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CONTENT

Welcome Message from the ICoHPS General Chair
Welcome to Health Polytechnic of the Ministry of Health, Surabaya Indonesia

ICoNPH

Relationship of Family Support With Quality of Life Among Breast Cancer Patients in Surabaya <i>Qamariyah Ulfah, Yuanita Wulandari, Supatmi</i>	1-6
Empowering Mother on Prevention and Intervention of Stunting on Magetan Regency <i>Nurlailis Saadah, Hilmi Yumni, Budi Yulianto</i>	7-15
Interventions To Reducing Stigma Toward Covid-19: Rapid Review And Practical Recommendation <i>Yusron Amin, Haswita</i>	16-22
Literature Review The Effect Of Progressive Muscle Relaxation On Random Blood Sugar Levels In Diabetes Mellitus Type 2 <i>Novanda Virdiany Prameswary, Minarti, Lembunai Tat Alberta, Supriyanto</i>	23-28
The Effect of Negative Pressure Wound Therapy (NPWT) on Diabetic Ulcer Wound Healing (Literature Review) <i>Eka Sulistiana, Lembunai Tat Alberta, Adivtian Ragayasa, Dwi Adji Norontoko</i>	29-39
The Application Of Ergonomic Exercises In Elderly With Sleep Disorders (Insomnia) At Harapan Kita Nursing Home Palembang In 2021 <i>Zakinah Arlina, Italia</i>	40-45
Medication Adherence With Blood Pressure Of Hypertension Clients At Baureno Public Health Center <i>Presdiana Pratiwi, Padoli, Anita Joeliantina</i>	46-51
Nutritional Status with the Incidence of Acute Respiratory Infection in Toddlers at Kalirungkut Public Health Center Surabaya <i>Rapi Dhira Dentasari, Enung Mardiyana Hidayat, Indriatie, Dhiana Setyorini</i>	52-56
The Effectiveness Of Excellent Service In The Elderly As An Effort To Improve Service <i>Leni Wijaya, Bela Purnama Dewi</i>	57-62
The Impact of Therapy Foot Exercise And Foot SPA on Foot Sensitivity in Patiens with Diabetes Mellitus: A Literature Review <i>Firda Fauziyah, Aida Novitasari, Endang Soelistyowati, Hepta Nur Anugrahini</i>	63-69
The Effect Of Basic Life Support Health Education In First Aid Accident In Public Senior High School 3 Sidoarjo <i>Zenitha Firdaus Nirmalasari, Dwi Ananto Wibrata, Minarti, Kiaonarni Ongko W</i>	70-76
Bullying Behavior Among Primary School Students <i>Erna Dwi Nur'aini, Siti Nur Kholifah, Dinarwiyata, Baiq Dewi Harnani</i>	77-81
Case Study of Verbal Abuse Against Adolescence <i>Yuri Aulia Berliana F., Siti Nur Kholifah, Nikmatul Fadilah, Asnani</i>	82-84
Family Social Support To The Girls Experiencing Anxiety During Menarche at Dusun Jombangan <i>Lisnur Devanda Putri, Baiq Dewi H, Hasyim As'ari, Yohane K. Windi</i>	85-88
Family Support To Elders With Gout Arthritis On Obeying Low Purine Diet <i>Nofinda Widya Sari, Dinar Wiyata, Intim Cahyono, Bambang Heriyanto</i>	89-93



The Effect Of Creambath Massage To Reduce Blood Pressure Of Dinda Salon Customers With Hypertension <i>Dinda Tri Agustini, Adin Mu'afiro, Adivtian Ragayasa, Dwi Ananto Wibrata</i>	94-99
Case Study Parents' Perceptions About Early Marriage In Wonokasian Village, Sidoarjo Regency <i>Hetty Nur Azizah, Baiq Dewi Harnani, Hasyim As'ari, Yohanes K. Windi</i>	100-103
Case Study Of Family Efforts Towards Hyperthermia Treatment In Children <i>Tyas Ayu Prasetyo, Hasyim As'ari, Minarti, Intim Cahyono</i>	104-106
Improving The Quality Of Life Of Plwha Through The Combined Peer And Family Supporting Model <i>Mahdalena, Mahpolah</i>	107-111
Case Study Parents' Efforts In Preventing Acute Respiratory Infection In Toddlers <i>Putri Mei Arifianti, Hayim As'ari, Intim Cahyono</i>	112-114
Family Support In Caring For People With Mental Disorders At The Menteng Health Center Palangka Raya City <i>Maria Magdalena Purba, Irene Febriani</i>	115-119
Anxiety Heart Catheterization Of Coronary Heart Disease Patients <i>Rolly Rondonuwu, Esrom Kanine, Grace Kapugu, Dorce Sisfiani Sarimin</i>	120-128
Qualitative Analysis of Early Marriage and The Implications on Family Life in Bitung City <i>Ellen Pesak, Yourisna Pasambo, Jon Welliam Tangka, Nurseha Djaafar, Maria Terok, Semuel Tambuwun, Dorce Sisfiani Sarimin, Tinneke A. Tololiu, Maitha A. W. Keloay, Nita Riany Momongan, Bongakaraeng</i>	129-135
The Literature Review: The Effect of Pronation Position on Hemodynamic Change In Premature Baby With Respiratory Distress Syndrome <i>Siti Rochmatul Hidayah, Hotmaida Siagian, Kusmini Suprihatin, Dony S, Yetti Wilda</i>	136-144
The Correlation Between Nutritional Status With The Age of Menarche At Teenage Girls In Barengkrajan Village <i>Farra N.P., Siti Maimuna, Kusmini S, Afif Hilmi M</i>	145-149
Literature Review : Relationship Between Central Obesity And Hypertension <i>Athena J.T, Hotmaida S, Dony S, Kusmini</i>	150-157
Literature Review: Kangaroo Mother Care Treatment for Temperature Change In Low Birth Weight Babies <i>Khoiru Nikmah, Kusmini Suprihatin, Suprianto, Hotmaida Siagian</i>	158-164
Literature Review: Self Care Management on Blood Sugar Level Control In Diabetes Mellitus Type 2 Clients <i>Firda Fauziyah, Aida Novitasari, Endang Soelistyowati, Hepta Nur Anugrahini</i>	165-170
Literature Review: The Effect of Baby Massage on Baby's Weight Gain <i>Nuur Annisa Setiawan, Kusmini Suprihatin, Alfi Maziyah, Tanty W, Yetti W</i>	171-176
Literature Review: The Effectiveness Of Self Management In Patients With Heart Failure <i>Yholanda R.H, Dony S, Hotmaida S, Suprianto, Kusmini</i>	177-182
Self-Efficacy In Self-Care Of Type 2 Diabetes Mellitus Clients At Kemangi Village Bungah District Gresik Regency	183-185



Anxiety and Sleep Quality among Medical Workers in Harjono S Hospital 186-189
Dian AfifArifah, RatihAndhika Akbar R, Rindang Diannita

Effectiveness Of Prolanis On Reducing And Stability Of Blood Glucose Levels Of Patients Type 2 Diabetes Mellitus In Community Health Center Care Siko Ternate City 198-204
Al Azhar Muhammad

ICoMid

Therapeutic Communication Midwife Practice Independently On Maternal Stage I In Covid-19 Era 1-6
Rohani,Veradilla

The Correlation Between Exclusive Breastfeeding And Weight Loss In Lactating Women In The Independent Practice Midwife Yusida In 2020 7-10
Reni Saswita, Vera Yuanita, Peti Tunjung Sari

The Influence Of Counseling On The Level Of Knowledge And Attitude Of Mothers About Child Development In The Talang Jambe Village Palembang 11-15
Dona Tri Sundari, Nurbaity

Relationship of Dietary Abstinence and Healing Time for Sectio Caesarea Wounds (A Systematic Review Approach) 16-20
Yuli Suryanti, Sri Emilda

Loving Breastfeeding for Mother on Purperium Periode (An android-based educational media application) 21-26
Meti Widiya Lestari, Elvira Nafiani, Dita Eka Mardiani, Lia Nurcahyani

The Factors Related To Stunting In Toddlers Aged 24-59 Months In Berasang Village, Kisam Tinggi District, Oku Selatan In 2020 27-35
Faulia Mauluddina ,Untari Anggeni, Uun Sintia

Analysis Of Infant Factors Affecting The Event Of Hypothermia In Newborn Babies (Literature Review) 36-41
Fanni Noor Arafanti, Dina Isfentiani, Ani Media Harumi

Relationship between Antenatal Depression and Pre-Eclampsia (LITERATURE REVIEW) 42-49
Bilqis Nur Mustofa, Dwi Wahyu Wulan Sulisetyowati, Ani Media Harumi

The analysis of the causes of PCOS (Polycystic Ovary Syndrome) 50-57
Faradila Elmi Sofiana, Yuni Ginarsih, Titi Maharrani

Association Between Socio Economic And Environmental Sanitation With Stunting In Toddlers In The Work Area Of Dombusoi Health Center 58-62
Henrietta Imelda Tondong, Hastuti Usman, Luh Ayu Diyanasari

Factors Of History Of Curettage, Age And History Of C-Section In The Incidence Of Placenta Previa (Literature Review) 63-72
Ajeng Aryanningsih, Tatarini Ika Pipit Cahyani, Kharisma Kusumaningtyas, Dwi Wahyu Wulan Sulisetyowati

Back Massage Using Frangipani Aromatherapy Oil To Reduce The Level Of Tumor Necrosis Factor Alpha And The Intensity Of Labor Pain 73-80
Ni Nyoman Budiani, Ni Gusti Kompiang Sriasih, Gusti Ayu Marhaeni, Gusti Ayu Putri Kumala

Green Betel Leaf Decoction For Discharge Complaints Of Teenage Girls In Hidayatullah Islamic Boarding School Ternate City 81-86
Nurdiana Lante, Istiana Asrari Bansu, Rusdiyah



Analysis Of Infant Factors Affecting The Event Of Hypothermia In Newborn Babies (Literature Review) 87-92
Fanni Noor Arafanti, Dina Isfentiani, Ani Media Harumi

A Sociodemographic outlook for commissioning exclusive breastfeeding during Covid-19 pandemic in Palangkaraya, Central Kalimantan 93-97
Oktaviani

ICoMLT

Cadmium (Cd) Levels With Kidney Function Examination As An Indication Of Kidney Damage In Petrol Station Operators In North Surabaya with Atomic Absorption Spectrofotometry 1-6
Oryza Amilussolihati, Indah Lestari, Christ Kartika

Cadmium (Cd) Levels In The Blood Of Communities Consuming Mystus Gulilo Around The Kenjeran Beach Area Of Surabaya With Atomic Absorption Spectrophotometry Method 7-12
Vernanda Arsyah Nabilla, Indah Lestari, Christ Kartika Rahayuningsih, Ayu Puspitasari

Difference of Body Posture for Venous Blood Collection on Hemoglobin Levels 13-16
Muhammad Ihsan Tarmizi, Nurhayati, Saprianto

The Effect Of Drinking Calcareous Water On The Image Of Renal Function And Calcium In Kesan Eastern Mountain Residents, Ketapang Madura 17-21
Rahma Widyastuti, Ellies Tunjung S.M, Nur Vita Purwaningsih

Identification of Intestinal Nematodes and Cestodes in Cows (Boss Sp.) With The Saturated NaCl Method in Tegalbanteng Village of Lumajang Regency 22-25
Mufti Qoulun Syadida, Anindita Riesti Retno Arimurti, Suyatno Hadi Saputro, Fitrotin Azizah

Differences of Erythrocyte Index in Patients With Diabetes Mellitus Given The Criteria for Prediabetes And Diabetes at Kedungdoro Public Health Center Surabaya 26-33
Adhistantia Krisandy Putri, Suhariyadi, Evy Diah Woelansari, Anita Dwi Anggraini

Accuracy And Precision Of Uric Acid Examination Point Of Care Testing Method And Uricase Enzymatic Colorimetric Method 34-38
Fitria Yulfirda Arini, Anik Handayati, Ayu Puspitasari

Overview of Covid-19 Case in Lumajang Regency on 2020 39-48
Titik Erliyah

Antimicrobial Potential Of Kepok Banana Sheaths Extract (*Musa paradisiaca formatypica*) On The Growth Of *Staphylococcus aureus* Bacteria 49-54
I Nyoman Jirna, Gusti Ayu Made Ratih

Incidence Of Worm Infection In Primary School Children In The New Normal Implementation Of Pandemi Covid-19 In The Coastal Area Of North Sulawesi 55-60
Indra Elisabet Lalangpuling, Michael V.L Tumbol, Muh. Ali Makaminan

Diagnostic Test Of Frozen Section Histopathological Preparations Against Gold Standard Histopathology Of Paraffin Block In Breast Tumor 61-65
Anggraeni Windi Rosari, Anik Handayati, Wisnu Istanto

Carboxyhemoglobin (CoHb) Levels In Active And Passive Smokers In Bangkalan Regency 66-72
Devyana Dyah Wulandari, Medy Rozaliyati, Farach Khanifah, Aprilia Dewi Saputri, Izzatun Nailah, Nor Halimah

Representation of NLR (neutrophil lymphocyte count ratio) values in coronavirus patients (Covid-19) by age group at Gatoel Mojokerto Hospital 73-77
Juliawan Apurwatama, Anik Handayati, Rinza Rahmawati



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Overview Of Behavior And Control Of Dengue Fever In The Work Area Of The Sabokingking Palembang Health Center Year 2020 <i>Farhani Sucitami, GhinaAjeng Felicia, Emmy, Priyadi, Maksuk</i>	1-11
The Potential of Fermented Oyster Mushroom Filtrate (<i>Pleurotus ostreatus</i>) as Host-Seeking Attractant of <i>Aedes aegypti</i> Mosquito <i>Feby Carira Sindy, Pratiwi Hermiyanti, Fitri Rokhmalia, Demes Nurmayanti</i>	12-20
Management of Hazardous and Toxic (B3) Covid-19 Infectious Waste in Nganjuk Hospital 2021 <i>Ahlun Najaa Nazzun Priyono Putro, Fitri Rokhmalia, Darjati</i>	21-25
The Effect Of Dust Levels In The Furniture Industry On Resident's Subjective Complaints (Case Study In Tanjungan Village, Driyorejo District, Gresik Regency) <i>Yanandra Alifia Priandani, Rachmaniyah, Setiawan</i>	26-31
The Effect Of Distance Of Benowo Waste Final Disposal (Tpa) Surabaya City On H ₂ S And NH ₃ Levels In The Settlement Environment <i>Imilda Lidiawati, Khambali, Darjati</i>	32-36
Relationship Of Hygiene And Sanitation With Microbiological Quality Of Drinking Water Depo Water During The Covid-19 Pandemic In 2021 (In Dupak Village, Krembangan District, Surabaya City) <i>M. Lazzuardhi Ilmi, Khambali, Demes Nurmayanti</i>	37-42
Influence Of SO ₂ and NH ₃ Gas Levels On Public Health Around Benowo Final Disposal Site, Surabaya City <i>Rifka Anggraeni, Dr. Khambali, Narwati</i>	43-49
The Effect Of Noise Due To Aircraft Passing In Settlements Around Juanda Airport On Community Subjective Complaints (Case Study in Sedati Gede Village, Sidoarjo in 2021) <i>Arina Khusnal Hidayaty, Dr. Khambali, Irwan, Rachmaniyah, Demes Nurmayanti</i>	50-54
The Effect Of Working Period, Nutritional Status, And Smoking Habits On Work Fatigue at PT. Atlantic Anugrah Metalindo Surabaya Year 2021 <i>Presillia Aulina, Dr. Khambali, Suprijandani, Winarko, Rusmiati</i>	55-60
Society Role in Drinking Water Treatment with <i>Ipomoea carnea</i> <i>Sri Poerwati, Aries Prasetyo, Waella Septamari Budi</i>	61-66
<i>Ipomoea carnea</i> Leaf Extract As Antibacterial Drinking Water Deep Wells <i>Sri Poerwati, Aries Prasetyo2 Waella Septamari Budi</i>	67-70
The Examination of The Quality of Chitosan from Bamboo Shell Waste with Variations of NaOH Concentration in the Deacetylation Process <i>Sayyidah Nafysah Ahmad, Darjati, Hadi Suryono</i>	71-78

ICoN

The Association Between Peers Influence and Sweets Consumption Pattern in Adolescent Girls <i>Nisri Ina Zahrah, Moh Fanani, Tonang Dwi Ardyanto</i>	1-6
Effect of Dates (<i>Phoenix dactylifera</i> Linn.) on Low-Density Lipoprotein (LDL) in Type 2 Diabetes Mellitus Patients <i>Erlyna Jayeng, Eti Poncorini, Eny Sayuningsih, Sari Luthfiyah</i>	7-11
The Effect Of Training Using The Stunting Module On The Knowledge And Skills Of Cadres About Prevention And Handling Of Stunting At Tanoyan Health Center, Lolayan Regency, Bolaang Mongondow Regency	12-18



The Variation " Tofu Waste Nugget With Subtitution Of Basil Leaves Extract " On Organoleptic Test And Bacterial Pollution <i>Firdaus Sukma, Juliana Christyaningsih, Melina Sari, Nurul Hindaryani</i>	19-27
Administration of Pismatom Juice in Increasing the Energy Efficiency In Middle-Distance Run Athletes of PASI Denpasar, Bali-Indonesia <i>I Wayan Juniarsana, IGA Ayu Dharmawati</i>	28-32
Acceptability And Nutritional Content Of Supplematary Food For Pregnant Woman With Chronic Energy Deficiency In Sambikereb Sub-District Surabaya <i>Ani Intiyati, Dian Shofiya, Berliana Putri Nurlaili, Devi Imroatul Latifah</i>	33-49
Effect of additional tuna fish flour (<i>Euthynnus affinis</i>) to organoleptic test of taro cookies (<i>Colocasia l. Schoott</i>) for pregnant women <i>Kurniati Dwi Utami, Rieska Indah Mulyani</i>	50-59
The Effect Of Giving Explanation With Card Media Make A Match Method To The Increase Of Anemia Prevention Behavior At 4TH Grade Students Of Elementary School In Tanjung Morawa Sub District <i>Mahdiah, Erlina Nasution, Ida Nurhayati</i>	60-64
Organoleptic Properties and Nutrient Cookies from Flour of Taro Kimpul, Salak Manonjaya, and Tolo Beans As An Emergency Food <i>Fini Fitria Febriani, Sumarto</i>	65-76
Effectivity Of Complementary Feeding Guidelines On Mother's Knowledge Babies In Argasunya Village, Cirebon City <i>Uun Kunaepah, Alina Hizni, Anis Abdul Muis, Priyo Sulistiyono</i>	77-85
Moringa Leaf Bubble Drink Increases Hemoglobin Levels In Adolescent Girls <i>Rudolf Boyke Purba, Ni Made Dewi Ardiani, Fred Rumagit dan Joice M. Laoh</i>	86-91
The Test Of Acceptance And Nutritional Contents Of Telle Fishball Formulation As An Alternative Snack For Pre-school Age Children With Picky Eater Risks Of PEM And VAD <i>Sephia Tri Cahyaning Hari, Taufiqurrahman, Nuning Marina Pengge</i>	92-102
Acceptance Test And Antioxidant Levels Cat Tongue Cookies "Red Rosella Flower Flour" As An Alternative Snack For Hypertension Patients <i>Dea Larasati, Juliana Christyaningsih, Melina Sari, Nurul Hindaryani</i>	103-108
Food Behavior chosen among communities in preventing of COVID-19 infection in East Java <i>A Buanasita, L Sholihah, Y. Prabawani, I Soesanti</i>	109-115

ICoDOH

The Influence of Information Technology-Based Toddler Dental Health Care Model (AGITA) on Mothers towards Teeth Brushing Skills of Children <i>Wiangke Fajrin, Tri Wiyatini, Diyah Fatmasari</i>	1-6
The Effect Of Gargling Coconut Essential Oil (<i>Cocos Nucifera L</i>) With Oil Pulling Method Against Tooth Calculus Index And Papila Bleeding Index In Woman With Gingivitis Disease <i>Manta Rosma, Rosdiana Tiurlan Simaremare, Kirana Patrolina Sihombing</i>	7-14
Solubility of Calcium in Artificial Saliva Made from Golden Snail Shells for Tooth Remineralization <i>Marlindayanti, Ismalayani, Podojoyo</i>	15-18
Determinants Of Dental And Oral Disease In Pregnant Woman From A Sociodemographic Aspect <i>Aulia Nur Ihza Josi Putri, Silvia Prasetyowati, Soesilaningtyas, Isnanto</i>	19-24



Anxiety and Sleep Quality among Medical Workers in Harjono S Hospital

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ABSTRACT

Anxiety rate is widely increased and has become the most common symptom experienced by medical staff during the COVID-19 pandemic since the end of 2019. Recent data referred that more than 50% of medical staff experience moderate to high levels of anxiety. Sleep quality is variable that is highly associated with the human physical condition including anxiety. A person with good sleep quality is less likely to feel stressed, anxious, depressed, or experience physical fatigue. This study aims to determine the anxiety level among medical staff based on their sleep quality.

Forty-eight (48) medical staff were involved as respondents in this study which was taken randomly using a simple random sampling method. The independent variable is the sleep quality index (SQI), which is measured using the Pittsburg Sleep Quality Index (PSQI) instrument. While the dependent variable is the depression score which is measured using the Zung Self-rating Scale (SAS) instrument. Comparative analysis was used to compare anxiety scores within 2 groups based on SQI categories using an independent t-test test using 95% of Confidence Interval (CI).

Comparison test between 2 groups of sleep quality shows a significant difference (p-value/sig. 0.20) with a mean difference of 5,78. Based on the maximum score of anxiety, it can be concluded that HCW with good sleep quality has a 7.35 % lower level of anxiety compared to those who had worse sleep quality.

Keywords: *anxiety, sleep quality, health car workers.*

INTRODUCTION

The COVID-19 pandemic has widely increased workload for Health Care Workers (HCW) (1) which could causing impact on the quality of services and productivity (2). This situation will affecting not only the physical but also the mental health of HCWs (3). According to Labrague (2021) (4) anxiety is the most common symptom experienced by medical taff during the COVID-19 pandemic since the end of 2019. Recent data referred that more than 50% of medical taff experience moderate to high levels of anxiety. The rate were significantly higher than those observed in the general population (5–7).

While a low level of anxiety is beneficial to motivate, maintain self-defense and improved safety behavior, higher level of anxiety may have negative consequences on the mental-psychological health and work performance among workers. Several studies have found that the negative effects of a higher level of anxiety, including neural disorders, dizziness, sleep disturbance, vomiting and nausea (8,9). Extreme level of anxiety levels were also associated with impaired body function, negative coping mechanisms (such as increased intake of alcohol or drugs) stress, depression and increased burnout risk even suicidal ideation (10–12).

Factors related to the pandemic that are often associated with the physical problems of medical staff are intensive patient care, high patient mortality, high workload, role conflict and lack of time available to meet patient needs, etc. (4,13). Issues such as social stigmatization, shortage of personal protection equipment supplies, and heavy workload on the staff can aggravate this situation.

These condition will lead to serious consequences for both patients and the healthcare professionals (2). Several systematic reviews have found that high levels of burnout in health care professionals are associated with less-safe patient care. These consequences impose immense costs on the society (14,15).

Sleep quality is variable that is highly associated with human physical condition (16). It has been estimated that 90% of patients with depression complain about sleep quality (17). A person with good sleep quality is less likely to feel stressed, anxious, depressed or experience physical fatigue (18–20). For workers, having good quality of sleep is very important to maintain their physical and psychological condition while working. According to Arifah (21), the sleep quality index affects the level of fatigue experienced by medical taff who work in shifts. According to the study, workers with night shifts can maintain the quality of their sleep to prevent the risk of fatigue that occurs due to shift work. A workers with good sleep quality tends to feel

relaxed and stable so as to minimize the risk of psychological disorders such as stress, depression and anxiety.

Based on M Söderström(22), insufficient sleep can be used as a clinical indicator of burnout. Giorgi's(23) also proves that personal burnout was significantly associated with sleep disturbance among shift-work nurses.

Harjono Hospital is one of the COVID-19 care and isolation centers in Ponorogo district. It provides isolation rooms with a capacity that can accommodate about 35 patients. However, the increasing number of cases caused the number of COVID-19 patients to be overloaded. The Emergency Unit is a room for emergency patients' entrance which operates 24 hours a day, 7 days a week. Patients received in the emergency unit usually had acute cases occur suddenly or by accident without warning and require prompt and appropriate help. Due to the emergency unit operations, high accuracy is highly dependent on human resources. High performance of medical staff in the emergency unit is needed to provide health care services whatever the patient's condition is. The risk of receiving patients with COVID-19 infection is high during the pandemic.

This study aims to analyze anxiety experienced by medical staff in the emergency unit of RSUD dr. Harjono based on their sleep quality.

METHODS

This study is an analytic observational study using a cross-sectional design. Data were collected in February to March 2021 at Dr. Hospital. Harjono S. Ponorogo. Forty-eight (48) medical staff involved as respondents in this study, which were taken randomly using simple random sampling method. Before the data collection, respondents were given an explanation and the research procedures and voluntarily filled out informed consent forms. The collection procedure is described in the following chart:

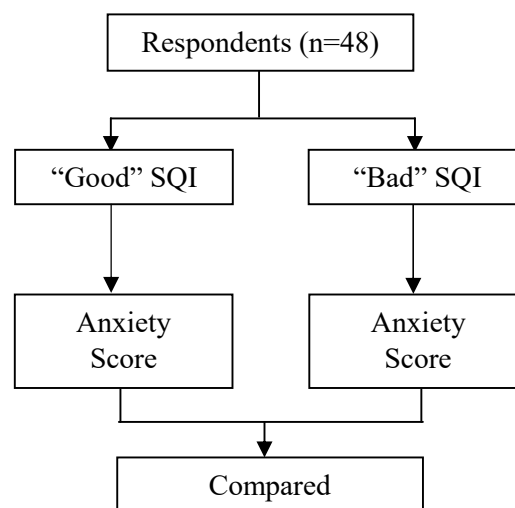


Figure 1. Data collecting and analysis procedure

The independent variable is the sleep quality index (SQI)(24), which is categorized into "Good" (score <5) and "Bad" (score >5) based on the score of 7 indicators measured using the Pittsburgh Sleep Quality Index (PSQI) instrument. While the dependent variable is the depression score, which is measured using the Zung Self-rating Scale (SAS) instrument(25).

Data were both descriptively and analytically analyzed. Microsoft Excel and Statistical Package for Social Sciences Software (SPSS) version 24.0 were used in all steps of analyses. Comparative analysis will be used to compare anxiety scores within 2 groups based on SQI categories using independent t-test with a 95% confidence interval (CI).

RESULTS

Table 1 described the sleep experience in the last month and average depression score among 48 respondents. There are 7 components as indicators for sleep quality, which indicate the symptoms experienced by average respondents in percentage. Overall sleep quality was classified as "Good" or "Bad" based on the score in the 7 indicators.

Table 1. Respondent Characteristics based on Sleep quality and Anxiety Indicators

Indicators	Percentage
Sleep Quality Indicators	
Subjective Bad Sleep Quality	28,47 %
Sleep Latency*Frequence	29,16 %
Sleep Duration	34,02 %
Sleep Efficiency	29,16 %
Sleep Disturbance	17,36 %
Drugs Usage	0,00 %
Day Dysfunction	27,77 %
Anxiety Indicators	
Feel more nervous and anxious than usual	16,67%
Feel afraid for no reason at all	26,39%
Get upset easily or feel panicky	20,83%
Feel like falling apart	30,56%
Feel that something bad will happen	31,94%
Arms and legs shakedand trembled	19,44%
Bothered by headaches and back pain	29,17%
Feel weak and get tired easily	25,00%
Can't feel calm and hard to sit still	27,78%
Feel heart beating fast	19,44%
Bothered by dizzy spells	25,00%
Fainting spells or felt like it	9,72%
Can't breathe in and out easily	6,94%
Get numbness and tingling in the tingers and toes	15,28%
Bothered by stomach aches or indigestion	22,22%
Frequently urinate	19,44%
Hands are usually dry and warm	13,89%
Face gets hot and blushed	16,67%
Can't fall asleep and rest easily	25,00%
Had nightmares	18,06%

Table 1 describes the symptoms experienced by respondents based on indicators to assess sleep quality and anxiety levels on the PSQI and SAS instruments. Sleep problems that are most often experienced by medical personnel are lack of sleep duration (34.02%). A total of 54.17% of respondents with sleep problems stated that their sleep duration was less than 7 hours/day. Based on anxiety symptoms, most or 31.94% of medical personnel felt "Feel that something bad will happen", "Feel like falling apart" (30.56 %) and "Bothered by headaches and back pain" (29.17 %). In general, the comparison of the Average anxiety score based on sleep quality is described in the table 2.

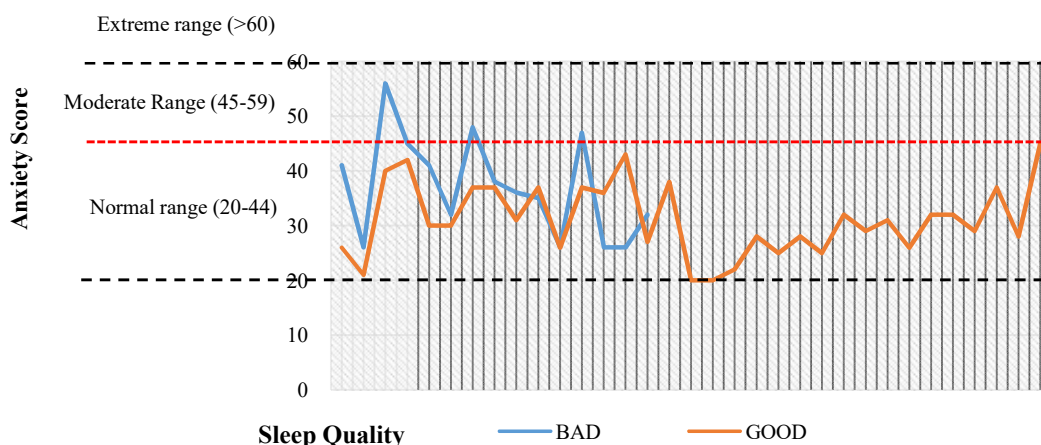
Table 1. Average Anxiety Score based on Sleep Quality

Sleep Quality	N	Percentage	Average Anxiety Score
Good	33	72,9 %	31.12
Bad	15	27,1 %	37.00

Σ	48	100 %	32.95
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Based on table 2, as many as 27.1% of medical personnel have bad sleep quality and an average anxiety score of 32.95. Medical personnel with bad sleep quality have an average anxiety score of 37.00 or 7.35% smaller than medical personnel with good sleep quality. Figure 1 described the comparison of anxiety score of medical personnel between 2 groups of sleep quality.

Figure 1. Anxiety comparison based on Sleep Quality



In figure 1, the anxiety score level is classified as normal, moderate and extreme based on clinical anxiety range in the SAS instrument. Based on the figure, respondents who are at moderate anxiety level are dominated by medical personnel with bad sleep quality (blue line). Meanwhile, almost all medical personnel who have good sleep quality are in the normal range of anxiety level. Table 3 shows the result of comparison analysis based on paired t-test analysis.

Comparison pair	Levene's Test for Equality of Variances		T-test for Equity of Means	
	F	Sig.	Sig. (2-tailed)	Mean Difference
anxiety of "good" SQ - Anxiety of "bad" SQ	2,391	0,129	0,020	5,78788

Comparison test between 2 groups of sleep quality shows a significant difference (p-value/sig. 0.20) with a mean difference of 5,78. Based on the maximum score of anxiety, it can be concluded that HCW with good sleep quality has a 7.35 % lower level of anxiety compared to those who had worse sleep quality..

DISCUSSION

During the pandemic the workload of medical taff in emergency unit had increased(1). They have to deal with the unusual condition which extra effort and energy needed. These condition will potentially increase the mental and physycologicalproblem among medical taff such as anxiety. In this study, the average score of anxiety among HCP in Harjono S Hospital is 32.9 which categorizes into normal range(25). But some medical personnel have a score of more than 45 so they are included in the moderate category on the level of anxiety. Based on data obtained, there are 4 HCP with moderate range of anxiety. Based on the follow-up interview, these anxiety usually caused by the fear of transmitting the disease to their families, the case increased, intensive PPE usage and the more absent number of personnel caused by isolation .

Sleep quality has been widely known to be related to many physical states and physiological functions of humans. Insufficient sleep even become a predictor for clinical burnout (22). Of all the psychiatric disorders associated with insomnia, depression and anxiety is the most common(5).Fredriksen(26) provided longitudinal data to show that sleep loss was a significant predictor of increased depressive feeling and self-esteem. Sleep disturbances encompass various potentially overlapping symptoms and disorders including insomnia, hypersomnia, excessive daytime sleepiness, circadian rhythm disturbance, and extrinsic sleep

disorders (related to insufficient sleep and sleep hygiene). Sleep disturbances, anxiety and depression are common problems that lead to neuropsychological impairment. Neuropsychological evidences suggest that both quality and quantity of sleep are vital to the optimal functioning of brain activity in regulating our emotions (16). Sleep disturbance is diagnostic criteria for depression in the Diagnostic and Statistical Manual of Mental Disorders. Treatment for sleep disorders has been shown to reduce symptoms of depression and anxiety (27).

The goal of this study is to determine whether improved sleep quality could reduce anxiety among medical staff especially in the emergency unit which assumed had more risk to depression and exhaustion. But to get more representative result, advanced study with more samples and instrument might be needed.

The Pittsburgh Sleep Quality Index (PSQI) is a self-rated questionnaire which assesses sleep quality and disturbances over a 1-month time interval. Nineteen individual items generate seven "component" scores: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction. The instrument however is only evaluating sleep experiences and not as diagnostic instrument.

In this study, sleep quality is categorized to good and bad instead of numerical scale because it would be easier to determine only "good" or "bad" than increased sleep quality. Though it is suggested that in future research the correlational analysis used within a numeric-numeric scale to obtain more representative results. There's no intervention in this study. Sleep quality is measured by evaluating respondent experience in sleep in the past month. This quasi method may caused the sample size among 2 groups of sleep quality isn't equal. However, the equality number is not required in the independent t-test as long as the number difference is less than 1:4. In the future research, interventions may be needed to obtain an ideal and proportionate sample size for each group.

CONCLUSION

Based on the result concluded that there are significant differences the anxiety score within 2 groups of sleep quality. There are 7.35 % lower scores of anxiety in the workers with good sleep quality compared to those with bad sleep quality.

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