission; for example, a 5% road gradient adds about 3 dBA to truck noise and the noise levels increase as the number of vehicles and average speed increases (Salvato, 1992).

Occupant generated sounds can also be a major source of noise in the office. These sources include in person as well as telephone conversations, radios, and movement within the office. Such kind of noise sources can usually be dealt with a friendly reminder to keep the volume down, encourage people to speak in lowered voices and to carry on conversations where they will not disturb others. In addition, music in the workplace, either from piped in music or from a radio, is sometimes used to mask sounds. However, some people find music in the office intensely annoying. Noisy environments tend to only get worse over time, because people start speaking louder as it gets noisier around them also known as the Lombard effect (Sue & Henrik, 2011).

As we are moving towards the development of a multi-media age it is likely that new technology will also introduce new potentially intrusive sources of noise into the office environment. Examples include internal communications via multimedia sources such as video casts, the use of voice-controlled software and PC hardware, delivery of training by audio/multimedia and text-to speech technology, allowing users to listen to their email, reports and other written communications, this means that while one may enjoy the acoustics in a particular open-plan office others may get affected unknowingly (Ross, 2003).

2.1.5 Noise related problems

Noise is regarded as a source of distraction, frustration and ultimately stress amongst office workers, which can lead to higher incidents of illness and staff turnover and ultimately can affect the company's bottom line (Evans & Johnson, 2000). Some 'extremists' refer to excessive noise in the workplace as a 'hazard', not necessarily because of the effects that it can have on health and safety, but because of its effects on people work performance. Studies indicate that approximately 80

percent of office workers believe that their productivity would increase if their working environment was more acoustically private (American Society of Interior Designers, 2005). Noise is one of the leading causes of employees' distraction, leading to serious inaccuracies, and increased job related stress, a study showed that workplace distractions cut employee productivity by as much as 40%, and increase errors by 27% (Bruce, 2008).

Concentration can be highly affected by background noise, particularly impulsive sporadic sounds such as telephones ringing and people talking nearby and one must be aware that the human auditory system is particularly sensitive to sounds within the speech frequency spectrum which means that employees are likely to be distracted by their colleagues' speech (Acoustics at work, 2009). Today many offices are using an open plan workplace designs as it is effective to use office space. However, there are complaints about such office designs and one of the main complaints is that with the high density of workstations positioned closely together in a confined space, there is no privacy. Moreover, these high densities of workstations also results in a high level of noise pollution, these sources of noise includes conversations between colleagues, telephone and mobile ring tones, loud telephone conversations, conference calls and speaker phones, dictation, computer audio, the footsteps of people walking past, printers, scanners, copiers or fax machines (Ross, 2003) . Whilst the open space plan is the ideal setting for some tasks such as collaborative work, it is completely inappropriate for other work tasks such as those that require a high level of concentration or creativity (Jensen, Arens & Zagreus, 2005).

Noise can also be a primary cause that contributes to stress and illness which, in turn, can also contribute to absenteeism and turnover of staff (Abbot, 2004). Stress, whilst being a psychological condition can, if prolonged, cause physiological effects, which include headaches and nausea and, in the long term conditions such as diabetes and elevated blood pressure all of which can lead to loss of work motivation and absenteeism (Oomen , 2008).

Another problem that can be caused because of noise is effective communication (Miller, 1978), as offices become noisy, frustrations levels increases and spoken communication becomes progressively more difficult and resulted in interruptions to clearly communicate with colleagues, that is constant interruptions can lead to an inability to communicate focus and the quality of work throughout the area could suffer, and workers may have difficulty talking with clients or customers

on the telephone; Effective workplace communication is a key to cultivation of success and professionalism (Canadian Centre for Communication, 2003). A company that communicates throughout the workplace in an effective manner is more likely to avoid problems with completing the daily procedures, and less likely to have a problem with improper occurrence and will generate a stronger morale and a more positive attitude towards work; when employees communicate effectively with each other, their performance will increase because effective communication means less complains and more work getting done (Quilan, 2001). It also removes confusion and frees up wasted time that would have been otherwise spent on explanation or argument and this makes workplace more enjoyable, less anxiety among co-workers which in turn means positive attitude towards work and increased productivity (Fleming & Larder, 1999).

Successful communication requires a high level of speech intelligibility between communication partners; speech intelligibility is negatively influenced by a high reverberation time within the room, lowering this reverberation time will therefore not only increase speech intelligibility but reduces ambient noise level improving employees' concentration and decreasing their level of annoyance (Acoustics at work, 2009).

Noise can cause psychological effect on emotional stability such as irritation, tenseness and insomnia, argumentativeness and changes in mood. These are all symptoms of general anxiety and distress and these emotional conditions have interrelated negative influence on communication in offices (Miller, 1978). It is obvious that if the noise level in an office creates anxiety and distress in employees, appropriate communication would be extremely difficult and these physical reactions to noise make a person simply not feel well, and thereby adversely affect the worker's relationship with others as well (Quilan, 2001).

2.1.6 Noise and organization's profitability

There can hardly be anything more important than one's health and wellbeing. This is also a priority for most employers; a healthy, happy workforce is a vital component of a productive and a reason for a successful business in the long term because Staff costs, including salaries and benefits, typically account for about 90% of business operating costs (Alberti, 2001). Therefore what may appear a modest improvement in employee work performance can have a huge financial implication for employers and anything that impacts their ability to be effective should be of a major concern for any organization (Khalil, Enas , Nidal & Slaiman, 2013).

Employee satisfaction is extremely important in the work place as it influences an organization's success and performance by improving morale. This, in turn, reduces staff turnover (Dole & Schroeder, 2001). It has been shown that employees who are comfortable with their working environment are more likely to generate better work as the physical environment affects their job perception, attitudes and job satisfaction (Lee & Brand, 2005). Noise is the most prevalent annoyance source in offices, and can lead to increased stress for occupants, even moderate levels of noise in an office environment can cause increased distraction and stress amongst employees and this can lead to a reduction in their work quality and can ultimately affect a company's financial performance (Jensen, Arens & Zagreus, 2005).

Employees' ability to perform their job effectively is a very significant factor affecting profitability of an organization (Bevan, 2012). When employees are not exposed to distracting factors like noise at their work place they can perform well towards achieving organization's goals and objectives otherwise inefficient job performance will bring about a tragedy to the organization as associated with lower productivity, profitability and impairment of overall organizational effectiveness. Productivity is important for organizations as employees' productivity leads to business success and it is important for individual as accomplishing tasks can be a source of satisfaction (Thushel, 2014). On the hand, company's their work places are noisy do possibly incur cost of lower productivity from workers, according to studies, the decline in productivity rate for workers who are exposed to noise is 30%, therefore the cost of lower productivity per worker can be calculated as Worker's annual salary rate of productivity decline and this greatly affects the firm's profitability when it is calculated for the entire workers in the company (Khalil, Enas , Nidal & Slaiman, 2013).

2.2 Empirical reviews

Studies have shown that noise pollution has significant impacts on employees. For instance, one specific study assessed subjective reports of distraction from various office sounds among employees at two different sites. The study examined the amount of exposure the workers had to the noise in order to determine any evidence of habituation (the ability of workers to get used to the noise so that it is less distracting) and 99 percent of the respondents reported that their concentration was impaired by various components of office noise (particularly telephones left ringing on unoccupied desks and people talking in the background). The study also indicated that employees

are unable to habituate to noise in office environments over time, indicating that this noise is a problem, for most employees, which does not improve over time (Banbury & Berry, 2005).

According to another survey conducted at the Centre for the Built Environment (CBE) at the University of California Berkeley, in which 23,450 respondents from 142 buildings were included found that occupants of private offices were significantly more satisfied with noise levels and speech privacy than were occupants in open plan offices. In fact, over 50 percent of cubicle occupants expressed that acoustics interfere with their daily work. It must be additionally noted that 30 percent of occupants of private offices also felt that acoustics influenced their productivity (Jensen Arens & Zagreus, 2005). A study undertaken in Japan can also be considered as an empirical study about source of noises, the study investigated investigates the relationship between a telephone ringing and mental tasks which would typically be undertaken in an office environment. The results, which were based upon an adding and a drawing task, indicated that both were performed to a higher standard when the telephone was not ringing, providing an indication of the effect of noise from ringing telephones on cognitive performance (Mouri, Akiyama, & Ando , 2001). Banbury and Berry's study also involves asking workers to perform two tasks; in one they memorized and then recalled a piece of prose and in other they undertook simple mental arithmetic. During the tests the subjects were played recordings of general office noise. It was found that the accuracy of their work, when exposed to this noise, reduced by approximately 67% (Banbury & Berry, 1998).

To determine the effects of noise level on occupants, The American Society of Interior Designers has also conducted a study by measuring the noise level at employees work place, the study was undertaken at a call centre when measures were taken to improve the acoustic environment following a refurbishment, a 300 percent increase in perceived 'worker satisfaction' was reported as a result of the reduction in noise levels from conversational noise. In addition a measured 20% increase in sales productivity was recorded at the end of the six months following the refurbishment (American Society of Interior Designers, 2005). In the similar fashion, a paper was written in 2004 reviewing research relating to the effects of conversational noise on office workers. It was found that when conversational noise was reduced and speech privacy increased, the ability of office workers to focus on tasks improved by 48 percent, conversational distractions decreased by 51 percent, performance of tasks relating to accuracy and memory improved by 10 percent and the actual physical symptoms of stress such as high blood pressure and increased heart rate were reduced by 27 percent (Sykes, 2004).

Six years ago a researcher named Gray, showcased on “The Secret Life of Buildings”, mentioned that working in an open plan office is bad for the brain. The study revealed a 32% drop in workers well being and a reduction in their productivity by 15%. The neuroscientist who conducted the study said; “open plan offices were designed with the idea that people can move around and interact freely to promote creative thinking and better problem solving. But it doesn’t work like that, if you are just getting in to some work and a phone goes off in the background it ruins what you are concentrating on. Even though you are not aware at the time, the brain responds to distraction” (Gray, 2011). To check the effects of acoustic quality on employees’ performance before and after sound masking systems are built at employees’ work place, a ceiling manufacturer conducted studies in which ceiling systems were replaced with absorbent equivalents and sound masking systems, employees in a number of companies were surveyed prior to and following the works. The workers indicated that ‘freedom from auditory distractions was the most important feature in efficiently and effectively accomplishing their work tasks’ and 80 percent of workers believed they would be more productive if their workspace provided more acoustical privacy and, in cases where distractions from noise were reduced, a 25 percent increase in the perceived quality of the work environment was reported, with a 27 percent reduction in stress and a 20 percent increase in productivity (American Society of Interior Designers, 2005).

2.3 Summary and Literature gap

The studies reviewed all indicate that noise in an office environment can cause increased distraction and stress amongst employees which can lead to a reduction in employees’ performance and this can ultimately affect a company’s financial performance. However, all the above mentioned studies want to focus on the actual level of noise that occupants are exposed to but in this research the measurement technique is different in which the biggest aim is to see the effect in terms of employees’ perceived noise pollution by considering the fact that no matter the level of noise one is exposed to if he/she perceived to be sensitive to the sound around him/her then it might affect one’s in time delivery of assigned work. Moreover, this study will evaluate the association between employees’ perceived noise pollution has with timely work delivery specifically in the case of knowledge workers in consultancy firms.

2.3 Conceptual framework and model

Based on the literature reviewed above, the relationship between employees' perceived noise pollution at work place and timely work delivery can be conceptualized in the conceptual framework model shown in Fig. 1.

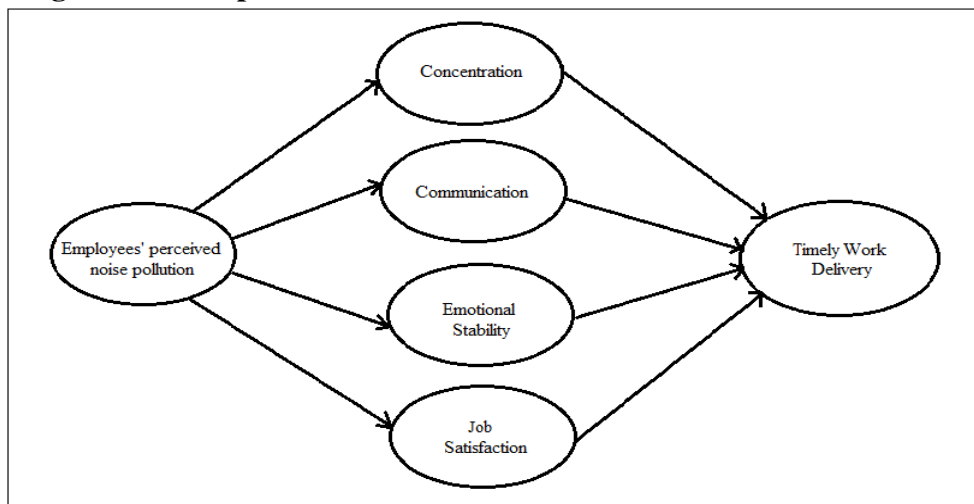
This study following from previous studies will then focus on how perception to noise pollution at work place is associated with employees' timely work delivery in terms of the following intermediary variables;

- Concentration
- Communication
- Emotional stability and
- Job satisfaction

The need to use the above mentioned intermediary variables is that the researcher wants to show the way employees' perception to noise pollution at work place is related with timely work delivery more explicitly.

The research model is formulated from the insights gained from various previously written literatures and also from the researcher's perspective on how she perceives the problem at work places. The model is shown in the following diagram;

Fig.1 The conceptual frame work model



Source: Researcher's own design, 2017

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter considers the methodology of the research and describes the selection of the sample and the design of the survey instruments used to collect the data. The principal aim of this chapter is to present the instruments used in the study and the statistical analysis undertaken in an effort to provide answers to the research questions and the general objectives of the research.

3.1 Research Approach and design

For the purpose of this study a mixed research approach is used. The researcher selects this approach because quantitative approach helps the researcher to be able to collect quantifiable data for the concepts that are already in place as described in the literature above and wants to verify or strengthen it. The qualitative approach is also followed to explore the topic and collect personal opinion. The assumption is that the participants' perspectives are meaningful and important for the success of this research. In regards to reasoning, this study uses a deductive approach which is more likely to work both with quantitative and qualitative data to answer the questions about relationships among the vital elements with the purpose of explaining, thus, the aim of a deductive approach is to logically reason out the research questions the study sets out.

With regard to research design, this research uses explanatory research design. This is because the study intends to show the relationship between sensitivity to noise pollution at work place and timely work delivery.

3.2 Research Methods

3.2.1 Sampling

The target population considered in this study is consultancy firms located in Addis Ababa. However, due to budgetary and physical limitation the researcher uses five consulting firms as experimentally accessible population. Experimentally accessible population is the group that the researcher actually can include in the assessment because of budgetary constraints and physical limitations, this population is a subset of the target population and is also known as the study population (Stan, 2007). It is then from this accessible population that researchers draw the samples. Cronbach's Alpha (α) is considered as an unbiased estimate to test the generalizability and

representativeness of the experimentally accessible population. Accordingly, the total population of this study is only consultants (knowledge workers) found in the accessible five consultancy firms with a total number of 102. From each firm responding consultants are selected using simple random sampling procedure with 95% confidence level and 5 % confidence interval. Simple random sampling procedure gives everyone an equal chance of being selected and this form of sampling tends to eliminate subjectivity and obtains a sample that is both unbiased and representative of the target population. This method also facilitated the generalization of the findings from the study. As a result, the total sample size obtained from the five consultancy firms is 82 consultants; in which 22 are from Veritas, 8 are from WAAS, 21 are from precise, 7 are from SART and 23 are from Delloite.

3.2.2 Research data type and Instrument

For the purpose of this study primary data type is used as a source of data. Primary data is obtained directly from sample respondents through the administration of questionnaires and interviews during the fieldwork.

The instrument used accordingly is questionnaire and interview questions. Primary data is gathered through the distribution of the questionnaires which is designed to contain the vital important variables in order to serve the research's purpose and obtain the relevant data. The questionnaire is divided into three main sections, the first section includes general description of the respondent and; the second section includes questions which help to measure different variables which are relevant for this study and helpful to determine existence of associations between them using a five point Likert Scale ranging from 1 to 5. The third section contains open ended questions that give respondents a chance to express their opinions on the subject matter. Interview with consultants is also conducted to obtain detailed information from the respondent and it also helps the researcher to observe and record a subject's unique perspective or experience as it relates to the issue at hand.

3.2.3 Data Analysis Tools and Techniques

The data obtained from the questionnaire is organized and validated through vetting for consistency and completeness. Subsequently, responses are partitioned into homogeneous sub-groups to facilitate analysis. The data is analyzed quantitatively using the Statistical Package for the Social Sciences version 20 (SPSS, V.20) and Excel; results are presented through graphs and tables. Using SPSS, descriptive statistics is employed to describe and summarize sets of data, frequency counts and

percentages. This statistical tool is also used to determine and evaluate the existence of a meaningful and statistically significant relationship between employees' perceived noise pollution at work place and timely work delivery through the analysis of correlation coefficient (r) and significance (p -value). In addition, qualitative data analysis is done for the qualitative data.

CHAPTER FOUR

RESULTS AND DISCUSSION

This chapter presents the analysis of the results of the fieldwork and discussion of the findings of the study. It examines employees' perception to noise pollution at work place and its results on their timely work delivery. It then seeks to establish association between the two. The study's overriding concern is that noise pollution at work place might have a considerable influence on the level of employee timely work delivery. This chapter will also discuss the key findings and will tend to prove the hypothesis the research intends to answer.

A total of 82 questionnaires were administered to consultant employees who work in consultancy firms and 10 consultant employees were interviewed. All respondents were able to complete and return their response. The respondents who were drawn spanned the various education levels with the majority of the respondents being Msc holders, accounting for 61% percent of the total respondents and 39% of the respondents accounted for Bsc holders. This can help determine whether or not respondents have an understanding of what they are questioned.

4.1 Reliability and validity of measurements

Reliability refers to the degree to which measures are free from random error and therefore yield consistent results (Zikmund, 2000). According to Sekaran (2003) reliability of a measure is an indication of the stability and consistency with which the instrument measures the concept and helps to assess the goodness of the measure. Thus the extent to which any measurement procedure produces consistent results over time and an accurate representation of the total population under study is referred to as reliability. In this research Cronbach's Alpha is used as a measure of internal consistency and representativeness of the sample. Cronbach's Alpha is a reliability coefficient that indicates how well items in a set are positively correlated to one another (Sekaran, 2003). Coefficient alpha is a measure of internal consistency based on the formula $\alpha = rk / (I + (K-I) r)$, where k is the number of variables in the analysis and r is the mean of the inter-item correlation (Mallery, 2001).

Table 1 shows a summary of the reliability test based on the Cronbach's alpha coefficient for the five scales items in the survey instrument. The Cronbach's alpha value was mainly 0.8 and is thus considered as good.

Scale	Nº of Items	Cronbach's Alpha (α)
Section B (B1-B4)Employees' perceived noise pollution	4	.869
Section C(C1-C4)Level of communication	4	.871
Section D(D1-D4)Level of concentration	4	.857
Section E(E1-E4)Level of emotional stability	4	.845
Section F(F1-F4) Level of job Satisfaction	4	.841
Section G (G1-G5)Level of timely work delivery	5	.899
Total	25	.974

Table 1 Reliability result

Validity on the other hand, can be described as the extent to which the instrument measures what it purports to measure. According to Healy and Perry (2000), validity determines whether the research truly measures that which it was intended to measure. Thus validity measures how truthful the research results are or the extent to which scores truly reflect the underlying variable of interest. Faux (2010) asserts that an effective and practical approach to pre-testing questionnaire instruments is to ensure that the questionnaire is understood by participants. Also, the benefits of the approach are improved questionnaire reliability and planning which results in better response rates (Faux, 2010). After the design, the questionnaire was given to experts for their comments and suggestions. This was done to ensure refinement and content validity.

Whilst testing validity with experienced researchers is crucial, it is also important to pre-test instruments on potential respondents. Hence a pre-test was carried out on the data collection instruments before the main survey. Feedback was used to improve the data collection instruments by eliminating any ambiguities and inadequate terms. The pre-test was used to enable the researcher to check the validity of the instrument of data collection. It enabled the researcher to assess the clarity of the questionnaire so that items found to be superfluous and misunderstood were modified to improve the quality of the research instrument, thereby increasing its strength and validity.

4.2 Methods of Data Analysis and Presentation

Both descriptive and inferential statistical techniques were used to analyze the data. Descriptive statistics such as mean, percentages and standard deviation were employed to present the responses obtained from the respondents. Statistical Product and Service Solution (SPSS) (formerly known as Statistical Package for Social Sciences) version 20.0 was employed to further analyze the data.

Also tables and a chart were used for data presentation. Finally, correlation was used to test the strength of the relationship between the variables and to test the hypotheses.

4.3 Measurements

Section A: Socio-Demographic Data of Respondent

This section is used to measure the overall socio demographic data of the respondents; these are age, sex and educational background

Section B: In this section measurement is used for the following variables

- Employees' perceived noise pollution
- Level of communication
- Level of concentration
- Level of emotional stability
- Level of job satisfaction
- Level of timely work delivery

4.4 Survey findings

4.4.1 Demographic characteristics of respondents

Over 60% of the respondents' age is in the range between 30-39 years old. The respondents' age distribution is displayed in Fig 2 as follows;

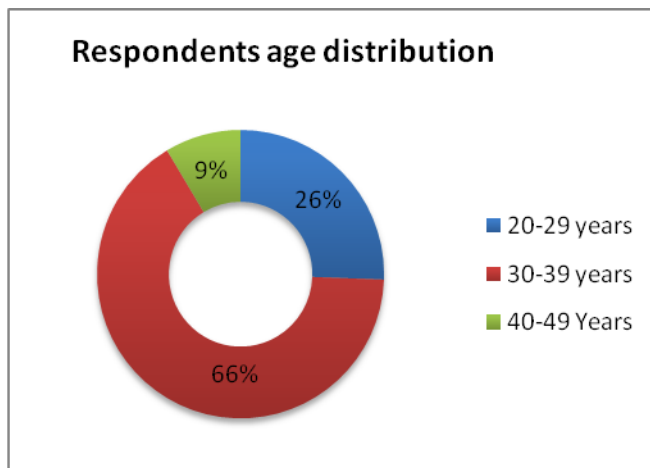


Fig. 2 Respondents age distribution

Based on the age of respondents the survey findings are summarized to show respondents mean perceived sensitivity to noise pollution at their work place in Table 2

Respondents age	Mean of perceived sensitivity to noise pollution
20-29 years	14.14
30-39 Years	16.04
40-49 Years	17.29

Table 2 Respondents perceived response to noise according to age

According to the data collected, 38% of the respondents were female employees and 62% were male employees. The overall response according to their gender and the mean perceived sensitivity to noise pollution at work place is detailed in Table 3.

Respondents gender	Mean of perceived sensitivity to noise pollution
Male	16.1
Female	15.6

Table 3 Overall responses according to gender

Respondents' response mean values to different types of noise pollution sources based on their gender is also detailed in Table 4

Source of noise	Mean for female	Mean for male
Music	4.8	3.5
Chattering	3.1	4.5
Office machineries sound	3.2	4.6
Outside road traffic and aircraft sound	4.5	3.5

Table 4 Overall respondents' response to source of noises according to gender

4.4.2 Respondents perception to different sources of noise pollution at work place

Four types of possible noise pollution sources in the office such as music, chattering, office machineries and outside traffic sound are considered for study.

The results of employees perception to each sources of noise is presented in the following figures:

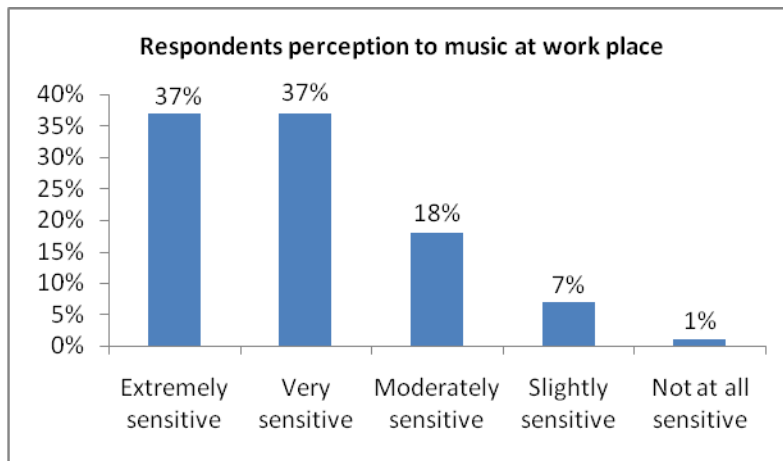


Fig.3 Employees' perception to music in the office

The above result shows that 37% of employees perceive that they are both extremely and very sensitive to music and the remaining employees perceive less sensitive to it.

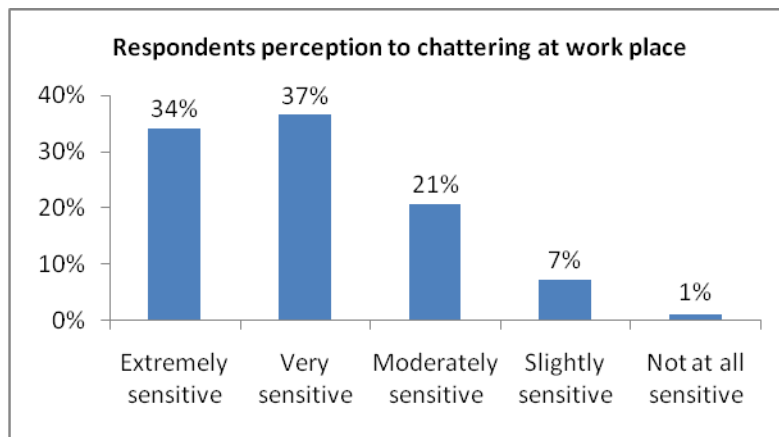


Fig.4 Employees' perception to chattering in the office

The above result shows that 34 % of employees perceive that they are extremely sensitive to chattering in the office and 37% are very sensitive, the remaining employees perceive less sensitive to it.

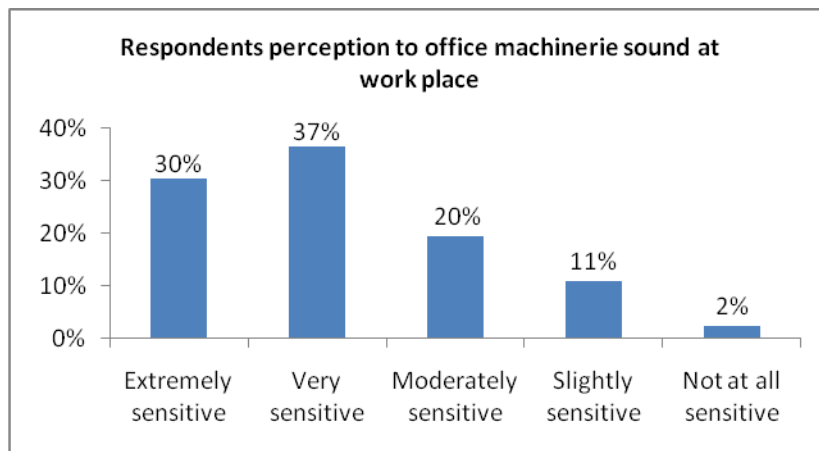


Fig.5 Employees' perception to office machinerie sound in the office

The above result shows that 30% of employees perceive that they are extremely sensitive to office machinerie sound and 37% are very sensitive, the remaining employees perceive less sensitive to it.

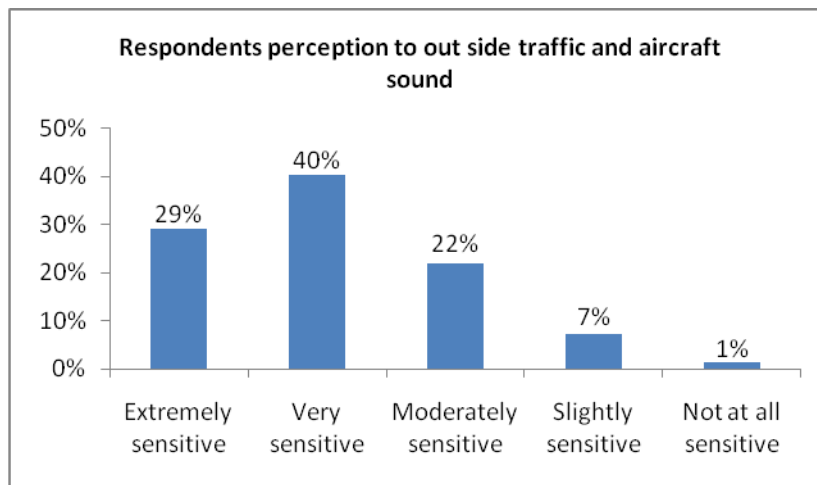


Fig.6 Employees' perception to outside traffic and aircraft sound

The above result shows that 40% of employees perceive that they are very sensitive to outside traffic and air craft sound and 29% are extremely sensitive, the remaining employees perceive less sensitive to it.

The mean and standard deviation values of respondents response to each source of noise at work place is shown in the Table 5

Source of noise	Mean of perceived sensitivity	Standard deviation of perceived sensitivity
Music	4.00	.981
Chattering	3.95	.980
Office machinery sound	3.82	1.067
Outside traffic and air craft sound	3.89	.956

Table 5 Overall respondents' responses to source of noise

The mean values for each sources of noise at work place indicate that employees are in general sensitive to these sources of noise pollutions at a great extent. Further, the mean result for Music shows that they are more sensitive when someone opens music in the office and when there is chattering at their work place.

4.4.3 Correlation Results

The relationship between perceived noise pollution, the four intermediary variables; concentration, communication, emotional stability and job satisfaction; and timely work delivery is determined by using the Pearson's Correlation coefficient 2-tailed test. Pearson's Correlation is a measurement of the strength of a linear or straight line relationship between variables.

The measurement is performed with 95% confidence interval and .05 error margin. The survey result is presented in the following tables;

Table 6 Correlation between employees' perceived noise pollution and concentration

Variables	Correlation coefficient (r)	Significance (p-value)
Concentration	.900 [*]	<.001

* Correlation is significant at the 0.05 level (2-tailed).

The association of employees perceived noise pollution with concentration is significant in the Pearson's correlation coefficient $r = .900$ and $p < 0.05$. The strong, positive r and p value has shown the existence of the association and the null hypothesis that employees perceived noise pollution does not have a significant association with employee concentration is thus rejected.

Table 7 Correlation between employees' perceived noise pollution and communication

Variables	Correlation coefficient (r)	Significance (p-value)
Communication	.836 [*]	<.001

* Correlation is significant at the 0.05 level (2-tailed).

The association of employees perceived noise pollution with communication is significant in the Pearson's correlation coefficient $r = .836$ and $p < 0.05$. The strong, positive r and p value has shown the existence of the association and the null hypothesis that employees perceived noise pollution does not have a significant association with communication is thus rejected.

Table 8 Correlation between employees' perceived noise pollution and emotional stability

Variables	Correlation coefficient (r)	Significance (p-value)
Emotional stability	.853 [*]	<.001

* Correlation is significant at the 0.05 level (2-tailed).

The association of employees perceived noise pollution with emotional stability is significant in the Pearson's correlation coefficient $r = .853$ and $p < 0.05$. The strong, positive r and p value has shown the existence of the association and the null hypothesis that employees perceived noise pollution does not have a significant association with emotional stability is thus rejected.

Table 9 Correlation between employees' perceived noise pollution and job satisfaction

Variables	Correlation coefficient (r)	Significance (p-value)
Job satisfaction	.826*	<.001

* Correlation is significant at the 0.05 level (2-tailed).

The association of employees perceived noise pollution with job satisfaction is significant in the Pearson's correlation coefficient $r = .826$ and $p < 0.05$. The strong, positive r and p value has shown the existence of the association and the null hypothesis that employees perceived noise pollution does not have a significant association with job satisfaction is thus rejected.

Table 10 Correlation between employees' perceived noise pollution and timely work delivery

Variables	Correlation coefficient (r)	Significance (p-value)
Timely work delivery	.858*	<.001

* Correlation is significant at the 0.05 level (2-tailed).

The association of employee's perceived noise pollution with timely work delivery is significant in the Pearson's correlation coefficient $r = .858$ and $p < 0.05$. The strong, positive r and p value has shown the existence of the association and the null hypothesis that employee's perceived noise pollution does not have a significant association with timely work delivery is thus rejected.

The other correlation result between the intermediary variables; concentration, communication, emotional stability and job satisfaction; and timely work delivery is presented as follows;

Table 11 Correlation between intermediary variables and timely work delivery

Variables	Correlation coefficient (r)	Significance (p-value)
Timely work delivery	.867	<.001

* Correlation is significant at the 0.05 level (2-tailed).

The association of concentration, communication, emotional stability and job satisfaction with timely work delivery is significant in the Pearson's correlation coefficient $r = .867$ and $p < 0.05$. The strong, positive r and p value has shown the existence of the association and the null hypothesis that

concentration, communication, emotional stability and job satisfaction does not have a significant association with timely work delivery is thus rejected.

4.4.5 Work place noise sources and solutions from employees' perspective

Work place noise sources

Respondents were also asked about the sources of noise that their work place is exposed to and respondents have described the possible sources as others conversation, music, external sounds, phones & printers as the main source.

Work place noise pollution improvement suggestions

Respondents were also given the opportunity to put their personal suggestions how to improve work places exposure to noise and the possible solutions that they consider to minimize noise at work place are office noise of conduct, sound mask, office location study and avoiding open space designs. Among these solutions, majority of respondents consider office noise code of conduct and office location study as good solutions for noise problems in the office.

4.5 Discussion

The main purpose of this study is to identify and evaluate the association between employee's perceived noise pollution at their work place and their timely work delivery through gathering and analysis of relevant data. To determine the association, the researcher had used moderator or intermediary variables to show the association explicitly which are; concentration, communication, emotional stability and job satisfaction, which are believed to have association with employee's perceived noise pollution and timely work delivery. Moreover, additional survey findings that are important for the overall study based on respondents' gender, age and perception to different sources of work place noises is also considered for discussion. As the survey findings are presented in the results section, the findings analysis is discussed as follows;

4.5.1 Demographic results discussion

As the mean result of respondents' perceived sensitivity to sources of noise at work place based on the respondents' age is shown in Table 2, the higher the respondents' age gets, their perception to noise pollution at their work place also increases. The mean value for each age range as it gets high

is 14.14, 16.04 and 17.29 respectively. This result can be seen from two important perspectives, the first one is that employees at any age, given the age ranges for this study, can perceive a sound as unwanted and determine it as noise and second employees at higher age can be more disturbed by noise at their work place.

The gender result described in Table 3 shows that the mean value of perceive sensitivity to noise pollution at work place for both male and female respondents is 16.1 and 15.6 respectively which is almost similar. This shows that employee's gender doesn't necessarily imply any difference in the perception of noise. However, according to the result displayed in Table 4 the source of noise they can get more sensitive to varies. Given the four sources of noise at work place, respondents mean values to each source based on their gender shown in Table 4 shows that female employees are more sensitive to music and outside traffic and aircraft noise. Male employees are more sensitive for chattering at work place and office machineries sound.

The overall employees' perception to the various source of noise was also examined in this study and the results in Table 5 showed that most of the respondents agreed that they are extremely sensitive to music, chattering and outside traffic and air craft noise. And most of them agree that they are slightly sensitive to office machinery sounds, which show that employees perceive music and chattering as the leading source of noises in the work place followed by outside noises.

4.5.2 Hypothesis results Discussion

The association between employees' perception to noise pollution at work place and timely work delivery is analyzed using both intermediary variables for explicitly purpose and only using the two variables as well. This is determined by using the Pearson's Correlation coefficient. Summary of the result is shown in the following table;

Table 12 Correlation between variables

Variables	Correlation coefficient (r)	Significance (p-value)
Concentration	.900*	<.001
Communication	.836*	<.001
Emotional stability	.853*	<.001
Job satisfaction	.826*	<.001
Timely work delivery	.858*	<.001

* Correlation is significant at the 0.05 level (2-tailed).

Based on the results, the hypothesis the study has set to prove is discussed as follows;

Hypothesis 1 (H₁): Employees' perceived noise pollution has statistically significant relation with concentration.

The analysis of the result described in the above table indicates the existence of a positive correlation between employees' perceived noise pollution and concentration. This hypothesis is supported by correlation coefficient(r) = 0.900 Since the value is between +0.5 and +1 it can be said that perceived noise pollution at work place strongly and positively correlated with concentration having significant value (P) < 0.001 showing that there is statistically significant relation. This result reflects findings from previous studies which suggest that unwanted levels of noise, often caused by a reverberant environment, can cause difficulties with concentration at work (Perham Banbury & Jones, 2007). Based on the study findings we can say that that according to employees' perception, work place noise can affect their concentration ability while performing their work. Based on the questions presented in the questionnaire, when employees are exposed to the various sources of noise at their work place they indicated this association in a way that their reading comprehension, remembering specific details and focus level tend to decrease which in general decrease their concentration ability.

Hypothesis 2 (H₂): Employees' perceived noise pollution has statistically significant relation with communication

This hypothesis is also supported by the result described in the above table with the correlation coefficient (r) = .836 and significant value (P) <0.001. The value proves that there exists a strong and positive correlation between employees' perceived noise pollution and communication. This finding reflects previous studies that suggest noisy work places make spoken communication among employees and clients more difficult and result in interruptions (Miller, 1978). The proven association between perceived noise pollution and communication is an indicative that noise at work place affects employees' communication ability in a way that they tend to repeat themselves when communicating with others and also raise their voices and this interferes with their work pace as well it creates frustrations at work place.

Hypothesis 3 (H₃): Employees' perceived noise pollution has statistically significant relation with emotional stability

Considering the correlation coefficient (r) = .853 and significant value (P) < .001, this hypothesis has been statistically proven to be true that r value is between + 0.5 and +1. The result shows the existence of a strong and positive association between employees' perceived noise pollution at work place and emotional stability and the relationship is statistically significant. This result is a good indicator that noise at work place creates various emotional instability conditions such as stress, mood swings and annoyance at work place and these emotional instabilities will adversely affect the way they do their work and workers relationship with others (Quilan, 2001).

Hypothesis 4 (H4): Employees' perceived noise pollution has statistically significant relation with job satisfaction

Similarly this hypothesis is supported by the correlation coefficient (r) = 0.826. Since this value is between + 0.5 and +1 it suggests that employees' perceived noise pollution is strongly and positively correlated with job satisfaction having statistical significance with a significance value (P) < .001. This shows that employees will feel unsatisfied with their work and this will drive them look for better places. This is because employees feel motivated and initiated to do their work when they are satisfied with what and where they do. The result of this hypothesis reflects previous studies that employees who are comfortable with their work place likely generate better work since their environment affects their perception and attitude towards their job (Lee & Brand, 2005).

Hypothesis 5 (H5): concentration, communication, emotional stability and job satisfaction has significant relation with timely work delivery

According to the survey findings shown in the results section, this hypothesis has been statistically proven to be true and significant having correlation coefficient (r) = .867 and significance value (P) < .001. As discussed above, the intermediary variables prove to have strong and positive association with employees' perceived noise pollution at work place and the collaborative effect of these variables has strong and positive association with employees timely work delivery. Which can possibly imply that employees' perceived noise pollution at work place has strong and positive association with timely work delivery. The need to use these intermediary variables is to show explicitly how employees' perceived noise pollution gets in the way to their timely work delivery. The correlation coefficient (r) value indicates that the association is very strong in a way that when employees lose their concentration, communication ability, emotional stability and job satisfaction because of their work place disturbance as a result of unwanted sounds they will not be able to deliver quality and complete work in a timely fashion. This hypothesis also supports previous studies

in that when employees are disturbed by noise they tend to pull their effort in completing their task on time (Huges, 2007).

Hypothesis 6 (H6): Employees' perceived noise pollution has statistically significant relation with timely work delivery.

This hypothesis is considered to be the main question this research wants to answer and it has been proven to be true with correlation coefficient (r) = .858, as this value is between +0.5 and + 1 it clearly shows that there is a strong, positive relationship between the two variables with a significance value (P) < .001 indicating a statistically significant relation. This result shows that employees perception to noise pollution affect their timely work delivery as shown using the intermediary variables that their concentration, communication, emotional stability and job satisfaction will ultimately affect them from delivering their responsibilities as required.

The findings from the study, to a considerable extent, validates and brings to reality the widely accepted assumption that a better workplace environment motivates employees and they are more interested to deliver better work in a better working environment (Tietjen & Myers, 1998). The study demonstrated that work place source of noise interfere with employees concentration, communication abilities, emotional stability and job satisfaction. These in turn have a strong and positive association with their ability in delivering their work on time.

The qualitative survey questionnaire results also shows employees perspective on what they consider as the major source of noise that they are exposed to at their work place. According to the result 39% of the respondents think others conversation in the office is the main source of disturbance for them and 32% consider that it's disturbing when others open music in their work place, the rest 17% and 12 % believe that office machineries and external sounds are the biggest source of noise at their work place. This result indicates that source of noise pollution can be from both internal and external source. These sources of noise disturb employees from performing their day to day tasks knowingly or unknowingly. This finding greatly supports previous studies in determining the sources of noise that source of work place noise can come from kinds of sources such as air conditioning, obnoxious ringtones, outside traffic, aircrafts, nearby construction, and people's voices (Amira & Shehla, 2009).

In addition to the above discussion, respondents were also asked about their possible suggestions to solve noise related problem at work place, 34% of them suggested that office noise code of conduct

will alleviate noise problem at work place. Which indicates that employees believe management should consider the possible effects of noise at work place and have solution oriented code of conduct to minimize the cause. The other 33% of respondents suggest that office location study is vital to minimize outside noise from disturbing work places, it implies that work place locations can be exposed to traffic noise, air craft noise and other sounds that are near to employees work place and need to be considered in selecting convenient work places. Open space work place design was also one of the suggestions 18% of respondents point out as a solution for office noise; it is believed that open space offices are the perfect fit for office space efficiency but according to the survey results, employees consider such designs expose one to unwanted noise resulted disturbances and need to be considered before having them in place. 15% of employees also suggested that using sound masks during constructing the work places is advantageous. Although it is not accustomed in Ethiopian context, it is a commonly used technique to artificially increase the ambient noise level in a particular area to provide a background noise ‘mask’ (Sykes, 2004).

4.5.3 Discussions from interview

According to majority of the interviewees, noise pollution at the work place affects concentration ability towards what they have been doing whenever they are exposed to noise at their work place and this makes them to delay in completing their work on time. The tendency to be attracted to the created noise such as music at the work place is very high which in turn affects their performance. When engaging with tasks that require numeric calculations and analysis, most of them tend to make minor or major errors when facing high noise levels like chattering, music, and louder conversations. According to their response, their memorizing level of specific details when there is any source of noise is compromised under noisy work environments.

Almost all of the interviewees responded that the level of noise affects their emotional stability and their reaction to music, chattering, office machines and external noises create irritation and mood swing. Interviewees also agreed on and suggested that it is always a customary issue to have problems in communicating while there is any source of noise at their work place. Communication horizontally among colleagues and even with the bosses vertically becomes a major challenge in their offices most of the time. One interviewee specifically mentioned that while there is noise in the office, raising one’s voice to communicate with each other creates irritation and misunderstanding between the conversing parties.

According to interviewees response their job satisfaction is highly affected whenever there is any noise level around them especially the louder ones. One senior consultant described noise pollution in the office as “noise pollution is considered as unethical and overriding personal boundaries and interests in terms of concentration, emotional stability and communication. As a result, job dissatisfaction is generated. Job dissatisfaction outcome is reflected in discouragement, less quality work, looking for another job, negligence and lack of motivation, putting aside one’s responsibility to the task given.”

In order to cope up with the noise level that usually occurs at work place one interviewee suggested that repeatedly reading what one has been trying to read can be considered and this helps in increasing the focus level that has been compromised by nearby noises in the office. The other coping mechanism suggested by the interviewees is using head set for dominating the environmental noise pollution at the office. Changing work place seat is also the other mentioned mechanism in dealing with noise. Moving from the usual seat to quiet place is also one of the coping mechanisms considered to get concentration.

Some of the interviewees noted that it is one solution to go out of office when they are stressed and unable to work on their tasks because of noise at their work place. The other ones mentioned that not working at all or lack of the desire to work usually happen as a result of mood swing.

Some of the interviewees suggested that for communicating with another party in a noisier work place, it is better to move from his/her seat to others to make communication easier. Some of them mentioned use of written form of communication such as email, sticky notes and others at a noisier environment can be used as an effective solution.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

This chapter presents conclusions and recommendations that emerged from the study. It presents the final conclusion of the study and goes on to suggest practical recommendations aimed at incorporating possible solutions to minimize noise pollution at work place and help improve employees' performance in delivering their work timely.

5.1 Summary of major findings

According to the data analysis, it was found that a greater percentage of respondents were males (62%) while lesser percentage were female (38%) and that the majority of respondents age range is from 31 to 39. In addition, we were able to see that employees perceive that music and chattering are the biggest source of noise at their work place. Even further, all the hypotheses were strongly supported with the statistical findings. The assumption about perceived noise pollution at work place has association with concentration, communication, emotional stability and job satisfaction in Hypothesis 1, 2, 3 and 4 respectively is statistically supported that there is a strong association between them. Hypothesis 5 was also proven to be true that there exists a strong and positive relation between the intermediary variables; concentration, communication, emotional stability, job satisfaction; and timely work delivery, in which the overall objective was to prove that employees perceived noise pollution at work place has association with timely work delivery through the intermediary variables. At last, hypothesis 6 was proven to be true that employees perceived noise pollution has statistically strong and significant relation with timely work delivery. This makes the researcher to find the answer for the overall research questions that this study aims to answer. Possible noise pollution protection solutions from employees' perspective such as, noise code of conduct, avoiding open space designs and others were also obtained.

5.2 Conclusion

The purpose of this study was to determine the association between employees' perception to noise pollution at work place and timely work delivery in the case of employees who are engaged in knowledge intensive work or consultancy. Employees' timely work delivery is one of the most important factors affecting the overall organization performance and the success of the organization in the competitive market nowadays. Accordingly, the study has assessed the association between employees' perception to noise pollution at work place and timely work delivery in terms of intermediary variables that have associations with both of them as well as the direct relation between the two variables. Both results from the study confirm that employees' perceived sensitivity to noise at their work place have a strong and positive association with timely work delivery.

The results of this study indicated that majority of employees perceived highly sensitivity to noise pollution at their work place. It was also found that the main sources of noise for majority of employees are music and chattering in the office followed by outside traffic and aircraft sound and office machineries which also indicate that employees are sensitive for both internal and external sources of noise. In addition, as the result showed, employees' gender is not a factor to perceive as sensitive to noise pollution at work place, however, the source of noise each gender is more sensitive to varies and age is also found to be a factor for employees to perceive more sensitive to noise pollution at work place.

According to the values employees give to their concentration , communication, emotional stability and job satisfaction level depending on their perception to noise at their work place, the result shows that there is a positive and strong association among them, which in turn have a strong relation with their ability in delivering their work on time as it strongly affects their concentration ability that their focus, attention to detail will be compromised; in addition, their communication as well as their emotional stability will be affected.

The main findings of this study indicates that employees whose work requires mental process (instead of labor intensive work) responded that noise pollution at their work place affects them from delivering their work on time by decreasing their work pace, work quality, completeness and by requiring them to have additional time to complete their work.

Noise pollution is a form of environmental pollution; it's not any less dangerous than other types of pollution, therefore interest in it was raised because of its consequences on members of noise

exposed societies which involves work place environments societies specifically the ones that their work requires their full concentration, communication, emotional stability and others. Organizations whose work force are engaged in mental process works or are consultants need to consider the association between their employees' perception to noise at work place and their ability to deliver their work on time as in the long run it can further affects the organizations performance in many ways.

5.3 Recommendation

This research found that noise is a growing concern for employees in consultancy firms who are engaged in mental process or knowledge work. While it is well known that employees experience serious distress due to noise pollution, until recently noise pollution has remained mostly not tackled because it has never been considered as a serious problem that could affect employees' performance from various angles. This issue, however, can be mitigated by proper acoustic considerations to support both individual and team workspace acoustic requirements.

In view of the findings and conclusion of the study, the following recommendations are made for consideration by the researcher as a means of utilizing workplace environments to motivate and enhance the performance of employees

- **Work place layout design:** In the design of work place space, emphasis should be made on how to use of the space in a way that considers minimization of the possible noise pollution sources that employees perceive as destructive. The open plan office designs should be complemented with meeting rooms, breakout areas, isolated enclosed offices and other ancillary offices/facilities that will be essential to the peculiar operations of the firm so that it wouldn't interfere with employees' concentration or disrupt their emotions.

Moreover, consideration should be given to space planning and layout to ensure that there is no disturbance among occupants.

- **Avoid noise generation:** This can be described as avoiding situations at work place that can generate noises to others. For instance, avoid providing hand free speaker phones in the office or putting meeting tables in the middle of work stations where others are carrying out work that requires concentration. Locating noisy teams together and away from quieter teams. Co-locating team members, because team members are tolerant of noise from their

own team. Consider personality of the staff and perhaps separate those who thrive in noisy environment from those who prefer quite.

- Enforce noise related code of conduct: introducing some form of norm which reinforces considerations towards others. These norms should cover phone use, loud conversation, music, headphone, and managing interruption and so on. It may also include the usage of 'Don't disturb' signals and allowing people whose work requires concentration to use headphones. In addition, explaining for all how the office layout works, the facilities available and how to control noise disruption.
- Work place location selection: When management is in the process of selecting a location for office use, there needs to be a consideration of environmental noise that could possibly come and affect their work place. As the study finding indicated, employees are also sensitive to source of noise that comes from outside their office. Accordingly, the main outside noise sources such as traffic noise, air craft sound and nearby industrial factories need to be considered in selecting work place location.
- Displace noise destruction: Displacing the noise destruction by providing easy access to informal meeting areas, breakout and brainstorming rooms. Provide quite areas for the staff to retreat to, including phone free desk areas or library type space.
- Reduce dense environment: Controlling the desk size and density of people in a room can help manage the noise destruction since high density environments with people closer to each other generate more noise destruction.
- White noise: White noise is a combination of all of the different frequencies of sound and since it contains all frequencies, it usually is used to mask all other sounds. White noise can be used as a solution for employees who perceive high sensitivity to noise pollution at their work place as it is an excellent sound masking technique and it allows the brain to ignore distracting ambient sounds. Instead of listening to the distracting and often annoying sounds and chatting coworkers, white noise helps to concentrate on the task at hand.

Today, most of the organizations do not give importance to the impact work place noise has on their employees; it is believed that this study will give them ample reasons to consider their employees acoustic requirements to help them achieve their responsibilities as expected.

5.4 Directions for further study

In this research it's attempted to determine the association employees' perceived sensitivity has with timely work delivery. Further studies can be projected from this on how inability of timely work delivery damages organizations economically and the collaboration effect on the macro economy as well. Moreover, further study on how open space designs affects employees performance can be conducted since today's offices are having open space designs to have space efficiency.

5.5 Limitations of the Study

Though this research is carefully planned, it still is subjected to limitations and shortcomings. the following are the limitation of the study:

- The data collected was based on subjective measurement; some other objective method of collecting data might also be used.
- The time span within which the study was conducted to some extent put a limit to the depth to which the theme of the study could have been analyzed.
- The analysis and conclusions of the study will be done based on the collected primary data, which is basically the responses of the respondents; and thus may not represent the actual situation on the ground due to personal perspectives and beliefs.

However, having removed all the above constraints, a more accurate research can be performed in the future.

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APPENDICES

i. Survey Questionnaire

St. Mary's University
School of graduates MBA program

Dear Respondent,

This is an academic exercise aimed at gathering primary data towards the writing of a thesis on the relationship between employees' perceived noise pollution and timely work delivery. Your cooperation in providing honest and prompt responses to the questionnaire would be very much appreciated. You are also assured of the privacy and confidentiality of your responses. Thank you very much.

Note: For the purpose of this study music, chattering, office machineries sound and outside traffic and air craft sounds are considered to be sources of noise and will be used collectively as source of noise in the below questions.

Section A: Socio-Demographic Data of Respondent

1. Sex

Male Female

2. Age

20-29 yrs 29-39 yrs 40-49 yrs 50 yrs. and above

3. Educational background

Diploma Bachelor's Degree Master's Degree

Doctoral Degree

Section B:

1. Perceived noise pollution

Please indicate your level of perceived sensitivity with each of the under listed questions using the ratings from 1 to 5 described below (by ticking) as:

- 1. Not at all sensitive 2. Slightly sensitive 3. Moderately sensitive
- 4. Very sensitive 5. Extremely sensitive

Question	1	2	3	4	5
1. Please rate your perceived sensitivity level when others open music at your work place					
2. Please rate your perceived sensitivity level when there is chattering among others at your work place					
3. Please rate your perceived sensitivity level when there are office machinery sounds at your work place					
4. Please rate your perceived sensitivity level when there is outside traffic and air craft noise at your work place					

2. Level of communication

Please indicate your level of communication with each of the under listed questions using the ratings from 1 to 5 described below (by ticking) as:

- 1. Very Low 3. Average 5. Very high
- 2. Below average 4. Above average

Question	1	2	3	4	5
1. How do you rate you raise your voice to communicate with others when there is any source of noise at your work place?					
2. How frequent do others ask you to repeat yourself when you speak with them when there is any source of noise at your work place?					
3. How frequent do you ask others to repeat themselves when they speak to you when there is any source of noise at your work place?					
4. How do you rate the level of not clear understanding you will have for what the other person is telling you when there is any source of noise at your work place?					

3. Level of Concentration

Please indicate your level of concentration with each of the under listed questions using the ratings from 1 to 5 described below (by ticking) as:

- | | | |
|--------------|---------|--------------|
| 1. Very good | 3. Fair | 5. Very Poor |
| 2. Good | 4. Poor | |

Question	1	2	3	4	5
1. How do you rate the level of your reading comprehension when there is any source of noise at your work place?					
2. Rate your ability to do error free work when there is any source of noise at your work place?					
3. What is your level of remembering specific details when there is any source of noise at your work place?					
4. How do you rate your focus level on your work when there is any source of noise at your work place?					

4. Level of emotional stability

Please indicate your level of emotional stability with each of the under listed questions using the ratings from 1 to 5 described below (by ticking) as:

- | | | |
|----------------|--------------|--------------|
| 1. None at all | 3. Moderate | 5. Extremely |
| 2. Slightly | 4. Very much | |

Question	1	2	3	4	5
1. Rate your level of stress when there is any source of noise at your work place?					
2. Rate your mood swing level when there is any source of noise at your work place?					
3. Rate your irritation/annoyance level when there is any source of noise at your work place?					
4. Rate your feeling of depression level when there is any source of noise at your work place?					

5. Level of Job satisfaction

Please indicate your level of job satisfaction with each of the under listed questions using the ratings from 1 to 5 described below (by ticking) as:

- 1. Very high
- 2. High
- 3. Moderate
- 4. Low
- 5. Very low

Question	1	2	3	4	5
1. Rate your level of encouragement to do your work when there is any source of noise at your work place?					
2. Rate your job accomplishment feeling when there is any source of noise at your work place?					
3. Rate your satisfaction with the quality of your work when there is any source of noise at your work place?					
4. Rate how likely you are to look for another job as a result of any source of noise at your work place?					

6. Level of timely work delivery

1. Rate the level of your delivered works completeness at the deadlines when there is any source of noise at your work place?

- 1. Very good
- 2. Good
- 3. Average
- 4. Poor
- 5. Very poor

2. Rate your work pace level when there is any source of noise at your work place?

- 1. Very high
- 2. High
- 3. Average
- 4. Low
- 5. Very low

3. Rate your frequency level in doing your work assignment until you reach at the expected quality level when there is any source of noise at your work place?

- 1. No additional
- 2. Little
- 3. Moderate
- 4. Much
- 5. A great deal

4. Rate the level of additional time you consume to deliver your work when there is any source of noise at your work place?

- 1. None at all
- 2. Little
- 3. Moderate
- 4. Much
- 5. A great deal

5. Rate the level of your delivered work quality at the deadline when there is any source of noise at your work place?

1. Very good

2. Good

3. Average

4. Poor

5. Very poor

Section C: Personal opinion

1. Is your office exposed to noise? Yes/no

If yes, please describe the source of noise you are exposed to

2. Does your current workplace environment require improvement in regards to work place noise?

Yes/ No

If you have answered “Yes”, please state the nature of improvements required

3. Please offer any suggestions in relation with noise at work place that will help improve one’s work quality and timely work delivery

B. Interview Questions

1. Are you exposed to any noise pollution at your work place?

Yes / No

If yes, how does it affect your timely work delivery?

- 1.1 Please describe in terms of your

- Concentration ability
- Emotional stability
- Job satisfaction and
- Communication ability.

2. What is your coping up mechanism for noise pollution at your work place?

