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Indian Journal of Public Health Research & Development

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CONTENTS

Volume 9, Number 6

June 2018

1. Oral Versus Intravenous Iron for Treatment of Iron Deficiency Anaemia in Pregnancy: A Randomized Controlled Trial 01
Monika Dalal, Ritu Goyal, Smiti Nanda, Pushpa Dahiya, Krishna Dahiya, Shikha Madan
2. Effectiveness of Educational Intervention on Quality of Life of Patients with Type 2 Diabetes Mellitus 07
Sindhu L, B JayaKumar
3. A Study to Assess Stigma and Discrimination Associated with Tuberculosis in 18 Year and above Patients Attending CHC Hapur 13
P N Bhise, Akhilesh Kumar Malhotra, Sandhya Nirmal Bhise
4. Histopathological Review of Dermatological Disorders with a Keynote to Granulomatous Lesions: A Retrospective Study 18
Ankit Singh, Amit Kumar Nirmal, Prapti Gupta, Jay Kant Jha
5. Leadership Style Correlation with the Occurrence of Unsafe Act Fabrication Employees Pt. BSB Gresik 23
Fardiansyah, Rachmat, Prasetya, T.A.E, Ardyanto, D, Notobroto, H B
6. Relationship between Underweight and Academic Achievement among Middle School Children 28
Neha Bansal
7. A Cost Analysis of Different Brands of Anticonvulsant Drugs Available in India 32
Ananda Lakshmi, B Krishna Prasanth, Sadgunottama Goud Kamparaj
8. Knowledge and Life Style Practices of Individuals with Pre-Hypertension 37
Keerthi S Nair, Bony M Sunny, Sneha M Y
9. A Study of Self-Perceived Need for Management Training among Interns at a Government Medical College in Karnataka 44
Manjunatha S N, Chandrakumar S G, Revathi Devi ML, Shekar MA, Krishna Murthy, Prashantha B
10. A Correlational Study on Assertiveness and Self Esteem of Undergraduate Students of a Selected College of Nursing, Ernakulam 49
Sreedevi P A, Aswathy B L, Neethumol Roy
11. Qualitative Study on What Makes a Primary Health Center Gets Utilized, in Belgaum District North Karnataka India 56
Devika Pandurang Jeeragyal, Sasidhar M, K R John, Archana A M
12. An Awareness Survey on Safe Sexual Practice among First Year Medical Students 61
Samir Chattopadhyay, Arvind K Shukla, Salki Matta, Nandini Sethi, Neha Rani

13. Prevention of Catheter Associated Urinary Tract Infection (CAUTI)	68
<i>Manu Acha Roy, Nisha Philip, Deepa Fulwadiya, Shruti Dhabade</i>	
14. Smoked Tobacco Prevalance, Knowledge of Hazards and Motivation to Quit among Smokers in Suburban Mumbai	74
<i>Tyagi Rahul, Hande Vivek, Singhal Anuj</i>	
15. Menstrual Gymnastics on Beta Endorphins Hormone Levels and Intensity of Pain in Premenstrual Syndrome	80
<i>Sri Sumarni, Nur Khafidhoh, Umaroh, Munayaroch, Ismi Rajiani</i>	
16. Streamlining Laboratory Work Flow Using Lean Concepts: An Exploratory Study	86
<i>Shweta R Naik, G V Khyathi, A C Lokesh</i>	
17. Development and Assessment of Feasibility of a Prototype Android Application in Management of Dysphagia	92
<i>Shmiruthy Ranjan, Vijay Kumar K V</i>	
18. Bacterial Load and Contamination of Indian Currency Note: Isolation and Transferability Studies of Multi-Drug Resistant Bacteria	97
<i>Prasanth Manohar, Thamaraiselvan Shanthini, Priyanka Goswami, Munia S, Haimanti M, Ashok J Tamhanka, Nachimuthu Ramesh</i>	
19. Prescription Audit of Outpatient Departments of a Tertiary Care Hospital in Maharashtra	103
<i>Anil Pandit, Jyoti Joshi, Amrita Vaidya</i>	
20. Differences in the Influence of the Quality of Life to Marital Satisfaction in Women Early Marriage and Not Early Marriage	108
<i>Nur Laily, Nia Kania, Adenan, Bahrul Ilmi, Lenie Marlinae</i>	
21. Diagnostic Accuracy of Procalcitonin as a Marker of Gram-Negative Bacteremia on Sepsis and Septic Shock Patients in Intensive Care Unit (ICU)	113
<i>Syafri K Arif, Abdul Wahab, Syafruddin Gaus, Muh R Ahmad, Christa E Damongilala</i>	
22. Factors of Skipping Breakfast and Association between Skipping Breakfast and Academic Achievement of Nursing Students	118
<i>Pratiti Halder, Baby S Nayak, Yashodha Satish</i>	
23. A Study to Assess Knowledge, Attitude and Practices Regarding Tuberculosis among 18 Year and above Patients Attending CHC Hapur	125
<i>Akhilesh Kumar Malhotra, P N Bhise, Sandhya Nirmal Bhise</i>	
24. Role of Fine Needle Aspiration Cytology in the Diagnosis of Skin and Superficial Soft Tissue Lesions: A Study of 255 Cases	131
<i>Ankit Singh, Amit Kumar Nirmal, Jay Kant Jha</i>	
25. A Conceptual Study on How Electronic Recruitment Tools Simplify the Hiring Process	136
<i>Ramkumar A</i>	
26. Study of Compliance of Surgical & Medical ICUs to the Process of Preventing Needle Stick Injuries & Blood/ Body Fluid Exposures	140
<i>A P Pandit, Bhairavee Samant, Vidhi Jain</i>	
27. E-Recruitment through Job Portals and Social Media Network: Challenges & Opportunities	143
<i>Ramkumar A</i>	

28. The Study on Thyroid Status among Newborns in Gautam Budha Nagar District in India	149
<i>Chandra Prakash Sharma, Widhi Dubey, Suryakant Nagtilak</i>	
29. The Prevalence of Restless Leg Syndrome in Iraqi Multiple Sclerosis Patients	155
<i>Sajid I Al-Hussainy, Aqeel K Hatem</i>	
30. Factors affecting the Performance of Members Team Preparation Accreditation of Public Health Center (Study at Public Health Center in Kotawaringin Timur District)	161
<i>Nurul Fatimah Apriliani, Edi Har toyo, Lenie Marlinae, Husaini, Bahrul Ilmi</i>	
31. Current Status of Voice Restoration Following Total Laryngopharyngoesophagectomy: A Case Report	166
<i>Sheela S, Venkataraja U Aithal, Rajashekhar B, Balakrishnan R</i>	
32. Clinical and Radiographic Comparison of Conventional and Minimal Invasive Method of Cavity Preparation in Mandibular Molars	170
<i>Sonali Sharma, Mithra N Hegde, Vandana Sadananda</i>	
33. Diabetes Mellitus Type 2 - A Predictor of Metabolic Syndrome in Urban Population of North India	176
<i>Manoj Kumar Sharma, Sonali Pandey, Suryakant Nagtilak</i>	
34. The Impacts of Goods and Services Tax (GST) on Middle Income Earners in India	182
<i>Ch. Bala Nageswara Rao, B Neeraja</i>	
35. The Impact of Scenario Planning on Organizational Sustainability in Healthcare Private Sector	188
<i>Hamad Karem Hadrawi</i>	
36. Detection of Bacterial Causes of Psoriasis and Determination of Some Immunological Aspects in Patients	194
<i>Zainab Nasser Nabat</i>	
37. Assessment of Knowledge, Attitude and Practices about Rabies in Urban Slums of Amritsar City (Punjab), India	199
<i>Kanwal Preet Kaur Gill, Priyanka Devgun</i>	
38. Faeces Waste Treatment Design in Household with Narrow Land Area	205
<i>Marlik, Demes Nurmayanti, Ferry Kriswandana, Heru Santoso Wahito Nugroho</i>	
39. Risk Factors at Home on Acute Respiratory Infection (ARI) Incidence in Children Under Five in Sapuli Island, South Sulawesi	210
<i>Mulyadi, Heru Santoso Wahito Nugroho</i>	
40. Relation between Underutilization of Antenatal Care and Birth Outcome	215
<i>Bushra M Majeed, Ruqiya S Tawfeek, Nabila K Yaaqoub</i>	
41. Bacteriological Profile of Wound Infections in MRSA and ESBL Detection in E.Coli & Klebsiella	220
<i>Suresh P, P Vamsimuni Krishna, V Praveen Kumar, Sreenivasulu Reddy</i>	
42. The Risk Factors of Hepatitis B in Pregnant Woman in Banjarmasin on August – October Period 2017	224
<i>Melani, Zairin Noor Helmi, Husaini, Roselina Panghiyangani, Eko Suhartono</i>	
43. Investment Decision Factors Influencing the Share Market Investors in Chennai City	229
<i>V Venkatragavan, M Chandran</i>	
44. An Assessment of Rural Health Care Facilities and Infrastructural Gaps in Alipurduar District, West Bengal, India	233
<i>Barnali Biswas, Piyal Basu Roy</i>	

45. Work Place Violence Against Nursing Staff Working in Emergency Departments at General Hospitals in Basra City 239
Samira Muhammed Ebrahim, Sajjad Salim Issa
46. Implementation E-Health System on Use Behavior Customer based on Unified Theory of Acceptance and Use of Technology (Utaut) 245
Farouk Ilmid Davik, Nurus Sa'idah, Muhammad Ardian C.L, Djazuly Chalidyanto
47. Nurses Practice Concerning Postoperative Clean Wound Dressing 251
Abdulkareem Salman Khudhair
48. The Role of *Moringa Oleifera* Leaves Against Oxidative Stress and Chronic Inflammation: A Review 257
Kusmiyati, Soedjajadi Keman, Muhammad Amin Suwarno, Heru Santoso Wahito Nugroho
49. Exploration on Adolescent Knowledge Related Metabolic Syndrome (METS) 263
Nurhaedar Jafar, Rahayu Indriasari, Aminuddin Syam, Yessy Kurniati
50. Qualitative Study; Knowledge, Arv Access, and Adherence among People Living with HIV in Bulukumba District, South Sulawesi 267
Suswani A, Arsunan AA, Amiruddin R, Syafar M, Yurniati
51. Parental Involvement, Academic Performance and Mental Wellbeing of Selected Pre- University Students of Udupi District 273
Rochelle Jane Dsa, Blessy Prabha Valsaraj, Renjula Yesodharan



Indian Journal of Public Health Research & Development

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CONTENTS

Volume 9, Number 6

June 2018

52. Triple Band Monopole Frequency Reconfigurable Antenna for Wireless Medical Applications 279
G Jyothisna Devi, U Ramya, B T P Madhav
53. Fractal Shaped Concentric Ring Structured Reconfigurable Monopole antenna with DGS for GPS, GSM, WLAN and ISM Band Medical Applications 285
M Monika, Sk Rajiya, B T P Madhav
54. Triple Band Defected Ground Structure F-Shaped Monopole Antenna for Medical Band Applications 290
Raghava Yathiraju, P Pardhasaradhi, B T P Madhav
55. Circular Slotted Reconfigurable Antenna for Wireless Medical Band and X-Band Satellite Communication Applications 296
SK Rajiya, M Monika, B T P Madhav
56. Trisrip Monopole Antenna with Split Ring Resonators for ISM Band Biomedical Applications 301
M Sujatha, B T P Madhav, V Prakhya, B Akhila, N Gowtham, S Mozammil, M Venkateswara Rao
57. A CPW fed Dual Band Notched UWB Antenna for Wireless Medical Applications 306
K Phani Srinivas, Habibulla Khan, B T P Madhav
58. Frequency Switchable Monopole Antenna for Multi Band Wireless Medical Applications 311
U Ramya, G Jyothisna Devi, B T P Madhav
59. Image Processing based Segmentation Techniques for Spinal Cord in MRI 317
SK Hasane Ahammad, V Rajesh
60. Trapezoidal Notch Band Frequency and Polarization Reconfigurable antenna for Medical and Wireless Communication Applications 324
B Siva Prasad, P Mallikarjuna Rao, B T P Madhav
61. Sierpinski Meta Fractal Monopole Antenna with Defected Ground Structure for Medical and Satellite Communication Applications 329
S Ram Kumar, M V S Prasad



Indian Journal of Public Health Research & Development

www.ijphrd.com

CONTENTS

Volume 9, Number 6

June 2018

62. Determinants of Malnutrition in Children Under Five Years in Developing Countries:
A Systematic Review 333
Tasnim Tasnim
63. The Effect of Blood Lead Levels on Malondialdehyde as an Indicator of Oxidative Stress in Workers of
Gas Station in Sleman 339
Noviati, Brian Klopfleisch
64. Analysis Chemical Compound of Pokea (*Batissa Violacea Celebensis* Martens 1897) The Origin of Konawe
Regency Southeast Sulawesi 345
Sri Anggarini Rasyid, Maria Bintang, Bambang P Priosoeryanto, Ratna Umi Nurlila, Ridwan Adi Surya
65. Geographically Weighted Regression (GWR) Approach in the Modeling of Malnutrition and the Influencing
Factors in Muna Regency 351
Fitri Rachmillah Fadmi, Sri Mulyani, La Djabo Buton
66. The Effect of Technical and Functional of Health Service Quality Toward the Image of Faisal
Islamic Hospital 357
Alwy Arifin, Nisrina Nursakinah, Darmawansyah, Saifuddin Sirajuddin, Dian Saputra Marzuki
67. Model Development of Clinical Learning with Outcome Present Test Method Peer Learning and Application
in Medical Surgical Nursing Stase for the Student of Nurse in Stikes Mandala Waluya 362
Asbath Said, Israeli, Sartini Risky, Ari Novitasari, Dwi Wulandari, Dewi sari Pratiwi
68. Spatial and Temporal Epidemiological Study of Smear Positive Tuberculosis in Kendari, Southeast Sulawesi,
Indonesia 367
Titi Saparina, Rachmawati, Lodes Hadju, Muhammad Guntur Nangi, Muhammad Isrul
69. Analysis of Quality of Life among Patients with Diabetes Mellitus in Elderly People in Wua Wua Health
Centre 373
Rahmawati, Titi Saparina L, Ridia Utami Kasih, La Djabo Buton, Sri Mulyani
70. Legal Protection for Independent Midwife for Using Ultrasonography in Wonosobo Regency 379
Toto Surianto S, Dwi Erna Widayanti
71. The Relation between Knowledge, Stress and Salt Consumption with Incidence of Hypertension in Elderly
Woman Out Patients in General Hospital of Bahteramas Southeast Sulawesi Province 385
La Djabo Buton, Fitri Rachmillah Fadmi, Rahmawati, Sri Mulyani, Noviati

72. Differences Knowledge Prevention and Treatment of Diarrhea with Role Play Methods in School Age Children	390
<i>Israeli, Ari Nofitasari, Asbath Said, Dewi Sari Pratiwi, Ruslan</i>	
73. Influence of Back Massage Method to Intensity of Inpartus Active Phase Pain in the Delivery Room of Kendari City Hospital	394
<i>Dewi Sari Pratiwi, Ari novitasari, Israeli, Asbath said, Yulli Fety, Sri Mulyani</i>	
74. Knowledge and Attitude of Primary School Teacher on the Practice of Selected Food Students Containing Additional Hazardous Foodstuffs in Sdn 01 Poasia Kota Kendari	399
<i>Ari Nofitasari, and Israeli, Dewi Sari Pratiwi, Asbath Said, Sartini Risky, Sari Arie Lestari</i>	
75. Hold Relax Technique and Oral Glucosamine are Effective on Decreasing Pain, Joint Stiffness, Functional Limitation and Serum Level of Comp in People with Osteoarthritis	403
<i>Djohan Aras, Mochammad Hatta, Andi Asadul Islam, Syafrri Kamsul Arif</i>	
76. Analysis of 24-Hour Postpone Time of Newborn Umbilical Cord Clamp to Baby Weight Elevation Newborn in Kendari, Southeast Sulawesi, Indonesia	408
<i>Rosmiati Pakkan, Sartini Risky, Adriyani</i>	
77. Risk Factor of Rheumatoid Arthritis among Elderly in UPT Panti Werdha Mojopahit Mojokerto District Indonesia	412
<i>Abdul Muhith, M.H. Saputra, Arief Fardiansyah, Lady Andani</i>	
78. Protease Potency Assay of Indigenous Proteolytic Bacteria in the Collagen Isolation Process from Snakehead Fish Scale (<i>Channa striata</i>)	417
<i>Sugireng, Widodo, Suharjono</i>	
79. Related Factors Increased Obesity Prevalence in Adult Women in Denpasar City, Bali	422
<i>Ni Komang Wiardani, I Putu Gede Adiatmika, Dyah Pradnya Paramita D, Ketut Tirtayasa</i>	
80. The Determinants of the Geographical Distribution and Transmission of 16S rRNA of <i>M.leprae</i> in Endemic Areas, Indonesia	429
<i>Andi Rizki Amelia, Ridwan Amiruddin, Andi Arsunan Arsin, Burhanuddin Bahar, Mochammad Hatta</i>	
81. Behavioral Mercury Exposure of People in Artisanal and Small-Scale Gold Mining Site Area at Lebaksitu Village, 2017	433
<i>Astri Getriana, Umar Fahmi Achmadi, Citra Hati Leometa</i>	
82. Effectiveness of Household Insecticides to Reduce <i>Aedes Aegypti</i> Mosquitoes Infestation : A Community Survey in Yogyakarta, Indonesia	439
<i>Dyah Widiastuti, Tri Isnani, Sunaryo, Siwi Pramatama Mars Wijayanti</i>	
83. The Threat of Lymphatic filariasis Elimination Failure in Pasaman Barat District, West Sumatra Province	446
<i>Bina Ikawati, Tri Wijayanti, Jastal</i>	
84. Spatio-Temporal Factors Related to Dengue Hemorrhagic Fever in Makassar City, 2010 – 2014	452
<i>Hasanuddin Ishak, Anwar Mallongi, Isra Wahid, Imam Bachtiar</i>	

85. The Use of Owner House ID Card to Increase Effectiveness of Monitoring Larva Visit by Jumantik 457
Mochammad Choirul Hadi, Ni Made Marwati, I Gusti Ayu Made Aryasih, Dewa Ayu Agustini Posmaningsih, I Nyoman Sujaya, Anwar Mallongi
86. Administration of Tempehethanol Extract on Prenatal Until Weaning Period Inhibit the Ovary Follicles Developing of Little Wistar Rats 462
Ni Nyoman Budiani, Ni Ketut Somoyani, Gusti Ayu Marhaeni, Gusti Kompiang Sriasih, Luh Putu Sri Erawati, Anwar Mallongi
87. Combination of Vimentin, E-Cadherin, CD44 and CD24 Expression as Predictor Model of Anthracycline Base Neoadjuvant Chemotherapy Response to Stage IIIB Luminal Breast Cancer 468
Bachtiar M Budianto, Bambang Pardjianto, Edy Mustofa, Setyawati Soeharto, Solimun
88. Comparison of Tumor Growth in Mice Balb/C Induced Breast Cancer Cells Injected with Corticosteroids and Black Seed Oil Extract 474
Andi Asadul Islam, Itzar Chaidir Islam, Muhammad Faruk, Prihantono Prihantono
89. Hemorrhoidectomy using Hemorrhoidal Artery Ligation and Rectoanal Repair (HAL-RAR) Technique to Reduce Level of Pain Perceived by Patients Postoperative 480
Warsinggih, Prihantono
90. Characteristics of Multi-drug Resistant Tuberculosis (MDR-TB) Patients in Medan City in 2015-2016 484
Syarifah, Erna Mutiara, Sri Novita



Indian Journal of Public Health Research & Development

www.ijphrd.com

CONTENTS

Volume 9, Number 6

June 2018

91. An Investigation in Learning English Language by Students of Sudanese University A Case Study of Tertiary Level Khartoum Locality 490
Sangita Babu, Mahassin Osman Mohmmmed Gibreel
92. Design of Mixed Radix-2, 3& 4 based SDF-MDC FFT for OFDM Application 501
K Periyarselvam, G Saravanakumar, M Anand
93. Second Order Sliding Mode Control of Three Phase Four Switch VSI Fed Fault Reconfigurable Sensor Less PMSM Drive 507
Ashok Kumar R, Balaji K
94. An Investigation of English Spelling Achievement among Second Level Saudi Students at King Khalid University 517
Mahassin Osman Mohmmmed Gibreel, Sangita Babu
95. PFB⁺- Tree For Big Data Memory Management System 531
K Santhi, T Chellatamilan T, B Valarmathi
96. A Bipolar-Pulse Voltage Method For Junction Temperature Measurement of Sporadic Current LED 539
K Thanigai Arul
97. Skin Cancer - Computer Aided Diagnosis by Feature Analysis and Machine Learning: A Survey 544
S P Maniraj, P Sardar Maran
98. Utilization of Information Technology in Teaching English Literature Christalin Janet 550
Christalin Janet
99. Knowledge Management Utilized to Developing College English Teaching Group 554
K Manigandan
100. Study of Eddy Current in Litz Wire Using Integral Equation 557
Paulraj Jayasimman
101. Differential Quadrature Method Useing Obtained Poisson Equations 560
G Genitha
102. Far-Field Distribution of High Power Laser Beam 563
M Suresh Kumar

103. Dynamic Model For Gathering Target Estimation Using Graph Theory	566
<i>C Periyasamy</i>	
104. Sequential Quadratic Programming Optimization Method Used Cutting-Stock Problem	570
<i>M Sudha</i>	
105. Algorithm for the Solution of ODE and PDE using Genetic Programming And Automatic Differentiation	574
<i>S Meher Taj</i>	
106. Analyze the Probability Function Using Random Distribution Control Method in Nonlinear System	579
<i>I Paul Raj Jayasimman</i>	
107. Fatigue Analysis of Stiffened Plates Based on Accumulative Plastic Strain Model	582
<i>M Sudha</i>	
108. Transmission Line Applications Using with 2-D Numerical Inverse Laplace Transforms	586
<i>C Periyasamy</i>	
109. GPS Signal Anti-Jamming Assisted with Probability Statistics based on Frequency-Space Domain	590
<i>P Palanichamy</i>	
110. Micromachined Flow Impactor for Spectrometer	595
<i>KThanigai Arul</i>	
111. Photovoltaic Module's Physics: An Eight-Parameter Adaptive Model for the Single Diode Equivalent Circuit	600
<i>Suresh Kumar</i>	
112. Piezoelectric Microgenerator based Fabrication of Polymer Substrate with PPE, IDE and ME	605
<i>K Rajesh</i>	

Risk Factor of Rheumatoid Arthritis among Elderly in UPT Panti Werdha Mojopahit Mojokerto District Indonesia

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ABSTRACT

Elderly is an event that will surely be experienced by all people who are blessed with longevity. Along with increasing age, physical and mental abilities are slowly decreased will cause many consequences so susceptible to a disease due to a decrease in the system of the usual complaints of the elderly due to the pain that is felt very disturbing rheumatic diseases. The purpose of this study was to identify risk factor of rheumatoid arthritis. This research used case-control design. The population in this study were all elderly in Mojopahit nursing home care. Divided into two groups, 21 cases and 21 control cases. Data collected by questionnaire to measure risk factors and to determine rheumatoid arthritis disease with observation sheet, data analyzed by logistic regression. The results obtained in the questionnaire of genetic risk factors showed an OR = 50 with CI 95% (5,486-484,783), meaning that elderly people with a family history of rheumatoid arthritis risk 50 times to experience rheumatoid arthritis. Risk factors for obesity show an OR value of 1.403 with 95% CI (0.129-15.291) which means obesity is not a risk factor for rheumatoid arthritis. Smoking risk factor showed the value of OR 1.177 with 95% CI (0,149-9,289) which means smoking history does not include risk factor for rheumatoid arthritis. Risk factors that affect rheumatoid arthritis were hereditary risk factors. The results of this study are expected to provide input to the nursing home care management in its efforts for the prevention and treatment of the disease.

Keywords: *Elderly, Nursing home care, rheumatoid arthritis, risk factor*

PENDAHULUAN

Elderly is an event that will be experienced by everyone. Elderly are often considered powerless, sickly, unproductive so that its existence is often perceived negatively. They are often treated as a burden of responsibility by family, community, and country. Along with increasing age, the physical and mental abilities that have decreased will cause many consequences so susceptible to a disease due to a decrease in the system of the body that is usually complained of elderly due to the pain that is felt very disturbing is the rheumatic disease¹. Rheumatoid arthritis is a chronic joint inflammation caused by an autoimmune disorder. In rheumatoid arthritis autoimmune reactions mainly occur in synovial tissue. In synovial tissue, this will lead to an inflammatory process that causes damage to joints through the process of phagocytosis that can produce enzymes in the joints. These enzymes will break down collagen resulting in

edema, synovial membrane proliferation, and eventually form a pannus. The pannus will destroy the cartilage and cause erosion of the bone, resulting in the disappearance of the joint surface which will interfere with joint motion. Muscles will be affected because muscle fibers will experience generative changes with the disappearance of muscle elasticity and muscle contraction strength¹. Several risk factors for rheumatoid arthritis include age, sex, level of knowledge, physical exercise, stress, environment, heredity or genetic factors, hormones, infections, obesity, salicylate and smoking exposure².

According to the World Health Organization, people with rheumatoid arthritis worldwide reach 355 million people, that means 1 in 6 people in the world have rheumatoid arthritis³. In Indonesia the prevalence of rheumatoid arthritis is 23.3% -31.6% of the total population of Indonesia and the prevalence of rheumatoid arthritis occurs at the age below 70 years, in

East Java is also quite high that is about 21.7% attack at the age of 49-60 years consists of 6, 2% of men and 15.5% of women⁴. In 2012, the number of patients with rheumatoid arthritis reaches 2 million people, with the ratio of female patients three times more than men. It is estimated that this figure will continue to increase until 2025 with an indication that more than 25% will experience paralysis⁵

Risk factors for rheumatoid arthritis disease in Indonesia, for example, the highest prevalence is in mountainous communities, because cold air can cause rheumatoid arthritis. It also occurs due to the age factor, the more age the higher the risk for arthritis, the gender of rheumatic disease is likely to be suffered by women (three times more often than men) and can also occur in children this can be caused by stress, smoking, environmental factors, and can also occur in children due to hereditary or genetic factors. Foods containing high purine and fatty substances will result in rheumatism and excessive weight (obesity) will put a burden on the cartilage tissue in the knee joint and perform physical exercises such as rheumatic gymnastics as a therapy to relieve rheumatic symptoms in the form of stiffness and perceived pain by rheumatic sufferers⁵.

In the elderly group, the symptoms of rheumatism can be reduced by doing regular exercise and in accordance with how to walk as often as possible to optimize the stability of daily activities, adjusting the diet that does not contain excessive fat in order to prevent obesity in the elderly, avoid risk factors due to smoking, avoid stress, because the sustained stress causes environmental factors to be uncomfortable⁵

MATERIALS AND METHOD

Type of this research is observational analytic. Type of design used is Case-Control. This research was conducted at UPT Panti Werdha Mojopahit Mojokerto and implemented on 11 and 12 April 2017.

The population of this study is the elderly present in the orphanage, where it is divided into a case population and control population with a total of 49 people. The number of samples was 21 people who had rheumatoid arthritis and 21 elderly people who did not have rheumatoid arthritis. In this study, questionnaires data collection instrument to measure risk factors for rheumatoid arthritis and data collection to determine the occurrence of rheumatoid arthritis disease in elderly with observation sheet from data obtained from medical record of health officer at UPT Panti Werdha Mojopahit Mojokerto.

RESULTS

While the second risk factor is obesity, the results showed that the p-value = 0.1904; OR = 0.416 with 95% CI: (0.1108 - 1.567) which means there is no relationship between obesity risk factors with the incidence of rheumatoid arthritis and obesity not including risk factors rheumatoid arthritis.

The third risk factor was smoking, the results showed that the value of value = 0.726 with the value OR = 0.781 with 95% CI (0.197-3106), which means there is no relationship between smoking risk factors with the incidence of rheumatoid arthritis and smoking is not included risk factors rheumatoid arthritis.

Table 1. Rheumatoid Arthritis Risk Factors in the elderly at UPT Panti Werdha Mojopahit Mojokerto.

Risk factors of rheumatoid arthritis		Elder		pvalue	Odd Ratio (OR)
		Case	Control		
		n	n		
Obesity	Obese	5	9	0.1904;	0.416 CI 95% (0.1108 – 1.567)
	Not Obese	16	12		
Hereditiy	Positive	20	6	0.000	50,00 95% CI (5.429 - 460.519)
	Negative	1	15		
Smoking	Smoking	5	6	0.1904	0.416 CI 95% (0.1108 – 1.567)
	Not Smoking	16	15		

DISCUSSION

a. Hereditary Risk Factors On Rheumatoid Arthritis Disease

The results showed that of 42 elderly, 20 elderly people suffering from rheumatoid arthritis had a family history of rheumatoid arthritis. The value of p-value = 0.000 with OR = 50 with 95% CI (5.429 - 460.519), which means there is a relationship between hereditary risk factors with the incidence of rheumatoid arthritis and the elderly who have rheumatoid arthritis offspring 50 times greater risk for experiencing rheumatoid than the elderly who do not has a history of hereditary rheumatoid arthritis..

Rheumatoid Arthritis is a chronic, destructive inflammatory disease, in which the immune system attacks the lining of joints and other parts of the body, including the tendons, ligaments, and bones. This disease tends to recur, usually for no apparent reason, and then heal itself occasionally for a month or even a year. Ailments exposed to rheumatoid arthritis can be damaged during each relapse, eventually leading to paralysis⁶.

According to Karlson and Diane⁷, one of the factors that can affect the disease of rheumatoid arthritis is a history of heredity. Some of the genes involved in the immune system are associated with an increased risk of developing rheumatoid arthritis conditions. If one of the identical twins is exposed to rheumatoid arthritis, the twin will be 20 times at risk for the disease compared to members of the general population. However, genes are not the cause of rheumatoid arthritis. Genes only provide a tendency for a person to develop the condition. Generally the incidence of disease caused by other external factors. In some people exposed to one of these other factors can trigger rheumatoid arthritis, wherein most people the effect is very slow until the individual has reached the threshold for developing rheumatoid arthritis⁸.

Rheumatoid arthritis disease is caused by heredity which can develop continuously will result in the next generation also experience it. As we get older it will increase the risk of joint damage that is very influential in body function. Therefore one of the things that can handle it is by maintaining a healthy diet, maintaining a healthy body, regular exercise to prevent younger generation at the time of marriage in order not to have a

history of rheumatoid arthritis.

b. Obesity Risk Factors On Rheumatoid Arthritis Disease

The second risk factor was obesity, the results showed that the value of value = 0.1904 with OR = 0.416

with 95% CI: (0.1108 - 1.567) which means there is no relationship between risk factors of obesity with the incidence of rheumatoid arthritis and obesity not including risk factors rheumatoid arthritis.

According to De Hair et al⁹ more recent studies have consistently shown that obesity is not a predisposing factor of rheumatoid arthritis. In addition to the proportion of rheumatoid arthritis patients who tested negative for anti-PKC Antibodies. Although the reasons for these discrepancies are not usually discussed, it seems that strict methodological and standardization differences for the potential confounders of recent studies eliminate previous positive findings for obesity associations with the development of rheumatoid arthritis. A combination of an inactive lifestyle, this often leads to reduced muscle mass in the presence of increased accumulation of body fat and a stable or slightly increased body effect on weight gain glycolysis in the body will be broken down enzymatically if fatty changes become ketonic bodies increases, it will cause ketosis the accumulation of ketones in the blood. Usually, this happens to people starving or hunger strike for too long. If the inclusion of acetyl Co-A into the Krebs cycle decreases as the decreased supply of glucose metabolism products or Co-A acetyl supply increases, acetyl Co-A accumulates to cause the ketone to increase in the liver, circulation, and then ketosis occurs. The three conditions that cause reduced intracellular glucose supply are fasting, diabetes, and a diet low in carbohydrates but high in fat. Glucose is called an antigenic factor because the administration of glucose inhibits the formation of ketones. In various tissues of acetyl Co-A changes to become acetoacetyl Co-A. In the liver for having the deacetylase enzyme, the acetoacetyl Co-A is converted to acetoacetate. The β -ketone acid is then converted to β -OH butyric acid and acetone, entering circulation because it is difficult to metabolize then excreted through urine and breathing¹⁰.

In the orphanage, elderly behavior about irregular eating habits and lifestyle changes that alone cause the elderly uncontrolled health. Weight loss that causes the joints cannot support the activities of the elderly, walking

using aids and in front of the room and bathroom hand grip so as not to fall. How to handle maximum body condition that is balanced with regular exercise and good sleep patterns, this is proven because by exercising regularly it will improve the condition of strength and flexibility of the joints and minimize the risk of joint damage caused by arthritis. In UPT Panti Werdha Mojopahit Mojokerto only 6 elderly from 42 elderly has rheumatoid arthritis which has a body not included in obesity category because condition at orphanage does not keep the healthy diet and elderly often difficult to sleep at night because burden thinking about family.

c. Smoking Risk Factors On Rheumatoid Arthritis Disease

Based on the above table shows 42 elderly almost all 11 elderly (73,8%) are elderly who ever smoked at a young age especially in elderly men. Smoking risk factor shows the value of p-value = 0.726. Rheumatoid arthritis is not influenced by smoking risk factors based on the odds ratio of 0.781 with 95% CI (0,197-3,106) meaning that elderly who have the history of smoking does not include risk factor of rheumatoid arthritis.

According to the Journal of Vesperini reported that smoking status has no significant effect on rheumatoid arthritis, but reduces the progression of one-year radiographic disease in patients with early rheumatoid arthritis. In addition, the study suggests that the role of nicotine anti-inflammatory drugs may explain the lower systemic inflammation and structural disease progression in current smokers with patients with early rheumatoid arthritis. In a Swedish epidemiological study Reported that an increased risk of rheumatoid arthritis associated with smoking is quite possibly not due to nicotine, given the use of moist tobacco - smokeless tobacco containing nicotine is associated with a risk of ACPA-positive or ACPA-negative rheumatoid arthritis¹¹⁻¹³.

Rheumatic patients who smoke is mostly in the elderly who never smoked, especially in the elderly men, this happens because the elderly who has a history of smoking at a young age. But now men rarely do not consume cigarettes in the orphanage because the provisions in the orphanage are not allowed to consume and finances are limited to buy. Basically, many students who practice in the orphanage provide counseling on the importance of maintaining health, especially in men about the dangers of smoking that can affect muscle

strength of the joints so that paralysis due to unbalanced body balance. The way to handle it, though in youth is often consumed cigarettes are expected now not to consume as age gets older as age gets older the disease will be easy to come to the body. Research conducted at UPT Panti Werdha Mojopahit Mojokerto only 11 elderly from 42 elderly who smoke experienced rheumatoid arthritis of male gender. So there is a small sex male in the orphanage in the youth to consume cigarettes and most of the elderly female sex in the orphanage never consume cigarettes at a young age because that is in the orphanage mostly elderly women meaning that although most elderly men who have ever consumed cigarettes in youth will be outdone by the elderly gender who never smoked in youth^{14,15}

CONCLUSIONS

Rheumatoid arthritis disease in elderly at UPT Panti Werdha Mojopahit Mojokerto showed from 42 respondents who had rheumatoid arthritis as many as 21 elderly and who did not experience rheumatoid arthritis as many as 21 elderly. There is an influence of hereditary risk factors on Rheumatoid Arthritis In Elderly, there is no influence of risk factors of obesity on Rheumatoid Arthritis disease in Elderly, and no influence of risk factor of smoking against Rheumatoid Arthritis disease In Elderly.

The results of this study are expected to add knowledge and knowledge about risk factors that affect the incidence of rheumatoid arthritis disease. For nursing staff, the results of this study are expected to provide inputs for nursing education institutions, especially in improving the learning process of gerontic nursing practice, especially information about the problem of rheumatoid arthritis disease, so as professional nurses can be better prepared for doing promotional and preventive actions about facing elderly in society with more good.

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