Digital Repository Universitas Jember

ISSN-0976-0245 (Print) • ISSN-0976-5506 (Electronic)

Volume 11 / Number 6 / June 2020

Indian Journal of Public Health Research & Development

An International Journal

Website:
www.ijphrd.com

Digital Repository Universitas Jember

Indian Journal of Public Health Research & Development

EXECUTIVE EDITOR

Vidya Surwade

Associate Professor, Dr Baba Saheb Ambedkar, Medical College & Hospital, Rohinee, Delhi

INTERNATIONAL EDITORIAL ADVISORY BOARD

1. **Dr. Abdul Rashid Khan** B. Md Jagar Din, *(Associate Professor)*
   Department of Public Health Medicine, Penang Medical College, Penang, Malaysia
2. **Dr. V Kumar** *(Consulting Physician)*
   Mount View Hospital, Las Vegas, USA
3. **Basheer A. Al-Sum,**
   Botany and Microbiology Deptt, College of Science, King Saud University, Riyadh, Saudi Arabia
4. **Dr. Ch Vijay Kumar** *(Associate Professor)*
   Public Health and Community Medicine, University of Buraimi, Oman
5. **Dr. VMC Ramaswamy** *(Senior Lecturer)*
   Department of Pathology, International Medical University, Bukit Jalil, Kuala Lumpur
6. **Kartavya J. Vyas** *(Clinical Researcher)*
   Department of Deployment Health Research, Naval Health Research Center, San Diego, CA (USA)
7. **Prof. PK Pokharel** *(Community Medicine)*
   BP Koirala Institute of Health Sciences, Nepal

NATIONAL SCIENTIFIC COMMITTEE

1. **Dr. Anju D Ade** (Professor)
   Community Medicine Department, SVIMS, Sri Padamavati Medical College,Tirupati, Andhra Pradesh.
2. **Dr. E. Venkata Rao** *(Associate Professor)* Community Medicine, Institute of Medical Sciences & SUM Hospital, Bhubaneswar, Orissa.
3. **Dr. Amit K. Singh** *(Associate Professor)* Community Medicine, VCSG Govt. Medical College, Srinagar – Garhwal, Uttarakhand
4. **Dr. R G Viveki** *(Associate Professor)* Community Medicine, Belgaum Institute of Medical Sciences, Belgaum, Karnataka
5. **Dr. Santosh Kumar Mulage** *(Assistant Professor)*
   Anatomy, Raichur Institute of Medical Sciences Raichur(RIMS), Karnataka
6. **Dr. Gouri Ku. Padhy** *(Associate Professor)* Community and Family Medicine, All India Institute of Medical Sciences, Raipur
7. **Dr. Ritu Goyal** *(Associate Professor)*
   Anaesthesia, Sarswathi Institute of Medical Sciences, Panchsheel Nagar
8. **Dr. Anand Kalaskar** *(Associate Professor)*
   Microbiology, Prathima Institute of Medical Sciences, AP
9. **Dr. Md. Amirul Hassan** *(Associate Professor)*
   Community Medicine, Government Medical College, Ambedkar Nagar, UP
10. **Dr. N. Girish** *(Associate Professor)* Microbiology, VIMS&RC, Bangalore
11. **Dr. BR Hungund** *(Associate Professor)* Pathology, JNMC, Belgaum.
12. **Dr Sartaj Ahmad,** PhD Medical Sociology, *Associate Professor,* Swami Vivekananda Subharti University Meerut UP India
13. **Dr Sumeeta Soni** *(Associate Professor)*
    Microbiology Department, B.J. Medical College, Ahmedabad, Gujarat,India

NATIONAL EDITORIAL ADVISORY BOARD

1. **Prof. Sushanta Kumar Mishra** (Community Medicine)
   GSL Medical College – Rajahmundry, Karnataka
2. **Prof. D.K. Srivastava** *(Medical Biochemistry)*
   Jamia Hamdard Medical College, New Delhi
3. **Prof. M Sriharibabu** *(General Medicine)* GSL Medical College, Rajahmundry, Andhra Pradesh
4. **Prof. Pankaj Datta** *(Principal & Prosthodentist)*
   Indraprastha Dental College, Ghaziabad

NATIONAL EDITORIAL ADVISORY BOARD

5. **Prof. Samarendra Mahapatro** *(Pediatrician)*
   Hi-Tech Medical College, Bhubaneswar, Orissa
6. **Dr. Abhiruchi Galhotra** *(Additional Professor)* Community and Family Medicine, All India Institute of Medical Sciences, Raipur
7. **Prof. Deepti Pruthvi** *(Pathologist)* SS Institute of Medical Sciences & Research Center, Davangere, Karnataka
8. **Prof. G S Meena** *(Director Professor)*
   Maulana Azad Medical College, New Delhi
9. **Prof. Pradeep Khanna** *(Community Medicine)*
   Post Graduate Institute of Medical Sciences, Rohtak, Haryana
10. **Dr. Sunil Mehra** *(Paediatrician & Executive Director)*
    MAMTA Health Institute of Mother & Child, New Delhi
11. **Dr Shailendra Handu,** *Associate Professor,* Phrma, DM (Pharma, PGI Chandigarh)
12. **Dr. A.C. Dhariwal:** *Directorate* of National Vector Borne Disease Control Programme, Dte. DGHS, Ministry of Health Services, Govt. of India, Delhi

Print-ISSN: 0976-0245-Electronic-ISSN: 0976-5506, Frequency: Quarterly (Four issues per volume)

Indian Journal of Public Health Research & Development is a double blind peer reviewed international journal. It deals with all aspects of Public Health including Community Medicine, Public Health, Epidemiology, Occupational Health, Environmental Hazards, Clinical Research, and Public Health Laws and covers all medical specialties concerned with research and development for the masses. The journal strongly encourages reports of research carried out within Indian continent and South East Asia.

The journal has been assigned International Standards Serial Number (ISSN) and is indexed with Index Copernicus (Poland). It is also brought to notice that the journal is being covered by many international databases. The journal is covered by EBSCO (USA), Embase, EMCare. The journal is now part of DST, CSIR, and UGC consortia.

Website : www.ijphrd.com

©All right reserved. The views and opinions expressed are of the authors and not of the Indian Journal of Public Health Research & Development. The journal does not guarantee directly or indirectly the quality or efcacy of any product or service featured in the advertisement in the journal, which are purely commercial.

Editor

Dr. R.K. Sharma
Institute of Medico-legal Publications
Logix Office Tower, Unit No. 1704, Logix City Centre Mall, Sector- 32, Noida - 201 301 (Uttar Pradesh)

Printed, published and owned by

Dr. R.K. Sharma
Institute of Medico-legal Publications
Logix Office Tower, Unit No. 1704, Logix City Centre Mall, Sector- 32, Noida - 201 301 (Uttar Pradesh)

Published at

Institute of Medico-legal Publications
Logix Office Tower, Unit No. 1704, Logix City Centre Mall, Sector- 32, Noida - 201 301 (Uttar Pradesh)

Digital Repository Universitas Jember

Indian Journal of Public Health Research & Development

www.ijphrd.com

Contents

Volume 11, Number 06 June 2020

1. The Cancer Principle-II: Cancer as the Origin of All Life on Earth 1
Asima Tripathy, Rajat Kumar Pradhan

2. The Cancer Principle-III: Evolution by Cancer 6
Asima Tripathy, Rajat Kumar Pradhan

3. The Cancer Principle-IV: The Inevitability and Invincibility of Cancer 12
Asima Tripathy, Rajat Kumar Pradhan

4. Review of Statistical Analysis and Effects of Meditation on Mental Health and Cognitive Skill Development 17
A.Kamaraj, J.Senthil Kumar, C.Kalyana Sundaram

5. The Cancer Principle-V: Cancer Prevention and Therapeutics 25
Asima Tripathy, Rajat Kumar Pradhan

6. Effect of Yoga Therapy on State and Trait Anxiety in Perimenopausal Women: A Non-Randomized Controlled Study 30
Abhishek Chaturvedi, Asha Kamath, Gayathry Nayak,, Anjali Rao

7. An Epidemiological Study of Prevalence of Skin Diseases among Secondary School Going Children in District Meerut 36
Abhishek Kumar Burman, Rahul Bansal, Saurabh Sharma, Arvind Krishna Sartaj Ahmad

8. Prevalence of Musculoskeletal Dysfunction in Clinical Physiotherapist 43
Aishwarya A. Vedpathak, Radhika Chintamani

9. Implications of Physical Therapy to Aid Weight Loss in Individual Suffering from Obesity: A Physical Therapist Perspective 48
Aksh Chahal, Narinder Kaur Multani, Harbir Kaur Rao, Rajinder Singh Gupta

10. Prioritising Patient's Safety in Hospital, Home and Outdoor Premises by Minimising Architectural Barriers: A Physical Therapist Perspective 53
Aksh Chahal, Narinder Kaur Multani, Harbir Kaur Rao

11. Bridging the Gap between Patient and Physical Therapist: Emphasis on Good Communication Skills in Assessment and Rehabilitation to Improve the Overall Quality of Life 58
Aksh Chahal, Harbir Kaur Rao, Narinder Kaur Multani

Digital Repository Universitas Jember

12. A Meta Analysis of Accuracy of Conventional and Digital Impressions of Implants 64
Anbarasu, Raghavendra Jayesh

13. An Analysis of Preparedness and The Impact of Floods in India 68
Ansuman Swain, Navya Vyas

14. Effect of Combined Glidal Mobilization in Adhesive Capsulitis of Shoulder 73
Apeksha Pawshe , Trupti Yadav

15. Effect of Non- Surgical Periodontal Therapy on Plasma Homocysteine Levels in Patients with Chronic Periodontitis- A Prospective Study 79
Apurva A. Pisal, Keshava Abbayya, Girish Suragimath,Siddhartha Varma, Sameer A, Vishwajeet T. Kale

16. Assessing Health Literacy among Health Science Students in a Coastal Town of Southern India – A Cross-Sectional Study 85
Arathi P Rao, Kumar Sumit, Soundharya M, Mariam Sophia, Shradha Kumari Sikaria, Karen Lobo, Yara Shireesha

17. Evaluation of Perception on Intra-Oral Scanning and Alginate Impression among Orthodontic Patients in Chennai 90
Arathi M, Arvind Sivakumar

18. Knowledge, Attitude and Practice of Dentists Towards Provision of Dental Care to Pregnant Women 95
Aroonika S. Bedre, Subash Sharma

19. HIV/AIDS – Related Knowledge and Attitudes Amongst Medical, Dental and Nursing Students of Saveetha University, Chennai 103
Aroonika S. Bedre, Gheena S

20. Stress, Obesity and Quality of Life in Adolescents 108
Arun Kumar, Chitwan Bhasin, Udai Prakash Verma

21. Smartphone Vs DSLR Dental Photography among Orthodontists 113
Arya S Prasad, Arvind Sivakumar

22. Critical overview of Adolescent Suicides in India; A Public Health Concern 118
Ashwin Mathew, Suja M.K, Dr. V. Priya

23. Awareness of Therapeutic Positions in Women During Pregnancy Related Lumbar and Pelvic Pain ..123
Ashwini Pawar, Chandrakant Patil

24. The Cancer Principle-I: Introducing Cancer as a Fundamental Principle of Nature 127
Asima Tripathy, Rajat Kumar Pradhan

25. Comparison of An ***App*** Based Low Density Lipoprotein Cholesterol (Ldl-C) Estimation with Direct Assay and Friedewald Formula in Indian Population 132
B. Pallavi, Krishnamurthy U

26. Association of ***Viharaja*** and ***Manasika Hetus*** (behavioural and Mental Factors) with A***mlapitta*** **(**Hyperacidity) amongst Police Professionals in Pune 140
Babar Smeeta Shivaji, Joshi Mrudula Vinayak Joshi Vinayak Nilkanth

Digital Repository Universitas Jember

27. Clinical Correlation, Isolation, Speciation, and Antibiotic Susceptibility Pattern of Tribe Proteeae from Various Clinical Samples 145
Bavitha C, Udayalaxmi J, Elizabeth G, Pooja Rao*

28. Effect of Garbhini Ahara-Vihara (Diet & Lifestyle in Pregnancy) On Garbhastha Sishu (Fetus) and Offspring 149
Bharadwaj Pooja, Kumar Pradeep, Srivastava Niraj, Saxena Varsha

29. Age determination using Nolla's Method- A Radiographic Study 154
Bharathi.S, Meenakshi.K

30. Assessment of Mass Drug Administration activities for Lymphatic Filariasis Elimination in Vizianagaram District of Andhra Pradesh 161
Bikash Chandra Nayak, Aurobindo Samantaray, Y. Bharani Krishna

31. Maternal Education and its Relation with Fertility and Mortality: A Case Study among the Deoris of Assam, with Special Reference to Lakhimpur District 168
Biren Saikia

32. A Study to Assess the Effectiveness of Critical Care Education on Knowledge of Students in Care of Patients with Mechanical Ventilator among Nursing Students in Srm College of Nursing, Kattankulathur, Tamil Nadu, India 175
C. Kanniammal, T. Suseelal, A. Akila Devi, K.Ambiga, A. Sheeba Jebakani

33. Food Habits and Physical Activity among Adolescent Medical Students of a Medical College in Tumkur, Karnataka, India 180
Chandana Krishna, Sagar MK, Krishna Iyengar, Viswanatha PG

34. Anaemia and Its Determinants among Adolescent Medical Students of a Health University in Tumkur, Karnataka, India 186
Chandana Krishna, Venkatesh P, Krishna Iyengar, Rajesh S

35. A Study to Find Out Relationship Between Q-Angle, Tibial Torsion and Leg-Heel Alignment amongst Osteoarthritis Knee Patients – A Cross Sectional Observational Study 192
Chandani Raiyani, Guddi Vaghasiya, Ashish Kakkad

36. Improved Audit-based malevolent Node Detection and Energy Efficiency for Healthcare Applications 198
Deepa, M. Manju, Sathyaraj

37. Medication Adherence of Hypertensive Patients: Impact of Clinical Pharmacist Intervention in Treatment of Hypertension in a Tertiary Care Hospital 205
D Sharma, DK Mehta, R Das, K Bhatti, K Mehta, RM Chidurala, A Petekar*

38. Breast Milk Components and Neurodevelopment of Children 213
Dangat Kamini, Khaire Amrita, Chavan-Gautam Preeti, Joshi Sadhana

Digital Repository Universitas Jember

39. To Assess the Incidence and Factors Predisposing to Surgical Site Infection (SSI) in Patients Who Have Undergone Caesarean Section in Tertiary Care Hospital of Udupi District, Karnataka- A Retrospective Study 219
Debalina Ghosh, Judith A Noronha, Laveena A Barboza

40. Comparison of the Action of Various Pulpotomy Agents on Pulpal Histology – A Monograph 223
Deepti Anna John, Jaiganesh Ramamurthy

41. Child Feeding Practices and Stunting: A Case-Control Study in Jember Regency of Indonesia 226
Devi Arine Kusumawardani, Nurul Ulya Luthfiyana

42. Validation of Association Between Breastfeeding Duration, Facial profile, Occlusion of Children in Chennai Population:-A Cross Sectional Study 232
Devika Warrier. E, Deepa Gurunathan, Ganesh Jeevanandan

43. Quality of life in Women with Adverse Pregnancy Outcome in Karad 238
Dimpal Anil Bajaj, G.Varadharajulu

44. Study of Morbidity Pattern and Its Associated Factors among Migrant Workers Residing in the Field Practise Area of a Tertiary Care Hospital in Mangalore: A Cross-Sectional Study 241
G. Rakesh Maiya, G. Shiny Chrism Queen Nesan, Sanjeev Badiger, K. G. Kiran, Timsi Jain

45. Prevalence of Heel Pain in Farmers 248
Gayatri Sunil Landge, Pragati Salunkhe

46. Psychosocial Health Status of Adolescent Girls in a Rural Area of Guntur District 252
Geethika Koneru, Samson Sanjeeva Rao Nallapu, Swapna B, T.S.R.Sai

47. Case Report on Medial Swivel Dislocation of Ankle 258
Gireesh Khodnapur, Dayanand B. B, Abhishek Shenoy, Siddhant Gandhi

48. The Impact and Perspicacity of National Eligibility cum Entrance Test among Dental Undergraduates in India 261
Guruprasath Selvakumar, N. DivyaLalitha, Prabu.D, Sunayana Manipal, Rajmohan

49. Minimization of Heart Rate Bias in the Estimation of Heart Rate Variability 268
Jitendra Kumar Jain, Ranjan Maheshwari

50. Is Violin String Players Having Longer Left Fingers? 276
Joyanta Sarkar, Anil Rai

51. A Study on the Effectiveness of Scapular Retraction Exercises on Forward Head Posture 281
K. Kirupa, S. M. Divya Mary, R. Nithyanisha, S. Navin Kumar

52. Association between Stress Scores with Demographic Variables in Mothers of Children Attending Normal School and Special School 287
K. Maheswari, G.Sasikala, P.Panneerselvam

53. Comparison of Parenting Stress and Quality of Life among Mothers and Fathers of Intellectual Disability Children in Erode, Tamilnadu 291
K. Maheswari, G.Sasikala, P.Panneerselvam

Digital Repository Universitas Jember

54. Effectiveness of Mindfulness Life Intervention on Depression among Elderly Persons in a Selected Old Age Home of Pune City 296
Chhaya Misal, Sheela Upendra,

55. Interrater and Intra-rater Reliability of the Ball Speed Radar Gun Application to Measure Balling Speed in Cricket Ballers 299
Chinmoyee Panigrahy, Ujwal Yeole, Sakina Shaikh, Mittal Baish

56. Effect of Yogic Practices with Sattvic Diet on Selected Bio Chemical Variable among Yogic Men Competitors....304
D. Chochalingam, P. Kaleeswaran

57. A Comparative Study on General Health of Adolescents....308
E. Manila Arouza Pai, R. Neelakandan, Ramaa Raju

58. An Epidemiological Study of Sputum Positive TB Patients & Burden of Tuberculosis amongst their Contacts in East District of Sikkim....311
Forhad Akhtar Zaman, Vijay Kumar Mehta, Shraddha Deokota

59. Assessment of Cardiovascular Risk and Knowledge on Risk Factors among a Rural Population in Mangalore, Karnataka....318
G Shiny Chrism Queen Nesan, Rashmi Kundapur, G Rakesh Maiya

60. Transplantation of Human Organs: An Indian Legal Analysis 403
Hiranmaya Nanda, Shyamantak Misra

61. Factors Related to the Wasting in Child Under-Five Years in the the Sungai Bilu Public Health Center Working Area 2019 406
Ika Nirmala Febriyanty, Roselina Panghiyangani , Lenie Marlinae , Husaini , Meitria Syahadatina Noor

62. Bifid Rib with Additional Oval Intercostal Space: A Rare Case of Anterior Chest Wall Deformity 412
Ishwar B. Bagoji, Gavishiddappa A. Hadimani, Ravi S. Bulagouda, Shardha Bai Rathod

63. Clinical Profile and Short-Term Outcomes of Neonates in Material Eclampsia 416
Jagjit Singh Dalal, Monika Dalal

64. Effectiveness of Mother as a Rehabilitative Aid (MARA) Program in the Recovery of Children with Cerebral Palsy-An Assessor blinded Randomized Controlled Trial 420
Jayashree K R, Kovela Rakesh Krishna, Ajay Thakur, Pamidigantam Raghava Priya*

65. Effectiveness of Drumstick Leaves Juice on Hemoglobin Level among Reproductive Age Group Women in A Selected Community Area, Bathinda, Punjab 426
Jayasree GS, Shridhar.K.V, Mandeep Kaur, Simranjit Kaur. Anita Rani

66. Morbidity, Physical Disability and Health Security of the Greying Population in India: Distributional Profile and Implications 430
K Gangadharan, Sajith Kumar S

Digital Repository Universitas Jember

67. Skill and capacity of women through social mobilization: Analysis of Urban Women Self Help Groups in Coimbatore City 436
Kanagaraj S, Priya V

68. Significance of Chemical Composition Analysis in Urolithiasis 442
Karanpreet Bhutani, Upinder Singh, Punam Rani

69. Assessment of Awareness and Practices in Management of Childhood Diarrhoea among Caregivers of Under Five Children in Urban Field Practice Area of KIMS, Hubballi 447
Kashavva B Andanigoudar, Laxmikant Lokare, Dattatreya D Bant,

70. Correlation of Liver Function Test with Different Age and Sex Group and with Ferritin Level in Thalassemia 453
Kumkum Sarkar, Netai Pramanik, R. P. Goswami, Prakas Kumar Mandal, Paban Chowdhury, Kingsuk Jana, Sonali Das

71. Construction of Human Development Index (HDI) for districts of Karnataka based on NFHS-IV data 459
Keerthan Rao Y, Ravishankar. N

72. Association of Anthropometric Measurements and Lumbar Lordosis with Flexor and Extensor Trunk Muscle Endurance Along with Gender Based Differences in Young Adults 464
Manoj Purohit , Shabnam Joshi, Rekha Chaturvedi , Sivachidambaram Kulandaivelan*

73. The Effectiveness of Autogenic Relaxation on Reducing the Level of Depression among Elderly People Residing in Old Age Homes....471
Mansi N. Patel, Deepak Krishnamurthy

74. Drug Utilization of Antibiotics in Medicine ward of Tertiary Care Teaching Hospital....477
Mayank, Saini, Sourav, Abhimanyu Prashar, Manish Kumar, A. Pandurangan, Vipin Saini, Amit Mitttal

75. Effect of Postnatal Exercises and Education on Lowback Pain in Early Postnatal Mothers....484
Meena Sekar, B. Sathyaprabha, N.Venkatesh, R.Siva Kumar

76. Time management skills among medical students....489
Meenal Kulkarni

77. To assess the Effectiveness of Planned Teaching on Knowledge Regarding the Risk of Metabolic Syndrome among General Population 495
Meera R. Pohane, Ruchira Ankar

78. Use of L-Arginine for inhaled Nitric Oxide (iNO) dependent hepatopulmonary syndrome (HPS) Post-Liver Transplant 500
Mohnish Kataria, Abhinav Rastogi, Sajaad Manzoor, Himanshu Tanwar, Sivaji Patibandla, Vishal V Singh

79. Prevalence of Extended Spectrum β- Lactamase Genes among the Oral Gram Negative Rods Isolated from HIV Infected Patients....505
Monica Singh, **Arindam Chakraborty**

Digital Repository Universitas Jember

80. Knowledge of students about rabies and its post exposure prophylaxis and health seeking behaviour in University of Western UP. 511
Monika Gupta Chhavi Kiran Gupta Sartaj Ahmad Bhawana Pant Kaynat Nasser Deepak Kumar

81. Awareness about Periodontal Diseases and Its Management among Medical Students- A Questionnaire Study 517
Mounika. S, Arvina Rajasekar

82. Outcome of Transscleral Cyclophotocoagulation in Refractory Glaucoma at a Tertiary Eye Hospital in India 521
Neetha I R Kuzhuppilly, Glaucoma Fellow, Shibi Dev, Shilpa N Patil, Aditya Deo

83. A Descriptive Study to Identify the High-Risk Factors of Pregnancy among Married Women in Selected Areas of Derabassidistrict Mohali Punjab 528
Neha Brari, Nikhil Raj, Imran Khan

84. Effect of Plyometric Training on Jumping Performance and Agility in Badminton Players 533
Neha Bhosale , Ujwal Yeole, Manasi Chavarkar

85. Effect of Physiotherapeutic Exercises on Fatigue and Quality of Life in Cancer Patients 539
Nilesh Maharudra Andhare, Ujwal Laxman Yeole,

86. A Study to Find Out the Effect of Upright Sitting and Forward Lean Sitting Position on Lung Functions in Stable COPD Patients A Comparative Study 544
Nitin Ishwarchandra Agrawal, Divya Khare

87. Awareness of Complications in Chronic Kidney Disease Patients 549
Nivedha Srinivasan, Arvina

88. Changes in Oral Mucosa during Pregnancy 555
Nivedha Srinivasan, Arvina Rajasekar

89. Effect of Radiotherapy on the Whole Mouth Salivary Flow Rate, Ph and Its Influence on Oral Hygiene Using Oral Hygiene Index 560
Nivedha Srinivasan, Arvina Rajasekar

90. Sentiment analysis on Healthcare Tweets 567
P.Kamakshi

91. A Cross Sectional Study on Prevalence of Anemia in Children Below 5 Years, Kuthambakkam Village, Tamil Nadu 570
D.Jayashri, B.Charumathi, Yamini, Timsi Jain, Ruma Dutta, Gomathy Parasuraman

92. Status of Health Literacy among Rural Women to Community Health Center of Sagar Region: A Survey 573
Gulab Devi, Shilpi Verma

93. Periods, Perceptions and Practice- A Study of Menstrual Awareness among Adolescent Girls in a Tribal District of Odisha, India 578
Pallavi Mishra

Digital Repository Universitas Jember

94. Myofascial Release Technique with Virtual Reality Biofeedback in Lateral Epicondylitis – A Case Report....587
Parth Trivedi, R.Arunachalam, Ruchir Patel, K. Vaittianadane

95. Awareness of Causes, Consequences and Preventive Measures of Thyroid Disorder among Women in Punjab....593
Pooja Kansra, Vedica Awasthi

96. Effect of Various Mesh Designs on Shear Bond Strength of New and Recycled Brackets –A Comparative, Invitro Study....600
Kopal Agarwal, Siddarth Shetty, Asavari Desai

97. Antioxidant and Cytotoxicity Profile of the Selected Alcoholic Beverages Widely Consumed in the Maharashtra State of India....608
*Rahul A. More, Govind B. Sanap, Mahesh A. Karale, Yuvraj P. Sarnikar, Rajesh N. Gacche**

98. Evaluation of Difference in Bacterial Contamination of Toothbrushes between Patients With Gingivitis And Patients with Healthy Gingiva-A Pilot Study....614
Madhumathi.D, Sri Sakthi

99. Prevalence of Cumulative Trauma Disorder of Wrist Joint in Auto Mechanical Workers....620
Mandar Kulkarni, Trupti Yadav

100. A Study to Assess the Knowledge on Cancer among Geriatric Patients at SRM General Hospital, Kattankulathur in Kancheepuram District, Tamil Nadu, India....625
Manju, T.Suseelal, C.Kanniammal

101. Analysis of Factors Causing Extraction of Endodontically Treated Teeth-A Retroprospective Study...629
Mohammed Ahad, Pradeep S

102. Assessment of Nuclear Changes between Hans and Arecanut Chewing Patient in a Subset of Population....634
Mohammed Ahad, Gheena S, Remmiya Mary Varghese,

103. Antibacterial Activity of ***Acacia Catechu*** Seed Against Urinary Tract Pathogens....639
Mohammed Ahad, Remmiya Mary Varghese

104. Effectiveness of Music Therapy and Visual Imagery Techniques on Preoperative Anxiety among Children Undergoing Surgeries in Selected Hospitals of Rajasthan- Pilot Study....645
Mohanasundari SK, Padmaja A, Kirtikumar Rathord, Sunil Kothari

105. CBCT use to Evaluate Vital Mandibular Inter-Foramin Anatomical Structures....651
Needhika Chibber, Satvinder Singh, Supinder Sudan, Megha Anand

106. Comparison of Foot Posture in Runners (Sprinters) and Non-Runners in Indian Population- An Observational Study....656
Nikhil Aggarwal, Nidhi Ved

107. Prevalence of Lumbar Spine Dysfunction in Sugar Industry Workers of Karad Taluka....662
Nikhil Jitendra Desale, Javid H. Sagar

Digital Repository Universitas Jember

108. System Level Barriers in Early Initiation of Breastfeeding-Finding from a Cross-sectional Survey in Khagaria District of State Bihar, India 666
Nishtha Kathuria, Priya Krishnan, Rajesh Kumar Sinha, Theophilus Lakiang, Javvad Suri, Sunil Mehra

109. A Study on the Impact of Food Advertising (Television) on the Food Preferences of Preschoolers in Kochi City 672
Noonu Mary Jose, Indu Manish Kumar

110. Luciferase Enzyme and its Application 678
Poojashree. B, Gheetha, G. Karthikeyan,

111. Dental Management of Medically Compromised Patients- A Questionnaire among Dental Practitioner 682
Poojashree.B, Nandhini Subramaniam

112. Biomarkers in Orthodontics: An Overview 688
Poonam Agrawal, Dhirja Goel

113. Effect of Kinesiotaping on Diastasis Recti in Post-Partum Women 693
Pournima A. Pawar, Ujwal L. Yeole, Manasi Navale, Komal Patil

114. Systematic Review in Dentistry: Awareness and Perception among the Faculty of Four Indian Dental Institutions 699
Pradnya Kakodkar, Revati Deshmukh, Shishir Singh Alka Kale, Priya Joshi

115. A Comparative Study to Assess Effect of Hypertonic Saline (3%Nacl) versus Salbutamol Nebulization Therapy on Breathing Pattern among the Children Suffering with Lower Respiratory Tract Infection Admitted to the Selected Hospitals of Central Gujarat 705
Prakruti Patel, Rameshwari Zala, Vipin Vageriya

116. A Study on Occupational Health Psychology of employees in IT sector in Ahmedabad City 709
Pranav Saraswat

117. Predicting the Premolar and Molar Widths Through the 'Phi' Factor – A Modification of Pont's Index 716
Prasanna Arvind T.R, Arvind Sivakumar

118. Pattern and Convergence in Access to Individual Household Latrine Facility in Indian States and the Impact of Swachh Bharat Intervention 724
Prasant Kumar Panda, Pavithra. S, Anjali Elsa Skariah

119. Awareness about Role of Physiotherapy Management During Labour among Obstetricians and Gynacologists 731
Pratik Goyekar, Ruchita Shah

120. Study of Awareness of Ergonomic Principles in Small Scale Industrial Workers 737
Pratik Patil, Radhika Chintamani

121. Effectiveness of ANATOMY QUIZ for Improvement of Academic Performance in First MBBS Students 741
Priya P. Roy, Swapna A Shedge, M.A.Doshi

Digital Repository Universitas Jember

122. Isolation and Identification of Pathogenic Bacteria from Soil Mixed with Hospital Wastes 746
Purna C. Mahapatra, Rabindra N. Padhy

123. Plastic Waste, Health & Climate Change: Issues & Challenges of Odisha 751
Purna C. Mahapatra, Basanta K. Sahu, Amit K. Mohanty

124. Various Disinfecting Methods of Orthodontic Pliers in Daily Clinical Practice: A comparative Study 758
Purva Verma, Arvind Sivkumar

125. A Cost-Effective and Innovative Screening Approach, for Idiopathic Scoliosis in Girls, Before their Skeletal Maturity 762
Mudasir Rashid Baba, Ravindra Mohan Shenoy, Ajith Soman

126. Household Health Care Expenditure and Utilization of Health Care Services: A Study in Dibrugarh District of Assam.....768
Nilutpal Neog, Pranjal Protim Buragohain

127. Investigation of Relation between Decision Making and Self-Actualization 776
P. Senthamizh Pavai, K. Geetha, Principal

128. Effect of Specific Skill and Drill Training Combined with Pranayama Practices on Physiological Variable among Women Hockey Players 782
R. Ramya, D. Rajalakshmi, K. Alaguraja, K. Selvakumar, K. Kaviyarasan

129. Influence of Cognition Training on the Motor Skills of Infants Born Preterm at One Year of Age.....786
R.Subbulakshmi, A.Rajarajeswari, R.Sivakumar

130. How Urbanization and Economic Growth affects the Health in East Asian Countries? Evidence from the VECM approach.....791
Ramanpreet KAUR, TushinderPreet KAUR

131. Comparative Effect of Trunk Balance Exercise over Conventional Back Care Exercise in Patients with Chronic Mechanical Low Back Pain 797
Ruchi Yogesh Khandhar, Sathya P, Jibi Paul

132. Behavioral treatment in autism spectrum disorder children by Repetitive motion control.....803
S. Arun kumar, N. Nithyavathy, K. Suganeswaran

133. Role of Tranexamic Acid in Oral Surgery.....807
S. Mounika, . Santhosh

134. Effect of Surya Kriya and Shambavi Mahamudra Programme on Selected Psychological Variable among College Men 812
S. Parthasarathy, S. Dhanaraj

135. Effect of Shambhavi Mahamudra and Pranayama Practice on Stress among Middle Aged Men 817
S. Parthasarathy, S. Dhanaraj, K. Alaguraja, K. Selvakumar

136. Knowledge, Attitude, Practice and Perspectives Regarding Tobacco Cessation Program among Students in Private Dental Institution at Chennai –A Cross Sectional Study 821
S. Shree Lakshmi, Pradeep Kumar Rathinavelu,I. Meignana Arumugham Indiran, D. Srisakthi Doraikannan, V. Keerthi Narayan

Digital Repository Universitas Jember

137. Role of Dental Public Health Personnel in Effective Diagnosis and Follow up in the Treatment and Prognosis of an Oral Cancer Patient 827
S. Shree Lakshm[i], D. Srisakthi Doraikannan, I. Meignana Arumugham Indiran, Arun Murugaiyan, V. Keerthi Narayan

138. A Mediation Analysis of the Effect of Perceived Stress on the Relationship between Self Efficacy and Quality of Life in Medical Students 833
S.GopalJee, Ashok Rai

139. Effect of Yogicpractice on Resting Pulse Rate among College Men Long Distance Runners 839
S.Jayasingh Albert Chandersekar, N.Ganapathy, P.Yokesh, R.Manoranjith

140. Nanoparticles in Wound Healing-A Review 842
S.Swarna Meenakshi, M.Sankari,

141. Evaluation of Etiopathogenesis, Clinical Profile and Lrinec Scoring in Necrotising Soft Tissue Infections 847
Sahil Mittal, Rishab Yadav, Kapil Sindhu, Parth Patel, Pragya Bhagwati, Shiva Patel

142. Prevalence of Knee Joint Dysfunction in Multiparous Pregnant Women 853
Sakshi Pradeep Shah, Pranjali Gosavi

143. Effectiveness of Planned Teaching Program On Knowledge Regarding Prevention of Neonatal Hypothermia Among Postnatal Mothers 859
Sarika Yadav, Sonia

144. Leeth Therapy (Jalaukavacharana) - A Novel Gift from Ayurveda for Treatment of Medico-Surgical Diseases 867
Saxena Varsha, Srivastava Niraj, Kumar Pradeep

145. Barriers to Uptake of Eyecare Services amongst Commercial Truck-Drivers in North India: A Cross-Sectional Survey 875
Shalinder Sabherwal, Anand Chinnakaran, Birendra Pratap Singh, Ishaana Sood, Shantanu DasGupta, Rakesh Kumar

146. Benefits of Cochlear Implants in Children with Hearing impairment Parental Perspectives from Tertiary Care Hospitals in Tamilnadu 882
Shankar S, Dawson Gladys Prathiba

147. Prevalence of Performance Related Pre- Competition Anxiety in Recreational Marathoners: An Observational Study 887
Sharvari. D. Wagh, Prasannajeet Pramod Nikam

148. Assessing the effect of "Ushnodaka Pana" (Warm Water Consumption) on the Overall well being of I.T Professionals in Pune - A Clinical Study 893
Sheetal D. Gadhe, Shital R. Rasane, Shital P. Pachpute, Pradnya Kakodkar

149. Does Maternity Care Expenditure is Catastrophic? A Cross-Sectional Study of Household`s Expenditure on Maternal Health Care Services in EAG States of India 898
Shekhar Saroj, Rajesh Kumar Shastri, Ravindra Tripathi

Digital Repository Universitas Jember

150. Evolving Patterns of Adjustment to Maintain the Functional Health of Elderly Living Alone in NCR 904
Shikha Kumari, **Alka Sharma**

151. Correlation between BMD Level and Preventive Osteoporotic Practice among Menopausal Women .909
Shiney Paul, Timi Thomas, Agy Sebastian

152. Rural Oral Health: Challenges and Pit Falls: Time to Recover And Rebuild the Pathway: A Review Article.....915
Shivanjali Grover, Meetika Pahuja, Sanchit Pradhan, Mohd. Akif, Kanchan Shukla

153. Marathi Translation, Cross-cultural Adaptation, Reliability and Validity of Motion Sickness Susceptibility Questionnaire- Short form 920
Rasika Panse, Tushar Palekar ,Ujwal Yeole Kartikee Patange,Saloni Gundecha

154. Effectiveness of Mobilization with Movement in weight bearing position on pain, shoulder range of motion and function in patients with shoulder dysfunction.....923
Reshma Subhash, Meena Makhija

155. Effect of Stability Trainer Exercises with Mirror Feedback on Balance and Level of Physical Activity in Community Dwelling Elderly 928
Rima Musale, Ujwal Yeole, Ankit Shinde, Venkatesh Mane

156. Effectivnesss of Physiotherapy Interventions on Stress Urinary Incontinence in Female Dancers 933
Rima Musale, Ujwal Yeole, Mansi Jain, Swarada Mahatre, Chinmoyee Panigrahy

157. A Study on Students Performance Based On Their Learning Approaches in Cadaveric Dissection 939
Sangeetha Arumugam, Nandha Kumar Subbiah

158. Stress of the Family Members of Alcoholics admitted in a De- Addiction Centre in Mangalore 944
Shreekanth S. K, Ramulamma K, Dhanya Yacob, Rosalynda. M. Khongwet, Clena Faria, Shiji P.J

159. Effect of Functional Task Exercises on Hand Function and Grip Strength in Patients with Lateral Epicondilyitis 949
Shreya Deshak, Ujwal Yeole, Saikrupa Moralwar

160. Information Booklet on Self-Care Management of Chemotherapy among Gynecological Cancer Survivors at Selected Hospital, Mangalore, Karnataka 955
Shynee Paul, Jacintha Veigas

161. Endovascular Treatment (Stenting) of Total IVC Obstruction with Collaterals in Young Adult with Crohn's Disease Maharishi Markandeshwar (Deemed to Be University).....959
Sivaji Patibandla, Abhinav Rastogi, Sajaad Manjoor, Vishal Singh, Himanshu Tanwar

162. Neuroendocrine Tumors of the Oral Cavity: A Summarized Overview.....963
Sona Baburathinam, Devi.M, Therraddi Muthu R.M, Chitra N

163. Does Oral Health Have an Impact on Self Perceptions, Parental Ratings and Photographic Assessments of a Child's Smile? 967
Suganya.P, Prabu. D, Sunayana Manipal, Rajmohan, Bharathwaj, Bharathwaj M.R.Prashanthy

Digital Repository Universitas Jember

164. Top Most Cited Articles Related to Dental Caries- A Bibliometric Analysis 974
Suganya.P, Prabu. D, Sunayana Manipal, Rajmohan, Bharathwaj M.R.Prashanthy

165. A Prospective Study of Intestinal Stomas 980
Sukhnein Singh , P. K. Bhatia , Kapil Sindhu , Ashutosh Bawa, Nischal Shivaprakash, Shabool Nafees, Jatin Bedi

166. Effect of Hand Rehabilitation on Hand Grip Strength and Manual Dexterity in Patients with Diabetic Hand Syndrome 986
Rasika Panse, Ujwal Yeole, Nikeeta Aher

167. Association of Severity of Autism Spectrum Disorders in Children with their Cardiac Autonomic Indices 990
Remya Bharath, Shailaja S. Moodithaya, Ashwini Kishan, . Shrinivasa Bhat U, Suchetha Kumari N, C. H. Krishna Bhat

168. Correlation Between Built and Work Ability among Small Scale Industrial Workers at Malkapur, Karad 997
Rutuja Bhosale, G.Varadharajulu

169. Attitude And Utilization of Services Under Rajiv Aarogyasri Scheme in Private Health Care Set-Up At Rajahmundry, Andhra Pradesh 1004
Saptarishi Bose, Sushant Kumar Mishra , Sipra Komal Jena

170. Analyzing the Positional uncertainties in 3dcrt ca breast Patients with Free Breathing and Active Breath Coordinator Gating Immobilization Devices 1010
Sarath s Nair, Meena Devi, Krishna Sharan, Jyothi nagesh, Shambhavi C, Sajeesh S Nair

171. Effectiveness of Health Intervention on Birth Preparedness on Knowledge and Outcome of Pregnancy among Primi Antenatal Mother in Selected Hospital of Pune 1015
Sofiya Khan, Seeta Devi, Ranjana Chavan, Shitalwaghmare

172. Study to Assess the Knowledge of People About Dengue Fever in Selected Rural Area of Mangalore 1019
Suchithra BS

173. A Propitous Genetic Impact on Neurodevelopmental Disorders - A Flagstone for Personalized Medicine 1023
Sujitha P.J, V. Gomathi

174. Impact of Cancer Related Fatigue on Health Related Quality of Life in Cancer Survivors 1030
Supriya S. Jadhav, T. Poovishnu Devi

175. 'Health Isn't Wealth'-An Indian Reality 1034
Swati Soni

176. Concurrent Strength Training with Yogasana Practices on Power Parameter of Women Hockey Players 1040
T. Priya, K. Muralirajan, K. Alaguraja, K. Selvakumar

177. Female Smoking: A Rising Concern in India 1044
Tania Mukherjee, Patralika Bhattacharjya, Sakhi Roy.

Digital Repository Universitas Jember

178. Ordinal Birth Order and Behavioural /Emotional Problems: A Study among Dyslexic Children in Kerala 1051
Thomas M.V, Vinod Kumar S

179. Awareness of Diabetes Mellitus and Glycemic control amongst patients with Type 2 Diabetes 1057
Ujwal L Yeole, Mariya P Jiandani, Hashmeet Kaur Bakshi, Shailaja Kale

180. Effect of Dynamic Postural Control Activities on Balance in Amateur Indian Taekwondo Players 1062
Ujwal Yeole, Rachna Shah

181. A Study on the Relationship between Emotional Intelligence and Perception of Home Environment among Adolescents with Respect to Nature of School Management and Gender 1068
Vandana Vijayan, K. Govind, Ramaa Raju

182. Comparative Analysis of Haematinic Effect of Dhatryarista with Standard Ferrous Sulphate in Tannic Acid Induced Iron Deficiency Anaemia in Albino Wistar Rats....1073
Srivastava V , Sarkar S, Pattanayak C, Mishra M, Jena J

183. Comparative Anti-oxidant Efficacy of Polar and Non-polar Fractions Obtained from Crude methanolic root extract of Calotropis gigantea (L.) W.T.Aiton 1080
Vikram Parthasarathy, Achuthan Raghava Menon, Basavaraj Devaranavadagi

184. Klippel-Trenaunay Syndrome: A Clinical Case Report....1085
Vikramjot Singh, Gauri Chauhan, A.K Bhardwaj, Gurdeep Singh Dhanja

185. Effect of Physical Therapy with Music Therapy on Gait, Balance and Quality of Life In Parkinson's Disease....1090
Virali Shah, Ujwal Yeole, Saurabhi S Purandare, Khushbu R Vishwakarma

186. Role of DLCO in differentiation or subtyping of obstructive lung disease beyond spirometry and CT scan. 1096
Vishvdeep Saini, Sameer Singhal, Sukhjinder Pal Singh, Achchhar Singh, Aditi Gupta

187. Development and Validation of a Gujarati Questionnaire for Evaluating Levels of Awareness, Acceptance, Socio-Economic Stress & Expectations from Physiotherapy Services in Parents of Children with Cerebral Palsy....1100
Vivek Harsukhbhai Ramanandi, Mukund Motibhai Prabhakar

188. Effectiveness of Flax Seed Pillow on Stress and Physical Parameters of Premature Infants....1106
Tessy Thomas, Sujatha R

189. Comparative Study of Low Pressure Pneumoperitoneum versus Standard Pressure Pneumoperitoneum in Laparoscopic Cholecystectomy....1112
Rashid Murtaza, Madhubala Gaur, Atul Shishodia

190. Prevalence and Risk Factors of Intimate Partner Violence among Indian Women: A Secondary Data Analysis of NFHS-4 1116
Tessy Thomas, Vasudeva Guddattu, Madhusudan M

Digital Repository Universitas Jember

191. Self Reported Experiences of Interns' Regarding Oral Cancer Detection: A Questionnaire Survey.....1122
Sahana Maben ,Audrey Madonna D'Cruz , Urvashi Ashwin Shetty

192. Perception on Healing Rate of Patients after Dental Extraction Regarding their Adherence to Post Operative Care 1126
Supraja.J, Surya Ramanan.K.R, Srivatsa Kenga Subbiah, Vishnu Priya.R, *Veronica.J, Vasu Priyan.R, Varsha.V*

193. A Cross Sectional Study to Assess the Impact of Knowledge, Attitude and Practice (KAP) of Parents on Immunization Coverage of their Children 1130
Juny Sebastian, Gurumurthy Parthasarathi, Mandyam Dhati Ravi

194. Estimation of Copper and Zinc Levels in Oral Cancer Patients 1136
Leya Mathews, Saveetha, Shyamala Chandrasekar

195. Prevalence of Black Stains in School Going Children in age Group 6-12 Years 1142
Leya Meriam Mathews, Dhanalakshmi Ravikumar

196. Complications of Root Canal Irrigation - A Review 1147
Leya Meriam Mathew, Jayalakshmi Somasundaram

197. Phytochemical and Antimicrobial Analysis of Portieria Hornemannii, A Marine Red Macro Algae 1152
Louis Cojandaraj, Gurdyal Singh, John Milton

198. Combination of Walking Practices and Yogic Practices on Low Density Lipoprotein (LDL) among Middle Aged Women 1159
James Rathinaraj. S. P. Yoga , K. Alaguraja, K. Selvakumar

199. Risk Factors Leading to Mental Illness among Patients: A Retrospective Study.....1163
Jiji Benny, Shivakumara J, Thereza Mathias

200. Targeted Local Drug Delivery – A Possible Approach in Dentistry 1169
Gummuluri Sriram, Kavalipurapu Venkata Teja, Kaligotla Apoorva Vasundhara

201. Association of Viharaja and Manasika Hetus (Behavioural and Mental Factors) with Amlapitta (Hyperacidity) amongst Police Professionals in Pune..... 1174
Babar Smeeta Shivaji, Joshi Mrudula Vinayak Joshi Vinayak Nilkanth

202. Factors Associated with Work Fatigue in the Fuel Truck Drivers at Oil Company Padalarang 1179
Aditiyana Eka Saputra, Budi Hartono, Dyan Nugrahaeni, Novie Mauliku

203. Health and Safety Risk Analysis in the Fertilizer Industry 1186
Ana Islamiyah Syamila

204. Maternal Behavior of Child Malocclusion Dental Treatment in Gayungan Health Center Surabaya..1191
Ananda Firman Putranto, Thalca Hamid, Gilang R. Sabdho Wening, Dinna Fitria Greisya, Amalia Wimarizky, Aisyah Marwah, Muhammad Faisal

Digital Repository Universitas Jember

205. Analysis of Platelet Counts and Platelet-Derived Growth Factor-Bb Levels in Platelet Rich Plasma Produced with Edta as Anticoagulant in Three Different Centrifugation Methods 1196
Andi Munawirah, Tenri Esa, Uleng bahrun

206. Relationship Factor Enabling Giving Complementary Foods for Breast Milk with Baby Nutrition Status in Makassar City 1202
Anto J. Hadi, Matius Rantesalu, Endang Maryanti, Erni Yetti R, Saskiyanto Manggabarani, Syamsopyan Ishak

207. Determinant of Premature Rupture of Membrane in Indonesia (Secondary Data Analysis of Idhs 2017) 1208
Chintya Elittasari, Sudijanto Kamso

208. The Influence Factors of The Performance of Midwives on the Neonatal Health Services in Balangan District 1214
Dahmila Febrianty, Husaini, Bahrul Ilmi, Roselina Panghiyangani, Lenie Marlinae

209. Identification of Risk Factors in Cervical Cancer 1219
Dewi Rosita Hendriana, Dwi Susanti, Budi Prasentyo, Punky Mulawardhana

210. Risk Factors of Hypoxemia in Children With Pneumonia 1226
Eko Wahyudi, Tutwuri Handayani, Retno Asih Setyoningrum

211. Frequently Seen Advertising to Negative Body Images Arising in Adolescents in East Java 1231
Faizatur Rohmi, Hardiyanto,Sekarini, Ronal Surya Aditya

212. Teachers Perspectives and Practices of Assessment in Health Education in Primary School 1235
Faiznur Maisya Annur Sani, Azali Rahmat, Gunathevan a/l Elumalai3 & Ali Md Nadzalan4

213. Correlations among Age, Parity, and Contraception Using with Pap smear Results in Medan Sumtera Sumatera 1239
Fatwa Imelda, Diah Lestari Nasution

214. Family Function and Quality of Life in Elderly in Palu City, Indonesia 1244
Fauzan, Muhammad Sabir,Try Setyawati, Ni Wayan Sridani, Ratna Devi, Rosmala Nur

215. Self Regulation Effect on Glycemic Control of Type 2 Diabetes Melitus Patients 1249
Hariyono Hariyono, Leo Yosdimyati Romli

216. Dynamic Transmission of Dengue Hemorraghic Fever and Climate Variability Patterns in Depok and Bogor 1255
Haryoto Kusnoputranto, Margareta Maria Sintorini,Suyud Warno Utomo, Epi Ria Kristina Sinaga Nurusysyarifah Aliyyah, Okky Assetya Pratiwi

217. Waste Management Program to Create Zero Waste in School Level: Communication, Information, and Education (CIE) and Participation Methods 1259
Haryoto Kusnoputranto, Nurina Vidya Ayuningtyas, Olivia Purnamasari, Muhamad Riski, Dhiya Farah Athaya Wijaya

Digital Repository Universitas Jember

218. Effects of Health Perception, Generativity, and Wisdom on Job Competency of Korean Care Workers 1265
Hee Kyung Kim, Cheol Hee Park , Nan Young Lee

219. Effects of Self-efficacy and Wisdom on Job Competence of Care Workers in Korea..... 1271
C, Nan Young Lee, Cheol Hee Park

220. Risk Factors of Chronic Energy Deficiency in Pregnant Women in The Working Area of Sungai Jingah Public Health Center Banjarmasin 2019..... 1276
Helwatin Najwa, Triawanti, Lenie Marlinae , Roselina Panghiyangani , Meitria Syahadatina Noor

221. A Study on the Prevalence of Diarrhoeal Disease among The effects of MBTI applied peer-to-peer relationship improvement training programs on self-esteem, depression, and anger of Korean female students at Nursing Vocational High Schools..... 1282
Hyun-OK Jung, Seung-Woo Han

222. Factors that Contributed Against the Incident of Unintended Pregnancy (UP) in Women Aged 15-49 Years (IDHS 2017 Data Analysis) 1287
Ika Permatasari , Ella Nurlaella Hadi

223. Health Risk of Particulate Matter on Primary School Students in West Jakarta..... 1293
Lailatul Qomariyah, Bambang Wispriyono, Haryoto Kusnoputranto, Abdur Rahman, Meliana Sari

224. Association between Muscle Mass with Frailty State in Elderly..... 1300
Jayadi, Marzuki Jamain, Wasis Udaya, Agus Sudarso, Haerani Rasyid, A. Makbul Aman, Arifin Seweng

225. Translucency of Cad/Cam Veneers Using Different Internal Relief Spaces and Luting Cement Shades..... 1307
Khaled Ibrahim Khaled Zaghloul, Cherif Adel Mohsen

226. Detection of BlaIMP and BlaOXA-23-LIKE Genes in Acinetobacter Baumannii Isolates at Dr. Wahidin Sudirohusodo Hospital..... 1314
Kartika Paramita, Tenri Esa, Benny Rusli

227. The Appearance of Hbeag Status in Patients with Chronic Hepatitis B Virus..... 1320
Kartika Wensdi Renantriandani, Ummi Maimunah, Priyo Budi Purwono, Retno Handajani

228. Social and Psychological Impact of Allergic Rhinitis among University Students i9n Malaysia..... 1327
Kavitha Ashok Kumar, Darshini Devi Sarun, Ashok Kumar Jeppu

229. Institutional Delivery Service Utilization and Its Association in Gambella Region, Ethiopia..... 1332
Menna Okok Ojulu, Montakarn Chuemchit

230. Effects of Self-efficacy, Health Perception, Social Support and Perceived Disability on Health Promoting Behavior of Nursing Students..... 1340
Mi Sun Lee, Hee Kyung Kim

231. Factors Related to The Obstetric Complications in The Working Area of Halong Public Health Center Balangan District 2017..... 1346
Mina Elfa, Triawanti, Syamsul Arifin, Roselina Panghiyangani, Lenie Marlinae

Digital Repository Universitas Jember

232. Cognitive Evaluation of Non-Verbal Intelligence among Adolescents in the Middle Atlas of Morocco 1352
Mounir Bouzaboul, Abdeslam Amri, Zakaria Abidli, Hassan Saidi, Nourredin Faiz, Rabea Ziri, Ahmed Omar Touhami Ahami

233. The Influence of Parents and Other Factors on Adolescents' Fish Consumption in Selected Senior High School Students, Jakarta 1359
Nabilah Shofa Fauziyah, Triyanti

234. Under Five Child Mortality & Its Risk Factors in Bangladesh and other South Asian Countries: A Literature Review 1365
Nahian Rahman, Md Ruhul Kabir, Oumma Halima, Rahanur Alam, Md. Abdullah Al Mamun, Homayra Islam

235. The Influence of Oral Cryotherapy on Prevention from Mucositis in Cancer Patients under Chemotherapy in RSUP H. Adam Malik, Medan 1371
Nataria Yanti Silaban, Siti Saidah Nasution, Cholina Trisa Siregar

236. The Correlation of Neck Circumference with the Metabolic Age of Obesity 1378
Ni Nyoman Sri Yuliani, Elsa Trinovita

237. Analysis of Calcium and Phsophate in Patiens with Heart Failure 1382
Nunung Meisari Indah Umar, Tenri Esa, Darmawaty ER

238. Survival Analysis of Ovarian Cancer Patients based on Age at The Dr. Wahidin Sudirohusodo Makassar Hospital in 2014-2018 1388
Nurul Fitriani, Bambang Sutrisna, Nugraha Utama Pelupessy

239. Survival Analysis of Ovarian Cancer Patients based on Age at The Dr. Wahidin Sudirohusodo Makassar Hospital in 2014-2018 1394
Nurul Fitriani, Bambang Sutrisna, Nugraha Utama Pelupessy

240. The Relationship between Selling Sex and HIV Status among Transgender in Indonesia (Analysis of Integreted Biological and Behavioral Survey Data 2015) 1400
Nurul Kholijah Aspia, Ratna Djuwita

241. Prevalence of Demographic Profiles and Loneliness among Elderly Women in Private Care Institution 1407
Nurunsaadah S., Lukman Z.M., Zulaikha M.Z., M.Y. Kamal

242. Prevalence and Risk Factors Associated with Bacterial Food Poisoning in College Students at the Primary Care Unit 1413
Pat Nonjui, Wilawan Aunruean, Arkhom Bunloet

243. Source of Information and Experience of Participation in Elderly Health Promotion Program Funded by National Health Security Local Fund in Northeastern Part of Thailand 1417
Piyathida Kuhirunyaratn, Bangonsri Jindawong

244. Identification of Norovirus Infection in Adults with Acute Gastroenteritis in Jambi, Indonesia 1422
Putri Sari Wulandari, Rury Mega Wahyuni, Mochamad Amin, Laura Navika Yamani, Takako Utsumi, Maria Inge Lusida, Juniastuti

Digital Repository Universitas Jember

245. Classification of Neonatal Mortality Risk Factors 1430
Raesita Aliefa Sekardira, Sulistiawati, Risa Etika

246. Elevated Corticosterone Level Due To Chronic Stress on Hb-Egf Expression as a Marker of Endometrial Receptivity Disorder in ***Rattus norvegicus*** ***1437***
Risya Secha Primindari, Ashon Sa'adi, Reny I'tishom

247. The Phenomenon of Premarital Sexual Behavior in Female Students of Migrant Workers 1443
Sri Susanti , Asmadi Alsa, Akif Khscientific Yah

248. Knowledge, Attitude, and Practice (KAP) regarding Personal Hygiene among Primary School going Children in Sadar Upazilla, Noakhali District, Bangladesh 1448
Susmita Ghosh, Md. Ruhul Kabir, Md. Mahmudul Islam Khan, Lincon Chandra Shill, Syeda Saima Alam

249. Relationship of Mothers' Parenting and Stunting in Toddlers Aged 12-36 Months in Bogor Regency, West Java Province, Indonesia in 2019 1454
Sakina Makatita, Ratna Djuwita

250. Association of Immature Platelet Fraction and Trombopoietin Levels Based on the Grades of Sepsis Severity 1461
Steven Tiro, Uleng Bahrun, Mansyur Arif

251. The Management of Oral Mucositis, Angular Cheilitis and Acute Pseudomembranous Candidiasis Induced by Radiotherapy and Chemotherapy Treatment of Nasopharyngeal Cancer Patient 1468
Supriatno, Fauzi Adityawan Pritama, Sartari Entin Yuletnawati

252. Correlation of Blashv And Blatem Genes In Extended-Spectrum Beta-Lactamase (Esbl) - Producing Acinetobacter Baumannii With Patient's Outcome at Dr. Wahidin Sudirohusodo Hospital, Makassar..... 1473
Tenri Esa, Nursin Abd Kadir, Rahmawati

253. Two-Dimensional Projection of Relaxing Radial Retinectomy in Retinal Detachment with Severe Proliferative Vitreoretinopathy (PVR) 1479
Waldensius Girsang; Dwi Cahyani Ratna Sari; Wahyu Srigutomo;

Tjahjono Darminto Gondhowiardjo ; Muhammad Bayu Sasongko

254. Identification of Acute Rotavirus Diarrhea and Analysis of its Risk Factors in Children Under-5 Years in Surabaya, Indonesia 1483
Yunita Ratri Adhiningsih, Alpha Fardah Athiyyah, Juniastuti

255. Analysis of Patient Safety and Occupational Health Safety in Surabaya Haji Hospital 1490
Rusmina

256. Correlation between Helicobacter Pylori Infection with Gastroesophageal Reflux Disease Degree..... 1494
Safriadi Musa, Fardah Akil, Nu'man As Daud, Syakib Bakri Haerani Rasyid, Faridin HP, Risna Halim

Digital Repository Universitas Jember

Health and Safety Risk Analysis in the Fertilizer Industry

Ana Islamiyah Syamila

Lecturer, Department of Public Health, University of Jember, Indonesia

Abstract

Background: There are high risks and potential hazards in the process of making Zwavelzuur Kalium (ZK) fertilizer. The risk varies according to the chemical used in the process. Identification of potential hazards and risks is required periodically to control the risks

Objectives: To identify the potential hazards and risks in the process of making ZK fertilizer and to control the risk

Methodology: This study is an observational study to observe the process of making ZK fertilizer and to conduct occupational health and safety risk management

Results: There are various hazards can occur in ZK production including chemical hazards such as hazardous, toxic, reactive, irritant, and corrosive as well as physical or mechanical hazards which include altitude, machinery, equipment, noise, and temperature

Conclusion: The highest risk assessment results on ZK production are in the reactor unit, which causes the risk of explosion. Risk control refers to the principle of the control hierarchy

***Keyword**: fertilizer, risk, potential hazard, safety, and health risk management*

Introduction

The production of ZK fertilizer is through several stages, which are quite long: raw material preparation, reaction process, cooling and neutralization, bagging, scrubber, or absorber.

ZK fertilizer produces with raw material is 98% liquid Sulfuric acid (H_2SO_4) and Potassium chloride (KCl) powders. The raw material is mixed in a reactor and heated in a furnace that operates at 500^0C. The reaction from mixing the two raw materials is $2KCl + H_2S0_4 \rightarrow K_2S0_4 + 2\ HCl$. So the product from the mixing of raw materials is K_2SO_4 or ZK fertilizer, and the by-product is liquid hydrochloric acid (HCl).

The Globally Harmonized System of Classification and Labeling of Chemical (GHS) and the Department of Transportation (DOT) classify sulfuric acid in transport pictograms as class 8 hazardous substances, corrosive. The definition of corrosive is where the chemical causes damage to the wound to the skin tissue with an exposure time of fewer than 4 hours, or the chemical can cause corrosion in equipment either steel or aluminum with an area of more than 6.25 mm per year at 55^0C.

The International Agency for Research on Cancer (IARC), the International Agency for Research on Cancer, has concluded that there is sufficient evidence that fog-containing sulfuric acid exposure is carcinogenic in humans[1].

Another raw material in making ZK fertilizer is Potassium chloride (KCl) in the form of white powder. These chemicals are classified as health hazards with code number 1 by NFPA 704, which means that KCl can irritate, even with minor injuries. In the process, KCl move through a bucket elevator and conveyor belt to the reactor mixing between raw materials.

ZK fertilizer that comes out of the furnace with a temperature of 300^0C will be cooled by jet ejector cooler to 50^0C by contacting ZK with water. ZK fertilizer is then transported by bucket elevator and entered in the sieving stage (screener) separate between oversize and on size products. Oversized products will be included in the crusher to be mash into products that are on size. K_2SO_4 or ZK fertilizer has the same danger as Potassium

Digital Repository Universitas Jember

chloride (KCl), which irritates.

ZK products which are on size will be neutralized to produce ZK, which is free acid with the supporting material, namely Sodium carbonate (Na_2CO_3). Na_2CO_3 has the same danger as KCl and K_2SO_4 that is irritating. NFPA 704 classifies it into health hazards with code number 2, prolonged and repeated exposure can cause residual injury.

Furthermore, the finished ZK fertilizer will store in a silo before being packaged in a bagging unit. Semi-automatic packaging equipment is used where workers simply place the bag under the scales and handle the bag during sewing. Surely there are dangers in the packaging area where workers can be exposed to ZK dust or expose to the worker's body parts.

The side product of the ZK Plant is Hydrochloric acid (HCl), which is liquid and colorless and has a pungent odor typical of hydrochloric acid. Chloride acid has the same classification as sulfuric acid, according to GHS, which include in Transport Information Class 8 (corrosive). NFPA 704 also classifies the same health hazard between hydrochloric acid and sulfuric acid, plus the special code for hydrochloric acid, corrosive.

HCl coming out of the furnace will be cool by graphite cooler, which will change the original temperature of 400^0C to 50^0C by contacting HCl with water before the HCl enters the scrubber. Scrubber sulfuric trace removal has the function of capturing a mixture of HCl gas and SO_3 exhaust gas from the reactor. After that, the HCl that enters the absorber will be absorbed again by the gas to get HCl liquid. Pumps are used to pump water into the scrubber, which will be used to absorb HCl vapor. HCl scrubber reabsorbs the HCl gas fume before releasing it into the atmosphere. The absorber reabsorbs HCl, which still escapes. HCl concentrations of 33-40% are collected in HCl containers before the product pump into a distribution vehicle.

The chemical properties of the raw materials and the products produced have each hazard characteristics that can threaten the safety and health of the workforce, so it needs to consider properly. Appropriate identification and control with the existing hazards will give good results too.

Risk management is a coordinated activity to direct and control an organization in managing risks[2]. OHS risk management is an effort to manage OHS risk to prevent unwanted accidents in a comprehensive, planned, and structured manner in a good system. OHS risk management is related to hazards and risks that exist in the workplace that can cause losses for companies[3].

According to AS/NZS 4360 Risk Management Standard, risk management is the culture, process, and structures direct towards the effective management of potential opportunities and adverse effects [4].

The first step in the risk management process is to identify workplace hazards or places that are likely to suffer damage[5].

Hazards identification is a process that can be done to recognize all situations or events that have the potential to cause workplace accidents and diseases that may arise in the workplace[6].

Risk is a possibility of an accident or loss at a certain period of time or a certain operating cycle while the level of risk is a multiplication between the frequency and frequency (consequence) of an event that can cause loss, accident, or injury and illness that may arise from exposure to a hazard in the workplace[7].

Risk assessment is part of the activities of the risk management process, which includes the entire process of analyzing risks in the form of activities using information that is available systematically to determine the level of frequency an event might occur and the impact or influence that will arise, while risk evaluation is a process that used to determine the priorities used by risk management by comparing the level of a risk with standards, targets or other criteria predetermined by management[8].

The steps for conducting a risk assessment are[6]: estimates of the frequency or frequency of accidents or occupational illnesses, estimate the severity of the accident, determining the level of risk using a risk matrix. After determining the level of risk, the risk priority scale must make for each potential hazard identified to prepare a risk control plan.

Risk control must be implemented to reduce risk to acceptable limits based on applicable rules, regulations, and standards. In introducing a risk control tool, one must consider whether the risk control tool is applicable and can provide benefits to each workplace

The hierarchy of risk control sequentially starts from elimination, substitution, engineering control,

Digital Repository Universitas Jember

administrative control, and personal protective equipment.

Material and Method

Data collection at the time of this research was carried out by two methods, namely primary data and secondary data. Primary data such are preliminary observations about the general condition of the company, observation regarding hazard identification, risk assessment and risk control in the production area, and interviews with relevant workforce such as employees in the safety department and safety officer in the production area

Secondary data collection is a general description of the company and data on Occupational Safety and Health. A literature study was also carried out to complete the standard implementation of the identification of potential risk hazards.

Findings

Health and Safety Risk Management start from the identification of potential hazards and risks, which are then assessed to determine the control plan that is appropriate to the level of risk that has been obtaining. The author divides the dangerous areas in making ZK fertilizer into six areas which are discussed in detail one by one as follows

Reactor Unit

Risks that occur from natural gas and diesel fuel are burning or exploding. The risk of explosion certainly has a greater impact than burning. Determining the scale of the measurement of the impact of the risk of explosion is 5 (catastrophic), that is, the impact is very significant or very large on labor or humans (death). But for the opportunity is determined by a scale of 1 (rare) because the possibility of occurrence is very slight or rare (0-1 times occur every year).

The risk level is high, which means that control must be carried out to the ALARP stage or as low as possible. Control that can do is to regularly check the vacuum of the burner chamber or hallway, check line leakage, and administratively perform safety permits correctly.

Determining the scale of the measurement of the impact of fire is 3 (moderate), the moderate impact on labor or humans (injury and unable to work). The probability of a fire occurring in this unit is impossible (2), which is the likelihood that it will be small or occasional The level of risk is the medium and efforts that make at Petrochemicals in addition to equipment maintenance efforts are the availability of fire hydrants, and fire extinguisher is also carried out to cope if a fire occurs.

The risk of inhalation of H_2SO_4 vapor occurs in workers who clean or repair H_2SO_4 tanks. The danger from these chemical vapors is corrosive to the respiratory tract, which is characterized by coughing and shortness of breath. Corrosive effects can also occur in the nasal passages with epistaxis or nosebleeds if workers expose for prolonged, repeated or high concentrations.

Workers can also be inhaled H_2SO_4 vapor when opening the storage tanks, and the worker does not use the mask correctly. Petrochemical has provided masks to every worker, which is a chemical cartridge that can clean gases or vapors by flowing air containing toxic gases or vapors through the cartridge.

Control efforts that can do are the availability of exhaust ventilation to keep the concentration of exposure below the threshold. The provision of eyewash and safety shower in the work area contained H_2SO_4. Other efforts are the use of masks that are correct and appropriate and training of employees for the first countermeasures if there is a risk in the area.

The risk of splashing or splashing of H_2SO_4 can occur in workers working in the area around the tank and leaking piping. This risk has a more immediate effect because it hits the limb directly and can cause burns. For this reason, the first control effort is to carry out routine maintenance of all equipment used to avoid leakage. If a spill occurs, the spill can neutral with a solution of soda or lime before being doused with water.

The process of transporting KCl using bucket elevators and conveyor belts has the risk that workers can be inhaled by KCl dust, exposed to the skin, and exposed to the eye. The control effort that can do is to make engineering efforts by closing the belt conveyor area and providing local exhaust ventilation to keep KCl dust exposure below the threshold. The area must also equip with an eyewash or safety shower. Besides that, another effort is the use of dust counter correctly and correctly. Other risks related to safety are also present in this process including being sandwiched into a conveyor belt. Control efforts that can do are the installation of safety on the tool.

Digital Repository Universitas Jember

The next process is the reaction between raw materials in the reactor that has the risk of heat, burning, or explosion. Controlling efforts that can do is to check the burner chamber or hall routinely, pre-start a safety review must be carried out, and check the feed ingredients to avoid the inclusion of flammable materials into the reactor. Also, fire protection systems, such as fire hydrants and fire extinguishers, must provide. Related to drinking water also must be considered for workers in the furnace area to avoid destruction and heat stroke.

Ejector Refrigerator

The risk that can occur in this unit is the temperature of heat produced by K_2SO_4 coming out of the furnace with a temperature of 500^0C. Transporting that must do is routine maintenance of ships or pipelines that transport K_2SO_4 before entering the refrigeration unit. The risk of noise can also occur due to engine noise. Repairing with a personal protection device such as earmuffs must be done besides caring for the engine to reduce approval. Petrochemical has implemented this regulation in which every area with more than 25 dB approval is given a safety sign for mandatory use of earmuffs, and every worker equips with the PPE.

Screening and Crusher

At this stage, the most visible risk is the presence of ZK dust due to machines that are not completely closed. Potassium sulfate has the same dangerous properties as potassium chloride, which causes minor irritation. The control is including the availability of exhaust ventilation in the area to keep the air concentration below the threshold value. So, workers must give dust masks, and their use must be appropriate and correct.

Neutralizer

At this stage, there is a process that produces a supporting material, namely sodium carbonate or potassium carbonate, to produce acid-free ZK products. The addition of this product also has advantages caused by dust due to its powder form. The dust of these two chemicals contains properties with potassium chloride or potassium chloride, which cause health effects in the form of minor irritations. Although the impact caused is quite small, of course, repairs must be made to protect workers from dust.

Silo and Bagging Units

ZK fertilizer that has become a finished product is then stored in a silo or temporary tank before the packaging process is carried out. The danger in this area is due to using opened tanks or ZK products coming out of the tank for the packaging process. The packaging process uses a semi-automatic packaging unit that still uses workers to install the machine sewing process. The main danger that arises is that workers can be sewn at any time if the worker is too slow or not concentrating on the work. The control that can do is shift work and rest 10 minutes every 1 hour to work for freelancers

Graphite Cooler, Scrubbing System and HCl Tank

Hydrochloric acid has special properties with sulfuric acid, which functions as a corrosive, so controlling what to do is the same as controlling sulfuric acid chemicals. Workers can be inhaled HCL vapor, which will release into the air in a scrubbing system. Workers can also get the splash or splash hydrochloric acid during the process of loading and unloading into the transport truck. Work at heights that are at risk Workers above if they do not use appropriate protective equipment that is utilizing the entire body.

Providing education related to the hazards that exist in each production process is needed so that workers know the dangers and that there are. If the worker understands, there will be more vigilance from the worker. Training against the use of personal protective equipment must also carry out so workers can use it properly and appropriately.

Conclusion

Based on the identification of hazards that have been carried out, then a risk analysis is carried out using the risk matrix. Petrochemical refers to the Australian Standards / New Zealand Standards 4360 qualitative risk analysis techniques. The risk assessment determines by determining the risk impact criteria and risk opportunities on a scale of 1-5. The highest risk assessment results on ZK production are in the reactor unit, which causes the risk of explosion.

Risk control refers to the principle of the control hierarchy, starting from elimination, substitution, engineering, administration, and personal protective equipment.

Conflict of Interest: None

Source of Funding: None

Digital Repository Universitas Jember

Ethical Clearance: Not required, as the research article is based on health and safety of fertilizer production and not an experiment or human research.

Reference

1. OSHA. Chemical sampling information sulfuric acid. United State Department of Labor. Internet. 2018. Available from: https://www.osha.gov/chemicaldata/chemResult.html?RecNo=624
2. International Standard. ISO 31000: Risk management-principles and guidelines. Geneva: ISO. 2009
3. Ramli, S. Pedoman praktis manajemen resiko dalam prespektif k3 ohs risk management. Jakarta: Dian Rakyat Publisher. 2010: 32-38
4. AS/NZS 4360 Australian standards and New Zealand standards. Risk management guidelines. Sidney: NSW. 2004: 52-55
5. Suardi. Sistem manajemen keselamatan dan kesehatan kerja Jakarta: PPM publisher. 2005
6. Tarwaka. Keselamatan dan kesehatan kerja: manajemen dan implementasi k3 di tempat kerja. Surakarta: Harapan Press. 2014
7. ABS. Risk assessment applications for the marine and offshore oil and gas industries. New York American Bureau of Shipping. 2005: 2; 13-17
8. Ramli, S, 2010. Sistem manajemen keselamatan dan kesehatan kerja OHSAS 18001. Jakarta: Dian Rakyat Publisher. 2010: 27-37.

Digital Repository Universitas Jember

Maternal Behavior of Child Malocclusion Dental Treatment in Gayungan Health Center Surabaya

Ananda Firman Putranto, Thalca Hamid[2], Gilang R. Sabdho Wening[3], Dinna Fitria Greisya[4], Amalia Wimarizky[4], Aisyah Marwah[4], Muhammad Faisal[5]

[1]Lecturer, [2]Professor, Department of Orthodontic, Faculty of Dental Medicine Universitas Airlangga Surabaya-Indonesia, [3]Lecturer, [4]Post Graduate Dental Student, [5]Dental Student, Departement of Public Health, Faculty of Dental Medicine Universitas Airlangga, Surabaya-Indonesia

Abstract

Context: based on Gayungan Health Center Surabaya's patient visit data obtained from April-June 2018 primary teeth persistence is the most common dental case, with percentage 42.6% in April, 20.8% in May and 48.6% in June. The most common cause of primary teeth persistence is the absence of successor permanent teeth. It has connection with the physiological process of primary tooth shed and change to permanent teeth, which occurs to the school-age children, and requires more attention from parents to take care of their children's dental health.

Aims: To determine the effect of maternal behavior and sociodemographic factors on child malocclusion dental treatment in area of Gayungan Health Center Surabaya.

Methods and Material: This research is an analytic-observational study. Using instruments in the form of questionnaire that developed from the Theory of Planned Behavior. Results: poor maternal knowledge of dental health may results to not to bring the child to get malocclusion treatment.

Results: poor maternal knowledge of dental health may results to not to bring the child to get malocclusion treatment

Conclusions: perceived control of orthodontic treatment history (perceived control that characterized by history of orthodontic treatment?), maternal's level of knowledge, usage of health insurance, and maternal's perceptions of the child's dental condition have the opportunity to influence the maternal behavior to make dental visit to get malocclusion treatment.

Key-words: *maternal behavior, child malocclusion, Gayungan Health Center, Theory of Planned Behavior*

Introduction

The results of the 2013 Basic Health Research (RISKESDAS), the percentage of people who have dental and mouth problems according to Riskesdas in 2007 and 2013 increased from 23.2% to 25.9%. This can be caused by several factors, one of which is the lack of public knowledge and awareness of the importance of maintaining oral and dental hygiene.[1]

Based on data from the Gayungan Surabaya Health Center, monthly patient visits were obtained from April to June 2018. From these data it can be seen that persistence is the most frequently encountered case at the Puskesmas, with a percentage of 42.6% in April, 30 , 8% in May and 48.6% in June. Based on preliminary survey data conducted on 151 children at SDN Gayungan 1 Surabaya, the highest percentage of persistence was found to be 37%. The second most common problem encountered is caries which is 69.58%. The last problem most frequently encountered was pulp disease and periapical tissue by 28.22%.

Corresponding Author:
Ananda Firman Putranto
Jl Prof Dr Moestopo No 47 Surabaya
E-mail: anandafirman2019@gmail.com

Digital Repository Universitas Jember

Persistence of deciduous teeth is a condition where deciduous teeth are not has the ability to exfoliate when it's time to exfoliate, but the permanent teeth that will replace the deciduous teeth have erupted[1]. In some cases persistence can cause clinical problems such as periodontitis, deep caries, ankylosis and even malocclusion.[1]

In connection with the physiological process of turning primary teeth into permanent teeth that takes place during school-age children, it requires more attention from parents in the dental and oral health care of their children. Until now, the knowledge that parents have about oral health is still relatively low. Parents do not apply the maintenance of children's dental and oral health properly, a reason that is often cited is because of the lack of access to information about dental and oral health maintenance, parents' busy work, high costs and so forth. Even though the behavior of parents who maintain good dental and oral health of children can affect the growth and development of permanent teeth and children's quality of life.[3]

One model used to predict behavior, including malocclusion treatment behavior is Theory of Planned Behavior , theories of attitude that is widely used in behavior. The Planned Behavior Theory is a prediction of good behavior because it is balanced by the intention to carry out the behavior[4]. In Planned Behavior Theory, the behavior displayed by individuals arises because of the intention to behave. The emergence of intention to behave is determined by three determinants, namely: (1) attitude towards behavior; (2) subjective norms; and (3) perceived perception control.[5]

Based on the survey results and background above, the author's interest arises to examine the influence of maternal sociodemographic and behavioral factors on the behavior of child malocclusion treatment to dentists in the Gayungan Public Health Center in Surabaya. Hypothesis of this research is there are influences on maternal sociodemographic and behavioral factors on the behavior of child malocclusion treatment to dentists in the Gayungan Health Center

Subjects and Methods

This research is an analytic-observational study with a cross sectional study design. The population in this study was the mother of Gayungan I Elementary School students in the Gayungan region, Surabaya city as many as 151 people. Sampling using simple random sampling method. Research subjects were asked questions by questionnaire method to find out the factors that influence the behavior of mothers bringing children to dental and oral health services in the Keputih area, Surabaya City. The questionnaire was developed based on the Theory of Planned Behavior which contains questions that contain closed ended questions. As supporting data, a check on the prevalence of malocclusion in children. Then the data obtained is processed data and results.

Findings

The research data were obtained from epidemiological studies on 18 and 20 August 2018 at SDN Gayungan 1 Surabaya. Data was collected by dental examination and questionnaires for students in grades 1-4 with an age range of 7-12 years at SDN Gayungan 1 Surabaya. The sample of this study was 151 students selected by simple random sampling.

Based on data, there is information that there is no tendency for a relationship between risk factors in academic level with orthodontic visit experience. This is indicated by the p value of p = 0.078. In the table illustrated from the results of the highest orthodontic visit experience in the risk factor group with higher education and the lowest is the risk factor group with primary education

Based on data, there is information that there is no tendency for a relationship between risk factors in job status with orthodontic visit experience. This is indicated by the p value of p = 0.091. In the table illustrated, both of risk factor has the same percentage of orthodontic visit experience.

Based on data, there is information that there is tendency for a relationship between risk factors in daily working hour with orthodontic visit experience. This is indicated by the p value of p = 0.007. In the table illustrated from the results of the highest orthodontic visit experience in the risk factor group with scheduled working hour and the lowest is the risk factor group with unscheduled working hour.

Based on data, there is information that there is tendency for a relationship between risk factors in shift working hour with orthodontic visit experience. This is indicated by the p value of p = 0.003. In the table illustrated from the results of the highest orthodontic visit experience in the risk factor group with morning

Digital Repository Universitas Jember

shift working hour and the lowest is the risk factor group with afternoon shift working hour.

Based on data, there is information that there is tendency for a relationship between risk factors in salaries with orthodontic visit experience. This is indicated by the p value of p = 0.005. In the table illustrated from the results of the highest orthodontic visit experience in the risk factor group with well paid salaries and the lowest is the risk factor group with under paid salaries.

Based on data, there is information that there is no tendency for a relationship between risk factors in residential with orthodontic visit experience. This is indicated by the p value of p = 0.076. In the table illustrated from the results of the highest orthodontic visit experience in the risk factor group in sub-urban residential and the lowest is the risk factor group in urban residential.

Based on data, there is information that there is no tendency for a relationship between risk factors in insurance with orthodontic visit experience. This is indicated by the p value of p = 0.098. In the table illustrated from the results of the highest orthodontic visit experience in the risk factor group with covered by insurance and the lowest is the risk factor group with uncovered by insurance.

Based on data, there is information that there is tendency for a relationship between risk factors in mother orthodontic treatment experience with orthodontic visit experience. This is indicated by the p value of p = 0.000. In the table illustrated from the results of the highest orthodontic visit experience in the risk factor group with mother with orthodontic treatment experience and the lowest is the risk factor group with mother wih no orthodontic treatment experience.

Based on data, there is information that there is tendency for a relationship between risk factors in family orthodontic treatment experience with orthodontic visit experience. This is indicated by the p value of p = 0.001. In the table illustrated from the results of the highest orthodontic visit experience in the risk factor group with family with orthodontic treatment experience and the lowest is the risk factor group with family with no orthodontic treatment experience.

Based on data, there is information that there is tendency for a relationship between risk factors in children orthodontic treatment experience with orthodontic visit experience. This is indicated by the p value of p = 0.000. In the table illustrated from the results of the highest orthodontic visit experience in the risk factor group with children with no orthodontic treatment experience and the lowest is the risk factor group with children with orthodontic treatment experience.

Based on data, there is information that there is tendency for a relationship between risk factors in dental alignment with orthodontic visit experience. This is indicated by the p value of p = 0.002. In the table illustrated from the results of the highest orthodontic visit experience in the risk factor group with bad dental alignment and the lowest is the risk factor group with good dental alignment.

Based on data, there is information that there is no tendency for a relationship between risk factors in total children in family with orthodontic visit experience. This is indicated by the p value of p = 0.076. In the table illustrated from the results of the highest orthodontic visit experience in the risk factor group with total children in family is 1 and the lowest is the risk factor group with total children in family more than 1.

Based on data, there is information that there is tendency for a relationship between risk factors in orthodontic treatment need basic knowledge with orthodontic visit experience. This is indicated by the p value of p = 0.004. In the table illustrated from the results of the highest orthodontic visit experience in the risk factor group with family with good orthodontic treatment need basic knowledge and the lowest is the risk factor group with bad orthodontic treatment need basic knowledge.

Discussion

The Planned Behavior Theory is a prediction of good behavior because it is balanced by the intention to carry out the behavior. In this theory, a behavior is influenced by several variables, namely attitudes that are influenced by the strength of beliefs about the behavior, subjective norms that are influenced by social pressures that motivate individuals to behave, and perceptual controls that take into account ease and difficulty factors in carrying out the behaviour [10]. In this research, it is known that actions are not influenced by intention but are directly influenced by perception control. Based on Theory of Reasoned Action (TRA) that connects beliefs, attitudes, intentions and behavior. Intention is the best predictor of behavior, meaning that if you want to know

Digital Repository Universitas Jember

what someone will do, the best way is to know that person's intentions. However, one can make judgments based on completely different reasons (not always based on intention).[2]

An important concept in this theory is the focus of attention (salience), which is to consider something that is considered important, namely control of perception. More simply, this theory says that a person will take an action if he views the action positively and if he believes that he can do the action. Knowledge has a direct influence on perceptual control and on behavior. The characteristics that have an influence on perception are the condition of the child's teeth, insurance, history of child stirrup, history of maternal stirrup and family stirrup history.

In this epidemiological study begins with a preliminary study to determine the severity of malocclusion in Gayungan I Public Elementary School Surabaya in the Gayungan Surabaya Public Health Center area by using the Angle classification. The number of research subjects was 151 students from classes I to IV at SDN Gayungan I Surabaya. The severity of malocclusion can be influenced by many things such as parental income, ability to buy services and participation in health insurance.

Based on the results of research and data analysis found that mothers who have insurance and do not have insurance do not visit the dentist. This is because orthodontic treatment is not included in the BPJS dependents and therefore mothers have or do not have insurance must continue to pay orthodontic treatment costs so that there is no difference with mothers who don't have insurance. History is an event that someone has experienced in interacting with their environment. An unfavorable history is soon forgotten, if it is pleasant it will become an imprint in mental emotions and eventually form a positive attitude in his life[9]. Based on the results of research and data analysis, it was found that mothers who had no history of orthodontic treatment did not visit the dentist to treat their malocclusion teeth. That is because there is no encouragement from the nearest party, namely the family to take care because of the low level of knowledge about the dentist.

Based on the results of research and data analysis, it was found that mothers who had children with poor dental conditions as much as 58.3% did not come to the dentist, while mothers who had children with good dental conditions as many as 100% did not visit the dentist. This is caused by the perception of parents who assess the child's dental condition is good, and does not require a visit to the dentist. Based on the results of research and analysis obtained results that mothers with poor knowledge of 73.3% did not visit the dentist while mothers with good knowledge of 53.8% did not visit the dentist. If parents have good knowledge, it will be directly proportional to their behavior. Parents who have high knowledge will show positive behavior in performing dental care, including treatment of malocclusion. A theory revealed that before having a behavior, a person must pass through the stages of awareness, interest, evaluation, trial and adoption[10]. Malocclusion care behavior of children by mothers to dentists based on theory of planned behavior is associated with attitudes, subjective norms, perception control perceptions, intentions and actions of mothers towards pediatric malocclusion treatment to dentists. Attitudes, subjective norms, perception control perception, positive intention will produce positive behavior.

Conclusion

From this study it can be concluded that the perception of perception control with the characteristics of the mother's orthodontic treatment history, the level of maternal knowledge, the use of health insurance, and the mother's perception of the condition of the child's teeth have a chance of influencing the behavior of the mother's visit to perform treatment of children's malocclusion in the dentist.

Ethical Clearance taken from Ethical Committee Faculty of Dental Medicine Airlangg University

Source(s) of Fundings: Faculty of Dental Medicine, Airlangga University

Conflicting Interest (If present, give more details): The authors declare that there is no conflict of interest

References

1. Bamanikar S. Knowledge, Attitude and Practice of Oral and Dental Healthcare in Pregnant Women. Oman Med J. 2013;28(4): 288-91
2. Hasibuan S. Perawatan dan Pemeliharaan Kesehatan Gigi dan Mulut pada Masa Kehamilan. 2004. USU Digital Library. 1-6
3. Agueda A, Echevarria A, Manau C. Association between periodontitis in pregnancy and preterm

Digital Repository Universitas Jember

or low birth weight: Review of the literature. Med Oral Patol Oral Cir Bucal 2008;13(9):609-15

4. Krejci CB, Bissada NF. Women's health: Periodontitis and its relation to hormonal changes, adverse pregnancy outcomes and osteoporosis. Oral Health Prev Dent 2012;10(1):83-92.
5. Annan B, Nuamah K. Oral pathologies seen in pregnant and non-pregnant women. Ghana Med J 2005;39(1):24-7.
6. Page RC, Kornman KS. The pathogenesis of human periodontitis: An introduction. Periodontol 2000 1997;14:9-11.5.
7. American Academy of Periodontology. The Pathogenesis of Periodontal Diseases, Chicago: The American Academy of Periodontology; 1999.
8. Rai B, Kharb S, Anand SC. Is periodontal disease a risk factor for onset of preclampsia and fetal outcome? Adv Med Dent Sci 2008;2:16-9.
9. American Academy of Periodontology, Committee on Research, Science and Therapy. Periodontal Disease as a Potential Risk Factor for Systemic Diseases, Chicago: The American Academy of Periodontology; 1998.
10. D'Onofrio, C.N. (1992) Theory and Empowerment of Health Education Practitioners. Health Education Quarterly 19:385-403.

Digital Repository Universitas Jember

Analysis of Platelet Counts and Platelet-Derived Growth Factor-Bb Levels in Platelet Rich Plasma Produced with Edta as Anticoagulant in Three Different Centrifugation Methods

Andi Munawirah[1], Tenri Esa[2,3], Uleng bahrun[1,2,4]

[1]Clinical Pathology laboratory, Hasanuddin University Hospital, Makassar, Indonesia, [2]Department of Clinical Pathology, Faculty of Medicine, Hasanuddin University, Makassar, Indonesia, [3]Clinical Pathology laboratory, Siloam Hospital, Makassar, Indonesia, [4]Clinical Pathology laboratory, Wahidin Sudirohusodo Hospital, Makassar, Indonesia

Abstract

Background: *Platelet rich plasma* (PRP) is an autologous product made of whole blood through centrifugation process producing high platelet concentrate in a small volume of plasma. This high platelet concentrate can lead to high growth factor levels that play important roles in the nature of thrombosis, hemostasis and wound healing. PRP has been widely used in clinical setting, however standardized procedure of PRP production has been lacking, mainly the procedure related to duration and speed of centrifugation, and also anticoagulant used.

Aim: To analyze the difference between platelet counts and PDGF-BB levels in PRP produced from various preparation methods (centrifugation speed and duration), using *Ethylenediaminetetraacetic Acid* /EDTA as anticoagulant.

Method: This study used experimental laboratory design, involving 34 healthy volunteers that met inclusion criteria. These subjects were divided into three groups with different centrifugation methods that adopted from previous study.

Results: The platelet counts was found in group 1, 2, and 3 with an increase of, 2,69, 3,69, and 2,53 times from the initial platelet counts respectively and there was significant difference between platelet counts before and after treatment on three groups that used EDTA (p=0,000, p=0,003, and p=0,002 for group 1, 2 and 3 respectively). PDGF-BB levels in this group was also higher than the remaining groups.

Conclusion: The highest platelet counts and PDGF-BB levels was found in PRP with EDTA produced from first spin at 2800 RPM in five minutes, and second spin at 3800 RPM in seven minutes. This study suggests further research on qualitative assessments of platelets and PDGF-BB resulted from various preparation methods (centrifugation and anticoagulant usage).

Keywords: *Platelet, Platelet Derived Growth Factor-BB, Platelet Rich Plasma, centrifugation, Ethylenediaminetetraacetic Acid*

Introduction

Platelets are megakaryocyte cytoplasmic fragments that are formed in the bone marrow and have a diameter of about 1-4 µm. Platelets play an important role in the process of hemostasis and thrombosis.[1] Another function of platelets is to help the wound healing process. Growth factors on platelets can affect chemotaxis, differentiation, proliferation, and synthetic activity of cells, which regulate physiological remodeling and healing. The more growth factors that can reach the wound site, the greater the potential for improving the healing process.[2]

Corresponding author:
Andi Munawirah,
Phone : +6285242133939,
E-mail: munawirah.andi@yahoo.com

Digital Repository Universitas Jember

Platelet rich plasma (PRP) is an autologous product that is produced from whole blood through a process of centrifugation to produce high platelet concentrations in low plasma volumes. The number of growth factors contained in PRP can accelerate endothelial, epithelial and epidermal regeneration, stimulates angiogenesis, stimulates collagen synthesis, accelerates soft tissue healing, decreases scar tissue in the skin, accelerates the response of homeostasis to injury, thereby stimulating wound healing.[3]

Until now the process of making PRP has not been standardized. A systematic review by Chahla, Cinque, and Piuzzi[4] involving published research in 2006-2016 found that the existing PRP preparation protocols and PRP compositions used in clinical trials were inconsistent and were not standardized so that they produced different effects. Araki et al.[5] also mentioned that the non-standardization of PRP-making protocols for clinical trials makes the efficacy of PRP still debatable. Therefore, standardization of the PRP manufacturing process is needed to obtain platelet counts and levels of growth factors with certainty.[4,6] This standardization must consider factors that influence the quantity and quality of the PRP, including the number of centrifugation cycles (single or double), speed and length of centrifugation, temperature during the manufacturing process, anticoagulants used, and sampling techniques.[3, 4, 6]

The speed and duration of centrifugation is one of the very varied factors used in the preparation of PRP. The study by Nugraha et al. used 30 treatments employing a range of intervention (speeds and duration) of centrifugation. The study results found that the highest platelet increase was obtained at a speed of 1300 RCF for 5 minutes at the first centrifugation and a speed of 2300 for 7 minutes with a platelet increase of 4.11 times.[7]

The use of anticoagulants is also a very important factor in maintaining the function, integrity, and morphology of platelets. Some researchers argue that the use of Ethylenediaminetetraacetic Acid (EDTA) anticoagulants can damage platelet membranes, and recommend the use of Acid Citrate Dextrose (ACD). However, the study of Araki et al.[5] in 2012 showed that the use of EDTA anticoagulants increased platelet counts and PDGF levels showed higher results compared to the use of ACD anticoagulants. This is because the use of EDTA shows better effectiveness in preventing platelet aggregation compared to the use of ACD.[5] Based on the abovementioned phenomenon, this study aimed to identify the difference between platelet counts and PDGF-BB levels in PRP with different treatments (speed and length of centrifugation) using EDTA as the anticoagulant.

Methodology

(*Research Design, Ethical Aspect, Data Collection and Data Analysis*)

This study used an experimental laboratory research design. The study was conducted from August to September at the Clinical Pathology Laboratory of Hasanuddin University Hospital and at The Research Center of Faculty of Medicine of Hasanuddin University, which both were located in Makassar, South Sulawesi Province, Indonesia. The sample size of this study was determined by employing *Frederer Formula* of experimental laboratory study and it was obtain that the minimum sample per group of intervention was seven (7) subjects. The inclusion criteria for the research were: healthy individuals aged 18-40 years; individuals who had not taken any drugs that can affect platelets such as thrombolytic or Non-Steroid Anti-Inflammatory Drug (NSAID) at least 7 days before blood collection. The study included sample with initial platelet examination results of platelets in between 150,000 / µl and 400,000/ µl, while serum/plasma sample which were indicated jaundice, lipemic or hemolysis were excluded.

Regarding ethical aspects, this study had obtained permission by The Ethical Committee of Health Research, Faculty of Medicine of Hasanuddin University, which issued the Ethical Agreement No. UH19060359. Every volunteer filled and signed an informed consent sheet, and was allocated to each of experimental groups by using *simple random sampling*. After volunteer blood was collected, the blood would be assessed for initial hematology examination. Platelet count from this assessment is the number of platelet cells in blood cells, measured using the Sysmex XE800i® Hematology Analyzer expressed in units of µU/mL. The reference value for platelet counts is 150-400 x 103 / µL. From this initial assessment, platelet counts were obtained and were considered as the platelet counts *pre-intervention*. Subsequently, the blood was processed to produce PRP through different interventions. In details, there are three groups of intervention, any of which was different in speed and time of centrifugation as seen in table 1.

Digital Repository Universitas Jember

Table 1. Type of interventions included in the study

Intervention groups	1st Centrifugation	2nd Centrifugation	Anticoagulant
I	Speed of 1200 RCF (2700 RPM) in 5 minutes.	Speed of 2000 RCF (3500 RPM) in 6 minutes	EDTA
II	Speed of 1300 RCF (2800 RPM) in 5 minutes	Speed of 2300 RCF (3800 RPM) in 7 minutes	EDTA
III	Speed of 600 RCF (1900 RPM) in 10 minutes	Speed of 2000 RCF (3500 RPM) in selama 5 minutes	EDTA

After the second centrifugation, PRP was obtained and the platelet counts were also examined by using similar hematology examiner. The platelet counts obtained from this examination were considered platelet counts of *post-intervention*. In terms of growth factors measurement, PDGF-BB levels was measured by the Enzyme-Linked Immunosorbent Assay (ELISA) method using the human PDGF-BB ELISA kit (LifeSpan BioScience, Inc., China) and the units expressed in pg/mL. The detection range was 31.25-2000 pg/mL.

Results

The study involved 33 volunteers who met the inclusion criteria. The subjects aged 26-40 years old with an average of 32,88 years old with more female subjects than men, accounting for 24 people (72.7%) as seen in table 2.

Table 2. Sample characteristics

Characteristics	n	Mean±SD	Median (Min-Max)	p value	Ratio
Age (years)	33	32,88±3,69			
Gender Male Female	 9 24				
Platelet Counts (103/µL)					
Group 1 (pre)	11	323,18±51,46		0,000*	2,69
Group 1 (post)	11	868,90±257,84			
Group 2 (pre)	11	313,82±62,28		0,000*	3,69
Group 2 (post)	11	1277,36±835,39			

Digital Repository Universitas Jember

Cont... **Table 2. Sample characteristics**

Group 3 (pre)	11	346,27±76,57		0,000*	2,53
Group 3 (post)	11	877,09±423,00			
PDGF-BB Levels (pg/mL) Group 1	11	6905,68±3696,58	8271,63 (168,62-12189,67)		
Group 2	11	8330,86±6115,52	6238,44 (676,80-25691,57)		
Group 3	11	5206,75±1574,97	5362,00 (1609,41-7216,84)		

**paired t-test*

Table 2 shows the mean difference in the number of platelets counts (pre and post-treatment) of each group. Using *the paired t-test* it was found that platelet counts were significantly higher in all groups of PRP, compared to the baseline (group 1 (p=0,000), group 2 (p=0.000), and group 3 (p=0.000) respectively). Interestingly, the highest platelet counts was found in group 2, with an increase of 3.69 times from the initial platelet counts.

Table 3 depicts the mean difference of PDGF-BB levels in PRP from all groups of intervention. It is shown that there was no significant difference between PDGF-BB levels in all of the intervention groups. However, the highest PDGF-BB levels was found in group 2.

Table 3. PDGF-BB levels in all groups of intervention

	PDGF-BB Levels (pg/mL)			**p***
	Mean	**SD**	**Median (Min-Max)**	
Group 1	6905,68	3696,58	8271,63 (168,62-12189,67)	0.14
Group 2	8330,86	6115,52	6238,44 (3676,80-25691,57)	
Group 3	5206,75	1574,97	5362,00 (1609,41-7216,84)	

**Kruskal Wallis test*

Discussion

Among PRP produced from three different groups of intervention (centrifugation speed and duration of centrifugation), the highest platelet rise was found in group 2, with an increase in platelets counts as of 3.69 times compared to the baseline. This is in line with the studies of Hans et al. as cited Nugraha et al.,[7] showing the highest increase in platelets with speed and duration similar to the intervention conducted in this study, namely 1300 RCF for the first 5 minutes of centrifugation and 2300 RCF for 7 minutes in the second

Digital Repository Universitas Jember

centrifugation. Platelet increase in the studies of Hans et al was 4.11 times higher that the initial platelets.[7] The increase in platelet counts in group 2 was also in line with the research by Perez et al.[8] who found that PRP produced from double centrifugation can reach platelet counts three times more even up to five times if 2/3 of the plasma volume is removed.[8]

The benefit of PRP lies in the number of platelets it contains, but more than that can be seen from the level of growth factors released when activated.[9] These growth factors have the highest concentration in platelets and play a very important role in the process of wound healing.[2,10] Among many growth factors, PDGF-BB is one of the most important in the regeneration and healing of wounds or damaged tissue.[9,10]

PDGF-BB levels in the three groups showed no significant difference. The interesting fact from this study is that the mean of platelet counts found in such platelet rich plasma products was not directly proportional to the levels of PDGF-BB after platelet activation. This finding is supported by Sonker and Dubey[11] research that there is no correlation between platelet counts with PDGF-BB levels found, as well as correlations with other growth factors. This is supported by the results of the study of Singh et al who analyzed qualitatively differences in the morphology of platelets in some PRP products. The study found that platelets in EDTA tubes had the worst morphology so that the effect on PRP resulting from EDTA tubes had a low growth factor compared to other tubes.[12]

Platelet activation during the PRP preparation process can occur, which results in the early release of alpha granules which results in the loss of growth factors needed, depending on the preparation method.[11]. In terms of platelet Activation, when platelets are exposed to EDTA, platelets lose their discoid shape to "spiny-spheres" resulting in changes in the membrane surface structure and OCS (Open Canalicular System).[13] This change can cause early activation of PRP platelets in tubes that use EDTA anticoagulants and may result in early PDGF-BB growth factor release. Measurement of PDGF-BB levels is also strongly influenced by its half-life. Some studies report that the half-life of PDGF-BB is around 1.8 hours, [14] while Saik et al.[15] reported that the half-life of PDGF-BB is only about 30 minutes after activation.

Conclusion and Suggestion

This study concluded that there was a significant mean difference between platelet counts of PRP in all groups of intervention compared to the number of platelets in the baseline. The significance was as follow: group 1 (p = 0,000), group 2 (p = 0.000), group 3 (p = 0.000), and the highest platelet counts was found in group 2 in which PRP produced in a method of centrifugation as follow: speed of 1300 RCF (2800 RPM) in 5 minutes for the first centrifugation and speed of 2300 RCF (3800 RPM) in 7 minutes for the second centrifugation, resulting 3.69 times platelets compared to the initial platelets. This study also found that there was no significant difference in terms of PDGF-BB levels between the three groups, but PDGF-BB levels in group two (2) was higher than the other groups regardless. This study suggest further research that can identify qualitatively the function and morphology of platelets contained in PRP that are produced various method of preparation (speed and time of centrifugation). Further research that employ a variety of anticoagulants will also be needed to best understanding the best outcome of PRP products.

Ethical Clearance – Taken from The Ethical Committee of Health Research, Faculty of Medicine of Hasanuddin University, which issued the Ethical Agreement No. UH19060359.

Source of Funding - This research was self-funded.

Conflict of Interest – Nil

References

1. Catani MV, Gasperi V, Savini I, Domenico DP. Platelets and their disorders2015 15 April 2019. Available from: http://www.els.net.
2. Everts PAM, Knape JTA, Weibrich G, Schonberger JP, Hoffman J, Overdert EP, et al. Platelet-Rich Plasma and Platelet Gel: A Review. The Journal of The American Society of Extra-Corporeal Technology. 2006;38:174-87.
3. Dhurat R, Sukesh MS. Principles and Methods of Preparation of Platelet-Rich Plasma: A Review and Author's Perspective. Journal of Cutaneous and Aesthetic Surgery. 2014;7(4):18-197.
4. Chahla J, Cinque ME, Piuzzi NS. A call for standardization in platelet-rich plasma preparation protocols and composition reporting: a systematic review of the clinical orthopaedic

Digital Repository Universitas Jember

literature. The Journal of Bone and Joint Surgery. 2017;99(20):1769-79.

5. Araki J, Jona M, Eto H, Aoi N, Kato H, Suga H, et al. Optimized Preparation Method of Platelet-Concentrated Plasma and Noncoagulating Platelet-Derived Factor Concentrates: Maximization of Platelet Concentration and Removal of Fibrinogen. Tissue Engineering. 2012;18:176-85.
6. Bausset O, Giraudo L, Veran J, Magalon J, Coudreuse JM, Magalon G, et al. Formulation and Storage of Platelet-Rich Plasma Homemade Product. BioResearch Open Access. 2012;1:1-9.
7. Nugraha HK, Muljanti M, Nugraha J. Platelet Rich Plasma Preparation Protocols : A Preliminary Study. Indonesian Journal of Tropical and Infectious Disease. 2012;3:104-7.
8. Perez AGM, Lana JSD, Rodrigues AA, Luzo ACM, Santana HA. Relevant Aspects of Centrifugation Step in the Preparation of Platelet-Rich Plasma. Hindawi Publishing Corporation. 2014;10.
9. Duregger K, Peng A, Eblenkamp. Influence of storage conditions on the release of growth factors in platelet-rich blood derivatives. Current Directions in Biomedical Engineering. 2016;2(1):311-4.
10. Lee JW, Kwon OH, Kim TK, Cho YK, Choi KY, Chung HY, et al. Platelet-Rich Plasma: Quantitative assessment of growth factor levels and comparative analysis of activated and inactivated groups. Archieve of Plastic Surgery. 2013;40(5):530-5.
11. Sonker A, Dubey A. Determining the effect of preparation and storage: An effort to streamline platelet components as a source of growth factors for clinical application. Transfusion Medicine and Hemotherapy. 2015;2015(42):174-80.
12. Singh S. Comparative (quanttative and qualitative) analysis of three different reagents for preparation of platelet-rich plasma for hair rejuvenation. Journal of Cutaneous and Aesthetic Surgery. 2018;11(3):127-31.
13. Michelson AD, Cattaneo M, Frelinger A, Newman P. Platelets. 4th ed. USA: Elsevier; 2019.
14. Gay CG, Winkles JA. The half-lives of platelet-derived growth factor A- and B- chain mRNAs are similar in endothelial cells and unaffected by heparin-binding growth factor-1 or cycloheximide. Journal of Cellular Physiology. 1991;147(1):121-7.
15. Saik JE, Gould DJ, West JL. Covalently immobilized platelet-derived growth factor-BB promotes angiogenesis in biomimetic poly (ethylene glycol) hydrogels. Acta Biomaterialia. 2011;7(1):133-43.

Digital Repository Universitas Jember

Relationship Factor Enabling Giving Complementary Foods for Breast Milk with Baby Nutrition Status in Makassar City

Anto J. Hadi[1], Matius Rantesalu[2], Endang Maryanti[4], Erni Yetti R[3], Saskiyanto Manggabarani[4], Syamsopyan Ishak[4]

[1]Public Health Department, Faculty of Public Health, Universitas Aufa Royhan, Padangsidimpuan, Indonesia; [2]Nutrition Departement, Midwifery Academy of Sinar kasih Toraja, Tana Toraja, Indonesia; [3]Health Promotion Departement, Midwifery Academy of Sinar kasih Toraja, Tana Toraja, Indonesia; [4]Nutrition Department, Faculty of Public Health, Helvetia Health Institute, Medan, Indonesia

Abstract

Introduction: Poor nutritional status is a major nutritional problem in infants and has an impact on growth disorders and is a problem that needs to be addressed seriously, age 6-18 months is a very important period as well as a critical period in the process of growth and development both physically and intellectually. Therefore, every baby at this time must obtain nutritional intake according to their needs. Aim; to prove the relationship between enabling factors and infant nutritional status. **Methods:** type of research used analytical survey with a cross-sectional study approach. This research was carried out in Maccini Sawah Sub-District, Makassar Sub-District, Makassar City. The sample of this study was infants with exhaustive sampling with 62 samples. **Results:** The study found that the age of starting complementary food for breast milk was related to the nutritional status of the baby with a p-value (0,000), the type of complementary foods for breast milk related to the nutritional status of the baby with a p-value (0,015), the frequency of complementary foods for breast milk related to nutritional status with p-value 0.004), and the variation of complementary foods for breast milk administration is related to nutritional status with p-value (0.001).

Conclusion: It was found that there was a strong relationship between age, starting, giving, type, frequency, and variation of complementary feeding with infant nutritional status.

Keywords: *Nutritional Status, Complementary Food*

Introduction

Nutritional status in children is very important for their lives[(1)], growing and developing into healthy, productive adults who benefit the community, this is an international priority to improve children's nutritional status [(2)]. The World Child Association (UNICEF) and the World Health Organization (WHO) state that good nutrition practices in children include the initiation of early breastfeeding, exclusive breastfeeding ages 0-6 months, the addition of adequate, safe nutrition, and complementary foods according to the breastfeeding period for 1 year [(3,4)]. The prevalence of malnutrition in Indonesia is still high. One potential factor that contributes to the high prevalence of malnutrition is the inappropriate complementary diet and practice of breastfeeding [(5)].

Malnutrition during breastfeeding, especially the practice of exclusive breast milk for 6 months after birth is a risk factor for infant and child morbidity and mortality that can be corrected by providing complementary food [(6)]. One intervention to prevent a more effective way to reduce 13-15% of child deaths is to apply exclusive breastfeeding supplemented with complementary foods that will prevent 19% of children's deaths [(7)]. The impact during the child learning process is inactivity, intellectual disruption, decreased productivity, and development of social behavior [(6)].

Correspondence Author
Anto J. Hadi
Mobile: 085242877376
Email: irfandipap111@gmail.com

Digital Repository Universitas Jember

Improvement of maternal nutrition carried out before and during exclusive breastfeeding is one of the efforts to improve infant nutrition 0-6 months. This problem is very important and needs to be addressed seriously. The age of 6-18 months is a critical period due to malnutrition at the age of under two years, has an impact on decreasing brain development, physical growth, intellectual, and productivity, the impact of malnutrition is largely irreversible. Malnutrition in infants and children occur because of the food given is low in nutrition or energy. Additional food for babies in developing countries generally made of cereals or tubers tends to be powdery. At the age of one year, the proper administration of complementary foods for breast milk is expected to meet the nutritional needs of the baby, but it can also stimulate the baby's eating behavior which is usually liquid and then adapt to the types of porridge and biscuits [8].Premature babies are at high risk and really need adequate nutrition to increase proper growth [9]. The complimentary food program of breast milk is very important to give to babies in overcoming high nutrient deficiencies, based on the description above the authors feel interested in conducting research on the relationship of enabling factors for complementary food for breast milk with the nutritional status of infants. Aim; to prove the relationship between enabling factors and infant nutritional status.

Method

This research was conducted in 2017 with samples in the study, namely infants aged 6-11 months, using exhaustive sampling techniques as many as 62 infants. The type of research used is an analytical survey with the approach cross sectional study. The source of complementary food data is derived from the results of interviews with mothers and caregivers using questionnaires, nutritional status data obtained from weighing the baby's weight using Baby Scale the GEA brand with measurement accuracy of 0.05 Kg to 0.1 Kg followed by calculation of standard deviation using anthropometric methods (WHO Anthro Plus) and referring to the NCHS table. Data analysis using univariate, bivariate and multivariate analysis.

Results

Sample Characteristics:

Table 1 shows a description of the sex of the baby, the age of the baby, the level of education and the type of work the mother has on the case of infant nutritional status. The homogeneity test results between cases of abnormal nutritional status and normal nutritional status in the baby sex obtained a value of p = 0.77, the average age of the baby obtained a value of p = 0.87, the maternal education level obtained a value of p = 0.44 and work mother obtained p value = 0.73.

Table 1. Analysis of Sample

Characteristics	Infant Nutritional Status				Number of	p-values
	Normal		Normal			
	n	Percentage	n	Percentage of		
Gender for infants						0.77 *
Male	11	31.4	24	68.6	35	
Female	9	33.3	18	66.7	27	
Age of Infants						0.87 *
6 - 7 Months	6	42.9	8	57.1	14	
8 - 9 Months	6	35.3	11	64.7	17	
10 - 11 Months	8	25.8	23	74.2	31	
Mother's Education						0.44 *
Elementary	5	35.7	9	64.3	14	
Junior High School	3	25.0	9	75.0	12	
Senior High School	8	29.6	19	70.4	27	
Bachelor	4	44.4	5	55.6	9	
Mother's Work						0,73 *
not work	15	32,6	31	67,4	46	
contract	1	33,3	2	66,7	3	
employees	2	22,2	7	77,8	9	
government employees	2	50,0	2	50,0	4	

n: Number of Samples, * Homogeneity Test

Digital Repository Universitas Jember

Factors Enabling Complementary Foods : relationship between enabling factors and infant nutritional status is presented in Table 2. Based on table 2, age suitability in supplementary feeding does not have a significant relationship with infant nutritional status, age suitability in the process of providing complementary food for breast milk in cases of abnormal nutritional status is more 37.5 ± 22.7 compared with age suitability in the case of normal nutritional status 62.5 ± 77.3. Chi-square test between the two variables obtained p value = 0.23. There is a significant relationship between the consistency of the type of complementary food given with the nutritional status of the baby, where the consistency in the case of abnormal nutritional status is more 55.6 ± 14.3 compared to the consistency of food types in the case of normal nutritional status 44.3 ± 85.7 . The chi-square test between the two variables obtained p = 0.001. there is a significant relationship between the frequency of complementary feeding and the nutritional status of infants, where the frequency in cases of abnormal nutritional status is more 45.2 ± 19.4 compared to the frequency in cases of normal nutritional status 54.8 ± 80.6. The chi-square test between the two variables obtained a value of p = 0.03.

Table 2. Correlation Factors Enabling Food Complementary foods for breast milk with Infant Nutritional Status

Enabling complementary foods for breast milk	Infant Nutritional Status				Total	p-Value
	Not Normal		Normal			
	n	Percentage	n	Percentage		
Age Suitability						
Unsuitable	15	37.5	25	62, 5	40	0,234 *
Suitable	5	22.7	17	77,3	22	0,000 **
Type Consistency						
Inconsistent	15	55.6	12	44,4	27	0,001 *
Consistent	5	14,3	30	85,7	35	0.090 **
Frequency						
Less	14	45,2	17	54.8	31	0.030 *
Sufficient	4	19,4	25	80.6	31	0.021 **

* Chi-Square **Paired Test

Multivariate Analysis: Requirements fulfilled in multivariate analysis, namely all variables related to p value <0.05 entered which are then analyzed include variable consistency the type of complementary food, the frequency of supplementary feeding, using the statistical ratio method to see the riskier and most related variables. It is indicated that the consistency of food types and frequency can improve nutritional status (Table 3).

Digital Repository Universitas Jember

Table 3. Multiple Logistic Regression

Variable	B	Sig (p-value)	Exp (B)	OR	95% CI
* Consistency type	2.186	0.001	8.903	7.500	2.384 to 33.054
Frequency	1.477	0.027	4.380	3.431	1.183 to 16.219

B: Beta, Sig: Significant, Exp: Expected, OR: Ods Ratio, Cl: Conbidential Interval. * Variables that are most related to the nutritional status of the baby.

Discussion

Giving Age Suitability: Provision of complementary foods for breast milk should be started at the age of 6 months because the digestive system of the body has started to be perfect and ready to receive food other than breast milk. When babies enter the age of 6 months and above, some nutritional elements such as protein, carbohydrates and some vitamins and minerals contained in breast milk are no longer sufficient. Based on the results of this study that the suitability of the age of the first time giving is not related to nutritional status. Important findings in this study, supplementary feeding was first given in the first 6 months, but more were given formula milk at the age of under 6 months. Similarly, Lakshman's research is more focused and specific in the provision of bottled milk and obesogenic foods [10].

The results of this study are in contrast to Alzaheb's research in Saudi Arabia (2015) stating that the practice of giving is very useful as a complement to infant malnutrition obtained from breast milk [11]. The introduction of earlier complementary foods before a six-month-old baby has a negative effect as a substitute for breast milk and can stop breastfeeding practices at an early stage [12,13]. Baby's nutritional needs increase along with increasing age and reduced breast milk production and duration of breastfeeding [11]. In the first year of life, the method of feeding babies on time is one way of intervention carried out in the community to support optimal baby growth and development [14].

Consistency of Food Types: important finding in this research is that the type of complementary food has an influence on the nutritional status of infants and children. Research found and explained more specifically the age conformity with the type of quality food consumed has an influence on the absorption of nutrients that have an impact on nutritional status. Various kinds of complementary foods for breast milk are given to each day according to age development. Complementary foods cannot match breast milk in its nutritional content, enzymes, hormones, and immunological substances and antibodies. Modified food ingredients or mixtures of various types of food ingredients that are specially made as complementary foods for breast milk so that these foods contain complete nutrients needed by babies because this period includes the period of growth.

This study is not in line with stating that the average food supplement studied cannot meet the needs of calcium, iron and zinc every day as a nutritional source of complementary foods for infants in developing countries [15]. This study is in line with that conducted in Tanzania in the 6-23 month age group (2010) which states that the main determinant that can affect a baby's health, development and growth is the proper consumption of complementary foods [16]. Giving baby food is a modification factor that can reduce mortality and disability caused by preterm birth [17]. The growth and development of premature babies is in accordance with types of food such as breast milk or fortified formula [18].

Giving Frequency: Quantity of complementary food is very important for brain growth and intelligence development. The fulfillment of infant and family nutrition is closely related to the frequency of food provided. The frequency of breastfeeding must be adjusted to the age and ability to produce breast milk. Increasing age needs are also increasing and the ability to produce breast milk decreases so that the frequency of supplementary food supply is increasing and added some types of snack foods.

The frequency of eating children is also influenced by several factors such as the family's socio-economic status and the number of family members. According to

Digital Repository Universitas Jember

the theory, the proportion of adults more than children in the family can result in less food availability for children. Low-income communities increase the attention and focus on breastfeeding and supplementary food for babies [2].The results of this study are similar to research conducted in Krakow and Silesia (2014) stating that regular feeding is very important, adequate daily nutrient intake is useful for physical development and and it is necessary to introduce healthy eating patterns for health during the growth period [19]. Perceptions about breast milk and feeding given complementary breast milk can be improved by health education [14].

Conclusion

Provision of complementary breast milk food is related to the nutritional status of the baby. The consistency of food types has a greater relationship with nutritional status compared to frequency. The age match for starting complementary foods performed by mothers starts at 6 months of age. The practice of giving complementary foods for breast milk is influenced by the mother's knowledge which has an impact on the mother's skills in serving complementary foods.

Significant Statement

Results of this study found that babies need complementary food as they age to cover malnutrition from the intake of breast milk for growth and development. The practice of providing good complementary foods can be seen from the suitability and consistency in providing complementary foods caused by knowledge of maternal nutrition.

Funding Sources: Used during this study were sourced from personal funds.

Acknowledgments: The authors wish to thank all the Public Helath students who helped in the collection of the data. The Makassar City Government, the Health Office, the Head of the community health center which has given research permission. Respondents who have been willing to spend time in the interview process.

Internal Conflict: The author (s) declare that they have no conflict of interest.

Ethical Clearance: Ethical approval has been obtained from Ethical Commission of Health Research, Faculty of Public Health, with protocol number UH910183005.

References

1. Hadi AJ, Hadju V, Indriasari R, Sudargo T, Nyorong M. Model of Peer intervention Assessment of Nutritional Educator in the Efforts to Change Behaviour in Decreasing Overweight in integrated islamic Elementary Schools at Makassar. Indian J Public Heal Res Dev. 2019;10(9):613–8.
2. Bazzano AN, Kaji A, Felker-Kantor E, Bazzano LA, Potts KS. Qualitative studies of infant and young child feeding in lower-income countries: A systematic review and synthesis of dietary patterns. Nutrients. 2017;9(10):1140.
3. Dhingra U, Gittelsohn J, Moh'd Suleiman A, Moh'd Suleiman S, Dutta A, Ali SM, et al. Delivery, immediate newborn and cord care practices in Pemba Tanzania: a qualitative study of community, hospital staff and community level care providers for knowledge, attitudes, belief systems and practices. BMC Pregnancy Childbirth. 2014;14(1):173.
4. (UNICEF.) UNCF. The state of the world's children 2012: children in an urban world. UNICEF New York; 2012.
5. Ahmad A, Boediman D, Prawirohartono EP. Pola makanan pendamping air susu ibu dan status gizi bayi 0-12 bulan di Kecamatan Lhoknga Kabupaten Aceh Besar. J Gizi Klin Indones. 2006;3(1):58–65.
6. Baker P, Smith J, Salmon L, Friel S, Kent G, Iellamo A, et al. Global trends and patterns of commercial milk-based formula sales: is an unprecedented infant and young child feeding transition underway? Public Health Nutr. 2016;19(14):2540–50.
7. Khan AM, Kayina P, Agrawal P, Gupta A, Kannan AT. A study on infant and young child feeding practices among mothers attending an urban health center in East Delhi. Indian J Public Health. 2012;56(4):301.
8. Lutter CK, Morrow AL. Protection, Promotion, and Support and Global Trends in Breastfeeding–. Adv Nutr. 2013;4(2):213–9.
9. Tabata M, Abdelrahman K, Hair AB, Hawthorne KM, Chen Z, Abrams SA. Fortifier and cream improve fat delivery in continuous enteral infant feeding of breast milk. Nutrients. 2015;7(2):1174–83.
10. Sankar MJ, Sinha B, Chowdhury R, Bhandari N, Taneja S, Martines J, et al. Optimal breastfeeding practices and infant and child mortality: a

Digital Repository Universitas Jember

systematic review and meta-analysis. Acta Paediatr. 2015;104:3–13.

11. Alzaheb RA. Factors Associated with the Early Introduction of Complementary Feeding in Saudi Arabia. Int J Environ Res Public Health. 2016;13(7):702.
12. Kronborg H, Foverskov E, Væth M. Predictors for early introduction of solid food among Danish mothers and infants: an observational study. BMC Pediatr. 2014;14(1):243.
13. Madhu GN, Harish S. Complementary feeding practices among mothers of children aged six months to two years admitted in a tertiary care hospital. Int J Contemp Pediatr. 2017;5(1):97–100.
14. Kamath SP, Garg D, Khan M, Jain A, Baliga BS. Perceptions and Practices regarding Breastfeeding among Postnatal Women at a District Tertiary Referral Government Hospital in Southern India. Scientifica (Cairo). 2016;2016.
15. Nona S, Srijana K. Perceptions and Practices Regarding Breastfeeding among Postnatal Mothers. Int J Nurs Educ. 2018;10(4):128–33.
16. Victor R, Baines SK, Agho KE, Dibley MJ. Factors associated with inappropriate complementary feeding practices among children aged 6–23 months in T anzania. Matern Child Nutr. 2014;10(4):545–61.
17. Colaizy TT, Bartick MC, Jegier BJ, Green BD, Reinhold AG, Schaefer AJ, et al. Impact of optimized breastfeeding on the costs of necrotizing enterocolitis in extremely low birthweight infants. J Pediatr. 2016;175:100–5.
18. Lok KYW, Chau PH, Fan HSL, Chan KM, Chan BH, Fung GPC, et al. Increase in Weight in Low Birth Weight and Very Low Birth Weight Infants Fed Fortified Breast Milk versus Formula Milk: A Retrospective Cohort Study. Nutrients. 2017;9(5):520.
19. Ostachowska-Gasior A, Piwowar M, Kwiatkowski J, Kasperczyk J, Skop-Lewandowska A. Breakfast and other meal consumption in adolescents from southern Poland. Int J Environ Res Public Health. 2016;13(5):453.

Digital Repository Universitas Jember

Determinant of Premature Rupture of Membrane in Indonesia (Secondary Data Analysis of Idhs 2017)

Chintya Elittasari[1], Sudijanto Kamso[2]

[1]Magister Program of Public Health, Faculty of Public Health, [2]Biostatistics and Population Studies Department, Faculty of Public Health, Universitas Indonesia, Depok, Indonesia

Abstract

Premature rupture of membranes (PRoM) constitutes 5-10% of the causes of complications in full-term pregnancy and 30% of preterm pregnancy. In Indonesia, according to Riskesdas data in 2018, ProM is the biggest delivery complication of 5.6% in women aged 10 - 54 years. Based on IDHS 2017 data, it is the third biggest complication during labor with a percentage of 16.1%, which increased from 14.9% in 2012. Premature rupture of membranes risks troubled mothers and fetuses that potentially cause maternal and perinatal morbidity and mortality. Little is known about the determinants of PRoM in Indonesia. Therefore, this study was conducted to identify the determinants of the ProM in Indonesia. This research method using logistic regression analysis to individual data IDHS 2017 by enclosing 4 independent variables: age, parity, amount of iron tablet consumption, and smoking habit to predict the incidence of PRoM. Sample of this study counted 12,340 people. Based on multivariate analysis found that consumption of Fe tablets is significantly related to PRoM by Odds Ratio (OR) 0.7 (95% CI: 0.631 - 0.777) controled by maternal age. The conclusion of this study is mothers who consume ≥ 90 iron tablets during pregnancy are 0.7 times low risk of experiencing PRoM than mothers who consume iron tablets < 90 tablets during pregnancy.

Keywords : *PRoM ; Amount of Iron Tablet Consumption; Indonesia*

Introduction

Premature rupture of membranes (PRoM) is a condition of membranes rupture before the beginning of labour, where cervical dilatation of less than 3 cm in primipara and less than 5 cm in multiparas. PRoM which occurs before 37 weeks pregnancy is called premature PRoM, whereas occurs after 37 weeks PRoM itself[(1)]. PRoM constitutes 5-10% of the causes of complications in full-term pregnancy and 30% of preterm pregnancy[(2)]. According to Riskesdas 2018, PRoM is the biggest delivery complication of 5,6%[(3)]. Based on IDHS data 2017, ProM is the third biggest complication during labour of 16.1%[(4)]. PRoM is risked causing maternal and perinatal morbidity and mortality. A serious complication of ProM includes retained placenta and haemorrhage requiring dilatation and curettage (12%), maternal sepsis (0,8%), and maternal death (0,14%). So that, ProM is a high risk of caesarean deliveries [(1)]. Based on IDHS data 2017 the number of caesarean deliveries caused by PRoM decreased to 18.8% from 22.8% in 2012. Meanwhile, cases of within a month old infant mortality increased to 19% from the previous 14%[(4,5)].

The risk factors associated with PRoM include maternal age, parity, infection, anemia, multiple pregnancies, increased intrauterine pressure, and genetic factor[(6)]. According to a case-control study conducted at Tugurejo Regional General Hospital mentioning the relationship between fetal malposition, maternal age, parity, history of PRoM, maternal employment status, anemia status, and active-passive smoking with the incidence of PRoM and there was no association between multiple pregnancies, genetic factor, previous recurrent miscarriage with PRoM[(7).] Another case-control study where conducted in Mekele City Tigray about risk factors of PRoM in public hospital mention abortion histories, caesarean delivery histories, previous PRoM, and abnormal vaginal discharge significantly associated with KPD, and previous PRoM to be the strongest risk factor for PRoM[(1)].

Corresponding author:
Chintya Elittasari
E-mail: chintya.elittasari@ui.ac.id

Digital Repository Universitas Jember

Determinants identification of PRoM is needed to predict and prevent the occurrence of PRoM to prevent complications. Previous PRoM determinant researches have been conducted in various regions and different times of health services, yet secondary data utilization thoroughly in Indonesia still less in amount. Therefore, this study aims to fill those gap by identifying the determinants of PRoM using Indonesian Demographic and Health Survey (IDHS) data.

Method

This study used secondary data from IDHS 2017 and designed in cross-sectional. Populations of this study are all interviewed women who had live births in the 5 years before the survey. The total sample of this study were 12,340 people. Univariate, bivariate (crosstabs), and multivariate analysis (logistic regression) were performed in this study. Statistical analyses were performed using SPSS version 21.0; $p < 0.05$ indicated statistical significance. Inclusion criteria of this study were women who gave birth to the last child within 5 years before the survey and experienced complications at the time of delivery. The dependent variable of this study was PRoM and the independent variables were maternal age, parity, amount of iron tablet consumption and smoking.

Tabel 1. Bivariate Analysis result for significant variables (ρ ≤ 0,25) of determinant PRoM in Indonesia, 2017

Variable	PRoM				OR	P Value
	No		Yes			
	n = 8400	%	n = 3940	%		
Age (years)						
No risk (20 – 35)	6051	49	2956	24	0,857	0,006
High Risk (< 20 & > 35)	2349	19	984	8		
Parity						
< 2	2822	22,9	1341	10,9	0,980	0,686
≥ 2	5578	45,2	2599	20		
Amount of iron tablets consumption						
≥ 90	4253	34,5	2342	18,9	0,700	0,000
< 90	4147	33,6	1598	13		
Smoking						
No	8275	67,1	3885	31,5	0,936	0,729
Yes	125	1	55	0,4		

**Bivariat analysis was using crosstabs*

The bivariate analysis showed that maternal age (*p-value*: 0.006) and total consumption of iron tablets (*p-value*: 0,000) are related to PRoM. Meanwhile, parity (*p-value*: 0.686), and smoking (*p-value*: 0.729) were not related to PRoM. Based on the table above there are 2 variables that have *p-value* <0.25, there are age and amount of consumption of iron tablets. So both of them required to enter multivariate modelling.

Digital Repository Universitas Jember

Tabel 2. Multivariate analysis Determinant of PRoM in Indonesia, 2017

Variable	Model 1	Model 2
	cOR (95% CI)	aOR (95% CI)
Age	0,851 (0,761, 0,952)**	0,858 (0,769 - 0,958)**
Parity	1,032 (0,933, 1,120)	-
Amount of iron tablets consumption	0,700 (0,631, 0,777)***	0,700 (0,631 - 0,777)***
Smoking	0,940 (0,645, 1,370)	-

OR, odds ratio; CI, confidence interval.
*p<0,05, **p<0,01, ***p<0,001

The multivariate analysis showed that iron tablet consumption was the dominant factor causing PRoM, with OR 0.7 (95% CI: 0.631 - 0.777) after controlled by maternal age variable. This study in line with the case-control study conducted at Wates Regional Hospital in 2015 that stated there is an association of anemia in pregnancy with ProM with *p-value* = 0.036 and OR 2,524 (95% CI: 1.042 - 6.113) pregnant women with anemia have a risk 2, 524 times higher experiencing PRoM[8].

Discussion

Study Limitation

This study used secondary data of IDHS 2017, because of limitation the research data, anemia variable which in theory is related to PRoM incidences in this study was replaced by the amount of iron tablet consumption during pregnancy. Researchers also could not control results from interviews with respondents due to the possibility of recall bias that caused by respondents memories related to research variables.

Relationship Between Maternal Age and ProM

The results of this study showed that there is a relationship between maternal age and PRoM incidences. Similarly with past research conducted by Berkowits (in Hussain, 2012) which found that mothers with 30 years old or older significantly increased occurrence of preterm rupture of membrane (pPROM)[9]. Larger studies by retrospective cohort study conducted by Lucke and Brown (2007) show that increasing maternal age is significantly associated with a high risk of pPROM occurrence after being controlled by variables of race, parity, diabetes, chronic hypertension and maternal smoking status[10]. However, in contradiction with past research conducted at Yogyakarta Hospital by Rahayu (2018) which states that there is no relationship between maternal age, parity, gestational age, uterine over distance with PRoM occurence[11].

Based on literature optimal maternal reproduction age is between 20-35 years old. Under or above those ages will increase pregnancy and deliveries risked. Maternal age will affect the reproductive organs by decreasing their ability and elasticity in pregnancies. The older maternal ages, both of environmental stress and oxidative stress are increased that induce biological damage of cell at molecular level[12], which affects decreasing of vitamin C level on blood circulation[13] so that inhibit collagen formation and stability of collagen cross-link[12]. Structure alteration, amount of cells and collagen catabolism cause rupture of membranes[14].

Relationship Between Parity and ProM

This study showed that there is no significant relationship between parity and occurrence of PRoM. In line with research conducted in Gowa, suggesting that the amount of parity is not a risk factor of premature rupture of membranes even though both of ≤ 1 and> 3 parity are 1.5 times higher risked than maternal parity of 2-3 (OR = 1.5 95%CI: 0, 91 - 2.48)[15]. Contradiction with results research was conducted at Bahteramas Hospital which states that maternal parity is a risk factor of PRoM occurrence (OR = 9.94 95%CI: 4.44 - 22.24) [16]. This may be due to more respondents with ≥ 2 parity who didn't experience PRoM compared to those who experienced it.

Digital Repository Universitas Jember

In multiparous and grand multiparous women the risk of PRoM occurrence will increase. Multiparous women have intrinsic weakness of the uterus caused by cervical trauma due to previous deliveries that caused increasing of uterine motility, hanging bellies and decreasing of cervical flexibility that causes premature cervical dilatation and ends with PRoM. Furthermore, in multiparous and grand multiparous women occurred cervical damage tissue which consists more of nerve fibres than connective tissue that allows the basic muscles of the uterus to stretch[17].

Relationship Between Amount Of Maternal Iron Tablet and ProM

Overall, 50% of anemia was caused by iron deficiency[18]. 75 - 95% of anemia during pregnancy were caused by iron deficiency[19]. A study conducted in Singapore in 2019 mentioned that almost three-quarters of pregnant women in Singapore experienced an iron deficiency in the early third trimester of pregnancy[20]. During pregnancy, women lose 680 mg iron. Iron necessity enhances 3 times higher during pregnancy (> 4 mg per day). Pregnant women are fragile to iron deficiency due to an increased need for iron during pregnancy for the expansion of erythrocytes, plasma volume, fetal, and placental growth. Based on research at Karang Asem primary health services in Samarinda 2015-2017, it was found that there was a significant relationship between the distribution of Fe tablets and anemia. Pregnant women who are not compliant with consuming Fe tablets are 1.3 times more likely to develop anemia than pregnant women who are compliant in consuming Fe tablets[21].

This study showed that mother who consumes ≥ 90 iron tablets during pregnancy is 0.7 times low risk of experiencing PRoM than mothers who consume iron tablets < 90 tablets during pregnancy. Same with the retrospective cohort study conducted in Purworejo Regency stated that anemia in the second trimester has been shown to increase of PRoM occurrence. Mothers with anemia are at risk of PRoM 2.11 (RR = 2.11; 95% CI: 1.06 - 3.44) times higher than mothers without anemia after controlled by iron tablet consumption[22]. Another case-control study in Singaraja Bali found, mothers with anemia at risk of experiencing PRoM 3.59 (OR = 3.59; 95% CI = 1.82-7.09) times higher than mothers who were not anemic after controlled by parity variable[23].

Anemia during pregnancy causes weakness of amnion membranes due to lack of tissue oxygenation caused by reduction of haemoglobin mass[6]. So that mother with anemia during pregnancy is risky to PRoM occurrences

Relationship Between Smoking and ProM

This study showed that smoking is not associated with PRoM. Same with a case-control study at General Hospital of Mekele Tigray City, December 2015 - June 2016 that Stated there was no significant relationship between smoking and PRoM(1). Contradiction with research was conducted in Southern Ethiopia, that smoking is a positive predictor of premature rupture of membranes, women with a history of smoking during pregnancy are at risk of experiencing PRoM of 17 times higher than non-smoking mothers (AOR; 17,053, 95% CI [2,145, 135,6])[24]. The differences might be due to the low prevalence of smoking respondents.

Based on the literature, smoking lead to decrease of collagen and protein in membranes by increasing cadmium levels and decreasing the ability of CU2 + to synthesize collagen in mesenchymal cells of aminion[25]. Also, nicotine causes arteriolar constriction leading to uterine decidua ischemia[26] so affecting the integrity of the membrane that leads PRoM.

Conclusion

Amount of iron tablets consumption is a dominant factor of PRoM occurrence after controlled by maternal age variables. Based on these results, the researcher recommends consumption of ≥ 90 iron tablets to all pregnant women during pregnancy to prevent the occurrence of PRoM, that can cause maternal and perinatal morbidity and mortality. The results of this study are expected to encourage the effectiveness of distribution and compliance of the iron tablets consumption for pregnant women.

Acknowledgement: Thanks to Prof. Dr. dr. Sudijanto Kamso, SKM as a supervisor in this study as well mothers, and family who have provided support in completing this research.

Conflic of Interest : The authors declare no conflicts of interest in this study

Source of Funding : Independent (self-based)

Ethical Clearance : This study was conducted after

Digital Repository Universitas Jember

obtaining approval from

BKKBN via online/website of IDHS 2017 for data processing

References

1. Assefa NE, Berhe H, Girma F, Berhe K, Berhe YZ. Risk factors of premature rupture of membranes in public hospitals at Mekele city , Tigray , a case control study. 2018;6(October):1–7.
2. Mahmoodi Z, Hoseini F, Shahr HSA, Ghodshi Z, Amini L. The Association Between Maternal Factors and Preterm Birth and Premature Rapture of Membranes. 2010;4(3):135–40.
3. RI BP dan PKK. Laporan Nasional Riskesdas 2018. Jakarta; 2019.
4. Nasional BK dan KB, Statistika BP, Kesehatan K, USAID. Survey Demografi dan Kesehatan Indonesia 2017. Jakarta; 2017.
5. Statistika BP, Nasional BK dan KB, Kesehatan K. Survei Demografi dan Kesehatan Indonesia 2012 [Internet]. Jakarta; 2013. Available from: http://kesga.kemkes.go.id/images/pedoman/SDKI 2012-Indonesia.pdf
6. Irsam M, Dewi AK, Wulandari E. Jumlah Paritas dan Anemia sebagai Faktor Prediktor Kejadian Ketuban Pecah Dini Parity and Anemia status as the Predictors for Premature Rupture Membrane. 2014;(024):1–8.
7. Rohmawati N, Fibriana AI. Ketuban Pecah Dini di Rumah Sakit Umum Derah Ungaran. 2018;2(1):23–32.
8. Riska Dwi Pramita S, Duhita F, Diah Wulandari. Hubungan Anemia Dalam Kehamilan Terhadap Kejadian Ketuban Pecah Dini (KPD) [Internet]. Vol. 036. Universitas Gadjah Mada; 2017. Available from: http://etd.repository.ugm.ac.id/index.php?act=view&buku_id=109136&mod=penelitian_detail&sub=PenelitianDetail&typ=html
9. Husain tarek khalaf ala, Mohamed sahar nagieb, Dien hamida alam el, Ahmed amal abd elaziz. Cervicovaginal infection during pregnancy and its relation to preterm pre labour rupture of membranes. J Am Sci. 2012;8(12).
10. Luke B, Brown MB. Contemporary risks of maternal morbidity and adverse outcomes with increasing maternal age and plurality. Sci Direct [Internet]. 2007;88(2):283–93. Available from: https://www.sciencedirect.com/science/article/pii/S0015028206044098
11. Rahayu B. Hubungan Faktor - Faktor Usia Ibu, Paritas, Umur Kehamilan, dan Overdistensi dengan Kejadian Ketuban Pecah Dini di Rumah Sakit Yogyakarta. Media Ilmu Kesehat [Internet]. 2018;7(2):137–42. Available from: https://pdfs.semanticscholar.org/f0db/315dcee642b3810938f1fa28e82e5fd63f60.pdf
12. Mourisa C, R Z-H, Betty. Gambaran Histopatologi Selaput Ketuban pada Perempuan Hamil yang Mendapat Acetylsalicylic Acid (ASA) Dosis Rendah Histopathological Appearance on The Fetal Membranes of Pregnant Women who Received Low-Dose ASA. Bul Farmetera. 2018;3(3):120–8.
13. Longini M, Perrone S, Vezzosi P, Marzocchi B, Centini AG, Rosignoli L, et al. Association Between Oxidative Stress in Pregnancy and Preterm Premature Rupture of Membrane. Sci Direct [Internet]. 2007;40:793–7. Available from: https://pdf.sciencedirectassets.com/271896/1-s2.0-S0009912007X01899/1-s2.0-S0009912007001294/main.pdf
14. Prawirohardjo S. Ilmu Kandungan. Jakarta: PT. Bina Pustaka Sarwono Prawirohardjo; 2008. 677–681 p.
15. Tahir S, Seweng A, Abdullah Z. Faktor Determinan Ketuban Pecah Dini di RSUD Syekh Yusuf Kabupaten Gowa. UNHAS [Internet]. 2012; Available from: http://pasca.unhas.ac.id/jurnal/files/abdbde934df5c895d7deebd756ce04e1.pdf
16. Hastuti H, Sudayasa IP, Saimin J. Analisis Faktor Risiko Ketuban Pecah Dini di Rumah Sakit Umum Bahteramas. J Ilm Fak Kedokt Univ Halu Oleo [Internet]. 2016;3(April):268–72. Available from: http://ojs.uho.ac.id/index.php/medula/article/view/2553
17. F.G C. Obstetri Williams. Jakarta: EGC; 2012. 855 p.
18. World Health Organization. The Global Prevalence of Anaemia in 2011 [Internet]. Geneva, Switzerland; 2015. Available from: https://www.who.int/nutrition/publications/micronutrients/global_prevalence_anaemia_2011/en/
19. Lianos G, José M, Zamudio G, Los JLL De, García R-. Significance of anaemia in the different stages

Digital Repository Universitas Jember

of life. Enfermia Glob. 2016;43(Julio):419–31.

20. Loy SL, Lim LM, Chan S, Tan PT, Chee YL, Quah PL, et al. Iron status and risk factors of iron deficiency among pregnant women in Singapore : a cross-sectional study. BMC Public Health [Internet]. 2019;1–11. Available from: https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-019-6736-y

21. Rosita D, Eryando T, Rahmaniati M, Setiarini A, Agustini K, Julina. Pengaruh Pemberian Tablet Zat Besi (Fe) Terhadap Kejadian Anemia Pada Ibu Hamil di Puskemas Karang Asem Kotamadya Samarinda Tahun 2015 - 2017 [Thesis]. Universitas Indonesia; 2018.

22. Ritawati, Hakimi. Hubungan Anemia dan Risiko Kejadian Ketuban Pecah Dini di Kabupaten Purworejo [Internet]. Universitas Gadjah Mada; 2009. Available from: http://etd.repository.ugm.ac.id/index.php?mod=penelitian_detail&sub=PenelitianDetail&act=view&typ=html&buku_id=41019&obyek_id=4.

23. Pratiwi PI, Emilia O, Kartini F. The Effect of Anemia on The Incidence of Premature Rupture of Membrane (PROM) In Kertha Usada Hospital , Singaraja , Bali. Belitung Nurs J [Internet]. 2018;4(3):336–42. Available from: https://www.belitungraya.org/BRP/index.php/bnj/article/view/391

24. Workineh Y, Birhanu S, Kerie S, Ayalew E, Yihune M. Determinants of premature rupture of membrane in Southern Ethiopia , 2017 : case control study design. BMC Res Notes [Internet]. 2018;1–7. Available from: https://doi.org/10.1186/s13104-018-4035-9

25. Sirak B, Mesfin E. Maternal And Perinatal Outcome of Pregnancies With Preterm Premature Rupture of Membranes (pPROM) At Tikur Anbessa Specialized Teaching Hospital, Addis Ababa, Ethiopia Maternal And Perinatal Outcome Of Pregnancies With Preterm Premature Rupture Of Mem. Ethiop Med J [Internet]. 2014;52(September 2015). Available from: https://www.researchgate.net/profile/Eyasu_Kassa/publication/283900095.pdf

26. Liu J, Feng Z, Wu J. The Incidence Rate of Premature Rupture of Membranes and its Influence on Fetal – neonatal Health : A Report From Mainland China. J Trop Pediatr [Internet]. 2010;56(1). Available from: https://watermark.silverchair.com/fmp051.pdf

Digital Repository Universitas Jember

The Influence Factors of The Performance of Midwives on the Neonatal Health Services in Balangan District

Dahmila Febrianty[1], Husaini[1], Bahrul Ilmi[2], Roselina Panghiyangani[3], Lenie Marlinae[4]

[1]Master of Public Health Science Study Program, Faculty of Medicine, Lambung Mangkurat University, Banjarmasin, Indonesia, [2] Polytechnic of Health, Ministry of Health, Banjarmasin, Indonesia, [3] Medical Education Study Program, Faculty of Medicine, Lambung Mangkurat University, Banjarmasin, Indonesia, [4] Public Health Study Program, Faculty of Medicine, Lambung Mangkurat University, Banjarmasin, Indonesia

Abstract

The performance of midwives in Balangan District in neonatal health services from 2016 to 2018 did not reach the Minimum Service Standard target for newborn services based on Ministry of Health Decree of the Republic of Indonesia No 43 in 2016. The low performance of midwives in neonatal health services in Balangan District has an important position on the performance of the Balangan District Health Office to reduce IMR. This research aim to analyze the factors that influence the performance of midwives in neonatal health services in Balangan District. The research using an observational analytic study with a cross sectional study design. Sample of 70 midwives took using a purposive sampling method. The results of this research showed that there was no influence between education (p=0.230) and compensation (p=0.193) on the performance of midwives in neonatal health services, while the length of service could not be analyzed. The most dominant factor influencing was training (p=0.000) with Exp (B) of 23.33 with a confidence level of 95%.

***Keywords**: education, compensation, training, tenure, performance*

Introduction

Neonatal health service by midwife is one way to reduce infant mortality in the neonatal period. Neonatal visits that do not meet the standards or behavior of non-neonatal visits statistically have a large risk of neonatal death. Neonatal visits are conducted to reduce the risk of neonates who are vulnerable to health problems.

Based on maternal and child health reports of Balangan District Health Office, neonatal health services in 2016 amounted to 78.77% consisting of coverage of the first neonate visit at 6-48 hours after birth according to the standard of only 87.83%, complete neonatal visits according to the standard only amounted to 84.42% and handling neonatal complications was only 64.05%. In 2017 neonatal health services only amounted to 69% consisting of coverage of first neonate visits according to the standard of only 84.45%, complete neonatal visits according to the standard was only 79.66% and handling neonatal complications was only 42.5%, whereas in 2018 neonatal health services by 75.57% consisting of coverage of first neonate visits according to the standard of only 83.2%, complete neonatal visits according to the standard of only 79.3% and handling of neonatal complications only by 64.2% .[1] The performance of midwives in neonatal health services from 2016 to 2018 did not reach the Minimum Service Standard (SPM) target for newborn services based on the Ministry of Health Decree of the Republic of Indonesia Number 43 of 2016. The low performance of midwives in neonatal health services in Balangan District has an important position on the performance of the Balangan District Health Office to reduce IMR. Neonatal health services have a statistically significant relationship with neonatal deaths in Indonesia. The low performance of midwives in neonatal health services is influenced by various

Corresponding Author:
Dahmila Febrianty
Master of Public Health Study Program, Faculty of Medicine, Lambung Mangkurat University, Jalan A. Yani, Km.36, Banjarbaru, Kalimantan Selatan, Indonesia, email: midwife_febrianty@yahoo.com

Digital Repository Universitas Jember

factors.[2] Individual factors influence performance consisting of abilities and skills, cultural background and demographics. Demographic factors can influence performance.[3] Factors that affect employee performance are influenced by a number of factors including motivation, ability, knowledge, expertise, education, experience, training, interests, personality attitudes, physical conditions and physiological needs, social needs and egoistic needs.[4] Factors that influence performance are internal factors, namely individual characteristics such as years of service and attitudes towards tasks and external factors.[5]

Materials and Method

This research used observational analytic study, with the time approach of data collection using a cross-sectional design. This study uses secondary data analysis from monthly and annual reports on maternal and child health for neonatal health services and nominative list data of civil servant for the Balangan District Health Office especially for midwives, midwife training data and compensation data. The population in this study were all midwives in the village and public health center who had civil servants (PNS) status and at least one year of service in their working area, totaling 92 people out of 116 midwives. The sample of this study was 70 people in which was obtained purposively based on the proportion of the total population who met the criteria for inclusion and then for each public health center. Analysis of the data used is descriptive and statistical analysis of the test chi-square and test logistic regression doubled the significance level of 95%.

Findings and Discussion

Table 1. Frequency Distribution of Education, Compensation, Training, and Working Period of Midwives in The Neonatal Health Service on Balangan District

Variable	Frequency	Percentage (%)
Education		
Diploma IV/ Bachelor of Midwifery	5	7.1
Diploma III Midwifery	65	92.9
Compensation		
High	9	12.9
Low	61	87.1
Training		
Complete	19	27.1
Incomplete	51	72.9
Working Period		
Long	35	50
Medium	13	18.6
Short	22	31.4
Midwive's Performance		
Good	13	18.6
Not good	57	81.4

Digital Repository Universitas Jember

Table 2. Bivariate Analysis of The Influence of Education, Compensation, Training, and Working Period to The Midwives Performance in The Neonatal Health Service on Balangan District

Variable	Midwive's Performance				Total		Chi-Square
	Good		Not good				
	n	%	n	%	N	%	p-value
Education							
Diploma IV/ Bachelor of Midwifery	2	40	3	60	5	100	0.230
Diploma III Midwifery	11	16.9	54	83.1	65	100	
Compensation							
High	0	0	9	100	9	100	0.193
Low	13	21.3	48	78.7	61	100	
Training							
Complete	10	52. 6	9	47.4	19	100	0.000
Incomplete	3	5.9	48	94.1	51	100	
Working Period							
Long	7	20	28	80	35	100	-
Medium	4	30.8	9	69.2	13	100	
Short	2	9.1	20	90.9	22	100	

The influence of education on the performance of midwives in neonatal health services

Based on the results of the fisher's exact test obtained p-value of 0.230 (p>0.05) which means midwife education has no influence on the performance of midwives in neonatal health services. The level of education of midwives have an important role on the performance of midwives in neonatal health services. It should have the competence to midwife consisting of a set of knowledge, skills and attitudes acquired through higher education and continuing education. The higher level of midwife education can be interpreted to have more knowledge, skills, and high ability in neonatal health services. At least midwives who have diploma/bachelor education so that midwives who have good knowledge, skills and abilities about neonatal health services according to the standard are also very little that have an impact on the low performance of midwives in neonatal health services. The level of employee performance will greatly depend on the ability of the employee itself such as the level of education, knowledge, experience where the higher the level of ability is likely to have higher performance as well.[6] The results of this study are in line with research Purwaningsih et al. (2015) which states that there is no significant relationship between education and the implementation of neonatal visits by midwives.[7]

The influence of compensation on the performance of midwives in neonatal health services

Based on the results of the fisher's exact test obtained p-value of 0.193 (p>0.05), which means midwife compensation has no influence on the performance of

Digital Repository Universitas Jember

midwives in neonatal health services. The compensation distribution to midwives in the form of additional allowances for a certain amount of money each month does not affect the performance of midwives in neonatal health services because the compensation provided is not proportional. Compensation provided is not based on the performance of midwives in providing neonatal health services but based on consideration of the workplace and rank of midwife. If compensation were given to midwives in accordance with the performance made by midwives to neonatal health services will improve the performance of midwives.[8] This study is in line with Rachmawati (2014) which states that the performance of village midwives in performing a neonatal visit is increasingly poor due to the poor perception of village midwives towards a compensation system and in line with Merita (2016) that midwives receive financial compensation that is not appropriate, will encourage dissatisfaction in him, so that in doing work will be less good.[9,10]

The influence of training on the performance of midwives in neonatal health services

Based on the results of the fisher's exact test obtained p-value of 0.000 ($p<0.05$), which means that the complete training that midwives have participated in affects the performance of midwives in neonatal health services neonates with PR of 17.778, which means midwives who have completed training have a 18 times greater chance to perform well. Training is a systematic and planned effort so that employees get additional capabilities so that the quality of work gets better.[11] Training is a process that teaches certain knowledge and expertise, and attitudes so that employees become more skilled and able carry out their responsibilities better, in accordance with the standards.[12]

To improve the performance of midwives in neonatal health services, midwives should take a comprehensive series of technical training related to neonatal health services such as midwifery competency training, APN, asphyxia management and LBW management and MTBS. The full technical training followed by a midwife obstetrics can improve the competence to midwife. Factors that influence employee performance is influenced by training.[4] This study is in line with research Suryaningtyas et al (2014) which states there was an influence between training and midwife performance in neonatal visits and supported by Purwaningsih et al (2015) research that training related to handling infants to midwives through asphyxia management training, LBW management, MTBS/MTBM can affect neonatal services in accordance with the service standards that should be provided to neonates.[7,8] There were differences in performance between midwives who have been trained and midwives who have not been trained on MTBM in terms of quality aspects of midwife performance in the management of neonatal visits.[13]

The influence of working period on the performance of midwives in neonatal health services

The chi square statistical test results with a 95% confidence level in the cross table 3 x 2, showed that all expected counts were 2 cells (33.3%) less than 5. So the p-value could not be analyzed so the working period can not be concluded whether or not influence to the performance of midwives in neonatal health services.

Multivariate Analysis

Table 3. Final Models of Multivariate Logistic Regression

Independent Variable	p-value	PR
Training	0.000	23.33
Compensation	0.999	0.000

The results of multivariate analysis showed that the independent variables included in the model were training and compensation and the variable with the strongest influence was the training variable. Variable training is the most dominant variables that affect the performance of midwives in neonatal health services with exponential beta (Exp. B) 23.33. This revealed that training was the most influential variable after gaining control of the education, compensation and training variables. Training is a process that teaches certain knowledge and expertise, and attitudes so that employees are more skilled and able to carry out their responsibilities better, in accordance with standards.[12]

To improve the quality of midwives in accordance with service, non-formal education is developed through training programs, internships, seminars or workshops held in collaboration with professional organizations, the ministry of health, health service facilities, international institutions and others.[14]

Digital Repository Universitas Jember

The main objectives of the training are to improve performance and upgrade expertise so that it is in line with technological progress. Training is specific, practical and immediate. Specific means that training is related to the field of work being carried out. Practical and immediate means those that have been trained can be put into practice.[15] Training that has been followed by someone who is related to their field of work will be able to affect skills and mentality and will increase their confidence in their abilities, this will positively affect the performance of midwives.[13]

Conclusion

Education has no influence on the performance of midwives in neonatal health services. Compensation has no influence on the performance of midwives in neonatal health services. Training has an influence on the performance of midwives in neonatal health services. The tenure cannot be concluded whether there is no influence or not. The most influential factor on the performance of midwives in neonatal health services in Balangan District is the training.

Ethical Clearance

Before conducting the data retrieval, the researchers conducted a decent test of ethics conducted at the Faculty of Medicine, Lambung Mangkurat University to determine that this study has met the feasibility. Information on an ethical test that the study is eligible to continue. The feasibility of the research was conducted to protect the human rights and security of research subjects.

Source Funding: This study was done by self-funding from the authors.

Conflict of Interest: The authors declare that they have no conflict interests.

References

[1] Balangan District Health Office. Maternal and Child Health Report of Balangan District Health Office. Balangan. 2018.

[2] Sukamti S, Riono P. Neonatal Health Services Affect Neonatal Death in Indonesia. Journal of Health Science and Technology. 2015; 2: 11-19.

[3] Gibson L, James. Organization and Management Translation Edition. Erlangga Jakarta. 2010.

[4] Sutermeister. People and Productivity. Toronto: Mc. Graw Hill. 1999.

[5] Ilyas Y. Performance, Theory, Assessment and Research. Center for Economic Studies. 2002.

[6] Robbins SP, Judge TA. Organizational Behavior. Salemba Empat Publisher. Jakarta. 2015.

[7] Purwaningsih E, Kartasurya IM, Mawarni A. Relationship between Characteristics of Village Midwives and Behavior in Neonate Services in the Klaten District Health Center Area. Indonesian Health Management Journal. 2015; 3(1).

[8] Suryaningtyas RF, Nugraheni AS, Mawarni A. Analysis of Internal and External Factors Related to Village Midwife Performance in Neonatal Visits in Pati District. Indonesian Management Journal. 2014. 2(2).

[9] Rachmawati I. Factors Influencing the Performance of Midwives in the Village during a Neonatus Visit (Factors that Affect the Performance of Midwifes in Health Centers in the Neonatal Visit). Journals of Ners Community. 2014; 5(1).

[10] Merita. The Effect of Competence, Financial Compensation and Sufficiency on the Performance of Village Midwives in Tebo District. Thesis. Megister Management. Jakarta Open University Postgraduate Program. Jakarta. 2016.

[11] Priansa JD. Performance Management Employees in Processing Resources Human Resources Company. Publisher of CV Pustaka Setia. Bandung. 2017.

[12] Mangkuprawira TB. Strategic Human Resource Management. Ghalia Indonesia. Bogor. 2011.

[13] Muslimah, Suryawati C, Sriatmi A. Analysis of the Differences in the Performance of Village Midwives Who Have and Have Not Been Trained Integrated Management of Young Babies in The Management of Neonalat Visits in Kudus District. Indonesian Health Management Journal. 2013; 1(3).

[14] Yuningsih R. Policy Development Professional Midwives in Efforts to Improve Health Care Mother and Child (Midwifery Profession In Policy Development Efforts To Improve Maternal and Child Health Services). DPR Journal. 1999; 7(1).

[15] Bintoro, Daryanto. Management of Employee Performance Appraisal. Gava Media Publisher. Yogyakarta. 2017.