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Depression and Anxiety, associated factors and
the impact of workplace violence on psychologi-
cal disorders among Korean Workers

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the impact of workplace violence on psychologi-
cal disorders among Korean Workers

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A Master's thesis submitted to
Department of Global Health Policy and Financing
Division of Global Health Policy and Financing Program
and the Graduate School of Public Health, Yonsei University,
in partial fulfillment of the requirements for the degree of
Master of Public Health

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December 2021

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ACKNOWLEDGMENT

I address my thanks to Almighty Allah (The God of Abraham, Moses, Jesus and Prophet Mohammad) for empowering me for successfully completing Master's degree of Public Health Policy and Financing Capacity building at Yonsei University in Republic of Korea. I would like to thank the Almighty Creator (Allah) for giving me the ability to write and complete this thesis, a cross-sectional study about depression and anxiety and associated factors among Korean employees based on the survey conducted in 2017.

I would like to thank my most respected thesis advisor Sir Professor Whiejong M Han and thesis committee members; Professor Sukyeong Kim and Professor Sangchul Yoon from the bottom of my heart for assisting me complete this thesis.

Words cannot express my gratefulness and thankfulness to my thesis advisor, Respected Professor Whiejong Han but at least he will stay in heart forever.

I would like to thank KOICA for providing such a great opportunity for us for studying in the Republic of Korea. I have beautiful memories from the nice and kind people of the Republic of Korea.

Finally I would like to thank my kind parents, brothers and my wife Rema Farzan for their kind support during my study.

May the God of Abraham (Allah) help every patient and every needy soul in the world.

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List of Abbreviations and Acronyms

1. CBN..... Cervico-brachial Neuralgia
2. NGO.....Nonprofit organization
3. KWCS.....Korean Working Condition Survey
4. PTSD..... Post-Traumatic Stress Disorder.

Abstract

Background: We have evaluated depression and anxiety and associated factors with these psychological stressful events for which almost all people around the world are prone to develop at some time period of life, each one of these two psychological problems (depression and anxiety) have two different sources the first source of establishing that could be either as individuals' own health condition or could be due working place.

Purpose: The goal of this study is to understand key associated factors of depression and anxiety among Korean workers nationwide and to study whether worker's exposure to physical violence and sexual harassment during last twelve month of the survey have correlations with workers' depression and anxiety.

Method: Data for this thesis was from fifth Korean Working Condition Survey which had been conducted in 2017. The population of the entire survey was 50,205 persons who had taken part in the survey. Relevant variables were chosen, Modification of data into sub-groups was made to the variable of age of the participants. Data was analyzed with chi-square, Pearson correlation tests, and logistic regression. Data was analyzed with SPSS 26. As either anxiety or depression have many associated factors but in this study only those variables have been chosen which were statistically significant.

Results: Workers who had been working older age, female gender, full time jobs and clients visit at the workplace are important factors known to have been associated factors with depression and anxiety due to workplace as well as in Korea.

Conclusion: we suggest that all employers and private sectors should take care of their employees' psychological burden, depression and anxiety bylaw.

Keywords: Depression, Anxiety, associated factors with Depression and Anxiety

CHAPTER I

Introduction

1.1. Background.

Depression and anxiety among Korean workers according to survey conducted in 2017 with a questionnaire asking about workplace conditions covering various parts of workplace in different fields in Republic of Korea which is an important survey for assessing. Depression and anxiety and associating factors which can have direct or indirect effects on these health condition have been studied and analyzed on this thesis. It is worth saying that both of mentioned health conditions (depression and anxiety) have been studied in two different situations, in first situation depression and anxiety have been studied as individuals' health conditions as they have answered to the survey questions, in which workers (whom were surveyed) indicated the either depression or anxiety as their own health condition which show irrelevancy to their to their working place i.e. depression or anxiety were not due to their working place.

In second situation depression and anxiety have been studied due to working place and associated factors have been identified which had relevancy with depression and anxiety of the individuals as they had answered to the question of depression or anxiety due to working place.

Various independent variables for the survey have been analyzed for both the first and second situations of depression and anxiety of the survey population in thesis such Age, Gender, Income change, clients visits at working place, working place violence in order to see if there are possible correlations with workers psychological and mental health specifically anxiety and depression.

The study has been done for the purpose of understanding the relevant associated factors which can affect psychological stress of employees and it would also help understand associated factors during possible working place policy revision.

1.2. Problem Statement.

As depression and anxiety are important health conditions in psychiatry and psychology which can affect individuals on different stages and considered annoying situations for the sufferers, which can sometimes end up to suicide of the person when reaches to the top level and instability.

Depression and anxiety both have various associating factors which should be identified, their level of intensity should be checked and analyzed in medical practice, such as individuals' psychosocial status, income level, individuals' exposure to the type of violence, community support etc.

Understanding associated factors for depression and anxiety also important for some field policy revisions and improvement in order to tackle Depression and Anxiety.

Physical and sexual harassments or both are considered the most important factor in causing psychological problems, disruption in offering services and affecting organization's reputation among communities and people.

1.3. Justification:

The goal for studying the workplace violence either physical or sexual harassment or in some in condition both forms of violence together is to find out that how many workers and employees have suffered any type of the violence during last twelve month when the survey was conducted and also to find out if there is any possible correlation among physical violence, sexual harassment, stress disorder predisposing fields and factors in order to find out the solutions for future so that would be helpful in working place and condition policy improvement, so that it would help all workers in every working field to work safely, increase job satisfaction and experience less violence which can directly or indirectly help to reduce mental, psychosocial, and physical harm or burden on employees.

However, laws for addressing sexual harassment crimes have been passed in many countries around the world, but regarding working place policy review and reform the study would be able to provide an insight according to variables studied.

1.4. Research objectives:

- (1) To determine the factors that are associated with;
 - a) Depression
 - b) Anxiety
 - c) Physical and sexual violence.
 - d) Finding and analyzing of other factors associated with depression and anxiety
- (2) To determine the relationship of physical violence, sexual harassment and the development of depression and anxiety among workers in Korea.
- (3) Finding and analyzing other factors which can directly or indirectly have correlation at causing depression and anxiety (Psychological wellbeing) of employees.
- (4) Determining the prevalence of Depression and Anxiety.
- (5) Determining correlations of the associated factors with Depression and Anxiety.
- (6) Presenting the outcomes of the analysis done for workers' depression and anxiety (mental wellbeing) as charts and tables.
- (7) To explore the associated factors and prevalence of self-reported anxiety and depression in a national sample who participated in the survey of fifth Korean working condition conducted in 2017.
- (8) To explore and analyze whether depression and anxiety are prominent among Korean workers or not.

1.5. Research questions

- a. What are the factors that are associated with depression as health condition among Korean adults?
- b. What are the factors that are associated with the depression caused due to workplace?
- c. What the factors that are associated with anxiety as health condition among Korean workers?
- d. What are the factors of Anxiety due to workplace among Korean workers?

CHAPTER II

Literature Review.

2.1. Depression

According to American Psychiatric Association; depression is also widely known as major depressive disorder is a serious medical condition which is common worldwide and negatively affects a person's feeling toward other people, society and daily activities the person deals with. Luckily this medical condition is treatable everywhere around the world in various ways.

Depression has been the 4th most key contributor to the global burden of disease and comprises in year 2000 and had 4.4 per cent of the total disability of the population in the year 2000.

According to this study those who were surveyed had experienced loss of jobs, decreased relationships with friends, colleagues and family members, loss of efficiency at their business and workplaces, those who had major depressive disorder had episodes of suicide, and deterioration in physical health.

The study had also found that high and middle income countries have shown that prevalence depression was common among older persons than adolescence. (Hailemariam et al., 2012)

In another cross-sectional study conducted in 2014 (Stewart et al., 2014) depression and anxiety were studied in child bearing women during perinatal period and the study has found that antenatal/post-natal periods were situations where women had more prevalence of depression rather than the era when women had not been going through.

In a study published from Pakistan in 2013 (Karmaliani et al., 2009) indicated that eighteen percent of the women had experienced either Anxiety or depression.

Psychological stress was associated with husband unemployment/joblessness, lower household income/wealth and/or an unwanted pregnancy.

The strongest factors associated with anxiety and depression were identified as physical, verbal violence and sexual harassment; forty-two per cent of women who were physically abused and/or sexually harassed and twenty-three percent of those who had experienced verbal violence had anxiety or depression compared to eight percent of those who had not been abused.

In a cross sectional study among Guatemalan refugees in Mexico conducted by (Feyera et al., 2015) explained that prevalence of depression is 38.8 percent.

The study has found that female gender, being married, being widowed, being witness to disappearances, witnessing murder scenes of family member or friend/colleague, experiencing seven to twelve traumatic events and experiencing thirteen to sixteen psychologically traumatic scene were identified associated with depression.

Mental and psychological health problems affect community as a whole, and not just only a particular segment of the population. According to the study no group is immune to mental or psychological disorders at some time periods but specially the risk of depression has been identified higher among the unemployed people, homeless persons, victims of violence, refugees and migrants, people with low education, the neglected elderly and women experienced violence or abuse.

Depression can lead to a variety of physical and emotional difficulties and disabilities which can cause decline in person's capability to function properly at home and at work.

The symptoms of depression include

- a) Loss of interest or pleasure in activities once enjoyed.
- b) Feeling sadness and having a depressed mood.
- c) Changes in person's appetite.
- d) Weight loss or gain unrelated to dieting.
- e) Increased fatigue or Loss of energy.
- f) Feeling guilty or worthless.
- g) Cognitive problems in thinking.
- h) Concentrating or making decisions.

- i) Thoughts of death or suicide.
- j) In order to confirm this emotional condition is depression it is highly important that symptoms should last for at least two weeks.

2.2. Depression is different from Sadness of Grief

Loss of a job, death of a loved one, or the ending of a relationship are challenging experiences for a person to tolerate. It is normal for feelings of grief or sadness to develop in response to these types of situations that a person usually goes through.

Such people might express themselves but for the diagnosis of depression, symptoms and duration of at least two weeks are important.

2.3. Risk Factors for depression

Depression can target any person even those who have high quality and happy lives, because of the risk factors mentioned as below.

Genetics: depression has link with genetics of families for instance according to the American Psychiatric Association's study; if one of the totally identical twin experience depression, the chances for the other one of experiencing depression is as high as seventy percent.

Personality: Those persons with declined self-esteem are highly likely and prone to be overwhelmed by any type of stressful condition which can end up acquiring either low grade or major depressive disorder which can affect daily life, activities or social interactions.

Biochemistry: as neurotransmitters are important components of human nervous system so abnormal level of some certain chemicals in human body can also cause depression.

Environmental factors: sustainable exposure to any type of violence, poverty, abuse, neglect may cause people vulnerable to depression.

Environmental factors such as violence are key for this thesis which will be analyzed later.

In low resources settings or in third world countries less than ten percent of people who suffer depression have access to sufficient treatment, and it is considered one of the leading cause of disabilities there.

In high income countries screening of vulnerable people has become a standard routine in primary healthcare settings in order to provide the sufferers with treatment and follow up as well decreasing disability resulting from depression. (Stewart et al., 2014)

In a study conducted in South Africa in 2013 regarding understanding the factors of depression identified some associated factors. (Peltzer & Phaswana-Mafuya, 2013)

Socio-economic status: which included female gender, race/ethnicity, separated/divorced marital status, widowhood, weak economic condition, residence in the countryside.

Social condition: (stressful life events for instance grief, serious economic decline, loss of a relative, job loss etc.)

Cognitive impairment: Low quality of life and Functional disability.

Disease and chronic unhealthy conditions, including cardiovascular disease, stroke, type II diabetes, asthma, arthritis, sleep problems.

Unhealthy behavior: poor dietary habits, lack of physical activity, and risk factors such as obesity and hypertension.

Anxiety.

Anxiety is an emotional condition of normal reaction of a person towards a stressful activity of situation which in acute cases it can be beneficial up to some extents to make people alert against potential dangers which can end up in undesired consequences. In the Medical practice when anxiety becomes a psychiatric problem for a person then the term Disorder is added after anxiety.

Anxiety disorders are not normal reaction of human beings but can be categorized in various symptoms and signs many times repetitive actions which are bothering for the person and can affect his/her daily life and activities at various stages depending on the intensity level of anxiety.

Some certain types of anxiety disorders such as post traumatic anxiety disorder, generalized anxiety disorder etc. can be caused after a person deals with serious stressful event for instance war situation, earth quakes, flood, man-made or natural disasters as well as physical and sexual violence. Post-Traumatic Stress Disorder (PTSD) is one of serious emotional health condition, a person with PTSD suffers certain symptoms such as irritability, sleep disturbances, difficulties in concentrating, nightmares, avoidance of feelings and thoughts of traumatic events, in many situation this emotional unhealthy condition needs a long course medical and psychiatric treatment. (Barbano et al., 2019)

Obsessive-compulsive disorder is another type of anxiety: those who suffer this type of anxiety usually do repetitive normal actions again and again which at some points are pretty disturbing for the person for example opening and closing house/room door repetitively without any need, or counting money over and over again. People who suffer obsessive-compulsive disorder of anxiety are more prone to acquiring a substance use habit such as smoking tobacco, the use of snuff, drinking alcohol etc. for calming their obsessive-compulsive disorder in order to avoid disturbing repetitive actions and attain euphoria.

In a study conducted in 2020 in the US shows that those people who were suffering obsessive-compulsive disorder were more likely to develop a habit of use of marijuana and smoking tobacco. (Kayser et al., 2020).

According to World Mental Health Association in a study has published that many psychological and mental disorders begin from childhood-adolescent and have important adverse effects on succeeding role alterations in the World Mental Health data. (Kessler et al., 2009)

According to a cross sectional study conducted in Malaysia in 2015 (Kader Maideen et al., 2015) has identified that prevalence of anxiety in women is twice as prominent as in men.

In a cross sectional study from a nationwide survey in Singapore among adult residents has identified a lifetime and twelve-month prevalence of Generalized Anxiety Disorder at 0.9 per cent and 0.4 per cent respectively; however for obsessive Compulsive Disorder the prevalence was at 3.0 per cent and 1.4 per cent, respectively. Unemployment was identified

as the only main associated factor to Generalized Anxiety Disorder, primary education level, divorces/separated, old age above 65 years were known associated factors for Obsessive Compulsive Disorder. (Chong et al., 2012).

Regarding anxiety as individual's health condition a cross sectional study among those women whose ages were estimated 50 years above the Age was associated with anxiety in women of at around 50 years because during this age the cervical cancer chances increase among women and a significant decline happen in such situation (Gray et al., 2006).

In a study conducted among young Asian American students found that youth are also at higher risk of acquiring mental health issue such as anxiety the study indicates that some of the factors which affected these Asian American students included conflict parents, being less socially active around the society, parental negative emotions, child emotional knowledge, different parent cultures as well as teachers' ethnic background (Huang et al., 2012).

Another cross sectional study conducted among eighty patients sixty seven (83.8%) were women who had neck chronic pain had higher prevalence and chances of having Anxiety and Depression as second associated health condition, female gender with chronic neck along with either depression or anxiety indicates that female gender had higher chances of suffering from neck chronic pain and mental health situation of either anxiety or depression, the average was found to be 51+ years for the sufferers and the symptoms of their chronic neck pain and mental/psychological health had lasted for around twenty four months anxiety with the percentage of 68.4 in fifty four individuals. A Health condition known as cervicobrachial neuralgia or CBN in short has been significantly associated with depression, and according this study basic education was significant with anxiety (Elbinoune et al., 2016).

In another cross sectional study conducted among men and women at the university of Illinois at Chicago (Hsieh et al., 2020) found out some risk factors for developing Anxiety

or depression such as family history of developing anxiety or depression, age, gender, hearing or vision impairment, negative life events, fewer social contacts were all considered to be associated factors for either anxiety and depression. This study has found that female gender was more likely to develop anxiety and depression in comparison to opposite sex (male).

As many researchers have found that female gender and older age have been understood as key associated factors with anxiety and depression but other factors also have significant roles in various communities and circumstances.

According to a study conducted in China (Pan et al., 2020) the prevalence of somatic symptoms, generalized anxiety as well as depression among military healthcare workers in COVID-19 hospitals have been found high during the COVID-19 outbreak.

This study has found that among the military health care workers the prevalence of somatic symptoms, major depressive disorder and anxiety were 50% , 37.6% and 32.5% respectively.

Short sleep time or poor sleep quality were associated with Depression, Anxiety and somatic symptoms, older age of the medical workers was associated with generalized anxiety disorder and junior-grade medical professionals had been affected by depression.

As Covid-19 outbreak was a shocking and life threatening phenomenon in human history public health, all medical and non medical professionals are striving to deal with in an effective way possible medical professionals had less time to sleep in order to treat Covid-19 patients and prevent further spread to the community and the world.

2.4. Common signs and symptoms in Anxiety:

- a) Nervousness.
- b) Dry mouth.
- c) Palpitations.
- d) Not able to stay calm and still.
- e) Tense muscles
- f) Shortness of breath.
- g) Intensely trying to avoid things or places which is the core cause of anxiety but this situation differs among individuals and also depends individual's personality, and brain neurotransmitters.
- h) Inability to concentrate.

Workplace violence refer to any type of violence as verbal, physical, sexual, bullying, visual or combination of these which can take place at working place (or any other place) which are considered forbidden considered unlawful in many countries around the world and can end up to a particular type of punishment of the offenders.

Almost all organizations in all sectors around the globe try to establish such working environment for their employees and workers to feel safe and satisfied with their jobs and try to avoid the environment where the employees are harassed from any type of violence because employees for each organization in every sector mean as the backbone of that organization but sometimes some violence types against some other workers of the organizations are neglected in many sectors. (Rasool et al., 2020)

As workplace violence is considered an unpleasant action or condition for the employee as well as the offender but most likely can have a negative impact on employees of the organizations of most sectors. (Rasool et al., 2020)

Workplace violence is associated with stressful events and violence which can predispose violence receiver employees and increase the chances for attaining psychological disorders specifically manifesting as anxiety, depression and fatigue in comparison to those who have not been exposed to workplace violence. (Cannavò et al., 2019)

Studies have shown workers who had experienced violence from their supervisors were more prone and highly likely of having less job satisfaction and stress disorder. (Cannavò et al., 2019)

Verbal violence in workplace is the most common form of harassment which can often take place at any organization and every sector and this one of the most usual form violence which can happen in counter action as well.

This type of violence can even take place on daily basis among workers of the same organization or by visiting clients, customers, patients and so forth (Bambi et al., 2017)

Working place Violence either physical or any other type differ according to working place setting based on the problems that workers deal for instance psychiatric doctors dealing with psychological and psychiatric patients sometimes face serious violence even up to the degree of death, on 31st of December year 2018 a psychiatric doctor was killed by his psychiatric patient at his outpatient department at a private university hospital in Seoul, the doctor was stabbed with knife. This incident shocked all health care workers in Seoul on the last day of 2018. (Hong, 2019)

Such criminal incidents have serious negative effects on psychological health of many workers in many countries which can cause fear among workers from similar background. A study conducted in 2017 from the fourth Korean working condition survey shows that those who had experienced workplace violence had higher chances of sleeping problem due to anxiety disorder. (Park et al., 2017)

The chart below indicates the prevalence of sleeping difficulties.

Table 5 Organizational factors underlying work-related sleep problems in the representative sample of Korean workers ($n = 10,039$)

Organizational factors:	n (%)	Crude	p value	Model A ^a	p value	Model B ^b	p value	Model C ^c	p value
Sexual harassment	9,976 (99.4)	No	1.00	1.00	<0.001	1.00	<0.001	1.00	<0.001
	63 (0.6)	Yes	6.25 (3.49–11.2)	6.99 (3.87–12.6)	<0.001	3.11 (1.61–6.00)	0.001	3.47 (1.77–6.81)	<0.001
Sexual discrimination	9,894 (98.6)	No	1.00	1.00	<0.001	1.00	<0.001	1.00	0.003
	145 (1.4)	Yes	3.02 (1.86–4.91)	3.79 (2.31–6.21)	<0.001	2.27 (1.29–3.99)	0.005	2.44 (1.36–4.36)	0.003
Age discrimination	9,696 (96.6)	No	1.00	1.00	<0.001	1.00	<0.001	1.00	<0.001
	343 (3.4)	Yes	3.21 (2.33–4.42)	3.38 (2.44–4.69)	<0.001	1.94 (1.35–2.78)	<0.001	2.22 (1.52–3.23)	<0.001
Violence at work	9,964 (99.3)	No	1.00	1.00	<0.001	1.00	<0.001	1.00	0.032
	75 (0.7)	Yes	6.09 (3.55–10.4)	6.01 (3.49–9.14)	<0.001	2.30 (1.17–4.16)	0.006	1.98 (1.06–3.68)	0.032
Threat of violence	9,959 (99.2)	No	1.00	1.00	<0.001	1.00	<0.001	1.00	0.035
	80 (0.8)	Yes	5.27 (3.07–9.05)	5.30 (3.09–9.14)	<0.001	2.26 (1.25–4.09)	0.007	1.96 (1.05–3.66)	0.035
Work-life balance	7,268 (72.4)	Good	1.00	1.00	<0.001	1.00	<0.001	1.00	<0.001
	2,771 (27.6)	Poor	3.07 (2.57–3.68)	3.02 (2.51–3.63)	<0.001	1.96 (1.61–2.40)	<0.001	1.78 (1.44–2.20)	<0.001
Job satisfaction	6,712 (66.9)	High	1.00	1.00	<0.001	1.00	<0.001	1.00	<0.001
	3,327 (33.1)	Low	3.52 (2.90–4.27)	3.44 (2.84–4.17)	<0.001	1.76 (1.43–2.16)	<0.001	1.69 (1.37–2.09)	<0.001
Cognitive demands	5,365 (53.4)	Low	1.00	1.00	<0.001	1.00	<0.001	1.00	<0.001
	4,674 (46.6)	High	1.79 (1.49–2.15)	1.94 (1.61–2.34)	<0.001	1.61 (1.31–1.98)	<0.001	1.64 (1.32–2.03)	<0.001
Emotional demands	5,578 (55.6)	Low	1.00	1.00	<0.001	1.00	<0.001	1.00	<0.001
	4,461 (44.4)	High	1.71 (1.42–2.04)	1.90 (1.58–2.21)	<0.001	1.54 (1.26–1.89)	<0.001	1.53 (1.22–1.91)	<0.001
Work intensity	5,270 (52.5)	Low	1.00	1.00	<0.001	1.00	<0.001	1.00	<0.001
	4,769 (47.5)	High	2.27 (1.88–2.74)	2.32 (1.92–2.81)	<0.001	1.44 (1.17–1.78)	0.001	1.55 (1.25–1.92)	<0.001
Job insecurity	6,540 (65.1)	Low	1.00	1.00	0.017	1.00	0.015	1.00	0.009
	3,499 (34.9)	High	1.25 (1.04–1.50)	1.26 (1.05–1.51)	<0.001	1.25 (1.02–1.53)	0.032	1.32 (1.07–1.63)	0.009
Social support at work	5,845 (65.9)	High	1.00	1.00	0.014	1.00	0.128	1.00	0.348
	4,194 (34.1)	Low	1.26 (1.05–1.51)	1.16 (0.96–1.41)	<0.001	1.04 (0.84–1.29)	0.718	0.88 (0.67–1.15)	0.348

Source: study (Park et al., 2017)

CHAPTER III

Research Methodology

3.1. Study Design and Data Collection

This study method on this thesis topic is Cross sectional study and I will be using, analyzing and studying the raw data from fifth Korean working place survey in which more than fifty thousand participants have taken part in 2017.

The data will be analyzed via SPSS software with required dependent and independent variables and logistic regression will be used for analysis in order to find out the prevalence and type of workplace violence and association with psychological disorders.

Survey:

The Korea Working Conditions Survey is a survey based on the European Working Conditions Survey benchmarked therefor.

- (1) The survey was approved by Statistics Korea in 2006 and was conducted for the first time in the 1st survey. Since the first survey, the second survey was conducted in the year 2010. The Third survey was conducted in the year 2011. The fourth survey was conducted in 2014 and the fifth survey was conducted in 2017.
- (2) The Working Conditions Survey has been directed by the Occupational Safety and Health Research Institute in Korea Occupational Safety and Health Agency. This survey was approved as an authorized statistical survey by government since it was first conducted in 2006 (Authorization No. 38002, Statistics Korean).
- (3) Results of the Working Conditions Survey are available from the 'Korean Statistical Information Service' (<http://www.kosis.kr>), the portal site of national statistics run by Statistics Korea. 3. For the details of the European Working Conditions Survey that was already carried out in 28 countries, visit the website thereof: <http://www.eurofound.europa.eu>

- (4) The Korean Working Conditions Survey (KWCS) benchmarked the EWCS and the Labor Force Survey (LFS) of United Kingdom. The survey was designed and organized for all domestic employees over 15 years old to investigate and explore the types of works, types of employment, types of businesses, types of occupation, employment stabilization/stability as well as exposition to job hazards and so forth.
- (5) The population for the Korean Workers Conditions Survey includes all employees aged over fifteen years in all households specifically at the time the survey is being carried out. The population for the 4th KWCS had been determined by taking outcomes of the Population and Housing Count into account together with the characteristics of 50,000 workers who were aged over 15 years old living in households located in the general and apartment enumeration districts.
- (6) For the design of samples employed for the KWCS, the primary extraction of enumeration districts from the stratification thereof and the secondary probability proportion stratified cluster sample survey were used. Hence the use of weighted values in the statistical analysis of the raw data obtained from the survey of population is recommended to secure accurate estimations.
- (7) The codes of occupations prepared for this survey are based on the Korea Standard Classification of Occupations (the sixth revision.), and the enumerators are required to fill up the classified codes. The raw data of Korean Working Condition Survey is supposed to be provided on request raised to promote the Research & Development or Education in the discipline of Industrial Health & Safety through an examination of the head of the Department of Policy & Institutional Research in OSHRI. The raw data of Korean Working Condition Survey are provided without information enabled to track individuals based on the ACT ON THE PROTECTION OF PERSONAL INFORMATION MAINTAINED BY PUBLIC INSTITUTIONS.

3.2 Analysis

For analysis of the data SPSS Version 26 has been used.

3.3 Analysis method

Descriptive Frequency analysis, Chi-square tests, Pearson's correlation tests and Logistic Binary Regression have used.

This study method on this thesis topic is Cross sectional study and I will be using, analyzing and studying the raw data from fifth Korean working place survey in which more than fifty thousand participants have taken part in 2017.

The data will be analyzed via SPSS software version 26 with required dependent and independent variables, Descriptive analysis, chi-square tests and logistic binary regression have been used for analysis in order to find out the prevalence and type of workplace violence and association with psychological disorders.

The sample size of this research data is 50,205

3.4. Variables

The following independent and independent variables are used for this research for finding out the required outcomes

3.4.1. Dependent Variables:

- (1) Anxiety.
- (2) Depression.

3.4.2. Independent variables include:

- (1) Age
- (2) Gender.
- (3) Type of work (sector: organization, public, private etc.)
- (4) occupational status (full time, temporary or day employee)
- (5) Working hour shift (daily split shifts, permanent shifts, rotating shifts etc.)
- (6) Physical violence

- (7) Sexual violence
- (8) Income during last 12 months
- (9) Clients visits at the working place
- (10) Working hours fitting to life and job.
- (11) Trust on working place management.
- (12) Colleagues support at working place.

Table 1. Variables used in this research: from the 5th Korean working place survey

No	Variable	Description of the variable in the original dataset of fifth Korean working place survey 2017
01	Depression as health condition	Q62 Suffer from depression as health condition during last 12 months? ① Yes ② No ⑧ DK/no opinion ⑨ Refusal
02	Depression due to workplace	Q62-1 Suffer from depression due to your job since last 12 months. ① Yes ② No ⑧ DK/no opinion ⑨ Refusal
03	Anxiety as health condition.	Q62. Suffer from anxiety during last 12 months? ① Yes ② No ⑧ DK/no opinion ⑨ Refusal
04	Age	Q04 The age of worker of the survey
05	Sex	Q03 The gender of worker of survey. 1. Male 2. Female
06	Type of working sector	Q13. Which one of the following applies to your workplace? 1. Public. 2. Private. 3. Public-Private. 4. NGO
07	occupational status	Q6. What is your occupational status in the workplace? 1. Full time. 2. Temporary. 3. Daily
08	Working hour shift	Q34-1. Do you work...? (Daily split shifts, permanent shifts, rotating shifts etc.)
09	Physical violence	Q65. Over the past 12 months, during the course of your work have you been subjected to any of the following? A. physical violence
10	sexual harassment	Q65. Over the past 12 months, during the course of your work have you been subjected to any of the following?

		B. sexual harassment. ① Yes ② No ⑧ DK/no opinion ⑨ Refusal
11	Income	Q17. During the last 12 months has your work changed in any of the following ways (i.e. Since you started your main job, has your work changed in any of the following ways?) B. Salary/income: 1. Increased a lot. 2. Increased a little. 3. No change. 4. Decreased a little. 5. Decreased a lot
12	Clients visits at the working place	Q29. Does your work involve visiting customers, patients, clients or working at their premises or in their home? ① Yes ② No ⑧ DK/no opinion ⑨ Refusal
13	Working hours fitting to life and job.	Q37. In general, How do your working hours fit in with your family or social commitments outside work? ① Very well ② Well ③ Not very well ④ Not at all well ⑧ DK/no opinion ⑨ Refusal
14	Trust on working place management.	Q55. The next questions are about your workplace. To what extent do you agree or disagree with the following statements? F. In general, employees trust management?
15	Colleagues support at working place.	Q49. For each of the following statements, please select the response which best describes your work situation. A. Your colleagues help and support you?

3.5. Limitations of the Dataset:

a. The data set has some certain limitations which include missing answers, missing questions as well as not answered questions through which I will not be able to attain what need for this thesis.

b. What I did not find about the answers about physical violence or sexual harassment happened to the individuals at working place or outside of working place.

Another limitation which I have to mention is my personal unfamiliarity with Korean culture, working place conditions and regulations.

- c. Future further study is required to find more associated factors for depression and anxiety which can be originated from working place in the Republic of Korea.

CHAPTER IV.

Results

4.1 Descriptive Statistics

A total of 50,205 participants from The *Korean Working Conditions Survey* (KWCS) the 5th Survey in South Korea participated in this study. The general characteristics of this study are given in Table 1. This study had two main dependent variables, which were depression (due to health condition and workplace situation) and anxiety (as health condition and workplace situation). The percentage of people who have depression due to health was as much as 0.028 percent, and as many as 0.014 percent of people have depression due to their workplace. The percentage of people who have anxiety due to health was as much as 0.032 percent, and as many as 0.020 percent of people have anxiety due to their workplace.

Among the total participants, 0.1 percent of people experienced sexual harassment. In addition, there was 0.2 percent of people experience physical violence. Most of the participants were in the age range of more than 40 years old with the percentage 74.2 percent, then 16.9 percent of participants came from the age range 30 until 39 years. The remaining 8.9 percent were in the young age (16-29 years) category. The majority of participants were women, with a score of almost 52.8 percent. About 77 percent of the participants had occupation status as fulltime employees. The proportion who had one working site compared to more than one site was in the range of 87.7 percent and 12.3 percent, respectively. Approximately 91 percent of the sample size were working in the private sector, while the rest have another working sector such as in the public sector, joint private-public sector or not-for-profit sector.

Table 2. Characteristics of Study of the Participants

Variables	Categories	Number	Percentage
Depression	As Health condition	1,423	0.028
	Due to Workplace	713	0.014
Anxiety	As Health condition	1,613	0.032
	Due to Workplace	991	0.020
Sexual Harassment	Yes	61	0.1
	No	50,144	99.9
Physical Violence	Yes	104	0.2
	No	50,101	99.8
Age	16-29 years	4,457	8.9
	30-39 years	8,497	16.9
	40 years and above	37,251	74.2
Gender	Male	23,707	47.2
	Female	26,498	52.8
Occupation Status	Fulltime Employees	23,274	76.8
	Temporary Employees	4,992	16.5
	Day Employees	2,034	6.7
Worksite	One Site	44,053	87.7
	More than One Site	6,152	12.3
Organization	Private Sector	45,602	90.8
	Public Sector	3,753	7.5
	Joint Private-Public Organization	441	0.9
	Not-for-profit Sector/ NGO	328	0.7
	Other	7	0
	Refusal	74	0.1

4.2 Tests analysis results.

4.2.1 Factors associated with Depression as health condition:

Sex: It is statistically significant (chi-square = 40.595^a sample size = 1389 out of n= 50,171, $P \leq 0.000$) that sex was associated with depression as health condition. Those who had depression as their health condition, 38.8% were male and 47.5% were female.

Age: Analyzing the age for the people who had depression as their health condition it was statistically significant (Chi-square = 67.445^a n= 50,171. $P \leq 0.000$) people whose age was between 16-29 years suffered depression 5.5%, age group 30 – 39 years suffered depression as their health condition is 10.9% and age group 40 years and above, the percentage is 83.7%

Occupational status:

Occupational status is statistically significant with depression as workers' mental/psychological health condition with chi-square = 28.129^a, $p \leq .000$, sample size = 1389, Full time employees 497 (70.3%) had depression as health condition, temporary employees 134 (19.0%) had been suffering from depression as their health condition, daily employees 76 (10.7%) had answered of having depression as health condition.

Business site: with the chi-square of 44.523^a and $p \leq .000$, N= 50,119, 84.2% of the participants of the survey had been working in a single site and n = 216 (15.6%) who had depression as their health condition had been working more than one site.

Working Sector: chi-square = 6.585^a and $p \leq .764$ is statistically significant for depression as health condition and working sector.

Table 3. Factors that associated with depression as health condition (Chi-square)

Depression as health condition			Chi - square	Cramer's V	Significance	
Variable/unit	Yes	No				
Sex	Male	539 (38.8%)	23152 (47.5%)	40.595 ^a	.028	≤.000**
	Female	850 (61.2%)	25,630 (52.5%)			
Age (year)	16-29	76 (5.5%)	4,379 (9.0%)	67.445 ^a	.026	≤.000**
	30-40	151 (10.9%)	8,341 (17.1%)			
	Above 40	1,162 (83.7%)	36,062 (73.9%)			
Occupational status	Full time employee	497 (70.3%)	22,768 (77.0%)	28.129 ^a	.022	≤.000**
	Temporary Employee	134 (19.0%)	4,853 (16.4%)			
	Day employee	76 (10.7%)	1956 (6.6%)			
Business site	One site	1,170 (84.2%)	42,854 (87.8%)	44.523 ^a	.021	≤.000**
	More than one site	216 (15.6%)	5,881 (12.1%)			
Sector	Private	1,274 (91.7%)	44,296 (90.8%)	6.585 ^a	.008	≤.764
	Public	89 (6.4%)	3,662 (7.5%)			
	Public-Private	14 (1.0%)	427 (0.9%)			
	NGO	12 (0.9%)	316 (0.6%)			

p≤.05*

p≤.001**

Physical Violence: Depression as health condition in those people who have experienced physical violence was statistically significant in chi-square = 207.336^a $P \leq 0.000$, in sample size of 1,423, 22 (1.6%) of workers had depression as their health condition and also had experienced physical violence, and 82 (0.2%) who had experienced physical violence did not have depression as their health condition.

Table 4. Physical Violence at workplace and depression as health condition (Chi-square)

Physical Violence at workplace				Chi-square	Cramer'v	sig
		Yes	No	207.336 ^a	.045	$\leq .000^{**}$
Depression as health condition	Yes	22 (1.6%)	1366 (98.3%)			
	No	82 (0.2%)	48683 (99.8%)			

$P \leq .001^{**}$

Sexual Harassment: Depression as health condition in those people who have experienced sexual harassment in their workplace was statistically significant ($P \leq 0.000$, chi-square = 342.955^a, sample size of 1388). 22 (1.6%) of the participants who had depression as their health condition had also experienced sexual harassment during the last 12 months of the survey and 39 (0.1%) of the participants who had depression as health condition had not experienced sexual harassment at working place.

Table 5. Sexual harassment and depression as health condition (chi-square)

Depression as health		Yes	No	Chi square	Cramer's v	sig
	Yes	22 (1.6%)	1,366 (98.3%)	342.955 ^a	.058	$\leq .000^*$

condition.	No	39 (0.1%)	48729 (99.9%)			
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$p \leq .05^*$

Factors such as Income/salary, Clients visits at workplace, Working hours fitting to social/family activities, Workers' trust on management at workplace, Workers' colleagues support at workplace (with Chi-square of 5.702 and $p \leq .336$) for depression as health condition are not statistically significant.

Table 6. Factors affecting depression as health condition (Binary regression)

Factors affecting depression as health condition								
Variable	B	S.E.	Wald	df	Sig.	Exp (B)	95% C.I. for EXP(B)	
							Lower	Upper
Income/salary	.066	.059	1.232	1	$\leq .267$	1.068	.951	1.199
Clients visits at workplace	.032	.086	.136	1	$\leq .712$	1.032	.872	1.222
Working hours fitting to social/family activities	.023	.052	.194	1	$\leq .660$	1.023	.924	1.134
Workers' trust on management at workplace	.017	.027	.368	1	$\leq .544$	1.017	.964	1.073
Workers' colleagues support at workplace	.027	.025	1.102	1	$\leq .294$	1.027	.977	1.080
Constant	3.147	.257	150.512	1	$\leq .000$	23.274		

$p \leq .05^*$

4.2.2. Factors associated with depression due to workplace.

Sex: Depression due to workplace is statistically significant with sex (Chi square = 19.887, $P \leq .000$, male =44.5% , Female =55.5%). 316 (44.5%) of the survey participants are males and 394 (55.5%) of the participants are female i.e. there is a slight increase regarding gender in females than males by 5.0%.

Age: Depression due to workplace is statistically significant with age group of employees (Chi square = 21.264^a, $P \leq .000$, 16-29 years age group = 5.8%, 30-40 age group =14.4%, age group above 40 = 79.9%). which shows those who were 40 years and above suffered depression.

Occupational status: with chi-square = 19.129^a, $p \leq .000$, n = 372 sample size respondents who had depression due to workplace stress 287 (77.2%) are full time employees, 53 (14.2%) were temporary employees and 32 (8.6%) were day employees.

Sector: Working sector as associated factor to depression due to workplace is statistically significant with chi-square = 36.435^a, $p \leq .000$ in sample size of 1,409 individuals who had answered of suffering depression due workplace shows that 646 (91.0%) of workers who work in private sector suffer depression due to workplace.

Business Site: chi-square = 3.240^a , $p \leq .518$ for depression due to workplace and business site are not statistically significant.

Table 7. Factors that are associated with depression due to workplace (chi-square)

Variable		Depression due to workplace		Chi square	Cramer's V	Significance
		yes	no			
Sex	Male	316 (44.5%)	222 (32.8%)	19.887	.120	$\leq .000^{**}$
	Female	394 (55.5%)	454 (67.2%)			
Age	16-29	41 (5.8%)	35 (5.2%)	21.264 ^a	.087	$\leq .000^{**}$
	30-40	102 (14.4%)	48 (7.1%)			
	Above 40	567 (79.9%)	593 (87.7%)			

Occupational status	Full time employee	287 (77.2%)	208 (62.5%)	19.129 ^a	116	≤.000**
	Temporary Employee	53 (14.2%)	81 (24.3%)			
	Day employee	32 (8.6%)	44 (13.2%)			
Business site	One site	587 (82.7%)	580 (85.8%)	3.240 ^a	.034	≤.518
	More than one site	121 (17.0%)	95 (14.1%)			
Sector	Private	646 (91.0%)	626 (92.6%)	36.435 ^a	.115	≤.000**
	Public	53 (7.5%)	36 (5.3%)			
	Public-Private	4 (0.6%)	9 (1.3%)			
	NGO	7 (1.0%)	5 (0.7%)			

p ≤ .05*

Depression due workplace is statistically significant with physical violence (chi square = 22.366^a, P ≤ .000, N= 709, 22 (3.1%) suffered depression due to workplace physical violence)

Table 8. Physical violence and depression due to workplace (chi-square)

Physical violence			Chi-square	Cramer's v	sig	
	yes	no				
Depression due to workplace	yes	22 (3.1%)	687 (96.8%)	22.366 ^a	.090	≤.005*
	No	0 (0.0%)	676 (100.0%)			

P ≤ .05*

Depression due workplace is statistically significant with sexual harassment (chi square = 15.150^a, p ≤ .004, N= 1385, 2.8% have experienced depression due workplace associated with sexual harassment.

Table 9. Sexual harassment and depression due to workplace (chi-square)

Depression due to workplace		Yes	No	Chi square	Cramer's v	sig
	Yes	20 (2.8%)	689 (97.0%)	15.150 ^a	.074	≤.004
	No	2 (0.3%)	674 (99.7%)			

$P \leq .005^*$

Table 10: Pearson correlation test statistically significant for depression due to workplace with workers' working hours fitting to working/social activities. On the basis of $\text{Sig} \leq .029$ and Pearson Correlation = .059 which shows that there is very weak correlation between Depression due to workplace and working hours fitting with working/social activities.

Table 10. Pearson's correlation between due to depression due to workplace and working hours fitting with work/social activities

Variable and correlation		Working hours fitting with working/social activities
Depression due to workplace	Pearson Correlation	.059*
	Sig. (2-tailed)	.029

$p \leq .05^*$

Table 11 Pearson Correlation = $-.069$ while $p \leq .037$ shows that test is statistically significant but there is weak opposite correlation between Depression due to workplace and workers' trust on working place management.

Table 11. Pearson's correlation for depression due to workplace and workers' trust on management in workplace

Variable and correlation		Depression due to workplace
Workers' trust on working place management	Pearson Correlation	$-.069^*$
	Sig. (2-tailed)	.037

$p \leq .05^*$

Factors such as Income/salary change, Clients visits at workplace, Working hours fitting to social/family activities, Workers' trust on management at workplace, Workers' colleagues support at workplace (with Chi-square of 7.703 and $p \leq .17.3$) for all those who suffered depression due to working place are not statistically significant.

Table 12. Factors Affecting Depression due to workplace (Binary regression)

Logistic Regression								
Variable	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Salary or income change	.059	.117	.257	1	$\leq .612$	1.061	.843	1.336
Client visits at workplace	-.120	.175	.473	1	$\leq .491$	.887	.630	1.249

Working hour fitting to family/social activities	.086	.100	.741	1	≤.389	1.090	.896	1.326
Employee trust on management	-.129	.056	5.318	1	≤.021	.879	.788	.981
Worker and colleagues support	.036	.053	.456	1	≤.500	1.036	.934	1.150
Constant	.085	.513	.027	1	≤.868	1.089		

$p \leq .05^*$

4.2.3 Factors associated with anxiety as health condition

Age: Anxiety as health condition in association with age groups is statistically significant (Chi square = 36.140^a, $P \leq .000$, age group 16-29 years = 6.5% , Age group 30-40 years = 13.1%, age group above 40 = 80.4%).

Sex: gender with Chi square = 3.057^a, $p \leq .217$ is not statistically significant.

Occupational status: with chi-square = 13.026^a, $p \leq .001$ is statistically significant which indicates that full time employees $n = 621$ (74.6%) suffer anxiety more than other group employees. Temporary Employee $n = 135$ (16.2%) and Day employee $n = 76$ (9.1%).

Business site with chi-square = 62.041^a, $p \leq .000$ are statistically significant. Those employees who are working in one site $n = 1,318$ (83.3%) suffers anxiety more than those who work more than one site, those who had been working in more than one site $n = 262$ (16.6%).

Working Sector: chi-square = 37.596^a, $p \leq .000$ Employees who are working in various sectors such as private, public, public-private and NGO with chi-square = 37.596^a, $p \leq .000$ are statistically significant

Table 13. Factors associated with anxiety as health condition

Anxiety as health condition			Chi square	Cramer's V	Significance	
Variable	yes	no				
Sex	Male	722 (45.6%)	22974 (54.4%)	3.057 ^a	.008	≤.217
	Female	861 (54.4%)	25618 (52.7%)			
Age	16-29	103 (6.5%)	4354 (9.0%)	36.140 ^a	.019	≤.000*
	30-40	208 (13.1%)	8285 (17.1%)			
	Above 40	1272 (80.4%)	35953 (74.0%)			
Occupational status	Full time employee	621 (74.6%)	22647 (76.9%)	13.026 ^a	.015	≤.001*
	Temporary Employee	135 (16.2%)	4853 (16.5%)			
	Day employee	76 (9.1%)	1956 (6.6%)			
Business site	One site	1,318 (83.3%)	42,709 (87.9%)	62.041 ^a	.025	≤.000*
	More than one site	262 (16.6%)	5,836 (12.0%)			
Sector	Private	1,453 (91.8%)	44,121 (90.8%)	37.596 ^a	.019	≤.000*
	Public	90 (5.7%)	3662 (7.5%)			
	Public-Private	23 (1.5%)	418 (0.9%)			
	NGO	15 (0.9%)	313 (0.6%)			

P ≤ .05* p ≤ .005*

Anxiety as health condition in association with physical violence in workplace was statistically significant (Chi-square = 279.371^a, p ≤ 0.000, 1.8% of people who had experienced

anxiety as their own health condition faced with physical violence) and n = 76 (0.2%) who had anxiety as health condition had not experienced physical violence at workplace.

Table 14. Physical violence-anxiety as health condition (chi-square)

Anxiety as health condition	Yes		No	Chi-square	Cramer's v	sig
	Yes	28 (1.8%)	1,554 (98.2%)				279.371^{a}	.053	≤.000*
No	76 (0.2%)	48,499 (99.8%)				

P ≤.005*

Sexual Harassment: Anxiety as health condition in association with Sexual harassment in workplace was statistically significant (Chi-square = 242.215^a, P ≤.000, 1.1% of those who had anxiety as their health condition, experienced sexual harassment at their workplace). And n = 48,535 (99.9%) had neither experienced sexual harassment at their workplace nor had anxiety as their health condition.

Table 15. Anxiety as health condition and Sexual harassment (chi-square)

Anxiety as health condition	Yes		No	Chi square	Cramer's v	sig
	Yes	18 (1.1%)	1,564 (98.8%)				242.215^{a}	.049	≤.000*
No	43 (0.1%)	48,535 (99.9%)				

P ≤.05*

Factors such as Income/salary change, Clients visits at workplace, Working hours fitting to social/family activities, Workers' trust on management at workplace, Workers' colleagues support at their workplace (with Chi-square of 10.972 in, and $p \leq .052$) for the sample size of 1,039 who suffered depression due to working place were not found statistically significant.

Table 16. Factors associated with Anxiety as health condition.

Logistic regression						
Variable	B	S.E.	Wald	df	Sig.	Exp(B)
Income/salary change	.119	.055	4.575	1	$\leq .032$	1.126
Working hours fitting with family/social activities	.039	.080	.239	1	$\leq .625$	1.040
Employees' trust on working place management	-.002	.025	.006*	1	$\leq .937$	.998
Colleagues support at working place.	.041	.024	2.915	1	$\leq .088$	1.042
Working hours fitting with family/social activities	-.018	.048	.140	1	$\leq .708$	.982
Constant	2.940	.238	152.861	1	$\leq .000$	18.915

$p \leq .05^*$ $p \leq .001^{**}$

Table 17: Pearson correlation test = .009 and $p \leq .052$ is statistically significant for Anxiety as health condition with workers' colleagues support at working place but there is weak correlation anxiety as health condition and workers' colleagues support at working place.

Table 17. Anxiety as health condition-worker's colleagues' support

Correlations			
Variable and Correlation test		Anxiety Health condition	Worker's colleagues support at working place
Anxiety as health condition	Pearson Correlation	1	.009
	Sig. (2-tailed)		.052

$P \leq .05^*$

4.2.4. Factors associated with anxiety due to workplace:

Age: Anxiety due to workplace in association with age groups is statistically significant (Chi square = 11.850^a, $P \leq .000$, age group 16-29 years = 6.3% , Age group 30-40 years = 15.4%, age group 40 or above 40 = 78.4%). Anxiety due to workplace in association with **Sex:** gender in association with anxiety due to workplace of the sample size 989 (chi-square = 20.120^a , $p \leq .000$) is statistically significant those who suffer from anxiety due to workplace are 494 (49.9%) males and 495 (50.1%) female workers.

Occupational status: Anxiety due to workplace in association with occupational status is statistically significant (with chi-square = 24.284^a, $p \leq .000$, Full time employee = 80.4%, temporary employee = 11.9%, daily employees = 7.7%)

Sector: Working sector and anxiety due to workplace is statistically significant with chi-square = 37.643^a, $p \leq .000$ for participants $n = 914$ (92.4%) who had anxiety due to workplace had been working in private sector, $n = 55$ (5.6%) working in public sector, Occupational status with anxiety due to workplace is statistically significant with chi-square = 24.284^a, $p \leq .000$ the sample size Full time employee 405 (80.4%), temporary 60 (11.9%), day employee 39 (7.7%)

Table 18. Factors associated with anxiety due to workplace (chi-square)

Variable		Anxiety due to workplace		Chi square	Cramer's V	Significance
		yes	no			
Sex	Male	494 (49.9%)	227 (38.3%)	20.120 ^a	.113	≤.000**
	Female	495 (50.1%)	365 (61.7%)			
Age	16-29	62 (6.3%)	41 (6.9%)	11.850 ^a	.061	≤.019*
	30-40	152 (15.4%)	56 (9.5%)			
	Above 40	775 (78.4%)	495 (83.6%)			
Occupational status	Full time employee	405 (80.4%)	214 (65.6%)	24.284 ^a	.121	≤.000**
	Temporary employee	60 (11.9%)	75 (23.0%)			
	Day employee	39 (7.7%)	37 (11.3%)			
Business site	One site	813 (82.2%)	503 (85.0%)	2.430 ^a	.028	≤.657
	More than one site	174 (17.6%)	88 (14.9%)			
Sector	Private	914 (92.4%)	538 (90.9%)	37.643 ^a	.109	≤.000**
	Public	55 (5.6%)	35 (5.9%)			
	Public-Private	12 (1.2%)	10 (1.7%)			
	NGO	8 (0.8%)	7 (1.2%)			

P ≤.05* p≤001**

Physical violence: Anxiety due to workplace in association with physical violence is statistically significant (chi-square = 11.842^a, $p \leq .019$, the percentage of those who had anxiety due to workplace had also experienced physical violence by 2.6% during last 12 months).

Table 19. Anxiety due to workplace and Physical violence (chi-square)

Physical violence				Chi-square	Cramer's v	sig
		Yes	No			
Anxiety due to workplace	Yes	26 (2.6%)	962 (97.3%)	11.842 ^a	.061	$\leq .019^*$
	No	2 (0.3%)	590 (99.7%)			

$P \leq .05^*$

Anxiety as due to workplace in association with sexual harassment in workplace is not statistically significant (Chi-square = 242.215^a, $P \leq .407$)

Table 20. Anxiety due to workplace and Sexual harassment (chi-square)

Anxiety due to workplace	Response	Yes	No	Chi square	Cramer's v	sig
	Yes	15 (1.5%)	973 (98.4%)				3.992^{a}	.036	$\leq .407$
No	3 (0.5%)	589 (99.5%)				

$p \leq .05^*$

Salary/income change: Anxiety due to working place are statistically significant to workers' income change during last 12 months, working hours fitting to working/social activities and clients visits at working.

Clients visits: clients visits at working place is statistically significant with anxiety due to working place ($p \leq .000$ and Pearson correlation = .021**) the more clients visits increase at working place the more chances of anxiety due to working place increase.

Working hours fitting: workers' working hours fitting and social activities with anxiety due to working place is statistically significant ($p \leq .000$, Pearson correlation = .047) and indicates a correlation between anxiety due to working place with working hours fitting.

Table 21. Anxiety due to workplace correlation with other variables

Pearson's correlations					
Variable, Correlations and significance		Anxiety due to workplace	Worker's income change	Clients visits at working place	Working hours fitting to working/social activities
Anxiety due to workplace	Pearson Correlation	1	.042	.013	.047
	Sig. (2-tailed)		$\leq .094$	$\leq .615$	$\leq .063$
Worker's income change	Pearson Correlation	.042	1	.021**	.054**
	Sig. (2-tailed)	$\leq .094$		$\leq .000$	$\leq .000$
Clients visits at working place.	Pearson Correlation	.013	.021**	1	.057**
	Sig. (2-tailed)	$\leq .615$	$\leq .000$		$\leq .000$ **
Working hours fitting to working/social activities	Pearson Correlation	.047	.054**	.057**	1
	Sig. (2-tailed)	$\leq .063$	$\leq .000$	$\leq .000$	

$p \leq .05^*$ $p \leq .00^{**}$

Worker’s trust on management at workplace: Pearson correlation tests for anxiety due to working place with workers’ trust on management at working place ($p \leq .357$ and Pearson correlation = $-.029$) is not statistically significant and there is an indirect proportion between workers’ trust on working place management and anxiety due to working place.

Worker’s colleagues support: Pearson correlation ($P \leq .000$ and Pearson correlation = $-.017$) indicates anxiety due to workplace with worker’s colleagues’ support is statistically significant but with indirect proportion i.e. the more colleagues’ support at working place increase the lesser the chances of anxiety due working place happen.

Table 22. Anxiety due to workplace – Worker’s trust on management and colleagues’ support at workplace

Pearson’s Correlations				
Variable, Correlations and significance		Anxiety due to workplace	Workers’ trust on management at working place	Workers’ colleagues support at working place
Anxiety due to workplace	Pearson Correlation	1	-.029	-.017
	Sig. (2-tailed)		.357	$\leq .495$
Workers’ trust on management at working place	Pearson Correlation	-.029	1	.547**
	Sig. (2-tailed)	.357		.000**
Workers’ colleagues support at working place	Pearson Correlation	-.017	.547**	1
	Sig. (2-tailed)	.495	.000	

$p \leq .05^*$ $p \leq .005^{**}$

Other key associating factor for workers' anxiety due to workplace is income/salary changes during the last 12 months, which is statistically significant (chi-square = 14,654, $p \leq .001$) decline in workers' salary has negative effect on workers' anxiety scale due to workplace.

Table 23. Anxiety due to workplace and other variables

binary logistic regression analyses								
Variable	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Income/salary change?	.397	.117	11.487	1	$\leq .001$	1.487	1.182	1.871
Clients visits at workplace	-.102	.201	.260	1	$\leq .610$	.903	.609	1.338
Working hours fitting with family/social activities	.044	.104	.175	1	$\leq .676$	1.045	.851	1.282
Workers' trust on workplace management	-.041	.053	.615	1	$\leq .433$	.960	.866	1.064
Worker colleagues support	-.077	.052	2.216	1	$\leq .137$	.926	.837	1.025
Constant	-1.232	.541	5.181	1	$\leq .023$	.292		

$p \leq .05^*$

$p \leq .005^{**}$

CHAPTER V

Conclusion

5.1. Factors associated with depression as health condition.

After descriptive analysis of the data from 50,205 population those who had depression as their health condition are 1,423 and those have answered of having depression due to their working place are 713. Those workers who had been suffering anxiety as their health condition are 1,613 and those workers who had answered of having anxiety due to workplace are 991.

From the entire survey of 50,101 population the sample size of 104 have answered that they have experienced physical violence at their workplace.

Sample size of 61 out of 50,144 have had experience of sexual harassment at their workplace.

Sex: It is statistically significant (chi-square = 40.595^a n= 50,171. $P \leq 0.000$) that sex was associated with depression as health condition. Those who had depression as their health condition were 38.8% were male and 47.5% were female. There was slight increased prevalence of depression as individuals' health condition.

As from the analysis of the data from fifth Korean working survey the prevalence of depression as workers' health condition female sex had slightly higher chances of acquiring depression as their health condition the male gender.

Previous studies such as (Feyera et al., 2015) have also found that female sex are more prone to developing depression as health condition and have also stated some associated factors such being widow/separated and fewer social contacts are involved among females of acquiring depression as health condition.

Age: Analyzing the age for the people who had depression as their health condition it was statistically significant (Chi-square = 67.445^a n= 50,171. $P \leq 0.000$) participants of the survey whose age was between 16-29 years suffered depression 5.5%, age group 30 – 39

years suffered depression as their health condition is 10.9% and age group 40 years and above the percentage is 83.7%.

Survey's Participants' age had significant link with acquiring depression as persons' health condition i.e. the more the age grow older the higher the chances of acquiring depression as health condition.

Previous researches as (Hailemariam, 2012 #62) had also found that as person's age grow older the greater the chances of being affected by depression as mental health issue the reason for older age people are considered biological and social changes among the general population.

Occupational status: is statistically significant with depression as workers' mental/psychological health condition with chi-square = 28.129^a, $p \leq .000$, Full time employees 497 persons (70.3%) out of 707 sample size had depression as health condition, temporary employees 134 (19.0%) had been suffering from depression as their health condition, daily employees 76 (10.7%) had answered of having depression as health condition.

Based on the results of analyses full time employees among the Korean workers have indicated of having depression as their mental health problem in comparison to temporary and daily employees regardless of suffering depression due to workplace.

Business site with the chi-square of 44.523^a and $p \leq .000$, $N = 50,119$, 84.2% of the participants of the survey who had been working in a single site and $n = 216$ (15.6%) who had depression as their health condition had been working more than one site. The conclusion for business site according to analysis shows that workers who work in a single site have higher prevalence of getting depression as their health condition than those who work in more than one business site.

Physical violence: Depression as health condition in those people who have experienced physical violence in their workplace was statistically significant in chi-square = 207.336^a, $P \leq 0.000$, in sample size of 1,423, 22 (1.6%) of workers had depression as their health

condition and also had experienced physical violence, and 82 (0.2%) who had experienced physical violence did not have depression as their health condition.

People who had answered for having depression as their mental health problem have had experienced physical violence during the last 12 months.

Being exposed to physical violence is a stressful event which can have some certain scale of effect on near to depression persons.

Sexual Harassment: Depression as health condition in those people who have experienced sexual harassment in their workplace was statistically significant ($P \leq 0.001$, chi-square = 342.955^a, sample size of 1388). 22 (1.6%) of the participants who had depression as their health condition had also experienced sexual harassment during the last 12 months of the survey and 39 (0.1%) of the participants who had depression as health condition had not experienced sexual harassment at working place.

However being sexually harassed is statistically significant for developing depression as health condition but the prevalence of depression due to sexual harassment of 22 persons out of the 50,205 people is much less in comparison to other studies.

5.2. Factors associated with depression due to workplace.

Sex: Depression due to workplace is statistically significant with gender (Chi square = 19.887, $P \leq .001$, male =44.5% , Female =55.5%). 316 (44.5%) of the survey participants are males and 394 (55.5%) of the participants are female i.e there is a slight increase regarding gender in females than males by 5.0%.

Age: Depression due to workplace is statistically significant with age group of employees (Chi square = 21.264^a, $P \leq .001$, 16-29 years age group = 5.8%, 30-40 age group =14.4%, age group above 40 = 79.9%). Which shows those who were 40 years and above suffered depression

Occupational status: with chi-square = 19.129^a, $p \leq .001$, n = 372 sample size respondents who had depression due to workplace stress 287 (77.2%) are full time employees, 53 (14.2%) were temporary employees and 32 (8.6%) were day employees. Based upon the

analyses conducted on the data set indicated that those worked full time suffered depression due to the workplace more than temporary and day employees. The reason for this could be repetitive exposure to workplace stress during working period.

Working sector: as associated factor to depression due to workplace is statistically significant with chi-square = 36.435^a, $p \leq .001$ in sample size of 1,409 individuals who had answered of suffering depression due workplace shows that 646 (91.0%) of workers who work in private sector suffer depression due to workplace. The reason for this that why private sectors workers acquire depression due to workplace could not be known clearly. As suggestion for avoiding depression due to workplace in private sectors could be helping workers decrease work load and stress.

Physical violence: Depression due workplace is statistically significant with physical violence (chi square = 22.366^a, $P \leq .000$, N= 709, 22 (3.1%) suffered depression due to workplace and experiencing physical violence. The prevalence of depression due to workplace and physical violence has been associated.

Sexual harassment: Depression due to workplace is statistically significant with sexual harassment (chi square = 15.150^a, $p \leq .004$, N= 1385, 2.8% have experienced depression due workplace associated sexual harassment. Based upon the data set those who had depression due to sexual harassment is still not known whether the sexual harassment had taken place in workplace or somewhere else.

Other Factors such as Income/salary change, Clients visits at workplace, Working hours fitting to social/family activities, Workers' trust on management at workplace, Workers' colleagues support at their workplace (with Chi-square of 10.972 in, and $p \leq .052$) for the sample size of 1,039 who suffered depression due to working place were not found statistically significant.

Colleagues support: Pearson correlation test = .009 and $p \leq .052$ is statistically significant for depression as health condition with workers' colleagues support at working place but there is weak correlation depression as health condition and workers' colleagues support at

working place. Colleagues support in every organization important in order ease work load as well as felling been support at workplace has key role in worker's

Other Factors such as Income/salary change, Clients visits at workplace, Working hours fitting to social/family activities, Workers' trust on management at workplace, Workers' colleagues support at their workplace (with Chi-square of 10.972 in, and $p \leq .052$) for the sample size of 1,039 participants who suffered depression due to working place were not found statistically significant, because salary decline, less socially involved, and less colleagues support at working place are factors which can make workers prone to acquiring depression due to workplace.

5.3. Factors associated with anxiety as health condition

Age: Anxiety as health condition in association with age groups is statistically significant (Chi square = 36.140^a, $P \leq .000$, age group 16-29 years = 6.5% ,

Age group 30-40 years = 13.1%, age group above 40 = 80.4%). Anxiety increases as the age of the workers increased based on their answers to the survey.

Occupational status: with chi-square = 13.026^a , $p \leq .001$ is statistically significant which indicates that full time employees $n = 621$ (74.6%) suffer anxiety more than other group employees. Temporary Employee $n = 135$ (16.2%) and Day employee $n = 76$ (9.1%).

Sector: Employees who are working in various sectors such as private, public, public-private and NGO with chi-square = 37.596a, $p \leq .001$ are statistically significant

Physical violence: Anxiety as health condition in association with physical violence in workplace was statistically significant (Chi-square = 279.371^a, $p \leq 0.001$, 1.8% of people who had experienced anxiety as their own health condition faced with physical violence) and $n = 76$ (0.2%) who had anxiety as health condition had not experienced physical violence at workplace.

Sexual Harassment: Anxiety as health condition in association with Sexual harassment in workplace was statistically significant (Chi-square = 242.215^a, $P \leq .001$, 1.1% of those who had anxiety as their health condition, experienced sexual harassment). And $n = 48,535$

(99.9%) had neither experienced sexual harassment nor had anxiety as their health condition.

Colleagues' support: Pearson correlation test = .009 and $p \leq .052$ is statistically significant for Anxiety as health condition with workers' colleagues support at working place but there is weak correlation anxiety as health condition and workers' colleagues support at working place. Anxiety as health condition is indirectly proportionate with colleagues support at working place, the more colleagues support the person the better it has result on individual anxiety as health condition.

Colleagues' support is also considered a sort of social support and sympathy which has greater role in treatment of mental health situations.

5.4. Factors associated with Anxiety due to workplace

Age: The relationship of physical and sexual violence to development depression and anxiety

Anxiety due to workplace in association with age groups is statistically significant (Chi square = 11.850^a, $P \leq .000$, age group 16-29 years = 6.3% , Age group 30-40 years = 15.4%, age group 40 years or above 40 = 78.4%). Based upon the analyses conducted it indicates that older age individuals have higher chances of facing Anxiety as their health condition rather than younger age and many other studies have also shown that elderly are more prone to developing mental health problems in comparison to younger and the reason for why the elderly are more prone to developing anxiety more than younger are biological changes or decline human body such low function of neurotransmitters such as serotonin and dopamine, other reasons include being socially away in older age, losing confidence on working abilities or fear of losing job in older age.

Sex: gender in association with anxiety due to workplace of the sample size 989 (chi-square = 20.120^a, $p \leq .000$) is statistically significant those who suffer from anxiety due to workplace are 494 (49.9%) males and 495 (50.1%) female workers. Female gender has higher chances of suffering anxiety due to workplace than males. Other studies have also shown

that female gender in comparison to male gender has higher prevalence of suffering from anxiety of different forms.

Sector: Anxiety due to workplace in association with working sector is also statistically significant (chi-square = 37.643^a, $p \leq .000$, private sector employees suffer 914 (92.4%) anxiety due to workplace more than other sectors. public sector = 5.6%, Public-private sector = 1.2%, NGO = 0.8%).

The analyses show that those workers who work in private sector (organizations) have experienced anxiety more than other sectors' workers.

Occupational status: Anxiety due to workplace in association with occupational status is statistically significant (with chi-square = 24.284^a, $p \leq .000$, Full time employee = 80.4%, temporary employee = 11.9%, daily employees = 7.7%). Full time employees are most likely to have anxiety due to working place.

The reason of workers who work full time job and suffers anxiety due to their working place

Physical violence: Anxiety due to workplace in association with physical violence is statistically significant (chi-square = 11.842^a, $p \leq .019$, the percentage of those who had anxiety due to workplace had also experienced physical violence by 2.6% during last 12 months). But analyses from the data available does not indicate whether the physical violence whom workers experienced was from the workplace or outside working place.

Sexual harassment: Anxiety as due to workplace in association with sexual harassment is not statistically significant (Chi-square = 242.215^a, $P \leq .407$). Based upon the analyses it indicates that sexual harassment is not a factor for anxiety due to working place i.e. working places in South Korea are safe from sexual harassment. Also the survey questions did not specify sexual harassment specifically at working place.

Salary/income change: Anxiety due to working place are statistically significant to workers' income change during last 12 months, working hours fitting to working/social activities and clients visits at working.

Clients visits: clients visits at working place is statistically significant with anxiety due to working place ($p \leq .000$ and Pearson correlation = .021**) the more clients visits increase at working place the more chances of anxiety due to working place increase. According to a study by {Park, 2021 #88} dealing with angry clients at workplace decreases job satisfaction and affects workers' mental wellbeing significantly; there are three different ways dealing with angry clients at working place (1) labor who are hiding emotions toward angry client. (2) labor interacting toward clients. (3) labor who work in emotionally unstable working condition. In all cases angry clients can cause labors' mental/psychological wellbeing to be affected to some level.

Working hours fitting: workers' working hours fitting and social activities with anxiety due to working place is statistically significant ($p \leq .000$, Pearson correlation = .047) and indicates a correlation between anxiety due to working place with working hours fitting. Anxiety due to working place has relations with less hours fitting to working and social activities. The more anxiety from working place increase the more labor/worker has less time for social activities. Anxiety due to workplace can cause workers to have less time manage theirs social activities properly.

Worker's trust on management at workplace: There is a relation between anxiety due to workplace and workers' trust on management of workplace. As Anxiety due to working place increase, workers' trust on working place managerial affairs decrease. Conversely with having better management system at working place; workers' trust increase and anxiety due to working place decrease by managing problems with better way and on proper time.

Worker's colleagues support: Pearson correlation ($P \leq .000$ and Pearson correlation = -.017) indicates anxiety due to workplace with worker's colleagues' support is statistically significant but with indirect proportion i.e. the more colleagues' support at working place increase the lesser the chances of anxiety due working place happen.

Discussion

As some associated factors for both depression and anxiety are statistically significant we suggest that all employer sectors should care about their employees.

As based on this study's findings and analyses we recommend that employer organizations should pay a significant attention and increase incentive for their employees who are working full time jobs work long hours at their workplace or having little rest time due to heavy load of their duty, employees who deal with more clients visits at their workplace, female gender and all those employees who are elderly and working at single site for longer duration of high load work

Increase in incentives for hard working employees who are highly susceptible to acquiring depression or anxiety specifically old age employees can significantly decrease the level of depression and anxiety which can be originated from workplace.

Better management at working place by managers for controlling angry clients according to the study conducted by (Park, 2021 #88) can significantly increase job satisfaction of the employees and conversely as per this study better management has great role in decreasing anxiety and depression originating from working place and can increase employees' trust on workplace management among Korean employees.

Colleagues' support to one another has also been a key factor which can increase employees job satisfaction, decrease the level of anxiety due to working place and

As physical violence and sexual harassment also have role for developing depression and anxiety among general population, but importantly according to the Korean working condition survey the place/location of physical violence or sexual harassment for Korean employees were not fully known that where did such violence take place. For future studies it seems important to understand the place/location of physical violence and sexual harassment so that it would be easy to understand whether they are associated factors for anxiety and depression due to workplace or not.

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