Job Satisfaction, Burnout, Work-Related Stress Among Nurses Working at Kibagabaga, Muhima, Masaka District Hospitals of Rwanda

NDAGIJIMANA INNOCENT

Graduate School of Public Health,
Yonsei University
Global Health Policy and Finance Department

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Directed by Professor Whiejong Han

Graduate School of Public Health
Global Health Policy and Financing Capacity Building Department
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NDAGIJIMANA INNOCENT
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This is to certify that the Master's Thesis of
NDAGIJIMANA Innocent is approved.

Thesis Committee Member: Whiejong Han

Thesis Committee Member: Sangchul Yoon

Thesis Committee Member: Yuri Lee

Graduate School of Public Health
Yonsei University
December 2021

DECLARATION

I, NDAGIJIMANA Innocent, hereby declare that the research “Job Satisfaction, Burnout, Work-Related Stress Among Nurses Working at Kibagabaga, Mahima, Masaka District Hospitals of Rwanda” is submitted in partial fulfilment of the requirements for the Master of Public Health Global Health Policy and Financing at Yonsei University, Seoul Korea is my original work and has not previously been submitted elsewhere. Also, I declare that a complete list of references is provided and indicating all sources of information Quoted or cited.

DEDICATION

I dedicate to my almighty God, my parents, sisters and brothers, My professors, and Classmates Korean Friends.

To my beloved Daughter: Isange Igihozo Miracle

To my wife: Uwituze Leoncie

And to all people who supported me direct and indirectly within their prayers

"**Whenever the journey of your life takes you, your heart never be part from your beloved one, and it is your family**"

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List of symbols, and abbreviations/acronyms

AFTY……At least a few times a year
AM……. ……...Agree Moderately
ANOVA……..…Analysis of variance
AOM……At least once a month
AS……...Agree Slightly
AVM……Agree Very Much
BDP……..…Burnout Depersonalization
BEE……...…Burnout Emotional Exhaustion
BPA……Burnout Personal Accomplishment
CHG…….…..…. coronary heart disease
DM……Disagree Moderately
DP……. Depersonalization
DS……...……Disagree Slightly
DVM……. Disagree Very Much
ED……. Every Day
EE……...Emotional Exhaustion
ICU……Intensive Care Unity
KOICA…….. Korea International Cooperation Agency

MBI……..……Maslach Burnout Inventory

N……...Never

NISR……National Institute of Statistics of Rwanda

NSI……. Nursing Stress Inventory

O……Often

OW……..……Once a week

PA…….……Personal Accomplishment

R……..Rarely

S……..……Sometimes

SD……..……. Standard Deviation

SDQ……...Socio-Demographic Questionnaire

STW……...……Several Times a Week

VO……...Very Often

WHO…… World Health Organization

WRC……Work Related Characteristics

WRS……...Work Related Stress

Abstract

Background: Burnout is a stress-related condition that has been studied extensively in a variety of job settings and is a disorder associated with persistent stress that has been extensively examined in a variety of work situations and professions, including nursing. Increased worker turnover is a result of increased levels of burnout, but if health care administrators maintain their nursing staff employed, the team becomes exceptional in both physical and mental health. In another hand, as long as health care administrators keep their nursing staff employable, the team will be in excellent physical and mental health, which will reduce job satisfaction due to burnout.

Purpose: The research aimed to find the link between job satisfaction, burnout, stress, and job satisfaction among nurses working at Kibagabaga, Muhima, and Masaka district hospitals of Rwanda specifically; to describe the levels of job satisfaction, burnout and work-related stress, among nurses, to assess the relationship between job satisfaction, burnout, stress, and to compare job satisfaction with working environment among the nurses.

Method: A cluster random sampling strategy was utilized to recruit 172 nurses from Kibagabaga, Muhima, and Masaka district hospitals for this cross-sectional study. Statistical Package for SPSS version 26.0 was used to analyze the data. To define sample socio-demographic data, nurses' working-related characteristics, and explain levels of work-related stress, burnout, and job satisfaction, descriptive statistics were utilized. The Chi-square used to compare job satisfaction and the working environment. Pearson's correlation was used to assess the positivity or negativity and significant of no significant associations of nurses between job satisfaction, burnout and work-related stress. Multiple regression tests were used to determine the hypothesis work-related stress with three dimensions of burnout (Emotional exhaustion, Depersonalization, Personal accomplishment).

Results: The study showed the mean score of job satisfaction (M=137.8, SD=21.16 which was ambivalent, the mean score of Work related-stress was M=26.87, SD=4.67

and was considered as Severe level of stress , The highest mean score of Burnout syndrome was Exhaustion Emotion (M=37.72.SD=9.42 high level of burnout) and Burnout Depersonalization (M=16.45, SD=7.02 High-level of burnout and medium Burnout Personal Accomplishment M=31.5523,SD=10.05.The results of this study showed a negative non-significant correlation between personal accomplishment and emotional Exhaustion R= -0.039, P=0.610, this shows that as increasing exhaustion, personal accomplishment does not decrease; and the results also show week positive non-significant correlation between personal accomplishment and depersonalization R=0.079, P=0.306,this shows that ,the slow increase in depersonalization ,the less personal accomplishment, the Pearson's correlation coefficient showed a week positive significant correlation between personal accomplishment and work related stress R=0.149 P=0.051 which shows that the increase in work related stress ,may reduce personal accomplishment; and also person correlation coefficients show a significant correlation between personal accomplishment and job satisfaction R=0.297 P=0.00.This means that with increasing in personal accomplishment ,there is an increase in job satisfaction.

This study also revealed that work-related stress is best associated with each dimension of burnout. All models were significantly different from zero ($p<0.05$). Work -related stress explaining the variance in depersonalization (37.9%), emotional (32.9%), exhaustion personal accomplishment (2.2%) and job satisfaction (32%) and the three dimensions of burnout were best statistically significantly with job satisfaction explaining the highest variance, Depersonalization (28.6%), Emotional Exhaustion (25.1%) and Personal accomplishment (8.8%) and all were significantly different from (<0.05);and it also showed that there was associations of job satisfaction and working environment among the nurses at significancy ($p<0.05$).

Conclusion: Nurses' mental health and well-being are harmed by burnout, which hurts productivity, performance, and patient care quality. Further research into stress management and job satisfaction in Rwandan nurses may help to reduce absenteeism and turno-

ver while also reducing the impact of burnout on nurses' overall health. Stress-related problems are the most important markers in predicting burnout and job satisfaction among nurses and probably other health workers (working environment, inadequate staff management, insufficient resources).

Keywords: Job satisfaction, burnout, stress, nurse

CHAPTER ONE

INTRODUCTION

1.1. Background

Work-related stress exists in every field; but, as compared to other health care professionals, nurses are more stressed at work (Dagget, Molla and Belachew, 2016; Pérez-Fuentes et al., 2019), and they take part in health promotion of the people, and historically, nurses' focus has been on sickness prevention and changing people's health practices (Kemppainen, Tossavainen and Turunen, 2012). It has shown that the bulk of patient-related tasks come under the professional duty of nurses, who make up the biggest group of health professionals in the healthcare industry (Gebregziabher et al., 2020).

Burnout is a condition linked with chronic stress that has been researched extensively in a range of work environments and professions (Christensen, 2019) where Burnout is a major problem among nurses, and it's connected to high turnover, and nursing professionals around the globe suffer from burnout and work discontent (Payne et al., 2020) and due to the nature of the profession, health care employees, are at risk (Chemali et al., 2019), and increased relevance of work, on the other hand, correlated to lower levels of burnout (Lahana et al., 2017).

Employment a good attitude arising from a balance of employment requirements, rewards, interpersonal connections, and management style is characterized as satisfaction (Fernández-Salinero, Navarro Abal and Topa, 2019), and dissatisfied health professionals are more likely to have mood changes and other psychosomatic symptoms, as well as be less productive absenteeism, and change jobs more frequently (Gandarillas González et al., 2014).

When stress is seen as being more intense, it leads to a higher level of burnout (Durand et al., 2019), and after all, increasing worker turnover is a result of higher levels of burnout (Selamu et al., 2017) and in another hand, as long as health care administrators keep their nursing staff employable, the team will be in excellent physical and mental health, which will reduce job satisfaction due to burnout (Matsuishi et al., 2012).

Job resources and a comprehensive evaluation of the nature of work needs are two examples of effective management interventions against burnout (Kemppainen, Tossavainen and Turunen, 2012), while a shortage of health care providers had outpaced the government's demand during the pandemic phase and Rwanda's healthcare system is beset by a scarcity of healthcare professionals, particularly nurses as a result of government control of healthcare and education, nurses are expected to apply for positions depending on the needs of health institutions (Health-Rwanda, 2019-2020).

1.2. Problem statement

In Rwanda, there were 66 nurses per 100,000 people in 2019, this is relatively low, and the bulk of health care professional shortages occur in primary care, such as health clinics, and secondary health institutions, such as district hospitals, since they provide Primary Health Care (Uwizeye et al., 2018), and many studies on nurses' work-related stress, burnout, job satisfaction have been conducted around the world. However only one study on burnout was conducted in Rwanda among nurses (Ndenga et al., 2016), there was no study conducted at Kibagabaga, Muhima, or Masaka district hospitals, and let me do this research there. These hospitals' location in an urban area, with constant work overload and a large number of patients seeking health care, was also a factor that led me to conduct my study there.

1.3. Purpose

The research aimed to find the link between job satisfaction, burnout, stress, and job satisfaction among nurses working at Kibagabaga, Muhima, and Masaka district hospitals of Rwanda.

1.4. Specific objectives

The specific objectives of this study are;

1. To describe the levels of job satisfaction, burnout and work-related stress, among nurses,
2. To assess the relationship between job satisfaction, burnout, stress, and
3. to compare job satisfaction with working environment among the nurses.

The following assumptions were investigated in this study:

1. How much levels of stress, burnout, and work satisfaction do nurses experience daily?
2. Is there any relationship between Job Satisfaction, burnout and work related-stress?
3. Is there any difference in job satisfaction with working conditions among nurses working in the three hospitals?

1.5. Hypotheses

Basing to the assumptions, the study explored out the relationship between Work-related stress with Emotional exhaustion, Depersonalization, Personal accomplishment, job satisfaction; and also, the study explored out the relationship between Job satisfaction, Emotional exhaustion, depersonalization Personal accomplishment.

Therefore, the hypotheses for this study are the following:

1. Work-related Stress is having effect on burnout
2. There is no effect work-related stress on burnout out

3.Work related stress and Burnout are having effect on job satisfaction

4.There is no effect of work-related stress and burnout on job satisfaction.

In this model, the research is suggested as the effect of work-related stress and burnout on job satisfaction, Where Work-related stress is independent variable, Burnout (Emotional exhaustion, Depersonalization, Personal accomplishment) is a mediator variable, job satisfaction as dependent variable; and this shows that, when work-related stress is high, burnout increases and job satisfaction decreases (dissatisfaction).

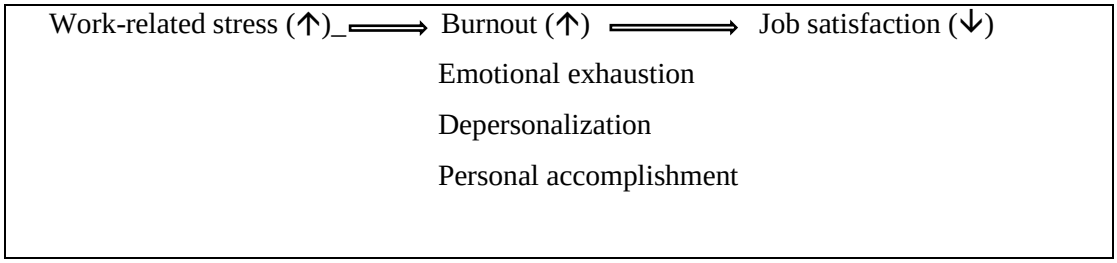

Figure 1.the link of the hypothesis between the three variables

1.6. Importance of the study

This study is significant in that it examines nurses' work-related characteristics and provides baseline data for establishing stress and burnout prevention and treatment programs, as well as job satisfaction. It is a useful source of literature for future studies given the scarcity of available research on nurses' workplace conditions, nursing education, and the status of the nursing profession throughout Rwanda. It also gives nurses a platform to express their concerns and feelings about stress, work demands, job satisfaction, and burnout. The findings of this study aid clinical leaders and staff in identifying the sources of stress among nurses and developing suitable interventions to assist them to manage.

1.7. Operational definition of the critical terms

Followings are the definition used for this study.

Burnout: It is defined as a protracted emotional and interpersonal stress reaction characterized by emotional fatigue, depersonalization, and a lack of social achievement (Friganović et al., 2019).

Job satisfaction: It is defined as the feeling that assesses the cognitive and behavioral aspects of employees' attitudes toward their jobs (Abate and Mekonnen, 2021).

Stress: Stress is described as psychological and physical reactions that increase the likelihood of negative health consequences (Ogutlu, McNicholas, and Turkcapar, 2021).

Nurse: A nurse is someone who has completed a basic, generalist nursing education program and has been licensed to practice nursing by a competent regulatory agency in their country (Reising, 2019).

CHAPTER TWO

LITERATURE REVIEW

2.1. Burnout, Stress among nurses

Job satisfaction and Burnout are linked to stress which is also defined as a condition that occurs as a result of extended exposure to stressful work conditions, and it can lead to a decline in mental health (Liu et al., 2018), here another study said, because of the nature of nurses' work, which requires offering humane, compassionate, circumstances and it has been observed to be higher among nurses than other health care providers (Yu and Lee, 2018) while research conducted in Kenya, said that burnout can be caused by difficult work circumstances (McKnight et al., 2020).

The disconnect is linked to related increased stress at the workplace and reduced desire for a job and according to the findings of a recent study, found that those who work in less stressful workplaces have better levels of job satisfaction and study done in Ethiopia found that inadequate results of patients in their wellbeing (Baye et al., 2020).

2.2. Stress and Job satisfaction

Work-related stress is becoming more prevalent among healthcare practitioners, and nurses are expected to do many additional tasks as a result of the rising demand for public healthcare, according to the study conducted in Iraq (Rezaei, Falahati, and Beheshtizadeh, 2020), while nursing entails a variety of daily responsibilities that are particular to patient care as findings in a study conducted in South Korea nurses are subjected to multiple stressors as a result of their caring duties, all of which lead to occupational hazards (Kim and Yoon, 2018).

A scarcity of nurses exacerbates Work-related stress, a high level of accountability, the complexity of illnesses, sorrow, and the number of interventions and therapies, and these pressures cause a slew of issues for nurses, as found in this study conducted on graduate nurses (Gifkins, Loudoun and Johnston, 2017) while another has an idea said is that. Due to increased patient care obligations, a lack of support staff causes nurses to incur work-related stress (Yu et al., 2019).

Many scholars are concerned about the nurses' workload, which is increasing every day as a result of vital to analyze how much work-related stress nurses encounter, the key sources of stress. The best ways to cope with it and the overwhelming situation come with fatigue, anxiety, and fears among healthcare givers, especially nurses, who spend time with the patients (Jarrad and Hammad, 2020). While some nurses are much resilient and bounce back on to deliver the maximum output, some due to helplessness and discomfort due to the high intensity of the demanding work will require special therapy (Matuszak, 2017).

A study conducted in Belgium on nurses selected from twelve hospitals showed that nurses working at the ICU are vulnerable to burnout due to the shortage of this highly specialized professional (Geuens et al., 2015). While a study was done when job-related stress is minimized, it has been shown to affect an individual's willingness to work positively according to the study conducted, the employees of Tehran in Iran showed damaging physical and psychological consequences in a wide variety of circumstances that often end in reduced work satisfaction (Darvishmotevali and Ali, 2020).

2.3. Link between burnout and job satisfaction of nurses

Nurses’ stress anxiety and depression contribute to a large proportion of work-related ill health, responsible for 9.9 million days of sickness absence in 2014 and 2015, averaging 23 days per individual. Also, among the associated risk factors include a job as stressful,

shift work, staffing, pay, excessive workloads, workplace discrimination, policy, and management. Stressful factors promote compassion fatigue and burnout during healthcare provision (Dugani et al., 2018).

The patient-nurse ratio is associated with job satisfaction, burnout, nurses' workload, and even healthcare settings, where one study conducted in Taiwan aimed to decide if the patient-nurse ratio impacts nurses' intent to leave the clinical practice (Chen et al., 2019). Another research showed that client-related burnout, personal burnout, and work dissatisfaction were discovered to be significant predictors of job dissatisfaction (Pulagam and Satyanarayana, 2021).

As reported by Hasan and Tumah, and according to the study done in Jordan mental health hospital, in psychiatric nurses, a distressed conscience occurs when the image of treatment does not match their vision (Hasan, Elsayed, and Tumah, 2018) while a case study done by Donaldson and Harrison, stated that anxiety and stress are closely linked with similar signs and symptoms (Hammond et al., 2021).

2.4. Factors influencing burnout among health care workers

Nurses staff, in critical care units in Iran, the turnover intention found to be linked to workplace stress, work satisfaction and likewise, among events that psychiatric clinical nurses see are those that result from caring for abusive, chronic regression, patients with low prognoses for behavioral illnesses, and abusive patients (Mote, 2021). Moreover, stress at the workplace has been contributing to poor performance and gradually poor health among healthcare givers (Wang et al., 2020).

Certain types of stress can contribute to nurse burnout, and this occupational condition threatens mental wellbeing, resulting in health issues, increased workplace turnover, and

reflecting poorly on the patient's safety. In contrast, the quality of patient care is affected, compromising productivity and performance, as well is affected (Giorgi et al., 2018).

Once the conditions persist, issues like security risks in the workplace become prominent, this accumulated into job dissatisfaction and the general health status of the nurses is affected, high staff turnover and organizational inefficiency, and work stress has an effect that is greater than the effectiveness and efficiency of employee performance. In addition, physically, it may result in poor lifestyle behaviors such as consuming alcohol, smoking, and overeating (Uchendu, Windle, and Blake, 2020).

As a result, major chronic illnesses such as hypertension and heart disease develop, and stress can cause staff burnout, subsequently leading to poor patient outcomes, work stress harms patient care and safety, and it is frequently associated with patient dissatisfaction and treatment errors raised.

However, in Nigeria, sex, age, work environment, work experience were not significant predictors of burnout among nurses, and nurses that deal directly with patients in difficult situations, typically in the intensive care unit, are more vulnerable to stress (Favrod et al., 2018). Another study showed that nurses feel under pressure due to frequent exposure to injuries, lengthy hours, and patient mortality (Cramer and Hunter, 2019).

Mental wellbeing is significant for nurses and other healthcare staff, who are exposed to a wide variety of work-related stress hazards (Naushad et al., 2019), while one research done on the contribution of organization factors to the workplace showed the involvement of psychological labor, excessive workload, and task demands, and workplace harassment (Balducci, Conway and van Heugten, 2021).

2.5. Conceptual framework

The results suggest that nurses' workload should be reduced and supervisor support should be increased to retain nurses, and one study examined burnout and job satisfaction among nurses using the Job Demand and Resource Model, this study was conducted in south Korea to examine burnout and job satisfaction among nurses based on Job Demand-Resource Model in 464 hospital nurses, the results of this study suggested that, nurses' workload should be decreased and supervisor's support should be increased in order to retain nurses .

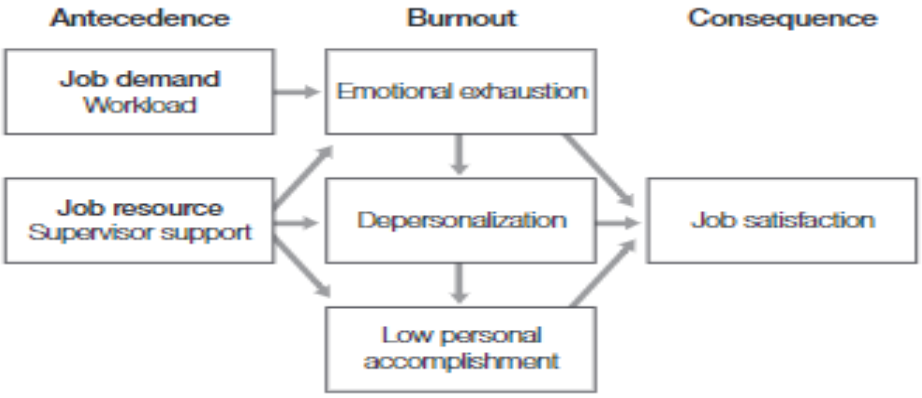

Figure 2.Conceptual frame work

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter presents Geographical information of study area/setting, Methodology process, Study design, Population and Sample size determination, data collection procedures, study analysis.

3.1. Study Area

Rwanda is divided into thirty administrative districts and four provinces, with the capital city of Kigali lying in the heart of the country's four provinces. Rwanda has a population of over 12.6 million people living on 26,338 km2 of land. Since its independence from Belgian domination in 1962, the city has served as Rwanda's economic, cultural, and transportation hub. Rwanda is a landlocked country located a few degrees south of the Equator in the Great Rift Valley, where the African Great Lakes region and East Africa intersect. Rwanda, with Kigali as its capital, is bordered by Uganda, Tanzania, Burundi, and the Democratic Republic of the Congo.

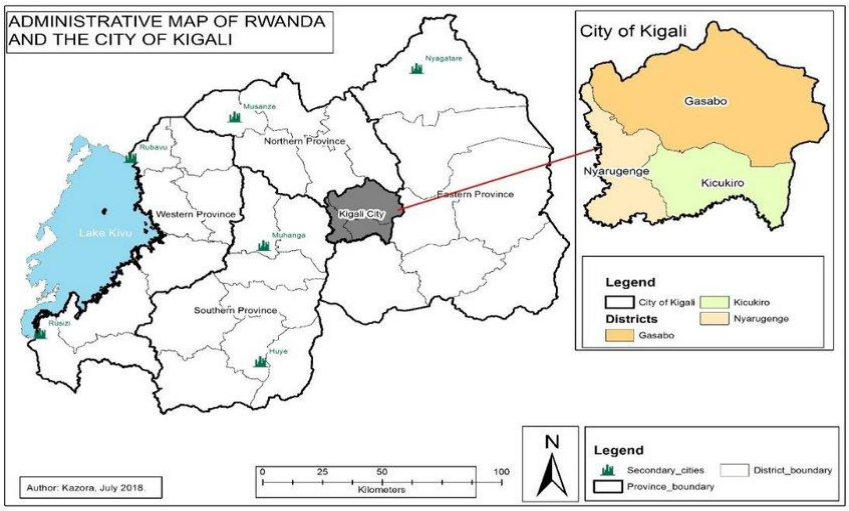

Figure 3.Three administrative districts of the hospitals 'location
(Source: Google map data 2021)

The research will take place in three district hospitals in Kibagabaga, Muhima, and Masaka, which are located in Rwanda's capital Kigali and serve the administrative districts of Gasabo, Nyarugenge, and Kicukiro, respectively. According to the Rwandan National Institute of Statistics, Kigali city is overcrowded, with a population of 2.4 million in 2019. (NISAR). The three district hospitals described above get a large number of patients compared to other provinces in rural areas, which increases workload and may contribute to job satisfaction work-related stress, burnout, concerns nurses.

Kibagabaga is one of the hospitals in the City of Kigali's Districts; it is a hospital located in the Administrative District of Gasabo. Kibagabaga Hospital provides health care to the population, supervises the district's health centers and other public health facilitators, and provides them with a robust program that promotes people's health. Patients from Kibagabaga in Kimironko Sector, its radiation region (Gasabo), and other nearby districts are treated at the hospital (Kicukiro, Nyarugenge).

The hospital, which is located north of Kigali, serves the entire Gasabo District catchment area. Kibagabaga hospital serves a population of 350,047 people and is bordered on the south by the district, on the north by Gicumbi District in the Northern Province, on the northwest by Rulindo District, and the east by Rwamagana District.

Kibagabaga hospital Construction began on 3rd March 2003 by BTC, the first stone was laid by His Excellency the President of the Republic, Paul Kagame on 5th May 2003, Provisional acceptance May 27th, 2005, The District Council created the Board of Directors on September 23rd, 2006, and clinical operations began on October 31st, 2006.

Kibagabaga District Hospital aims to provide "leadership in excellent health care; and to be self-reliant in all of our activities." Its objective is to provide the greatest quality of healthcare and to engage with others in our community to enhance the health status of the population in the Gasabo district, consequently improving the population's overall well-being, to employ competent, caring individuals. Kibagabaga Hospital's goal is to strengthen health systems, encourage continuous quality improvement, and enlighten decision-makers to ensure accountability to national health policies through well-trained professionals who are sensitive to the needs of our clients, their families, and the communities.

Kibagabaga hospital has services as follows, Emergency, Obstetrics /Gynecology, Internal Medicine, Pediatrics, Surgery, ENT, MDR-TB (Scanlan and Still), Neonatology, Mental Health, Laboratory, Radiology, Outpatient, Nutrition Services, Social Service, Environmental health, and Physiotherapy, Anesthesia. Kibagabaga hospital has staff members, 24 Doctors (General practitioners, 2 Doctors with Specialization,143 Registered Nurses, 20 Midwives, 12 Laboratory technicians, 11 Social workers, and other supporting staff, it also has a capacity of 225 beds, the bed occupancy rate of 80-90%, the average length of stay to patients is 3 days.

Muhima hospital is a public hospital, with a role of District hospital, located in Nyarugenge district in Kigali, the capital city of Rwanda. It has 10 health centers and one dispenser of prison central of Kigali with a population estimated 256, 876 habitants, it was operational since August 2001; Muhima hospital was an extension health center of Muhima which has been built in 1988, then after was an extension Health center in Urban District hospital, it is operating as a district hospital with the administrative district of Nyarugenge up to now.

In 2001, Muhima hospital was constructed under the financial support of the World Bank through the Project Santé Population and was handed over to the Ministry of health in July 2001. However, due to the rehabilitation of buildings that sheltered the maternity and neonatology services in Kigali Teaching Hospital, known as CHUK, and the lack of equipment's in the newly constructed hospital, the ministry of health has decided to transfer the said services to Muhima Hospital to be operated from before starting its proposed services.

On the 22nd of April 2002, Muhima hospital was handed over to Kigali city by the ministry of health as Nyarugenge district hospital following the decentralization program of all public activities in different ministries in the country and being a district hospital, Muhima hospital had the mission of ensuring the delivery of health services to a population of especially the district of Nyarugenge. From elsewhere in the country in general, a task which was hard to achieve. Due to the lack of equipment and unfinished buildings, to sort out this obstacle Kigali city and CHUK (University Teaching Hospital of Kigali) have signed a partnership in October 2002 on the management of the hospital in question.

Muhima hospital has a vision of being a center of excellence in Gyneco-obstetric and neonatology. It will follow the missions to be an excellent center to offer the quality of care in specialized services for teaching and researching. Muhima Hospital's major objective is to provide health care to the community, manage the district's health centers and other

public health facilitators, and provide them with a solid program that promotes people's health.

Muhima hospital offers different disciplines from the following services which include, Gynecology/obstetrics, Pediatrics, Emergency, Neonatology, Dentistry, Mental health, Non-Communicable Disease (NCDs), Physiotherapy, Laboratory, ARV Service, Radiology, Cancer screening, and Family planning with workers as follow, 17 Physicians (General Practitioners), 4 specialist Doctors, 110 Registers Nurses, 1 Pharmacist, 10 Lab Technicians,10 Anesthesia technicians,3 Dentists, 1 Nutritionist, 1 Mental health nurse, 2 Psychologist, 1 Hygienist, 2 Radiologists, and other supporting staffs. The hospital also is having a capacity of 150 beds, a bed occupancy rate of 80-85%, the average length of stay to patients is 3 days.

Masaka Hospital is a general hospital that provides services in general medicine, emergency medicine, traditional Chinese medicine, dentistry, orthopedic surgery, and psychiatry, and it is a government-run hospital in Kigali's Kicukiro District. Masaka hospital was built between 2008 and 2011 with funding from the Chinese government as a gift to Rwanda. As of July 2018, the hospital is run by a team of six Chinese doctors, who are assisted by a smaller number of Rwandan medical doctors and other health providers.

The Rwanda Ministry of Health oversees it and employs the following personnel:24 General Practitioners, 3 Specialist Doctors, 143 Registered Nurses, 1 Pharmacist, 13 Lab Technicians, 8 Anesthesia technicians, 3 Dentists, 1 Nutritionist, 1 Mental Health Nurse, 3 Psychologist, 1 Hygienist, 4 Radiologists, and other supporting staffs with a capacity of 230 beds and a bed occupancy rate of 80-95%.

Other specializations offered at Masaka district hospital include maternity services, internal medicine, pediatrics, imaging services, general surgery, tuberculosis treatment, nutrition services, general anesthesia, HIV/AIDS therapy, and outpatient services. The hospi-

tal will primarily serve the residents of the Kicukiro and Rwamagana areas, which have populations of 380,000 to 400,000 people.

In comparison to rural hospitals, most of the three District hospitals are fully equipped with the latest medical instruments to provide specialized medical care. These three urban district hospitals typically have a high number of health care professionals (nurses) because most health care professionals prefer to work in urban areas, which will aid me in recruiting a large number of nurses during my study.

The study conducted by Rwanda Nurses and Midwives Union (RNMU) in January 2015" optimizing nursing and midwifery in Rwanda" shows a gap of 45% of required nurses at the health center level and 20% at the district hospital level by 2009 Ministry of Health guidelines.

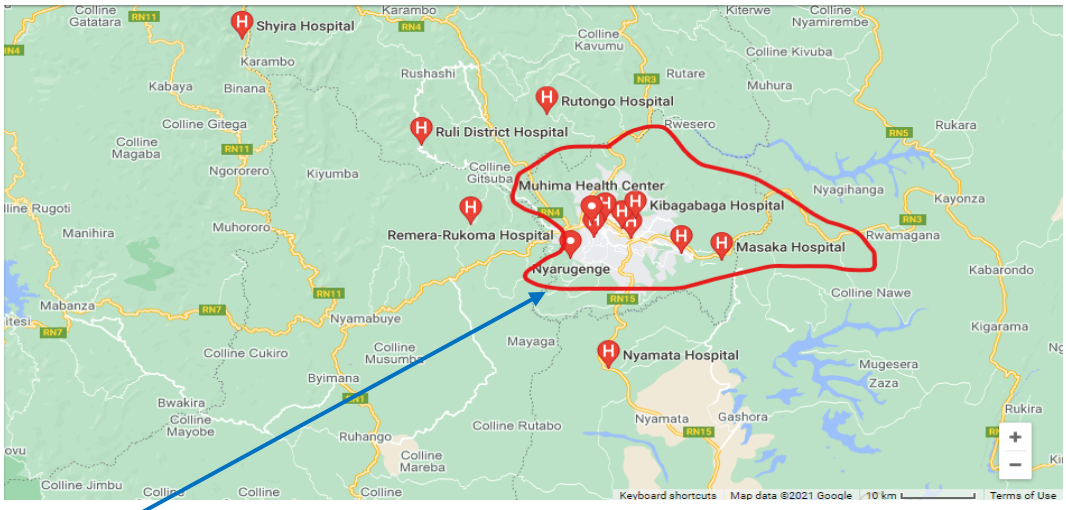

Figure 4.Three district hospital's location

(Source: Google 2021)

3.2. Study Design.

Cross-sectional study and quantitative methodologies, a self-administered adopted questionnaire, and assessed the link between job satisfaction, burnout, stress among nurses from hospitals of Kibagabaga, Mahima, and Masaka.

3.3. Study population.

Nurses and staff nurses, as well as nurse managers, were recruited from several district hospitals as study participants, and the study covered nurses with a diploma or higher certificate with one year of working experience, and who work in designated three district hospitals of Kibagabaga, Muhima, and Masaka.

Nurses who had below one year of working experience were disqualified from participating in the study, nurses with depression and anxiety-related disorders are examples of psychological difficulties barred from participating. Nurses who worked in COVID-19 departments throughout the data collection period or had worked in such departments one month before the data collection period were not allowed to participate.

3.4. The size of the sample

The size of sample was calculated using Cochran's formula given as no = (z^2pq /e^2) where no = is the desired sample size, Z^2 =Z-score (1.96) standard normal distribution curve for 95% of confidence and 5% (0.05), P-value was estimated as proportion of job satisfaction taken from study conducted in Spain by = 0.67. Assuming the acceptable approximation of the population was taken at confidence interval of 95% with margin error of 5% and non- responding rate of 10% from the similar study. From the given formula, q = 1-p = (1-0.5). Therefore, no = (($(1.96)^2$ (0.5) (1-0.67)) / (0.05) 2 =254 (Cochran's sample size).

From finite source of population of 401 of nurses working to three selected district hospi-

tals, the final sample size was calculated as n = (no /1 + (no - 1)) /N which mathematically n = (254 / (1 + (254- 1)) /401. After considering 10% of the non-responding rate and loss of data 172 Nurses were recruited and used as the final sample size for the study.

3.5. Sampling strategies

Participants were chosen using a cluster random selection method from three district hospitals out of four in Kigali. Several nurses were proportionally allocated to each hospital based on the number of nurses working there. Then, a cluster random sampling method was used to obtain the desired number of participants from each hospital according to the inclusion criteria.

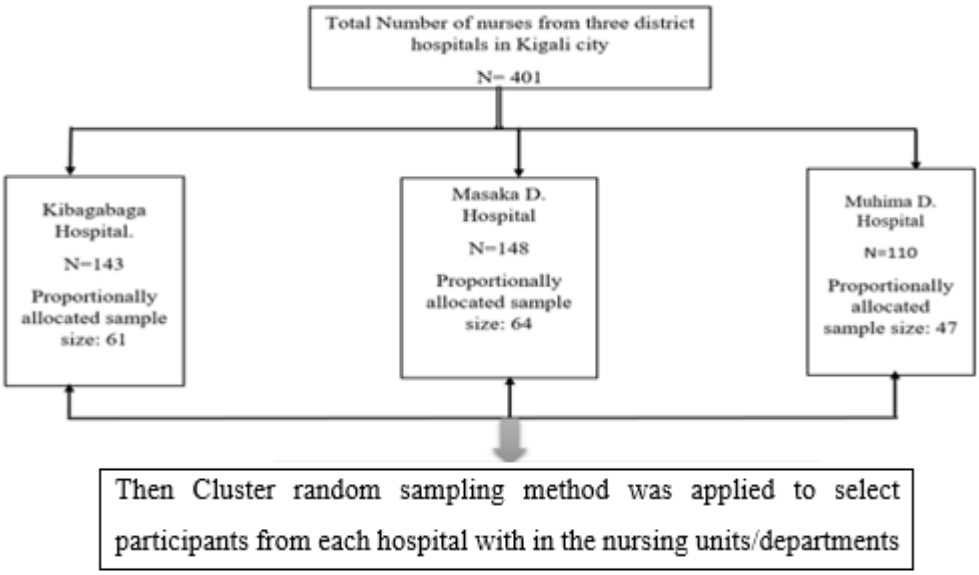

Figure 5.Sampling procedures

3.6. Data collection Procedure.

Three research assistants from different participating health facilities were recruited and trained via a zoom meeting about research objectives, questionnaire, and how to fill out the questionnaire before data collection.

During the staff meeting, three research assistants were assigned to each institution independently. Surveys were completed and submitted, and ethical principles were followed throughout the study's execution. The research assistants handed out informed consent forms to the nurses who decided to participate in the study and sign the form before beginning to fill out the questionnaire. After the process was completed, the participants were sent an electronic link to the English questionnaire in the form of a Google form through email, and verbal reminders were given giving them two weeks to complete the questionnaires. The data-gathering period was from October 20th to November 5th, 2021.

3.7. Research tool/ questionnaire and variables measurement.

This study used the valid questionnaire adopted from the two similar published studies; one was conducted in Spain (Acea-López et al., 2021), and another one was conducted in South Africa (Khamisa et al., 2015).

The study had variables which included: Socio-demographic Characteristics (Cohabitation, Dependents, Position, Age, Gender, Marital status, Hospital, level of education, Children, Department, Qualification, Experience as a nurse, Experience in current department) and (Work-related characteristics (Working Environment and Working Compensation) as dependent variables. Job Satisfaction as a dependent, Stress as an independent variable, and Burnout as a mediator were also other variables included in the study.

All participants received a questionnaire with four sections, consisting of a Socio-demographic Questionnaire(SDQ) and work-related characteristics (WRC), Job Satisfaction Survey(JSS), Maslach Burnout Inventory, and Nursing Stress Inventory (NSI) (Maslach, Jackson and Leiter, 1996), (Spector, 1997),(Rothmann, Van Der Colff and Rothmann, 2006).

Section A (SDQ): Consists of questions about age, Gender, Marital status, Hospital, Education level, Children, Cohabitation, Dependents, Position, Department, Qualification, Experience as a nurse, Experience in the current department, and work-related character-

istics composed of Working environment, working compensation. The percentages and the frequencies were used to describe the socio-demographic information of participants.

Table 1. Summary of variables of sociodemographic variables

Variables	Categories and description
Age	31 years and more
	21 years to 30 years
	20 years and less
Gender	Female
	Male
Marital status	Single
	Married
Hospital working	Kibagabaga
	Muhima
	Masaka
Education level	High School Graduate
	Advanced diploma
	Bachelor degree
	Master degree
Children	With Children
	Without Children
Cohabitation	Family
	Shared residency
	Couple
	Living alone
Dependents	Having dependents
	Not having dependents

The position you have in hospital	Bedside nurse position
	Administrative position
	Supervisor Position
	Head nurse Position
	Educator Position
	Coordinator Position
department are you currently working in	Internal Medicine
	Emergency
	Pediatric
	Maternity
	Surgery
	Administration
	Others
Qualification	Auxiliary nurse
	Associate nurse
	Registered nurse
Years have you been a nurse in your current department	≤1 yr
	1 – 5 yrs
	≥5 yrs
Years have been working as a nurse	≤1 yrs
	1- 5 yrs
	≥5 yrs

Table 2. summary of working environment variables

Variables	Categories and description
Means of transport from home to hospital	Car

	Bus
	Motorcycle
	Foot
The time it takes from home to hospital	Below 15 Minutes
	Between 16-30minutes
	Between 31-45 minutes
	Above 60 minutes
Hours you work per week	31- 40 hours
	41 - 50 hrs
	51 -60 hrs
	≥71 hrs
Working conditions	Under hospital contract
	Under hospital appointment
	Under Ministry of Health appointment

Table 3. Summary of compensation variables

Variables	**Categories and description**
Amount of money Monthly for Salary income (Rwandan francs)	Below 100 thousand
	101-150 thousand
	151-200 thousand
	201-250 thousand

	251-300 thousand
	More than 300 thousand
Incentives or any other earning apart from monthly salary	Satisfied
	Dissatisfied
	Never
The extent to which you have training for your duties	Satisfied
	Dissatisfied
	Never participated
Professional opportunities for upgrading studies	Satisfied
	Dissatisfied
	Never participated

Section B (JSS): For the 36-item total, where possible scores range from 36 to 216, the ranges for 36 to 108 was dissatisfaction, 144 to 216 for satisfaction, and between 108 and 144 for ambivalence. Total work satisfaction scores, which are based on the sum of all 36 items were ranged from 36 to 216. Scores on each of the nine aspect subscales were based on four items, can range from four to twenty-four. Pay 1: 10, 19, 28, Promotion 2: 11, 20, 33, Supervision 3: 12, 21, 30 4, 13, 22, 29, 33, 34 Rewards that are conditional Operating circumstances (5, 14, 23, 32) 6, 15, 24, 31, and 66 Coworkers Nature of labor (numbers 7, 16, 25, 34), Communication (numbers 8, 17, 27, 35) the nine facet subscales of the questionnaire with nine facets are (9, 18, 26, 36).

The liker rating for each item ranges from 1 to 6, with 1 indicating significant disagreement and 6 indicating strong agreement. Each item's replies are ranked from 1 to 6, with 1 denoting the most strident disagreement and 6 denoting the most strident agreement.

Things with negative wording are 2, 4, 6, 8, 10, 12, 14, 16, 18, 19, 21, 23, 24, 26, 29, 31, 32, 34, 36.

Table 4. Summary of job satisfaction variable

Classification	Variable	Category	Description
Dependent	Job satisfaction	36-108	Dissatisfaction
		108-144	Ambivalent
		144-216	Satisfaction

(Section C(MBI)) Maslach Burnout In this study, the Burnout Inventory was utilized to assess nurse burnout. It assesses burnout in those who work in human services and health care, such as nurses. Burnout Maslach On a scale of 1 to 6, the inventory scale has 22 items. The items are personal thoughts and viewpoints expressed in statements. The Emotional Exhaustion (EE) subscale had (9 items), The Personal Accomplishment (PA) subscale had (8 items), and Depersonalization (DP) subscale had (5 items).

"Percentages from the total items scores was used to categorize low levels or high levels of burnout for each subscale/syndrome as the following: The Overall score for Emotional Exhaustion (EE) were calculated by adding together the answers to questions 01, 02,03, 04, 05, 06,07, 08,09 Emotional Exhaustion (EE): EE≤17 was considered as Low level, EE which is 18-29 as Medium level while EE≥30 was categorized and considered as high level(Fidler, Bray and Soerjomataram, 2017). The overall score for depersonalization and loss of empathy (DP) was obtained by adding together the answers to questions 10, 11, 12, 13, 14 then DP ≤5 was considered low levels and DP= 6 - 11 was considered medium while DP ≥12 high levels.

Finally, The Overall score personal accomplishment assessment (PA) was obtained by summating of scores to questions 15, 16, 17,18,19, 20,21,22.

Personal accomplishment (PA) assessment was measured as follow:

≤PA 33 denotes a low level, PA 34 - 39 denotes a medium level, and PA 40 denotes a high level.

Table 5. Burnout

Classification	Variable	Category	Description
Mediator	Emotional exhaustion	≤17	Low level
		18-29	Medium level
		≥30	High level
	Depersonalization	≤5	Low level
		6-12	Medium level
		≥12	High level
	Personal Accomplishment	≤33	Low level
		34-39	Medium level
		≥40	High level

NSI Section D: It was used to determine the level of stress, it consisted of 8 questions on a five-points from 0 to 5, and it was used to determine the frequency and intensity of stress identified among Rwandan nurses.

The total score was obtained from the summation of individual scores. The total score of 15 or lower was related to calm (stress was not much of a problem). The total score of 16 to 20 stress was considered relatively fairly. The total score of 21-25 was considered moderate stress, and the total score of 26-30 was considered severe stress, while the total between 31-40 stress levels was considered potentially dangerous.

Table 6. Work-related stress

Classification	Variable	Category	Description
Independent variable	Job satisfaction	≤15	Calm
		16-20	Fairly
		21-25	Moderate
		26-30	Severe
		31-40	Potentially severe

3.8. Data analysis

To ensure accuracy, the Statistical Package for SPSS version 26.0 software was utilized. Descriptive statistics were used to describe sample socio-demographic data, nurses' working-related characteristics, and explain levels of work-related stress, burnout, and job satisfaction.

To see if there was relationship between job satisfaction, burnout and work-related stress, job satisfaction and the working environment, this cross-sectional study also described the levels of job satisfaction, burnout and work-related stress among nurses of Kibagabaga, Muhima, and Masaka district hospitals.

The data was first entered, cleaned, and analyzed.

Pearson correlation was used to assess the positivity or negativity and significant of no significant associations of nurses between job satisfaction, burnout and work-related stress.

Multiple regression was used to determine the hypothesis work-related stress with three dimensions of burnout and job satisfaction and job satisfaction with three dimensions of burnout (Emotional exhaustion, Depersonalization, Personal accomplishment.
Chi-square test was also used to compare job satisfaction and the working environment of nurses working at Kibagabaga, Muhima and Masaka district Hospitals.
With a 95% confidence interval, the significance level for testing statistical significance (p-value) was estimated to be 0.05 (5%).

3.9. Data quality control

To achieve quality control in this study, data were collected using appropriate methods, and three diploma nurse research assistants were taught for two days on the study's objectives, data collection procedures, and data collection process to explain the study's purpose to study participants. Furthermore, to ensure data quality, efforts were made during data collection to prevent repeating interviews with the same participant, and replies were checked regularly for completeness and consistency of the tool.

3.10. Data Management

All data about the current study was kept in both hard and soft copies. The researcher kept sources of information and in the university library, and the main research findings were shared with the academic staff and administration of the district hospitals of Kibagabaga, Muhima, and Masaka. The research-related documents were kept confidential by Yonsei University's research policies.

3.11. Ethical considerations

Yonsei University provided a recommendation for requesting permission to collect data from participating institutions, and the administration of the hospitals provided permission to carry out data collection. Furthermore, throughout the research process, ethical concepts such as individual rights to respect, beneficence, secrecy, and privacy were en-

dorsed, implying that all respondents who engaged, signed informed consent prior complete the questionnaire and handed it over back to the research assistants after signing.
All information was kept private, and participants' data were recorded anonymously. Participation was entirely voluntary. No monetary or other incentives were offered.

3.12. Dissemination of study findings

The findings were presented at Yonsei University's public defense and then submitted to the school. The findings (hard or soft copies were sent to the district health administrative bureau of the individual district hospitals in Kigali, Rwanda, before being processed for publication in national or international journals. The results are in the process of being presented at scientific conferences and national programs.

CHAPTER FOUR

RESULTS

This chapter presents results from data analysis and it is subdivided into main sub-components as follows.

4.1. Socio-demographic information of the participants

The final sample was 172 nurses who completed the questionnaire. There were 35.5% (n=61) participants from Kibagabaga district hospital, 27.3% (=47) from Mahima district hospital, and 37.2% (n=64) from Masaka district hospital. Results of the analysis revealed that 33.7% (n=58) of respondents belonged to the age group of people 31 years and more of age, 52.9 % (n=91) belonged to the age group of 21 years to 30 years, and the rest 13.4 % (n=23) had 20 and fewer years old. The findings revealed that most of the participants were between the age of 21 to 30 years old, 72.7 % (n=125) of the respondents involved in the study were female, and the rest 27.3 % (n=47) were male.

Marital status was another variable examined in the course of this study. It was found out that 17.4% (n=30) had never got married (single), 82.6 % (n=142) were married, and the results suggest that the majority of respondents(nurses) who were found at the three selected districts hospitals were married. The level of education of respondents was also examined as one of demographic information. It was indicated that 1.7 % (n=3) of respondents had completed their high school graduate, 62.8% (n=108) had an advanced diploma in nursing, 31.4% (n=54) had Bachelor's degree in nursing, whereas 4.1 % (n=7) only had Master's degree in nursing. Thus, the study revealed that most of the participants were nurses who had Advanced diplomas in nursing table 7).

The participants of the study 64.5% (n=111), had children, whereas 35.5% (n=41) did not have children. This reveals that the majority of the respondents had children (table 7).

Furthermore, the study revealed that 72.1% (n=124) were living with their families, 5.8% (n=10) shared residency,15.7% (n=27) were living as couples,6.4% (n=11) were living alone, in this study, the majority of the participants were living with their families.

The participants of the study 68.6%(n=118) had dependents and 31.4% (n=54) had no dependents, the participants with dependents were dominating in this study, (table 7). The study revealed that 85.5% (n=147) respondents had bed side nurse position and were majority, 4.7%(n=8) had administrative position, 1.7% (n=3) had supervision position, 5.2% (n=9) were head nurses, 2.3% (n=4) had education position and 0.6% (n=1) had a position of coordination. The study had the respondents who belonged to different departments where 20.3% (n=35) were from Internal medicine, 20.3%(n=35) from Emergency ,7.6% (n=13) from pediatric ,27.9%(n=48) from maternity ,14%(n=24) from surgery,7.6%(n=13) from administration and 2.3%(n=4) were from others.

Qualification was one of the variables of this study where 1.2%(n=2) were auxiliary nurses,0.6%(n=1) was associate nurse, and 98.3%(n=169) were registered nurses and were the majority.

Among the respondents, 0.6% (n=1) had worked less than one year in the current department,44.8% (n=77) worked one to five years in the current department, and 54.7%(n=94) worked more than five years in the current department and were the majority. The study revealed that the respondents, 0.6% (n=1), had worked less than one year as a nurse,38.4%(n=66) worked one to five years of experience as nurses and 54.7%(n=94) worked more than five years and were the majority (table 7).

Table 7.Characteristics of nurses(N=172)

Variables	**Categories**	**N (%)**
Age group	31 years and more	58(33.7%)
	21 years to 30 years	91(52.9%)

	20 years and less	23(13.4%)
Gender of the respondents	Female	125(72.7%)
	Male	47(27.3%)
Marital status	Single	30(17.4%)
	Married	142(82.6%)
Hospital working in	Kibagabaga	61(35.5%)
	Muhima	47(27.3%)
	Masaka	64(37.2%)
Education level	High School Graduate	3(1.7%)
	Advanced diploma	108(62.8%)
	Bachelor degree	54(31.4%)
	Master degree	7(4.1%)
Children	With Children	111(64.5%)
	Without Children	61(35.5%)
Cohabitation	Family	124(72.1%)
	Shared residency	10(5.8%)
	Couple	27(15.7%)
	Living alone	11(6.4%)
Dependents	Having dependents	118(68.6%)
	Not having dependents	54(31.4%)
The position you have in hospital	Bedside nurse position	147(85.5%)
	Administrative position	8(4.7%)
	Supervisor Position	3(1.7%)
	Head nurse Position	9(5.2%)
	Educator Position	4(2.3%)
	Coordinator Position	1(0.6%)
department are you currently working in	Internal Medicine	35(20.3%)

	Emergency	35(20.3%)
	Pediatric	13(7.6%)
	Maternity	48(27.9%)
	Surgery	24(14.0%)
	Administration	13(7.6%)
	Others	4(2.3%)
Qualification	Auxiliary nurse	2(1.2%)
	Associate nurse	1(0.6%)
	Registered nurse	169(98.3)
Years have you been a nurse in your current department	≤1 yr	1(0.6%)
	1 – 5 yrs	77(44.8%)
	≥5 yrs	94(54.7%)
Years have been working as a nurse	≤1 yrs	1(0.6%)
	1- 5 yrs	66(38.4%)
	≥5 yrs	105(61.0%)

Source: Primary data, 2021

4.2. Working environment

The respondents used different means from their homes to the hospital where 11.6%(n=20) used cars,50%(n=86) used the bus,20.3%(n=35) motorcycle,18% (n=31) foot. The study revealed that the respondents who used the bus were the majority. The respondents of the study 9.3%(n=16) used below 15 minutes from home to the hospital, 27.3% (n=47) used between 16 to 30 minutes, 38.4% (66) 31 to 45 minutes and 25% (n=43) above 60 minutes. The study revealed that 9.9% (n=17) respondents worked 31 to 40 hours per week, 65.7% (n=113) 41 to 50 hours,16.3%(n=28) 51 to 60 hours, and

8.1%(n=14) 71 hours and above, the study revealed that 65.7% of the participants were working 41 to 50 hours per week and were considered ad the majority.

Working condition was another variable of the study where the study revealed that 29.1%(n=50) of the respondents were working under hospital contract, 26%(n=45) under hospital appointment and 45,9%(n=79) under Ministry of health appointment and was the majority (table 8).

Table 8.Working environment

Variables	**Categories**	**N (%)**
Means of transport from home to hospital	Car	20(11.6%)
	Bus	86(50.0%)
	Motorcycle	35(20.3%)
	Foot	31(18.0%)
The time it takes from home to hospital	Below 15 Minutes	16(9.3%)
	Between 16-30minutes	47(27.3%)
	Between 31-45 minutes	66(38.4%)
	Above 60 minutes	43(25.0%)
Hours you work per week	31- 40 hours	17(9.9%)
	41 - 50 hrs	113(65.7%)
	51 -60 hrs	28(16.3%)
	≥71 hrs	14(8.1%)
Working conditions	Under hospital contract	50(29.1%)
	Under hospital appointment	43(25.0%)
	Under Ministry of Health appointment	79(45.9%)

Source: Primary data, 2021

4.3. Working compensation

The monthly salary was also a variable of the study where 1.2%(n=2) of the respondents had a monthly salary below 100 thousand,0.6%(n=1) had 101 to 150 thousand,55.2%(n=95) had 151 to 200 thousand,32%(n=55) 201 to 250 thousand,7%(n=12) 251 to 300 thousand whereas 4.1%(n=7) had more than 300 thousand and the majority

were 55.2 % who had a monthly salary of 151 to 200 thousand. Among the participants, only 9.3%(n=16) were satisfied by the monthly incentives they received apart from their monthly salary,64% (n=110) were dissatisfied,26.7% (n=46) never received, and the majority were dissatisfied by the monthly incentives they received apart from the salary.

The study participants, 12.8% (n=22), were satisfied by the extent they get training for their duties,51.7%(n=89) were dissatisfied, and 35.5%(n=61) did not participate in any training of their duties, whereas the respondents 51.7% who were dissatisfied were considered as the majority. The study also revealed that 11%(n=19) were satisfied by the extent they get professional opportunities for upgrading,43.6(n=75) were dissatisfied, and 45.3%(n=78) never participated and were considered as the majority (table 9).

Table 9 .Working compensation

Variables	**Categories**	N (%)
Amount of money Monthly for Salary income (Rwandan francs)	Below 100 thousand	2(1.2%)
	101-150 thousand	1(0.6%)
	151-200 thousand	95(55.2%)
	201-250 thousand	55(32.0%)
	251-300 thousand	12(7.0%)
	More than 300 thousand	7(4.1%)
Incentives or any other earning apart from monthly salary	Satisfied	16(9.3%)
	Dissatisfied	110(64.0%)
	Never	46(26.7%)

The extent to which you have training for your duties	Satisfied	22(12.8%)
	Dissatisfied	89(51.7%)
	Never participated	61(35.5%)
Professional opportunities for upgrading studies	Satisfied	19(11.0%)
	Dissatisfied	75(43.6%)
	Never participated	78(45.5%)

Source: Primary data, 2021

4.4. Work-related stress

Stress was a variable of the study, it was categorized into five levels which include "Calm, Fairly, Medium, severe and Potentially dangerous" the majority of the nurses showed to have severe work-related stress with 43%(n=73),30.2%(n=52) Medium,16.3%(n=28) Potentially dangerous,9.9%(n=17) Fairly, and only 0.6%(n=1) showed to have Calm (table 10).

Table 10.Work-related stress

Categories	**N (%)**
Calm	1(0.6%)
Fairly	17(9.9%)
Medium	52(%)
Severe	74(43.0%)
Potentially Dangerous	28(16.3%)

Source: Primary data, 2021

4.5. Maslach burnout Syndromes

Burnout was also a variable of the study with three dimensions where Emotion Exhaustion showed 81.4% (n=140) with high level,18% (=31) medium level, 0.6%(n=1) lower level.

Depersonalization showed that 75%(n=129) high level,19.8% (n=34) medium level,5.2% (n=9) lower level while Personal Accomplishment 56.4%(n=97) with the lower level,25%(n=43) high level and 18.6%(n=32) with medium level. Therefore, in this study, 81.4% of nurses working at Kibagabaga,

Muhima, and Masaka hospitals had high emotional exhaustion,75% of depersonalization levels, and 56.4% had low levels of personal accomplishment (table 11).

Table 11.Maslach burnout syndrome

Emotion Exhaustion	
Categories	**N** (%)
low level	1(0.6**%**)
Medium level	31(18.0**%**)
High level	140(81.4**%**)
Depersonalization	
Categories	**N (%)**
low level	9(5.2**%**)
Medium level	34(19.8**%**)
High level	12975.0 (**%**)
Personal Accomplishment	
Categories	**N (%)**
Low level	97(56.4**%**)
Medium level	32(18.6**%**)
High level	43(25.0**%**)

Source: Primary data, 2021

4.6. Job Satisfaction

Job satisfaction was also one of the variables of this study and showed 52.9% (n=91) ambivalent as the majority,37.8 % (n=65) were satisfied, and only 9.3%(n=16) were dissatis-

fied. The study revealed that 52.9 % of the respondents presented to have ambivalent on job satisfaction and were the majority (Table 12).

Table 12.Job Satisfaction

Job Satisfaction	
Categories	**N (%)**
Dissatisfaction	16(9.3**%**)
Ambivalent	91(52.9**%**)
Satisfaction	65(37.8**%**)

Source: Primary data, 2021

4.7. Relationship between job satisfaction, burnout, work-related stress of nurses using Pearson's correlations test.

Normative values for job satisfaction are (dissatisfaction 36-108, for ambivalence 108 - 144, Satisfaction 144 -216) and normative for burnout are Emotional exhaustion (lower level ≤17, medium 18-29 high level, ≥30); Depersonalization (≤5, medium 6-11, high level ≥12; Personal accomplishment (Lower level ≤33, Medium 34-39, High level ≥40); Work-related stress 6 -20 (fairly), 21-25(moderate stress) ,26-30 (severe) and 31-40 (potentially dangerous).

Descriptive statistics for nurses' job satisfaction, Work related-stress, burn out Exhaustion, Burnout Personal Accomplishment Burnout Depersonalization, the mean score of job satisfaction (M=137.8, SD=21.16 which was ambivalent, the mean score of Work related-stress was M=26.87, SD=4.67 and was considered as Severe level of stress , The highest mean score of Burnout syndrome was Exhaustion Emotion (M=37.72.SD=9.42 high level of burnout) and Burnout Depersonalization (M=16.45, SD=7.02 High-level of burnout and medium Burnout Personal Accomplishment M=31.5523,SD=10.05(Table 13).

Table 13.Descriptive Statistics with mean scores of levels of job satisfaction, Work related-stress, Burn out Exhaustion, Burnout Personal Accomplishment Burnout Depersonalization.

Variable	Mean	Std. Deviation
Overall job satisfaction	137.8198(Ambivalent)	21.16372
Overall Work related-stress	26.8721(Severe)	4.67117
Overall Burn out Exhaustion Emotion	37.72099(High)	9.42394
Overall Depersonalization	16.4535(High)	7.02320
Total of Burnout Personal Accomplishment	31.5523(Medium)	10.05265

4.8. Pearson's correlations to test the relationship between job satisfaction, burnout and work-related stress of nurses

JS=Job Satisfaction, WRS=Work related stress, BEE=Burnout Emotional Exhaustion, BDP=Burnout Emotional Depersonalization, BPA=Burnout Personal Accomplishment

The results of Pearson's correlation coefficients show a negative non-significant correlation between personal accomplishment and emotional Exhaustion R= -0.039, P=0.610, this shows that as increasing exhaustion, personal accomplishment does not decrease; and the results also show week positive non-significant correlation between personal accomplishment and depersonalization R=0.079, P=0.306,this shows that ,the slow increase in depersonalization ,the less personal accomplishment, the Pearson's correlation coefficient showed a week positive significant correlation between personal accomplishment and work related stress R=0.149 P=0.051 which shows that the increase in work related stress ,may reduce personal accomplishment; and also person correlation coefficients show a significant correlation between personal accomplishment and job satisfaction R=0.297 P≤0.00.This means that with increasing in personal accomplish-

ment ,there is an increase in job satisfaction. Pearson's correlation coefficients also revealed that, Job satisfaction is strongly positively significantly correlated with work-related stress R=0.566, P≤0.000; job satisfaction is positively significant correlated with Exhaustion Emotion R=0.501, P≤0.000, job satisfaction is also positive significant correlated with Depersonalization =0.535 p≤0.000, work-related stress with Exhaustion Emotion R= 0.574

P≤0.000; work-related stress with Depersonalization, R=0.616, P≤=.000; Exhaustion Emotion with job satisfaction R=0.501, P≤0.000; Emotional exhaustion with work-related stress R=0.574, p=≤0.00, Emotional exhaustion with depersonalization R=0.633, P≤0.000; Depersonalization with job satisfaction, R=0.535 p≤0.000; Depersonalization with work related stress, R=0.616 , P≤0.000, Depersonalization with Emotional exhaustion R=0.633, p≤0.00 (Table 14).

The results of Pearson's correlation coefficients show a negative non-significant correlation between personal accomplishment and emotional Exhaustion R= -0.039, P=0.610, this shows that as increasing exhaustion, personal accomplishment does not decrease; and the results also show week positive non-significant correlation between personal accomplishment and depersonalization R=0.079, P=0.306,this shows that ,the slow increase in depersonalization ,the less personal accomplishment, the Pearson's correlation coefficient showed a week positive significant correlation between personal accomplishment and work related stress R=0.149 P=0.051 which shows that the increase in work related stress ,may reduce personal accomplishment; and also person correlation coefficients show a significant correlation between personal accomplishment and job satisfaction R=0.297 P≤0.00.This means that with increasing in personal accomplishment ,there is an increase in job satisfaction. Pearson's correlation coefficients also revealed that, Job satisfaction is strongly positively significantly correlated with work-related stress R=0.566 p≤0.000; job satisfaction is positively significant correlated with Exhaustion Emotion R=0.501, P≤0.000, job satisfaction is also positive significant cor-

related with Depersonalization =0.535, P≤0.000, work-related stress with Exhaustion Emotion R= 0.574

P≤0.000; work-related stress with Depersonalization, R=0.616 ,P≤.000; Exhaustion Emotion with job satisfaction R=0.501 ,P≤0.000; Emotional exhaustion with work-related stress R=0.574,p≤0.00, Emotional exhaustion with depersonalization R=0.633 , P≤0.000; Depersonalization with job satisfaction, R=0.535 p≤0.000; Depersonalization with work related stress, R=0.616 , P=0.000, Depersonalization with Emotional exhaustion R=0.633 p≤0.00 (Table 14).

4.9. Pearson's correlations to test the relationship between job satisfaction, burnout and work-related stress of nurses

The results revealed strong positive significant correlation between work related stress and Burnout depersonalisation R=0.616, P<0.000 and strong positive significant correlation between Burnout Emotional exhaustion and Burnout depersonalization with R=0.633 ,P=0.000, while Burnout personal accomplishment and Burnout Emotional exhaustion are negatively non-significant correlation at R=-0.039, P=0.610, Bunout personal accomplishment and Burnout depersonalization at R=0.079

P=0.306 showed weak positive non-significant correlation and the rest showed week positive significant correlation (table 14).

Table 14.Pearson's correlations to test the relationship between job satisfaction, burnout and work-related stress of nurses

	JS	WRS	BEE	BDP	BPA
JS		R=0.566** P=0.000	R=0.501** P=0.000	R=0.535** P=0.000	R= 0.297** P=0.000
WRS	R=.566** P=0.000		R= 0.574** P=0.000	R=0.616** P=0.000	R=0.149 P=0.051
BEE	R=0.501** P=0.000	R=0.574** P=0.000		R=0.633** P=0.000	R=-0.039 P=0.610

BDP	R=0.535** P=0.000	R=0.616** P=0.000	R=0.633** P≤0.000		R=0.079 P=0.306
BPA	R=0.297** P=0.000	R=0.149 P=0.051	R= -0.039 P=.610	R=0.079 P=0.306	
**. Correlation is significant at the 0.01 level (2-tailed).					

Source: Primary data, 2021

Note: R=Pearson Correlation

4.10. Association job satisfaction with work related stress, burnout and among the nurses using multiple regression analysis.

Multiple regression revealed that work-related stress is best associated with each dimension of burnout. All models were significantly different from zero ($p<0.05$). Work - related stress explaining the variance in depersonalization (37.9%), emotional (32.9%), exhaustion personal accomplishment (2.2%) and job satisfaction (32%) shown in the table 31.

Also, Multiple regressions revealed that three dimensions of burnout were best statistically significantly with job satisfaction explaining the highest variance, Depersonalization (28.6%), Emotional Exhaustion (25.1%) and Personal accomplishment (8.8%) and all were significantly different from (<0.05), (table 15).

Table 15.Multiple regression to test association of Job satisfaction with each burnout dimension and work-related stress of nurses.

Variables	**B**	**SEB**	**β**	**t-Stat**	**Sig.**
Work-related stress and Emotional Exhaustion					
Work related stress	1.158	0.127	0.57	9.19	0.00
R^2 = 0.329(32.9%), Adj R^2 = 0.325, p<0.05 (0.00)					
Work-related stress and Depersonalization					

Work-related stress	0.925	0.091	0.61	10.18	0.00
R^2 = 0.379(37.9%), Adj R^2 = 0.375, p<0.05 (0.00)					
Work-related stress and personal accomplishment					
Work-related stress	0.32	0.163	0.149	1.964	0.051
R^2 = 0.022(2.2%), Adj R^2 = 0.016, p<0.05 (0.051)					
Work-related stress and job satisfaction					
Work-related stress	2.56	0.287	0.566	8.9	0.00
R^2 = 0.32(32%), Adj R^2 = 0.316, p<0.05 (0.00)					
Emotional Exhaustion and job satisfaction					
Emotional Exhaustion	1.13	0.15	0.5	7.55	0.00
R^2 =0.251 (25.1%), Adj R^2 = 0.247, p<0.05 (0.00)					
Depersonalization and Job satisfaction					
Depersonalization	1.6	0.19	0.535	8.255	0.00
R^2 = 0.286(28.6%), Adj R^2 = 0.282, p<0.05 (0.00)					
Personal accomplishment and job Satisfaction					
Personal accomplishment	0.626	0.154	0.297	4.06	0.00
R^2 = 0.088(8.8%), Adj R^2 = 0.083, p<0.05 (0.00)					

Source: Primary data, 2021

4.11. Multiple regression for Relationship of job satisfaction with over all burnout and work-related stress using

Multiple regression revealed job satisfaction is associated with Work-related stress, Emotions Exhaustion, Depersonalization, Personal accomplishment explaining R^2 = 0.451(45.1%) of overall variance and significancy of P<0.05(P=0.00),(Table 16).

Table 16. Multiple regression for Relationship of job satisfaction with over all burn-out and work-related stress using

Variables	B	SEB	β	t-Stat	Sig.
WRS	1.240	0.351	0.27	3.533	0.001
BEE	0.503	0.177	0.224	2.845	0.005
BDP	0.618	0.244	0.205	2.535	0.012
BPA	0.524	0.124	0.249	4.236	0.000

R^2 = 0.451(45.1%), Adj R^2 = 0.438, $p<0.05$ (0.00)

Note: WRS=Work-related stress, BEE=Burnout Emotional Exhaustion=Burnout Depersonalization, BPA=Burnout Personal Accomplishment, IVF=Variance of inflation Factor.

4.12. Comparing nurses of 3 Hospitals with Job satisfaction with working environment using Chi-square test

Tables 10 to 16 showed that associations of nurses with job satisfaction and working environment are significant($p<0.05$).

Table 17.Job Satisfaction * What is your means of transport from home to the hospital?

Job Satisfaction * What is your means of transport from home to the hospital?						
			What is your means of transport from home to the hospital?			
			Car	Bus	Motorcycle	Foot
Job Satisfaction	Dissatisfaction	Count	10	5	0	1
		Expected Count	1.9	8.0	3.3	2.9

		% Within Job Satisfaction	62.5%	31.3%	0.0%	6.3%
	Ambivalent	Count	8	30	27	26
		Expected Count	10.6	45.5	18.5	16.4
		% Within Job Satisfaction	8.8%	33.0%	29.7%	28.6%
	Satisfaction	Count	2	51	8	4
		Expected Count	7.6	32.5	13.2	11.7
		% Within Job Satisfaction	3.1%	78.5%	12.3%	6.2%
Total		Count	20	86	35	31
		Expected Count	20.0	86.0	35.0	31.0
		% Within Job Satisfaction	11.6%	50.0%	20.3%	18.0%

Source: Primary data, 2021

Table 18. Chi-Square Tests

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	78.400[a]	6	.000
Likelihood Ratio	65.675	6	.000
Linear-by-Linear Association	.000	1	.993
a. 3 cells (25.0%) have an expected count of less than 5. The minimum expected count is 1.86.			

Source: Primary data, 2021

Table 19. Job Satisfaction * How long does it take from home to the hospital?

Job Satisfaction * How long does it take from home to the hospital?						
			How long does it take from home to the hospital?			
			Below 15 Minutes	Between 16-30minutes	Between 31-45 minutes	Above 60 minutes
Job Satis-faction	Dissatisfac-tion	Count	0	5	8	3
		Expected Count	1.5	4.4	6.1	4.0
		% Within Job Satisfaction	0.0%	31.3%	50.0%	18.8%
	Ambivalent	Count	16	18	39	18
		Expected Count	8.5	24.9	34.9	22.8
		% Within Job Satisfaction	17.6%	19.8%	42.9%	19.8%
	Satisfaction	Count	0	24	19	22
		Expected Count	6.0	17.8	24.9	16.3
		% Within Job Satisfaction	0.0%	36.9%	29.2%	33.8%
Total		Count	16	47	66	43
		Expected Count	16.0	47.0	66.0	43.0
		% Within Job Satisfaction	9.3%	27.3%	38.4%	25.0%

Source: Primary data, 2021

Table 20. Chi-Square Tests

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	24.152[a]	6	.000
Likelihood Ratio	30.220	6	.000
Linear-by-Linear Association	1.832	1	.176
a. 3 cells (25.0%) have an expected count of less than 5. The minimum expected count is 1.49.			

Source: Primary data, 2021

Table 21. Job Satisfaction * How many hours do you work per week?

Job Satisfaction * How many hours do you work per week?						
			How many hours do you work per week?			
			31 to 40 hours	41 to 50 hours	51 to 60 hours	71 hours and above
Job Satis-faction	Dissatisfaction	Count	6	8	1	1
		Expected Count	1.6	10.5	2.6	1.3
		% Within Job Satisfaction	37.5%	50.0%	6.3%	6.3%
	Ambivalent	Count	2	61	19	9
		Expected Count	9.0	59.8	14.8	7.4
		% Within Job Satisfaction	2.2%	67.0%	20.9%	9.9%
	Satisfaction	Count	9	44	8	4
		Expected Count	6.4	42.7	10.6	5.3
		% Within Job Satisfaction	13.8%	67.7%	12.3%	6.2%
Total		Count	17	113	28	14
		Expected Count	17.0	113.0	28.0	14.0
		% Within Job Satisfaction	9.9%	65.7%	16.3%	8.1%

Source: Primary data, 2021

Table 22. Chi-Square Tests

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	23.011[a]	6	.001

Likelihood Ratio	20.583	6	.002
Linear-by-Linear Association	.034	1	.853
a. 3 cells (25.0%) have an expected count of less than 5. The minimum expected count is 1.30.			

Source: Primary data, 2021

Table 23. Job Satisfaction * Working conditions

Job Satisfaction * Working conditions					
			Working conditions		
			Under hospital contract	Under hospital appointment	Under Ministry of Health appointment
Job Satisfaction	Dissatisfaction	Count	7	2	7
		Expected Count	4.7	4.0	7.3
		% Within Job Satisfaction	43.8%	12.5%	43.8%
	Ambivalent	Count	17	17	57
		Expected Count	26.5	22.8	41.8
		% Within Job Satisfaction	18.7%	18.7%	62.6%
	Satisfaction	Count	26	24	15
		Expected Count	18.9	16.3	29.9
		% Within Job Satisfaction	40.0%	36.9%	23.1%
Total		Count	50	43	79
		Expected Count	50.0	43.0	79.0
		% Within Job Satisfaction	29.1%	25.0%	45.9%

Source: Primary data, 2021

Table 24. Chi-Square Tests

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	26.323[a]	4	.000
Likelihood Ratio	27.364	4	.000
Linear-by-Linear Association	7.625	1	.006
a. 2 cells (22.2%) have an expected count of less than 5. The minimum expected count is 4.00.			

Source: Primary data, 2021

CHAPTER FIVE

DISCUSSION

The important findings of the study's specific aims are discussed in this section. At the district hospitals of Kibagabaga, Muhima, and Masaka, the goal of this study was to describe the levels of job satisfaction, burnout and work-related stress, among nurses, to assess the relationship between job satisfaction, burnout, stress, and to compare job satisfaction with working environment among the nurses. Nurses experienced significant levels with mean scores and standard deviation of job satisfaction which was ambivalent, the mean score of Work related-stress, as Severe level of stress , The highest mean score of Burnout syndrome was Exhaustion Emotion at high level of burnout and Burnout Depersonalization at High-level of burnout and medium Burnout Personal Accomplishment .The findings are consistent with those of several other investigations into the causes of burnout in the health care industry, according to researchers at Johns Hopkins University (Cinzia Bressi et al., 2009), and this study of nurses working at Kibagabaga, Muhima and Masaka hospitals, showed high percentages of work-related stress, emotional exhaustion, of depersonalization , low percentage of personal accomplishment.

According to studies, personality variables are relatively persistent traits that influence the behavior of healthcare workers. Although some personality traits, like neuroticism, are linked to nursing work burnout, knowing how one's personality influences the development of this more widespread occurrence is a difficulty, it can also be a chance to optimize and strengthen human resources within the business. In light of the preceding findings, I believe that job burnout is a common occurrence among medical professionals, especially nurses (Pérez-Fuentes et al., 2019).

This study explored the existence of a negative non-significant correlation between personal accomplishment and emotional Exhaustion , which showed that as increasing ex-

haustion, personal accomplishment does not decrease; and the results also show week positive non-significant correlation between personal accomplishment and depersonalization, this showed that ,the slow increase in depersonalization ,the less personal accomplishment, the study showed a week positive significant correlation between personal accomplishment and work related stress which showed the increase in work related stress may reduce personal accomplishment; and also person correlation coefficients show a significant correlation between personal accomplishment and job satisfaction. This means that with increasing in personal accomplishment, there is an increase in job satisfaction.

The results of this study revealed that work-related stress is best associated with each dimension of burnout. All models were significantly different from zero, Work -related stress explaining the high variance in depersonalization, emotional, exhaustion and job satisfaction, personal accomplishment respectively.
Also, the study showed three dimensions of burnout were best statistically significant with job satisfaction explaining the highest variance, Depersonalization, Emotional Exhaustion and Personal accomplishment and all were significant. This study also showed the existence of the associations of nurses with job satisfaction and working environment scientifically significant.

According to the data, overall job satisfaction is strongly linked to emotional exhaustion and depersonalization, but not to particularly personal achievement. In a study, academic burnout was connected to stress and unhappiness among students (Martos et al., 2018). However, a study showed a scientific link between total job satisfaction and job stress (Shahnazi, Daniali, and Sharifirad, 2014), these findings differ from mine, which can be due to variances in the study population as well as the research equipment used.
Staff difficulties such as inadequate staff management and resource inadequacy have been linked to emotional tiredness, depersonalization, and personal accomplishment in re-

search done in developed contexts, corroborating these findings (Van Bogaert et al., 2010).

The results of this study demonstrated that the work environment has an impact on nurses' job satisfaction this study showed that associations of nurses with job satisfaction and working environment are significant, this is explained by Maslow's needs hierarchy, which holds that to meet higher-level wants, such as safety, lower-level needs must first be addressed. When a person's working environment is threatened, patient care becomes less important (Katić et al., 2019).

Stress management programs, which include stress education and training, are a personal level approach that helps nurses deal with stress-related outcomes. Approaches that focus on the organization Improve nurse management and provide adequate resources to decrease or eliminate work-related pressures (Munz, Kohler, and Greenberg, 2001). These are particularly successful in the workplace, where stress is regarded as a reality that can be managed by developing an open and understanding atmosphere (Michie, 2002).

In a developing nation setting, these findings provide actual data confirming the link between work-related stress, burnout, and nurse job satisfaction. To design strategies and intervention programs that can either prevent or at least reduce work-related stress, it is vital to identify and differentiate which elements are particularly important and relevant to developing countries.

In a worldwide setting, work-related stress, burnout, and job satisfaction all contribute to poor patient outcomes, high turnover, low retention, poor job performance, absenteeism, and rising healthcare costs. Several studies have demonstrated that intervention measures such as additional training in identifying and managing work-related stress through assertiveness and relaxation, as well as support groups and process consultation with nurses'

management, have helped nurses improve their job performance (van Wyk and Pillay-Van Wyk, 2010).

5.1. Limitations of the study

The impact of such interventions on employee absenteeism and turnover is unknown and should be researched in Rwanda. The authors want to utilize this research as a starting point for a later examination of the same population to ascertain causality. Furthermore, because this study only included Rwandan nurses from one province, a replication of the study with Rwandan nurses from other provinces would be valuable to compare findings and increase generalizability. Future research should examine the variables' reverse relationships, as well as personal pressures such as family problems, financial position, and complicated relationships. Future research should look at stress, nurse burnout satisfaction, and differences between public and private hospitals.

5.2. Conclusion and recommendations

Finally, the most important indicators in predicting burnout and job satisfaction among nurses and possibly other health professionals are stress-related concerns (working environment, inadequate staff management, insufficient resources). Burnout hurts nurses' mental health and well-being, which in turn hurts productivity, performance, and patient care quality.

Further research into specific techniques for managing stress and enhancing job happiness in Rwandan nurses may assist to reduce absenteeism and turnover while also minimizing the impact of burnout on their general health. This could be accomplished by evidence-based policies aimed at creating work environments where nurses feel safer and have the resources, they need to do their jobs well, hence improving their own and their patient’s health outcomes. An integrated stress prevention strategy integrating both person-centered and organization-centered approaches is recommended to address work-related stress, burnout, and job dissatisfaction among nurses. This strategy should engage nurses

and management to ensure a shared commitment to improving nurse and patient outcomes.

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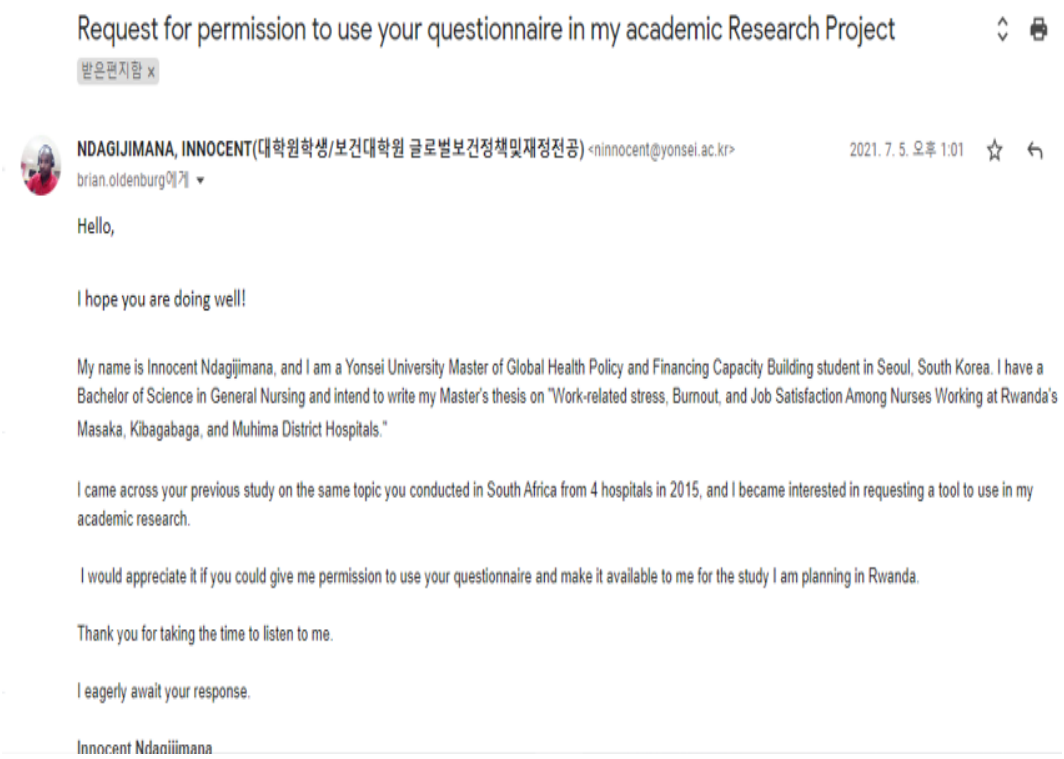
APPENDICES

Appendix 1. Timeline

TIME	ACTIVITY	Progress status
May 2021- September 2021	Writing thesis proposal	Submitted to the Supervisors for review
19th October 2021	Preliminary evaluation	Thesis Proposal Draft submitted to the Graduate School of Public Health
	Data Collection (20th Oct - 5th Nov 2021)	Done
28th October 2021	Correction of Feedback Post Preliminary defense.	Submitted to the Supervisors for review
November 2021	Data analysis, writing report,	Done and the Draft submitted to the Professors
December 2021	Final Dissertation Defense	3rd December 2021
	Submission of the final thesis	15th December 2021

Appendix 2: Letter requesting permission to use a questionnaire



Request for permission to use your questionnaire in my academic Research Project

받은편지함 x

NDAGIJIMANA, INNOCENT(대학원학생/보건대학원 글로벌보건정책및재정전공) <ninnocent@yonsei.ac.kr> 2021. 7. 5. 오후 1:01

brian.oldenburg에게

Hello,

I hope you are doing well!

My name is Innocent Ndagijimana, and I am a Yonsei University Master of Global Health Policy and Financing Capacity Building student in Seoul, South Korea. I have a Bachelor of Science in General Nursing and intend to write my Master's thesis on "Work-related stress, Burnout, and Job Satisfaction Among Nurses Working at Rwanda's Masaka, Kibagabaga, and Muhima District Hospitals."

I came across your previous study on the same topic you conducted in South Africa from 4 hospitals in 2015, and I became interested in requesting a tool to use in my academic research.

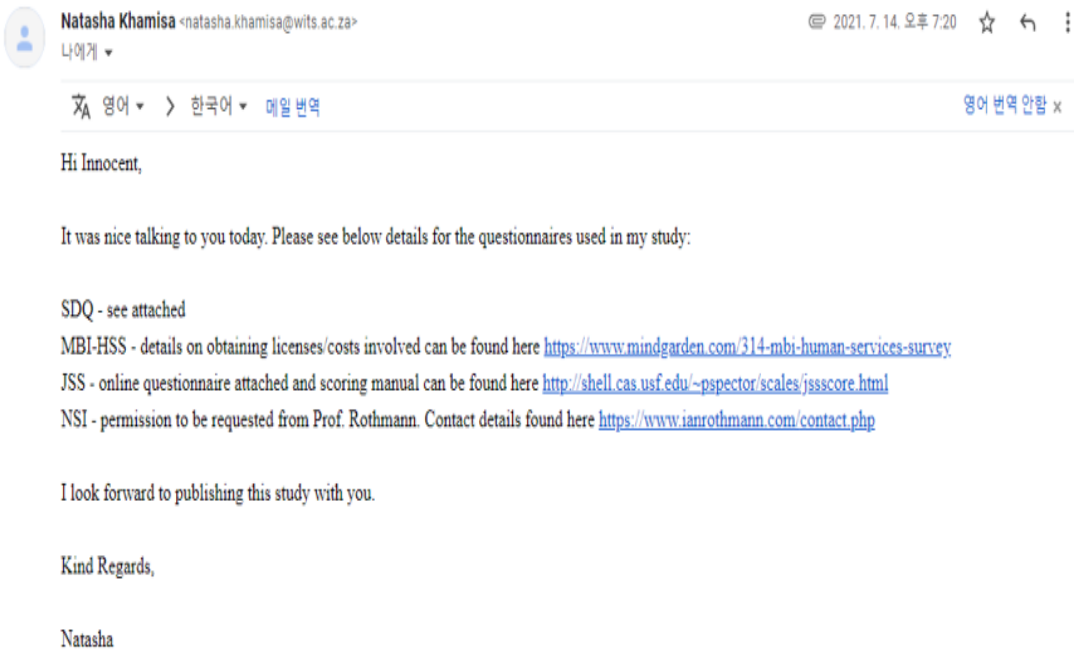
I would appreciate it if you could give me permission to use your questionnaire and make it available to me for the study I am planning in Rwanda.

Thank you for taking the time to listen to me.

I eagerly await your response.

Innocent Ndagijimana

Appendix 3: Letter of acceptance of using a questionnaire



Natasha Khamisa <natasha.khamisa@wits.ac.za> 2021. 7. 14. 오후 7:20

나에게

영어 > 한국어 메일 번역 영어 번역 안함 x

Hi Innocent,

It was nice talking to you today. Please see below details for the questionnaires used in my study:

SDQ - see attached

MBI-HSS - details on obtaining licenses/costs involved can be found here https://www.mindgarden.com/314-mbi-human-services-survey

JSS - online questionnaire attached and scoring manual can be found here http://shell.cas.usf.edu/~pspector/scales/jssscore.html

NSI - permission to be requested from Prof. Rothmann. Contact details found here https://www.ianrothmann.com/contact.php

I look forward to publishing this study with you.

Kind Regards,

Natasha

Appendix 4: Letter of recommendation from Yonsei University for conducting thesis

연세대학교 보건대학원
GRADUATE SCHOOL OF PUBLIC HEALTH, YONSEI UNIVERSITY

서울특별시 서대문구 성산로 250(신촌동 134)
전화 : (02) 2228-1505~8
팩스 : (02) 392-7734

250 Seungsan-no, Seodaemun-gu, Seoul, Korea
TEL : + 82 2 2228-1505~8
FAX : + 82 2 392-7734

August 26, 2021

Subject: Request for Permission for Data Collection and Usage

To:

Director General of Muhima District Hospital

I, the undersigned Whiejong Han, Chair of Department of Global Health and Financing, Graduate School of Public Health, Yonsei University, hereby would like to request you to permit the student named below to collect and use necessary data for thesis writing purpose.

Name : Innocent Ndagijimana

Student ID No : 2020552072

Period : 2020-2022

Program : Master of Global Health Policy and Financing Capacity Building

E-mail : ninnocentyonseiu@gmail.com and ninnocent@yonsei.ac.kr

The student would like to collect and use necessary data about Work related Stress, Burnout and Job Satisfaction among the Nurses working at the Selected District Hospitals in Rwanda from September 2020 to February 2022. The data will be used to develop a Master's thesis with the title **"Assessing relationship between Work related Stress, Burnout and Job Satisfaction among the Nurses Working at Kibagabaga, Muhima and Masaka District Hospitals".**

Thank you for your attention and cooperation.

Sincerely,

Whiejong Han, PhD
Chair of Department of Global Health Policy and Financing
Graduate School of Public Health
Yonsei University, Seoul, South Korea

Appendix 5: Letter of requesting conducting thesis

Conducting Master's Thesis at Muhima hospital

NDAGIJIMANA, INNOCENT(대학원학생/보건대학원 글로벌보건정책및재정전공) <ninnocent@yonsei.ac.kr> 2021. 8. 31. 오후 11:56

muhima.hospital에게

Hello Dear DG,

My name is Innocent Ndagijimana, and I am a student at Yonsei University's Graduate School of Public Health in Seoul, South Korea, studying Master of Global Health Poli and Financing Capacity Building. As part of my academic requirements, I am planning to write a Master's thesis, and Muhima Hospital is one of the hospitals in my study setting.

Dear DG, I'm requesting permission to conduct my academic research in your hospital, as per the attached study protocols included (Request letter for Yonsei University's Data Collection and Usage, My letter of request to undertake a Master's thesis, My CV, Copy of my research plan).

I eagerly await your response.

Warm regards,

Innocent Ndagijimana
Candidate in Master's Degree Program of Global Health Policy and Financing
Yonsei University, Graduate School of Public Health
Seoul South Korea
E-mail:ninnocent@yonsei.ac.kr
Tel: ID:+821047628185
Skype:innocent.ndagijimana5
What's app ID:+821047628185

Appendix.6. Letter of acceptance letter for data collection

REPUBLIC OF RWANDA

Kigali, October 25th 2021

KIGALI CITY
NYARUGENGE DISTRICT
MUHIMA HOSPITAL
P.O. BOX 2456 KIGALI
Tél. /Fax : +252 50 37 7
E-mail : muhima.hospital@moh.gov.rw

Innocent NDAGIJIMANA

Re: Your request for conducting Master`s Thesis study in Muhima hospital

Dear Innocent

Reference made to your letter received on 13rd September 2021 requesting to conduct your Master`s Thesis study entitled: *Assessing the relationship between work related stress, Burnout and job satisfaction among Nurses working at Muhima hospital*

I would like to inform you that your request is approved and at the end the administration of Muhima hospital shall need to be given the final report of your study.

Yours sincerely,

MANIRAGUHA YEZE Aimée Victoire

Chief Ethic Committee

MUHIMA HOSPITAL Ethics Committee

Cc:
- Clinical Director
- Director of Nursing and midwifery
- Human resource officer

Appendix 7. Informed Consent Form

I agree to take part in Innocent Ndagijimana's research project, Assessing the Relationship Between Work-Related Stress, Burnout, and Job Satisfaction Among Nurses Working in Kibagabaga, Muhima, and Masaka District Hospitals, which is being conducted by Innocent Ndagijimana, a graduate student at Yonsei University's Graduate School of Public Health, who is pursuing a Master's Degree Program in Global Health Policy and Financing Capacity Building.

I understand that this study needs me to answer written questions, that my participation is voluntary, and that I may withdraw from the study at any time without having to give a reason. I understand that if I withdraw from the study, my relationship with the researcher will not be affected. I recognize that while participating in this study will not benefit me immediately, it will benefit others in the future. I understand that the information will be kept private to the extent permitted by law. For additional information, please contact me at the following address.

Email: ninnocent@yonsei.ac.kr

I have read and comprehended this information, and I accept to participate in this research.

If you accept to participate in this study willingly, please mark the box with ( ).

☐

Researcher's signature 

Participant's signature……

Appendix 8. English questionnaire

Section A: Nurses' Socio-demographic and work-related characteristics (21 items)

Socio-demographic characteristics	
No	**Questions**
1	Age (in years) ☐ 20 years and below ☐ 21 years to 30 years ☐ 31 years to 40 years ☐ 41 years to 50 years ☐ 51 years and above
2	Gender ☐ Male ☐ Female
3	Marital status ☐ Single ☐ Married ☐ Divorced ☐ Separated ☐ Widowed
4	Hospital working in ☐ Kibagabaga ☐ Muhima ☐ Masaka
5	Education level ☐ High School graduate ☐ Advanced diploma

	☐ Bachelor's degree ☐ Master's degree ☐ Doctoral degree
6	Children ☐ With Children ☐ Without Children If any, how may…….
7	Cohabitation ☐ Family ☐ Shared residency ☐ Couple ☐ Living alone
8	Dependents ☐ Having dependents ☐ Not having dependents If any, how many……
9	The position you have in hospital ☐ Bedside nurse position ☐ Administrative position ☐ Supervisor Position ☐ Head Nurse Position ☐ Educator Position ☐ Coordinator Position Other: Please specify……...

10	In which department are you currently working? ☐ Internal Medicine ☐ Emergency ☐ Pediatric ☐ Maternity ☐ Surgery Other: Please specify….
11	Qualification ☐ Auxiliary nurse ☐ Associate Nurse ☐ Registered nurse Other: Please specify…….
12	How long have you been a nurse in your current department? ☐ Below 1 year ☐ 1 to 5 years ☐ More than 5 years
13	How many years have been working as a nurse? ☐ Less than 1 year ☐ 1 to 5 years ☐ More than 5 years
Work-related Characteristics	
	Working Environment
14	What is your means of transport from home to the hospital? ☐ Car ☐ Bus ☐ Motorcycle

	☐ Foot
15	How long does it take from home to the hospital? ☐ Below 15 Minutes ☐ Between 16-30minutes ☐ Between 31-45 minutes ☐ Above 60 minutes
16	How many hours do you work per week? ☐ 10 to 20 hours ☐ 21 to 30 hours ☐ 31 to 40 hours ☐ 41 to 50 hours ☐ 51 to 60 hours ☐ 61 to 70 hours ☐ 71 hours and above
17	Working conditions ☐ Under hospital contract ☐ Under hospital appointment ☐ Under Ministry of Health appointment
	Working Compensation
18	Amount of money for Monthly Salary income (Rwandan Francs) ☐ Below 100 thousand ☐ 101-150 thousand ☐ 151-200 thousand

	☐ 201-250 thousand ☐ 251-300 thousand ☐ More than 300 thousand
19	WTO what extent do you get incentives or other earnings apart from monthly salary if any? ☐ Satisfied ☐ Dissatisfied ☐ Never
20	The extent to which you have training for your duties ☐ Satisfied ☐ Dissatisfied ☐ Never participated
21	To what extent do you get Professional opportunities for upgrading studies? ☐ Satisfied ☐ Dissatisfied ☐ Never participated

SECTION B: Work-Related Stress Scale (8 items, Likert scale from 1 to 5

Thinking about your current job, how often does each of the following statements describe how you feel by ticking on one of the following that applies to you, 1=Never, 2=Rarely, 3=Sometimes, 4=Often, 5=Very Often

No	Work-Related Stress Scale	Never	Rarely	Sometimes	Often	Very Often
1	Conditions at work are unpleasant or sometimes even unsafe.	①	②	③	④	⑤
2	I feel that my job is negatively affecting my physical or emotional well-being.	①	②	③	④	⑤
3	I have too much work to do and/or too many unreasonable deadlines	①	②	③	④	⑤
4	I find it difficult to express my opinions or feelings about my job conditions to my superiors	①	②	③	④	⑤
5	I feel that job pressures interfere with my family or personal life.	①	②	③	④	⑤
6	I have adequate control or input over my work duties	①	②	③	④	⑤
7	I receive appropriate recognition or rewards for good performance.	①	②	③	④	⑤
8	I can utilize my skills and talents to the fullest extent at work	①	②	③	④	⑤

Section C: Maslach Burnout Inventory scale (22 items) with a Likert scale from 1 to 6

Assessing three subscales (A, B, and C) of the syndrome: Emotional Exhaustion, Depersonalization, and Personal Accomplishment respectively.

Indicate how frequently the following statements apply to you and add the points indicated on the top of the respective box:1=Never,2=At least a few times a year,3=At least once a month,4=Once a week,5=Several times a week,6= Every day

A	Emotional Exhaustion	Never	At least a few times a year	At least once a month	Once a week	Several times a week	Every day
1	I feel emotionally drained from my work	①	②	③	④	⑤	⑥
2	I feel used up at the end of the workday	①	②	③	④	⑤	⑥
3	I feel fatigued when I get up in the morning and have to face another day on the job	①	②	③	④	⑤	⑥
4	Working with people all day is a strain for me	①	②	③	④	⑤	⑥
5	I feel burned out from my work	①	②	③	④	⑤	⑥

6	I feel frustrated by my job	①	②	③	④	⑤	⑥
7	I feel I'm working too hard on my job	①	②	③	④	⑤	⑥
8	Working directly with people puts too much strain on me.	①	②	③	④	⑤	⑥
9	I feel like I'm having no strength or patience left	①	②	③	④	⑤	⑥
B	Depersonalization						
10	I feel I treat some recipients as if they were imper-sonal "Objects."	①	②	③	④	⑤	⑥
11	I have become showing no feelings toward people since I took this job	①	②	③	④	⑤	⑥
12	I worry that this job is hardening me emotionally	①	②	③	④	⑤	⑥
13	I don't care what	①	②	③	④	⑤	⑥

	happens to some recipients						
14	I feel recipients blame me for some of their problems	①	②	③	④	⑤	⑥
C	Personal Accomplishment						
15	I can easily understand how my recipients feel about things	①	②	③	④	⑤	⑥
16	I deal very effectively with the problems of my recipients	①	②	③	④	⑤	⑥
17	I feel I'm positively influencing other people's lives through my work	①	②	③	④	⑤	⑥
18	I feel very energetic	①	②	③	④	⑤	⑥
19	I can easily create a relaxed atmosphere with my recipients	①	②	③	④	⑤	⑥

20	I feel very happy after working closely with my recipients	①	②	③	④	⑤	⑥
21	I have accomplished many important things in this job.	①	②	③	④	⑤	⑥
22	In my work, I deal with emotional problems very calmly.	①	②	③	④	⑤	⑥

Section D: Job Satisfaction questionnaire (36 items, Likert scale from 1 to 6)

Please circle one number for each question that comes closest to reflecting your opinion about with it, 1=Disagree very much, 2=Disagree moderately,3=Disagree slightly, 4=Agree slightly,5=Agree moderately,6=Agree very much.

No	Job Satisfaction items	Disagree very much	Disagree moderately	Disagree slightly	Agree slightly	Agree moderately	Agree very much
1	I feel I am being paid a fair amount for the work I do	①	②	③	④	⑤	⑥
2	There is too little chance for promotion on my job	①	②	③	④	⑤	⑥
3	My supervisor is	①	②	③	④	⑤	⑥

	quite competent in doing his/her job						
4	I am not satisfied with the benefits I receive	①	②	③	④	⑤	⑥
5	When I do a good job, I receive the recognition for it that I should receive	①	②	③	④	⑤	⑥
6	Many of our rules and procedures make doing a good job difficult	①	②	③	④	⑤	⑥
7	I like the people I work with	①	②	③	④	⑤	⑥
8	I sometimes feel my job is meaningless	①	②	③	④	⑤	⑥
9	Communications seem good within this organization	①	②	③	④	⑤	⑥
10	Move to higher positions or levels is too few and far between	①	②	③	④	⑤	⑥
11	Those who do well on the job stand a fair chance of being promoted	①	②	③	④	⑤	⑥
12	My supervisor is	①	②	③	④	⑤	⑥

	unfair to me						
13	The benefits we receive are as good as most other organizations offer	①	②	③	④	⑤	⑥
14	I do not feel that the work I do is appreciated	①	②	③	④	⑤	⑥
15	My efforts to do a good job are rarely blocked by standards	①	②	③	④	⑤	⑥
16	I find I have to work harder at my job because of the incompetence of the people I work with	①	②	③	④	⑤	⑥
17	I like doing the things I do at work	①	②	③	④	⑤	⑥
18	The goals of this organization are not clear to me	①	②	③	④	⑤	⑥
19	I feel unappreciated by the organization when I think about what they pay me	①	②	③	④	⑤	⑥
20	People get ahead as fast here as they do in other	①	②	③	④	⑤	⑥

	places						
21	My supervisor shows too little interest in the feelings of subordinates	①	②	③	④	⑤	⑥
22	The benefits package we have is equitable	①	②	③	④	⑤	⑥
23	There are few rewards for those who work here	①	②	③	④	⑤	⑥
24	I have too much to do at work	①	②	③	④	⑤	⑥
25	I enjoy my coworkers	①	②	③	④	⑤	⑥
26	I often feel that I do not know what is going on with the organization	①	②	③	④	⑤	⑥
27	I feel a sense of being better than others in doing my job	①	②	③	④	⑤	⑥
28	I feel satisfied with my chances for salary increases	①	②	③	④	⑤	⑥
29	There are benefits we do not have which we should have	①	②	③	④	⑤	⑥
30	I like my supervisor	①	②	③	④	⑤	⑥

31	I have too much paperwork	①	②	③	④	⑤	⑥
32	I don't feel my efforts are rewarded the way they should be	①	②	③	④	⑤	⑥
33	I am satisfied with my chances for promotion	①	②	③	④	⑤	⑥
34	There are too many arguments and fighting at work	①	②	③	④	⑤	⑥
35	My job is enjoyable	①	②	③	④	⑤	⑥
36	Work assignments are not fully explained	①	②	③	④	⑤	⑥

Please feel free to give us your suggestion on how to improve the satisfaction level of nurses working in your hospital if any….....