Influence of psychological status during COVID-19 on staff management of hospital disinfection supply center

PuYan

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DECLARATION

I hereby declare that the case study is based on my original work except for quotations and citations that have been duly acknowledged. I also declare it has not been previously or concurrently submitted for any other degree at Universiti Tun Abdul Razak (UNIRAZAK) or other institution.

Signature:

Name: PuYan

Date: April 30(th), 2023

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By

Pu Yan

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ABSTRACT

Objective: To pay attention to and understand the mental health status and related influencing factors of staff in hospital disinfection supply center during the epidemic of coronavirus pneumonia, and to provide evidence support for the improvement of emotional links, work performance and efficiency of hospital management in public health emergencies in the future. Methods: 423 workers from 35 hospitals in Chengdu, China were investigated by using general information questionnaire, Self-rating Anxiety Scale (SAS), Conor-Davidson Resilience Scale (CD-RISC) and China Perceived Stress Scale (CPSS). The data were

analyzed by SPSS24.0 software. The regression tree (CART) and classification are used to analyze variables to find the differences between groups. Chi-square test is used for counting data, and analysis of variance and t test are used for data measurement. Results: The CPSS score, SAS score, CD-RISC score, and CD-RISC score were 19.21 7.265, 37.39 8.458, 64.26 15.129 (optimistic factor score, 10.96 3.189, intensity factor score, 21.60 5.066, and resilience factor, respectively). The score of CPSS is positively correlated with the score of SAS (r = 0.66; ; P < 0.01), the score of CPSS is negatively correlated with the score of CD-RISC (r = -0.617, P < 0.01), and the score of SAS is negatively correlated with the score of CD-RISC (r = -0.477, P < 0.01). The political status, age and job position of the staff in disinfection supply center affect their psychological state. Conclusion: During the epidemic period in novel coronavirus, the level of psychological resilience of staff in disinfection supply center was low, and the anxiety of nurses in disinfection supply center was generally higher than that of logistics managers in disinfection supply center. The conclusion is that managers should pay more attention to the mental health problems of staff in disinfection supply center, implement protective measures for possible risk factors, ensure that staff can maintain a stable and healthy mental state, and reduce the impact on their work performance, so as to ensure the efficiency and quality of work, and also accumulate personnel management ability in the event of public health emergencies for managers.

CHAPTER 1 INTRODUCTION

1.1 Background of Study

China's first report on novel coronavirus was that the outbreak of this epidemic had a great impact on China and the whole world. It lasted for a long time and occurred in a wide range, and it has become an international public health emergency that caused world shocks. Through some research during the outbreak, it was found that more than 60% of the investigators had some psychological problems in this public health emergency, and they all hoped to get corresponding psychological assistance and intervention [1-3]. The epidemic of novel coronavirus is highly infectious, with a serious illness, strong ability to spread in the community and rapid spread. Moreover, due to the short onset time, his epidemiological characteristics have not been fully grasped at present, and there will be shortcomings in treatment and diagnosis. In the face of such public health emergencies, personal work and life in ordinary life have been affected and interfered to varying degrees, so they will show psychological reactions in different degrees and in different ways [4].

Chinese medicine hospital is the first place where all patients gather in the sudden medical and health work events, and all hospital staff: doctors, nurses, logistics managers, etc. are the biggest medical and rescue support for this epidemic. They

need close care and contact with patients, and provide them with medical support, diagnosis, treatment and surgery. They are the high-risk groups who will be infected. Due to the sudden outbreak of the epidemic, the workload of all hospital staff increased sharply in a short period of time, and they lacked experience in public health time, disease exploration and understanding, and were afraid of being infected. The study of this disease takes time and in-depth study of its etiology, treatment and effective preventive and protective measures, so hospital staff will be worried, depressed and anxious [5,6]. Some studies have found that nurses' overwork and high-risk professional characteristics lead to low psychological tolerance [7]. Some studies have found that the better the psychological state of medical staff, the more positive they can adopt coping styles, while a strong and optimistic psychological state can improve work efficiency [8]. We come to the conclusion that in clinical work, we should not only protect all medical staff, but also pay attention to their mental health, so that good physical and mental health can maintain a good attitude against the epidemic.

1.2 Problem Statement

During the outbreak, some non-clinical front-line staff did not arrange the front line of medical services. They worked in different positions in their respective departments and had different work pressures and potential risks of infection. Disinfection supply center is an important part of the hospital, an important department for the supply of sterile goods including surgical equipment, and an

important area for centralized treatment of all contaminated equipment in the hospital. Mainly responsible for the concentration, cleaning, aseptic disinfection and redistribution of pollutants from various departments of the hospital to various clinical departments. During the epidemic period, although the staff of the disinfection supply center did not struggle to have close contact with patients in the clinical front line, they did need to accept and handle medical instruments, equipment and materials used by patients suspected of COVID-19 infection and COVID-19 patients, as well as some protective articles that may be reused, such as protective glasses and masks, so the risk of occupational exposure was too high. Cheng Yu [10] and others said that during COVID-19, the resignation rate of nurses was very high. In recent years, the medical system needs the development of disinfection supply specialty, and the disinfection supply center of domestic hospitals has developed rapidly, so it is necessary to recruit a large number of related professionals. At present, there are 25 nurses in the disinfection supply center of our hospital, 13 of whom are new employees who have worked for about 2 years. At present, they belong to the group with low professional title, low age and low income. Therefore, as a manager, it is necessary to pay attention to the psychological state of employees, encourage them to have a good psychological state and a positive coping style in the sudden public health time, improve the enthusiasm and enthusiasm of employees, and adopt reasonable performance distribution and assessment in order to stabilize the development of the whole team.

1.3 Research Objectives

In public health emergencies, this paper discusses the influence of psychological state on the staff management of central sterile supply department during the COVID-19 epidemic from three aspects: employees' psychological state, their ability to resist pressure, and whether their performance distribution and assessment are reasonable. The objectives are as follows: (1) To explore the psychological state well, whether the coping style is positive and effective can promote the work enthusiasm and work efficiency; Whether the rationality of performance distribution and assessment is beneficial to stabilizing the team of disinfection supply center?

1.4 Research Questions

During my stay in novel coronavirus, hospital infection was the most serious and can't be ignored [11]. Disinfection supply center is the key to hospital infection control. The geographical position and function of disinfection supply are also different from other departments. For the particularity of occupation, it is very easy to cause occupational exposure and occupational injury, which will increase the psychological pressure of employees [12]. During my stay in COVID-19, there were a lot of related investigations about medical staff, but many of them were aimed at clinical staff who were in contact with patients. Among them, there are many researches on nurses, but there are few related investigations on

non-frontline nurses (who are not in direct contact with patients), and there are even fewer related investigations on workers and logistics personnel. Their mental health problems also need attention. As a management department, we need to consider the mental health problems of all employees in our department during their stay in COVID-19, and think about how to improve employees' work enthusiasm and teamwork ability, and how to maintain a good psychological state to ensure the quality of work and improve work efficiency.

1.5 Significance of Study

Exploring the influence of psychological status, anxiety and other factors on the staff management of central sterile supply department during the epidemic in COVID-19, and then exposing the mechanism of different factors on staff management will help us pay attention to the mental health problems of staff in disinfection supply center. The object of this study is the staff in disinfection supply center. The significance of this study is that it is very important to pay attention to the physical and mental health and state of staff in disinfection supply center when dealing with emergencies [31-32], and to conduct demand assessment and professional intervention treatment. As the management of the hospital, it is necessary to adopt effective measures and means to actively respond and implement useful measures to protect the possible risk links, so as to ensure the physical and mental health and safe return of the employees in the disinfection supply center. Only by maintaining good physical and mental health can we ensure

the quality and efficiency of the work. Only by reducing the psychological burden and pressure of employees and improving the quality of work can medical safety and patient safety be ensured. Hospital management can also accumulate the management ability in the face of emergency or public emergencies.

CHAPTER 2 LITERATURE REVIEW

2.1 Central sterile supply department

CSSD (central sterile supply department), that is, disinfection supply center. It is the supplier of various sterile goods in the hospital, which is responsible for the cleaning, packaging, disinfection and sterilization and supply of medical equipment. Modern hospitals have a wide variety of supplies, involving a wide range of departments, fast turnover, and each work is related to the quality of medical treatment, teaching and scientific research. If the disinfection and sterilization are not complete, it will cause hospital-wide infection, and imperfect supply items can affect diagnosis and treatment, so it is very important to do a good job in the supply room, and it is also an indispensable part of the hospital's work. Reasonable layout, in line with the supply process, clear responsibilities, perfect system and other means are the prerequisites for ensuring supply quality. As a major emergency of respiratory infectious diseases, although the novel coronavirus pneumonia (COVID-19) is classified as a statutory Class B infectious disease, prevention and control measures are taken according to Class A infectious diseases, respiratory droplets and close contact are the main transmission routes, and aerosol transmission is possible in a relatively closed environment. The Disinfection Supply Center (CSSD) is responsible for the cleaning, disinfection and

sterilization of all reusable contaminated equipment in medical institutions, which is a high-risk area for handling suspected or confirmed coronavirus contaminated devices, and there is a possibility of contact transmission of contaminated equipment and aerosol transmission. During the new crown pneumonia, new crown pneumonia patients may endanger the occupational safety of medical staff and other patients due to invasive examinations, emergency surgery, etc. that lead to contaminated equipment, so in the special period of epidemic epidemic, avoiding cross-infection of devices is an important measure to prevent and control the spread of the epidemic in hospitals, and device recycling and cleaning and disposal are the links with the highest risk of cross-infection. Management system for resource allocation of large medical equipment

In order to deeply implement the spirit of General Secretary Xi Jinping's important instructions and instructions on health work, the decision-making and deployment of the Party Central Committee and the State Council, based on the new development stage of health and health, and further implement the reform requirements of "decentralization, management and service", the National Health Commission has been in accordance with the "Basic Medical Care and Health Promotion Law of the People's Republic of China", "Regulations on the Supervision and Administration of Medical Devices" and other laws, regulations and systems, on the basis of comprehensively sorting out the allocation and management of large-scale medical equipment, combined with the current situation of R&D,

production and application of high-end medical equipment. Evaluate the 2018 edition of the Catalogue for the Management of Large-scale Medical Equipment, widely solicit the opinions of local health administrative departments, public medical institutions, socially-run medical institutions, production enterprises and other relevant parties, and formulate the Catalogue for the Management of Large-scale Medical Equipment Configuration Licensing (2023), which will be submitted to the State Council for approval and consent in conjunction with relevant departments. The principles are as follows: First, in accordance with laws and regulations. Work in strict accordance with the "Basic Medical Care and Health Promotion Law of the People's Republic of China", "Administrative Licensing Law of the People's Republic of China", "Regulations on the Supervision and Administration of Medical Devices" and other laws, regulations and systems. Second, decentralization and decentralization. Actively implement the reform requirements of "decentralization, management and service", and actively promote the change from Category A to Category B or transfer from Category B to Category B for equipment with mature technology, stable performance and standardized application. Third, safety is paramount. Persist in taking the people as the center and safeguard the safety of people's lives and health. The fourth is to promote development. Promote the expansion of high-quality medical resources and balanced regional layout, and promote the high-quality development of health care. The adjustments are as follows: compared with the 2018 catalogue, the number of managed items has been adjusted from 10 to 6, of which Category

A has been reduced from 4 to 2 and Category B from 6 to 4. First, the positron emission magnetic resonance imaging system (PET/MR) was adjusted from Class A to Class B. The second is the 64 rows and above X-ray computed tomography scanner and 1.5T and above magnetic resonance imaging system to transfer the management items. The third is to merge the heavy ion radiotherapy system and the proton radiotherapy system into the heavy-ion proton radiotherapy system. The two models of class A helical tomotherapy system (Tomo) HD and HDA, the linear accelerator and class B linear accelerator and gamma ray stereotactic radiosurgery system were combined into conventional radiotherapy equipment. The fourth is to incorporate the magnetic resonance-guided radiotherapy system into Class A high-end radiotherapy equipment. The fifth is to standardize the names of some equipment items. The sixth is to adjust the bottom standard. The price limit for a single unit (set) set by the back-up clause of Class A large-scale medical equipment will be increased from 30 million yuan to 50 million yuan, and the price limit for Class B will be increased from 10 million to 30 million yuan to 30 million to 50 million yuan. The supporting measures are as follows: In the next step, we will base ourselves on the new development stage, implement the new development concept, adhere to the people-centered, closely focus on the construction of a healthy China, improve the management system for the allocation of large-scale medical equipment, improve the access standards, prepare a new round of allocation planning, firmly hold the bottom line of the

people's life safety, promote the high-quality development of health and health undertakings, and better meet the health needs of the people.

2.2 Current situation of medical staff in public hospitals

According to the "2020 Statistical Communiqué on the Development of China's Health Undertakings" released by the National Health Commission, at the end of 2020, the total number of health personnel in the country reached 13.475 million, of which 10.678 million were health technicians, 38.27% were practicing (assistant) physicians, 44.10% were registered nurses, the national medical care ratio was 1:1.15, pharmacists (scholars) accounted for 4.65%, and technicians (scholars) accounted for 5.24%; In the distribution of institutions, the number of health personnel in hospitals was 8.112 million, accounting for 60.2% of the total, and the number of health personnel in public hospitals was 6.213 million, accounting for 76.59% of the total number of hospital health personnel. According to the "Statistical Communique of the People's Republic of China on National Economic and Social Development in 2021" released by the National Bureau of Statistics, data from health-related fields show that at the end of 2021, there were 37,000 hospitals in the country, including 12,000 public hospitals and 25,000 private hospitals. According to the statistics center website, from January to November 2021, the total number of consultations and treatments in hospitals was 3.80 billion, including 3.22 billion in public hospitals and 580 million in private hospitals.

The number of discharges from medical and health institutions nationwide was 222.065 million, and the number of discharged from hospitals was 181.470 million, including 148.355 million in public hospitals and 33.115 million in private hospitals. In 2020, hospital physicians were responsible for an average of 5.9 consultations and 2.1 bed days per day, of which public hospital doctors were responsible for 6.3 consultations and 2.2 bed days per day. It can be seen from the above data that the proportion of public hospitals accounts for only one-third of the number of hospitals in the country, but the number of consultations and treatments accounts for 84.7% of the total number of patients, and the number of discharges accounts for 81.7% of the total number of discharges.

2.3 Psychological stress

The World Health Organization defines health as being physically and psychologically perfect, able to adapt to social life and well integrated with society. Psychological state is only mental health when the environment and its own conditions allow the best level to achieve mental health and belongs to people's internal resources. With the reform and development of China's medical system, the basic medical and health system has been continuously improved, and people's awareness of health has gradually increased, and it is necessary to provide high-quality medical services that match it. Long-term exposure to

high-intensity work environment is easy to induce psychological problems. The work tasks of nursing staff in the hospital are large and complex, and they are constantly under strong stress and under great pressure, and the work pressure of nursing staff is higher than that of other staff such as medical technology and pharmacy. Due to stress factors such as work intensity, interpersonal relationships and external environment, nursing staff, as a group with a high incidence of psychological problems, are in a sub-health state all year round, which even affects the mental health of individuals, and also greatly affects the quality and efficiency of daily work. Since the emergence of the new coronavirus epidemic, nursing staff in the frontline of epidemic prevention and control and non-clinical not only have to work with high loads, but also bear a great psychological burden, which further affects their physical and mental health. 20The results of a study of medical staff in 5 third-class hospitals in Beijing in 20 years showed that 30% of the study subjects believed that the work burden of nursing staff was heavy, which could easily cause nursing staff to feel burnout in their daily work and endanger their physical and mental health. Caregivers have a long-term psychological burden and are prone to chronic fatigue syndrome. The incidence of the disease in the general population is (75~267)/100,000, while the incidence rate of nursing staff is about 1 088/100,000. Excessive psychological pressure will affect employees' work enthusiasm and reduce work efficiency. The assessment of psychological stress was investigated using the Chinese Perceived Stress Scale (CPSS) in this study.

2.4 anxiety

The recurrence and uncertainty of the epidemic have aggravated psychological tension, burnout normalization stage, the epidemic is no longer raging but sporadic cases appear from time to time, hospital staff need to always tighten the string of epidemic prevention and control, always be in a state of response, ready to participate in the treatment of positive patients at any time, in a state of chronic stress, but often there is no battle to fight but not have to wait to suffer, the sense of uncertainty and powerlessness about when the epidemic will end intensified, anxiety, fear, helplessness and other negative reactions followed, in favor of mental tension , burnout. With the understanding of new crown pneumonia, hospital staff have certain knowledge of new crown pneumonia prevention and control, have certain psychological counseling skills, and psychological adaptability is higher than that of ordinary residents, but variant strains continue to appear, especially the Omicron strain is more contagious, more insidious and spreads faster, which still makes people's fear and anxiety about the new crown virus still do not subside. There are limitations in society's understanding of the new crown and prejudice against hospital staff working with new crown patients, which are often avoided and avoided. In the normalization stage, hospital staff sometimes need to implement closed-loop management, and repeated training, drills, isolation, inability to go home, and contact and reunion with lovers' families and friends have become the norm, affecting their marriage and childbirth, and the

family's urging of marriage and childbirth, and the complaints of lovers have aggravated the psychological burden and anxiety. Anxiety can affect employee motivation and reduce productivity. In this study, the Self-Reported Anxiety Scale (SAS) and the Connor-Davidson Resilience Scale (CD-RISC) were used for investigation

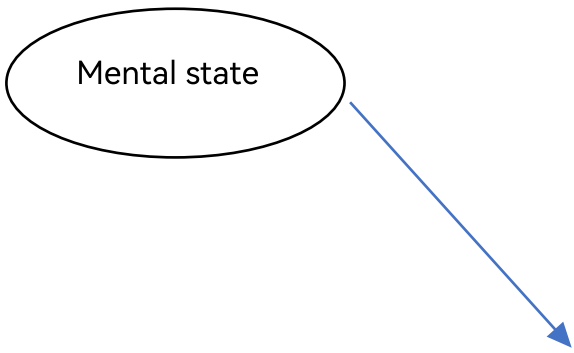
2.5 Reasonable performance appraisal and distribution

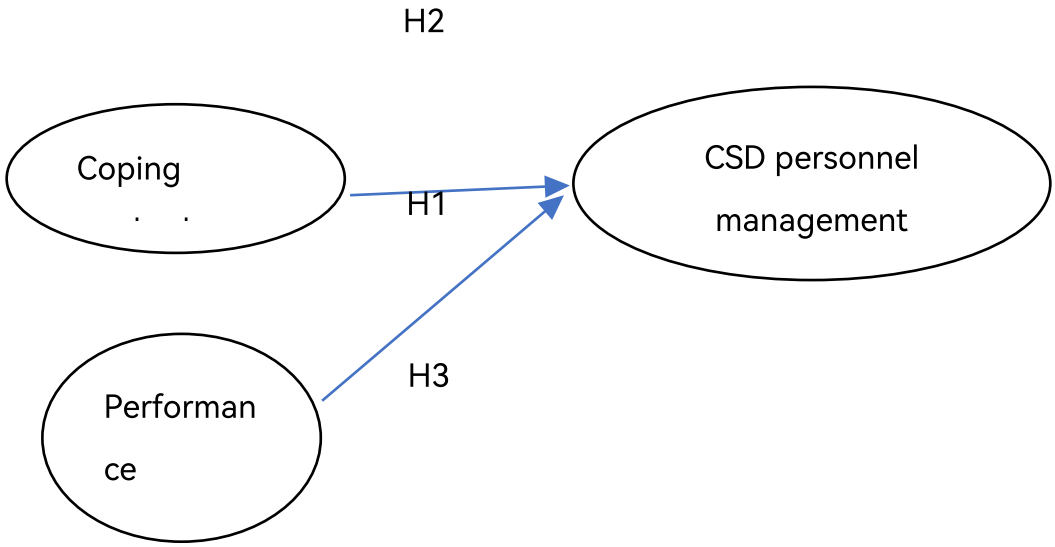
The new crown epidemic has caused a general decline in domestic hospital business volume and revenue. According to statistics, in February 2020, among the more than 300 hospitals surveyed in China, 78.5% of the hospital outpatient volume fell by more than 40% compared with the same period last year, 58.9% of the hospital inpatient volume fell by more than 50%, 56.3% of the hospital surgery volume declined, more than 60% of the business fell sharply year-on-year, and the proportion of labor costs accounting for more than 50% rose rapidly from 8.9% before the epidemic to 32.3%. The author learned from the survey that in a public hospital in the city, the number of outpatients in the first quarter of 2020 decreased by 2.06% compared with the same period last year, the number of outpatient surgeries decreased by 54.64% compared with the same period last year, and the medical income per hundred yuan of fixed assets decreased sharply from tens of yuan in 2019 to less than 10 yuan. In January 2020, with the approval of the State Council, the National Health Commission issued an announcement to give temporary work subsidies to the new crown pneumonia treatment and

prevention personnel. Subsequently, the Central Leading Group for Responding to the Novel Coronavirus Pneumonia Epidemic issued the "Notice on Fully Implementing Several Measures to Further Protect and Care Medical Personnel" (Guo Fangdian [2020] No. 5), once again clearly proposing 10 specific measures and supporting policies such as increasing the salary and treatment of epidemic prevention and control personnel, strengthening living security, and adjusting rotational leave. In July of the same year, the National Health Commission issued the "Work Plan for Psychological Counseling for Medical Personnel under the Normalization of the Prevention and Control of the New Crown Pneumonia Epidemic" (National Health Office Disease Control Letter [2020] No. 550), requiring local health administrative departments to incorporate psychological counseling for medical staff into the overall deployment of epidemic prevention and control work. In China's new crown epidemic has entered the stage of normalized prevention and control, the state has introduced financial subsidies and psychological care and other incentive measures for medical staff, and the hospital has also carried out reasonable performance appraisal and allocation according to the characteristics of each department to stabilize the development of the team.

2.6 Basic concepts

Figure 1 Conceptual framework





2.7 Research hypotheses:

H1: The effect of a good psychological state on work motivation and work efficiency

H2: The impact of positive coping styles on work motivation and productivity

H3: The impact of reasonable performance appraisal and distribution on the team that stabilizes the disinfection supply center

CHAPTER 3 RESEARCH METHODOLOGY

3.1 Included personnel

Nurses and other staff who study or work in the disinfection supply center, the participants' work experience is more than or equal to 1 year and they have not been absent from work in the disinfection supply center for more than or equal to 3 months. Interns were excluded from this study. All the participants in this survey are informed, aware of the significance and objectives of this study, and adopt the way they are willing to participate. The method of data sampling is: convenient sampling

3.2 Survey tools

The scope of this survey is: 423 staff of disinfection supply centers in 35 hospitals in Chengdu, China. The forms used in the survey include: general information questionnaire, CD-RISC of Connor-Davidson Resilience Scale, Self-rated Anxiety Scale (SAS), China Perceived Stress Scale (CPSS), and so on.

By using the method of collecting general information questionnaire, the name, age, gender, political background and education level of the investigator are collected. This study was conducted in the form of an online questionnaire on Golden Data, which was completed anonymously and voluntarily. All the participants agreed verbally before conducting the questionnaire survey. This

study was also carried out after the ethical approval of the Medical Ethics Committee of the Second Hospital of West China.

China Perceived Stress Scale (CPSS) was translated and revised by Yang and Huang [16] in 2003. In order to scientifically evaluate the individual's perception of life stress, Cohen et al. compiled the original Perceived Stress Scale (PSS). At present, the Stress Perception Scale (PSS) has been widely accepted and applied internationally. Based on the cultural background of China, Professor Yang Yanzhong translated and revised the English version of Stress Perception Scale (PSS) and finally formed the Chinese version of Stress Perception Scale (CPSS). The reliability and validity of the scale were tested by a large number of subjects. The results show that the scale has good reliability and validity, and it is also the most widely used stress perception scale in China. Fourteen projects make up CPSS, which contains a sense of vulnerability and tension. The Richter scale 5 is used, and the scores of five question answering options are distributed from 1 to 5: never, rarely, sometimes, often and always. The score of CPSS is 14-70. Where options 4, 5, 6, 7, 9, 10 and 13 are reverse scores; These seven options reflect the serious vulnerability of investigators. The sum of the scores of the other options is the tension score. The sum of the scores of tension and vulnerability is the total score of CPSS. When the total score of CPSS scale is greater than 25, we can diagnose that the investigator is currently at an unhealthy stress level. The higher the total score of CPSS, the greater the pressure on investigators. Kehlenbach alpha coefficient value is 0.797.

Self-rating Anxiety Scale (SAS) was developed by Zung [17], which is suitable for adults with anxiety symptoms and has a wide range of applications. The anxiety level of the investigators is detected through their subjective cognition. SAS consists of 20 projects. SAS adopts a 4-level score, which mainly evaluates the frequency of symptoms. Its criteria are: "1" means no or little time; "2" means sometimes; "3" means most of the time; "4" means most or all of the time. Among the 20 items, there are l5 items stated with negative words, and they are graded according to the above-mentioned L ~ 4 order. The remaining five items (items 5, 9, 13, 17 and 19) marked with * are stated with positive words, and are scored in reverse order from 4 to 1. The main statistical index of SAS is the total score. Add up the scores of 20 items to get a rough score; Multiply the rough score by 1.25 and take the integer part to get the standard score, or you can look up the table for the same conversion. The cut-off value of SAS standard score is 50, of which 50-59 is mild anxiety, 60-69 is moderate anxiety, and more than 70 is severe anxiety.

The Connor-Davidson Resilience Scale (CD-RISC) is a method to evaluate resilience developed by Catherine M Connor and Jonathan R T Davidson. Based on Connor and Davidson's operational definition of toughness, that is, the ability to "thrive in adversity". Since its development in 2003, CD-RISC has been tested in different environments and modified into different versions. The CD-RISC was created to improve existing resilience measures (for example, cold resistance or perceived stress). CD-RISC consists of 25 items, which are evaluated by Richter's

5-point scale, ranging from 0-4: completely incorrect (0), rarely correct (1), sometimes correct (2), usually correct (3), almost all the time (4). These scoring results are all numbers between 0 and 100. The higher the score, the higher the elasticity and the stronger the resilience.

Kronbach's alpha value for CD-RISC is 0.91.

3.3 Data collection

This investigation and study used an online questionnaire to release the gold data. Nurses and other staff working in the hospital disinfection supply center scan and fill in the QR code of the distributed gold data questionnaire. This survey is anonymous. According to the requirements of questionnaire design, explain the purpose, significance, necessity and privacy protection of this survey on the first page of the questionnaire, so that participants can enter the survey with informed consent, and those who disagree can immediately withdraw from the survey, so those who continue to complete this survey are deemed to agree. The management of disinfection supply centers in hospitals instructed them to fill in the questionnaire.

3.4 Statistical methods

The data in this questionnaire survey was preprocessed to delete invalid questionnaires (unfinished questionnaires). After effective data preprocessing, 101 variable values and 423 samples were finally determined. In this study, scatter plot

is used to analyze the correlation among SAS, CPSS and CD-RISC. From the scatter plot, we know that there is a linear relationship between any two of the three variables. All variables in this study are nominal variables, so CART of classification and regression tree is used to study the influence of socio-demographic variables on CD-RISC, CPSS, SAS and score. The analysis of variance (ANOVA) was used to evaluate the psychological state difference between CSSD nurses and logistics staff.

CHAPTER 4 RESULTS AND DISCUSSION

4.1 Introduction

General information table of staff in disinfection supply center who participated in the survey.

General information of staff in disinfection supply center (n=423)

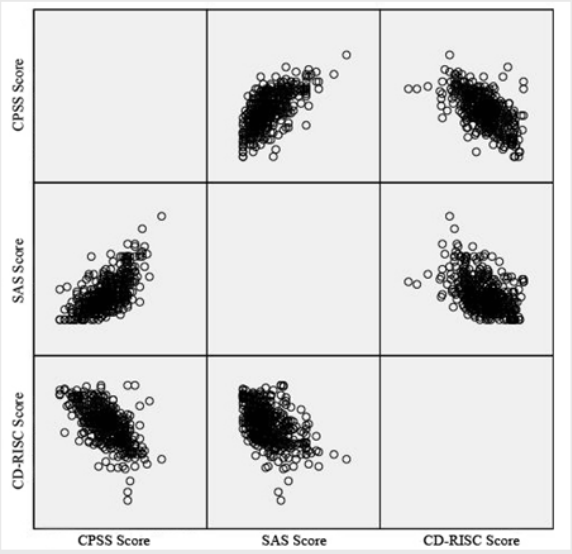
Variable	n	%
Gender		
Male	45	10.63
Female	378	89.37
Job Position		
Nurse	335	79.2
Logistic Staff	88	20.8

Age		
18 – 25 years old	40	9.45
26 – 30 years old	48	11.35
31 – 40 years old	136	32.15
41 – 50 years old	151	35.7
> 51 years old	48	11.35
Educational Background		
Junior High school and below	38	8.98
Senior high school / technical secondary school / technical school	61	14.42
Two or three years' higher education diploma	162	38.3
Undergraduate	162	38.3
Hospital Grade		
Tertiary A	216	51.05
Tertiary B	112	26.48
Secondary A	95	22.46
Political status		
People without party affiliation	299	70.69
Members of the Chinese Communist Youth League	46	10.88
Probationary members of the Communist Party of China	5	1.18
Members of the Communist Party of China	63	14.89
Members of other parties	10	2.36

4.2 Correlation analysis among SAS, CPSS and CD-RISC scores of employees in disinfection supply center

The scores of CD-RISC, SAS and CPSS were 64.25 15.128 (toughness factor: 31.70 8.066, strength factor: 21.60 5.066 and optimism factor: 10.96 3.189), 37.38 8.457 and 19.21 respectively. Pearson correlation coefficient, variables and corresponding T test results show that the CPSS score of CSSD employees is positively correlated with SAS score ($r = 0.66$, $P < 0.01$), and the CPSS score is negatively correlated with CD-RISC score ($r = -0.617$, $P < 0.01$). SAS score was negatively correlated with CD-RISC score ($r = -0.477$, $P < 0.01$), as shown in Figure 1.

Figure 2 Scatter plot of correlation between resilience, anxiety and perceived stress

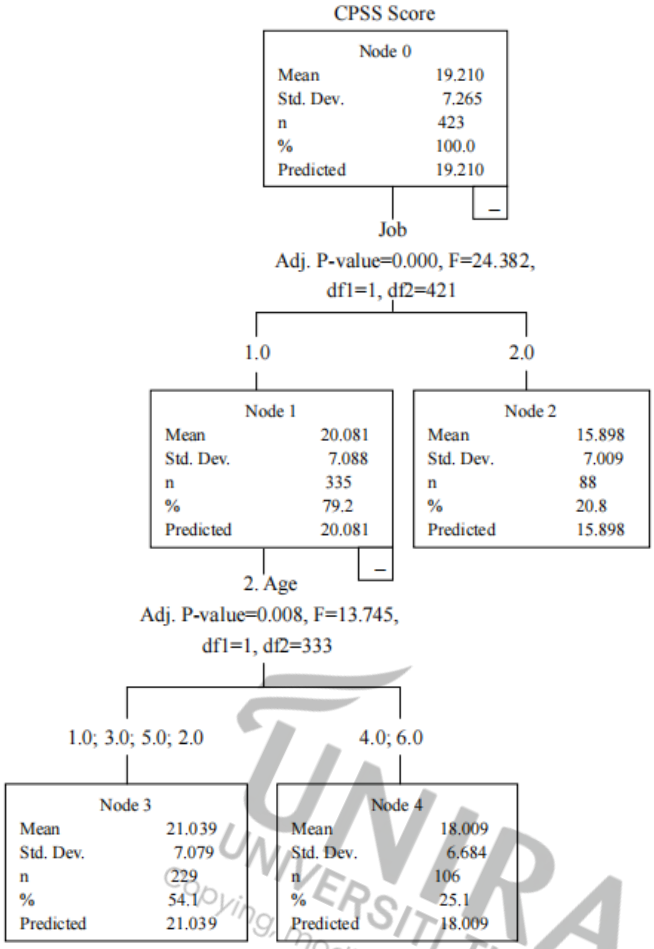


4.3 Influencing Factors of Anxiety, Perceived Stress and Resilience

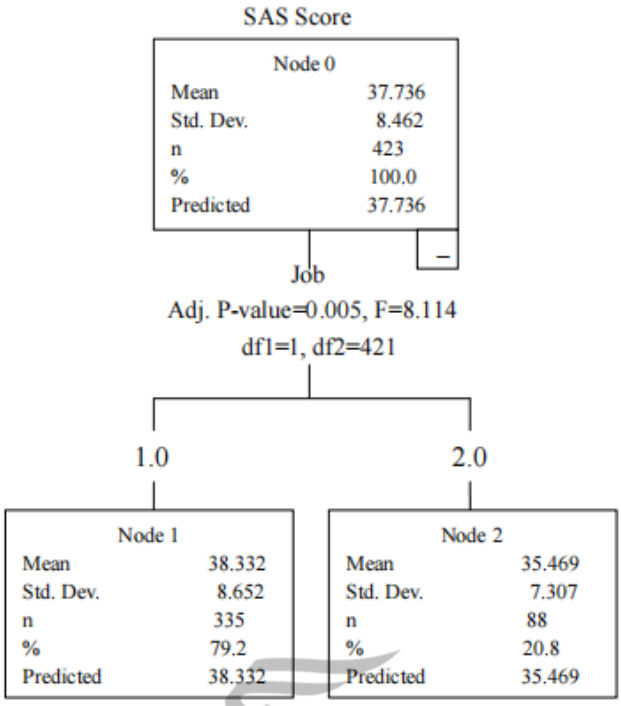
CART analysis shows that the two factors that have the greatest influence on perceived stress are: job position and age. The CPSS score (21.039 7.079) of nurses in this age group (18–25, 26–30, 31–40) is higher than that of nurses in this age group (41–50, over 60), and the CPSS score of nurses in this group is (18.009 6.684). The CPSS score of other staff in the disinfection supply center (15.898 7.009) was lower than that of nurses in the disinfection supply center. The main factors of anxiety also include jobs. The SAS score of nurses in disinfection supply center (38.332 8.652) is higher than that of other staff in disinfection supply center (35.469 7.307). The main factor affecting resilience is political status. In the CD-RISC score, members of the Communist Party of China (CPC) and other political parties in party member are 69.726 12.071, and in the CD-RISC score,

ordinary people without party affiliation are 63.816 15.664. Through data analysis, we can compare the CD-RISC scores of members of the Communist Party of China (CPC) and other political party member groups, and the average scores of the three groups are significantly different, as shown in Figures 2, 3 and 4.

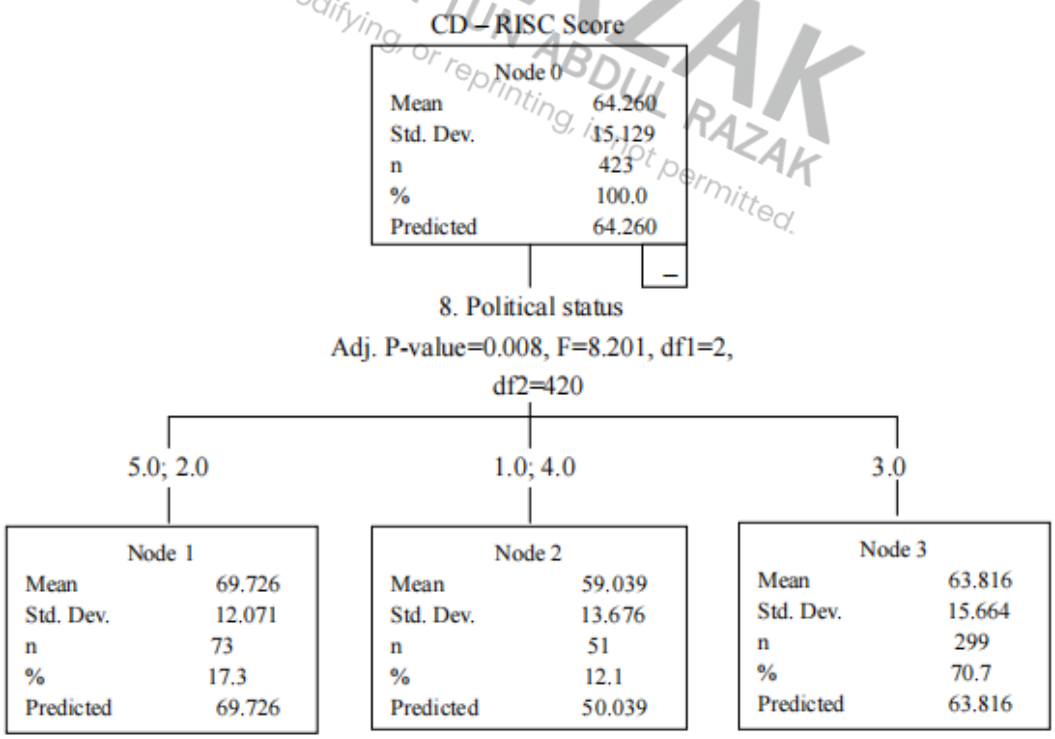
Figures 3 Analysis of influencing factors of CPSS score in three groups



Figures 4 Influencing factors of SAS score



Figures 5 Influencing factors of CD-RISC score



4.4 One-way variance analysis of mental and psychological state

Using the method of one-way ANOVA, the scores of CD-RISC, SAS and CPSs of nurses and logistics staff in disinfection supply center were analyzed. Use chi-square test. T-test was used to analyze two groups of data, and analysis of variance was used to analyze three or more groups of measured data, as shown in Table 2.

Table 2 Analysis of variance of mental state difference between nurses in disinfection supply center and other staff in disinfection supply center

		Type III sum of squares	df	Mean square	F value	P value
SAS Score	Between groups	571.39	1	571.39	8.114	0.005
	Within groups	29645.594	421	70.417		
	Total	30216.984	422			
CPSS Score	Between groups	1219.371	1	1219.371	24.382	0
	Within groups	21054.903	421	50.012		
	Total	22274.274	422			
CD-RISC Score	Between groups	152.568	1	152.568	0.666	0.415
	Within groups	96434.827	421	229.061		

Total	96587.395	422

4.5 Correlation analysis between CD-RISC, CPSS and SAS score of employees in disinfection supply center

According to the survey results, we can see that CSSD staff felt great pressure and anxiety during the coronavirus epidemic, which may be caused by the uncertainty and risk of the working environment, as well as health concerns for themselves and others. The survey results also show that the perceived level of stress and anxiety is positively correlated with CPSS and SAS scores. This may be due to the fact that perceived stress will manifest itself as individual tension and vulnerability, which will lead to negative emotions and feelings. At the same time, the survey also found that the CD-RISC score is negatively correlated with the CPSS and SAS scores, which means that individuals with higher resilience usually have better psychological adaptability and coping ability, and can better cope with stress and anxiety. During the epidemic period, if necessary protective measures are taken and the correct operating procedures are implemented, the stress and anxiety can be relieved, and improving the individual's flexibility and self-protection awareness can also help CSSD staff to better cope with the challenges.

4.6 Analysis of related factors of mental state of staff in disinfection supply center

According to the survey results, it can be seen that the stress level of CSSD staff is relatively low, but there is still perceived stress and anxiety. This may be due to the uncertainty and risk of the working environment, as well as the health concerns of themselves and others. In addition, the survey results show that the resilience level of CSSD staff is low, so it is necessary to pay attention to and improve the resilience level. However, the survey results also show that the anxiety level of CSSD staff is relatively low, which may be due to the strong support of the public and the government and the appropriate protection and prevention measures. In addition, most participants have an upper-middle education background, and they can learn about the COVID-19 epidemic through appropriate channels and take effective measures to protect themselves. It is suggested that managers should pay attention to the flexibility level of CSSD staff and provide specific psychological support to improve their resilience and reduce the negative impact caused by the epidemic. In addition, the survey results also show that the optimism factor scores of CSSD staff are low, which may also have a negative impact on their

mental health. Therefore, it is suggested that managers take measures to help CSSD staff maintain a positive attitude and mentality, such as providing psychological counseling and training, and encouraging mutual support and encouragement among employees. In addition, for the occupational risks and health problems that CSSD staff may face, relevant training and protective measures should also be strengthened to improve their safety and work efficiency. In a word, CSSD staff bear important responsibilities and tasks during the coronavirus epidemic and need to be given full attention and support to ensure their mental and physical health.

4.7 Analysis of factors affecting CD-RISC, SAS and CPSS scores

These findings are very valuable and can help managers better understand the psychological and emotional state of CSSD staff and how to provide better support and help. For example, for different posts and age groups, different psychological intervention measures can be taken to solve the specific problems and challenges they encounter in their work. For CSSD nurses, more training and guidance can be provided to improve their skills and knowledge, and help them better cope with epidemic situation and infection control. For young CSSD nurses, more support and encouragement can be provided to help them overcome setbacks and difficulties and improve their self-confidence and coping ability. In a word, these results provide important guidance for managers to ensure the safety

and health of CSSD staff and improve their work efficiency and productivity. Political status One of the most influential factors in CD-RISC score is political status. Members of the Communist Party of China (CPC)'s score is significantly higher than that of non-party member, so political status is also an important factor, and lofty ideals and aspirations can improve the ability to resist pressure.

CHAPTER 5 CONCLUSION AND RECOMMENDATIONS

5.1 Management's management of human resources

Although nurses take on greater responsibilities in the same working environment, the research results show that the perceived pressure of nurses is higher than that of workers, especially young nurses. The results show that about 20% of nurses are under 30 years old and lack of work experience and social experience, which may lead to greater pressure on them in public health emergencies. Nurses are one of the main forces to fight the epidemic, and they are responsible for the important control departments of hospital infection control centers, such as disinfection and supply centers. The vigorous development of these departments has attracted many young nurses to join. Nurses bear heavy responsibilities and must fully understand the importance and risks of work. Therefore, managers should take some measures to reduce the psychological pressure of nurses. First of all, human resources should be rationally allocated, and hierarchical management should be carried out according to the different characteristics of nurses and staff, so as to solve the problem that young nurses can not deal with emergencies effectively or effectively because of their lack of work experience. Secondly, the staff of disinfection supply center should be grouped according to the age, health status

and professional and technical level of nurses to relieve psychological pressure. Finally, post allocation should be based on working years, education level, personal ability and employees' characteristics, and they can cooperate with nurses to achieve high-quality work. These measures can mobilize the enthusiasm of young nurses, improve their technical level and relieve their psychological pressure.

5.2 Optimize process and improve efficiency

According to the requirements of infection management and the documents issued by the Ministry of Health, the Disinfection Supply Center has established a highly operational system and workflow for the early stage of COVID-19 epidemic, aiming at letting employees know clearly that the work is carried out strictly according to the process, alleviating their fears, facing the work correctly and positively, ensuring the quality of work and improving the work efficiency. In this context, the management team has worked out the operation procedures for special operations, including collection, delivery, protective equipment handling procedures, special infection transfer vehicles, instruments and materials handling procedures, surgical instruments for new virus infection, and formulated the emergency plan for occupational exposure of new coronavirus. The Disinfection Supply Center has formulated a management system for special protective materials, disinfectants, occupational protection, emergency teams and working

systems to ensure that employees work under the guidance of systems and processes, do a good job in self-protection and treatment of instruments and instruments, and reduce the pressure on medical personnel. The Disinfection Supply Center is equipped with advanced equipment and tools to ensure efficient cleaning and disinfection of instruments and instruments, so as to reduce the risk of infection. In response to the epidemic situation, CSSD has always adhered to strict operating procedures and standards to ensure the quality and efficiency of work, and made important contributions to the anti-epidemic work of medical institutions.

5.3 personnel training

In the process of recycling, sorting and cleaning equipment and articles, CSSD staff often need to contact patients' blood, body fluids and secretions, and face high-risk occupational exposure. Faced with the rapid spread and extensive coverage of the new coronavirus, employees are worried and scared about the equipment and materials after using the virus. Therefore, personnel training is an indispensable part of emergency support. People at all levels need to quickly learn the basic knowledge and prevention and control measures of the new coronavirus and master the standardized treatment process to alleviate unnecessary troubles. In this way, the staff can work under the guidance of the system and process, do a good job in self-protection and treatment of instruments, ensure the quality of

work and improve work efficiency.

5.3.1 Training content

The hospital disinfection supply center needs relevant training in COVID-19 to ensure that the staff can correctly perform disinfection and supply work and ensure the safety and hygiene of medical equipment and articles. The following are some possible training contents:

Covid-19's basic knowledge: the transmission route of the virus, the structure and characteristics of the virus, the incubation period and course of the virus, etc.

Personal protective measures: wear a mask correctly, use hand disinfectant, avoid gathering, keep social distance, etc.

Medical waste treatment: Understand how to correctly treat and dispose the polluted medical waste in Covid-19, including using correct disinfectants and observing strict operating procedures.

Disinfection of medical equipment: learn the correct disinfection methods of medical equipment, including the use of appropriate disinfectants, the correct disinfection time and methods.

Emergency treatment: learn how to deal with emergencies, including isolation and transfer of suspected or confirmed cases, emergency medical rescue, etc.

Environmental sanitation management: Understand how to carry out hospital environmental sanitation management, including the establishment and implementation of disinfection system and process, and the management of disinfection equipment and articles.

Medical supplies: Learn how to effectively manage the supply of medical supplies, including warehouse management, goods distribution and management.

Communication with patients: Learn how to communicate effectively with patients, including how to provide correct information and how to appease patients.

The above are some possible training contents, and different institutions may have different specific requirements. In the process of training, we also need to pay attention to the ways and methods of training and how to conduct effective training and assessment to ensure that employees can master relevant knowledge and skills skillfully and improve work efficiency and quality.

5.3.2 Training methods

The training of hospital disinfection supply center in COVID-19 should adopt various methods to ensure that the staff can fully understand and master relevant knowledge and skills. Here are some possible training methods:

Online training: Online training can be conducted through online video, PPT, online test, etc., so that staff can learn on their own computers, which is convenient and fast.

Offline training: Face-to-face training can be conducted in a special training room in the hospital, so that staff can learn by listening to explanations and interacting.

Practical operation training: through practical operation drills, the staff can learn the correct skills of disinfection operation and medical supplies.

Course assessment: The learning effect of staff can be tested through course assessment to ensure that they can master relevant knowledge and skills.

Experience sharing: you can invite staff who have mastered relevant knowledge and skills to share their experiences and practices, so as to help other employees better understand and master them.

In the process of training, it is necessary to pay attention to whether the contents and methods of training can meet the actual needs and learning level of staff, and whether the expected results of training can be achieved. At the same time, it is necessary to make different training plans and contents according to different jobs and responsibilities, so as to ensure that every staff member can get effective training and guidance.

5.4 Humanistic care of hospital staff

During the COVID-19 epidemic, hospitals need to strengthen humanistic care for employees to protect their physical and mental health and improve their morale and work efficiency. Here are some possible measures:

Provide necessary protective equipment: hospitals need to ensure that employees have enough protective equipment, such as masks, gloves, protective clothing, etc., to protect their health and safety.

Provide psychological support: the hospital can arrange professional psychological counselors to provide psychological assistance to employees to help them relieve stress and anxiety and fear.

Provide nutrition guarantee: the hospital can provide healthy and nutritious diet

and enhance the physique and immunity of employees.

Strengthen staff training: Hospitals can strengthen staff training, improve their professional ability and emergency response ability to cope with the epidemic.

Increase the rest time: the hospital can appropriately reduce the working hours of employees and increase their rest time to protect their health.

Provide recreational activities: The hospital can organize employees to participate in some recreational activities, such as watching movies, singing, dancing, etc., so as to relieve the pressure of employees and enhance their cohesion.

Protecting employees' families: Hospitals can provide employees' families with help, such as providing family protection knowledge and online education for their children, so as to reduce employees' worries.

The above are some possible measures, and the specific measures should be based on the development of the epidemic situation and the actual needs of employees. Hospitals need to actively pay attention to the physical and mental health of employees and provide all-round protection and support to jointly cope with the epidemic.

This study has some limitations. Firstly, the population selection area is small and the sample size is relatively small. Secondly, the number of workers in the staff structure of the CSSD is relatively large, but due to the limited overall education level, the number of questionnaires collected is limited. The results may be biased. The data collected in this study are true, detailed and rigorous.The widely used standard psychological test scale is used in the psychological survey, and the results are representative based on the psychological survey in special period. The results of this study can provide effective reference information for the psychological evaluation of non front-line clinical departments in other regions, and provide valuable information for the effective management of managers.

Although the population selection area and sample size of the data collected in this study are relatively small, including the overall limited education level in the staff structure of the disinfection supply center, which limits the reliability and generalization of the results of this study, the data collected in this study are very rigorous, detailed, accurate, true, detailed and rigorous, including the psychological assessment questionnaires, which are highly reliable and valid, widely used and standard, so the results of this survey are representative to some extent. The findings of this study can provide useful personnel management information for hospital-related management in case of unexpected safety

incidents, and also provide certain reference value for psychological evaluation and management of non-frontline clinical staff.

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APPROVAL PAGE

TITLE OF PROJECT: INFLUENCE OF PSYCHOLOGICAL STATUS DURING COVID-19 ON STAFF MANAGEMENT OF HOSPITAL DISINFECTION SUPPLY CENTER

NAME OF AUTHOR: PUYAN

The undersigned is pleased to certify that the above candidate has fulfilled the condition of the project paper prepared in the partial fulfilment for the award of the degree of Master of Business Administration.

SUPERVISOR

Signature : _____

Name :

Date :

ENDORSED BY:

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Dean

Graduate School of Business

Date: