



INTERNATIONAL PROCEEDINGS

**THE 2ND
INTERNATIONAL SCIENTIFIC MEETING on
HEALTH INFORMATION MANAGEMENT
(ISM_oHIM)**

**Reinforcing Health Information Management
Professionals in The Industrial Revolution 4.0**

[Electronic Source]

Surakarta, 19 December 2020

Online Conference



INTERNATIONAL PROCEEDINGS

THE 2ND INTERNATIONAL SCIENTIFIC MEETING ON HEALTH INFORMATION MANAGEMENT (ISM_oHIM)

*Reinforcing Health Information Management Professionals
in The Industrial Revolution 4.0*

[Electronic Source]

Surakarta, 19 December 2020

Online Conference



International Proceedings the 2nd International Scientific Meeting on Health Information Management (ISMoHIM) 2020

Reinforcing Health Information Management Professionals in The Industrial Revolution 4.0

INTERNATIONAL PROCEEDINGS THE 2ND INTERNATIONAL SCIENTIFIC MEETING ON HEALTH INFORMATION MANAGEMENT (ISMoHIM) 2020

Reinforcing Health Information Management Professionals in The Industrial Revolution 4.0

ISBN : 978-623-95806-0-5 (PDF)

APTIRMIK Press



COMMITTEE

Steering Committee:

Dr. Hj. Hosizah, S.KM., M.KM. (Universitas Esa Unggul Jakarta)

Nuryati, S.Far., M.P.H. (Sekolah Vokasi UGM)

Edy Susanto, S.H., S.Si., M.Kes. (Poltekkes Kemenkes Semarang)

Organizing Committee:

Tominanto, S.Kom., M.Cs. – Universitas Duta Bangsa Surakarta (General Chair)

Sri Sugiarsi, S.KM., M.Kes. – STIKes Mitra Husada Karanganyar (Co-Chair)

Imelda R. Weningsih, S.ST., M.Kom. – STIKes St. Borromeus Bandung (Secretary)

Angga Eko Pramono, S.KM., M.P.H. – Sekolah Vokasi UGM (Co-Secretary)

Kori Puspita Ningsih, A.Md., S.KM., M.P.H. – Universitas Jenderal A. Yani Yogyakarta (Treasury)

Rohmadi, S.Kom., M.Kom. – STIKes Mitra Husada Karanganyar (Publication Chair)

Program Committee:

Prof. Bhisma Murti, dr, M.P.H., M.Sc., PhD. – Universitas Sebelas Maret

Prof. Dr. Muhtadi, M.Si. – Universitas Muhammadiyah Surakarta

Prof. Jose Jurel Nuevo, PhD – Our Lady of Fatima University Philippines

Nik Azliza bt Nik Arifin, PhD – University Technology MARA (UiTM) Malaysia

Dr. Nur Rokhman, S.Si., M.Kom. – Universitas Gadjah Mada

Dr. Ida Sugiarti, S.Kep, Ners., M.H.Kes. – Poltekkes Kemenkes Tasikmalaya

Dr. Muh Nazil Saleh – PICOMS International College University Malaysia

Bambang Parmanto, PhD – University of Pittsburgh Pennsylvania, USA

Dr. Bernard Ebulan – Arellano University Philippines

Dr. Rina Arum Prastyanti, S.H., M.H. – Universitas Duta Bangsa Surakarta

Dr. dr. Ignatius Loyola Sukamto, SpAn – Universitas Duta Bangsa Surakarta

dr. Lutfan Lazuardi, M.Kes., PhD – Universitas Gadjah Mada

Technical Committee :

Linda Widyaningrum, S.KM., M.P.H. – Universitas Duta Bangsa Surakarta

Antik Pujihastuti, S.KM., M.Kes. – STIKes Mitra Husada Karanganyar

Erna Zakiyah, S.KM., M.Kes. – Poltekkes Bhakti Mulia Sukoharjo

Fahmi Hakam, S.KM., M.P.H. – Universitas Veteran Bangun Nusantara

Artika Fristi Firnawati, S.KM., M.P.H. – Politeknik Indonusa Surakarta

Aditya Kurniawan, A.Md.PK., S.KM. – Universitas Duta Bangsa Surakarta

Fachruddin Edi Nugroho Saputro, S.T., M.Kom. – Universitas Duta Bangsa Surakarta

Micco Wellyam, S.Kom. – Universitas Duta Bangsa Surakarta

Hesty Latifa Noor, A.Md.RMIK., S.KM – Universitas Duta Bangsa Surakarta

Reza Widianoro, A.Md.Kes. – STIKes Mitra Husada Karanganyar

Sopingi, M.Kom. – Universitas Duta Bangsa Surakarta



PROGRAM SCHEDULE

The 2nd International Scientific Meeting on Health Information Management (2nd ISMoHIM) Saturday, December 19th, 2020	
Time (GMT+7)	Programs
07:30-08:00	Registration
08:00 – 08:05	Opening Ceremony (MC)
08:05 – 08:10	National Anthem of Republic Indonesia
08:10 – 08:15	Doa (Fahmi Hakam, S.KM.,MPH)
08:15 – 08:30	Welcoming speech 1. Comitte Chairman Report (Tominanto, S.Kom.,M.Cs)
08:30 – 08:45	2. General Chairman of APTIRMIKI (Nuryati, S.Far.,MPH)
08:45 – 09:00	3. Head Of LLDIKTI region 6 Central Java
09:00-09:45	Keynote Speech Dr. Dra. Gemala R. Hatta, MRA., M.Kes. (Regional Director of IFHIMA for South East Asia Region) Topic: “Empowering the Health Information Management Professionals in South East Asia Region” Moderator: Dr. Hj. Hosizah, S.KM., M.KM..
09:45-10:30	Speaker (1) Nik Azliza Nik Ariffin, Ph.D. (Senior Lecturer, Electronic Information and Record Management Faculty of Information Management, University Technology MARA, Malaysia) Topic: “Health Information Management Education in Malaysia” Moderator: Dr. Hj. Hosizah, S.KM., M.KM..
10:30 – 10:45	Speaker (2) Stenghthening the Health Information Global Workforce : Recommendations for Standardizing Competencies and Curricula Requirements William Rudman PhD, RHIA (Executive Director, AHIMA Fondation Vice President of Education Visioning, AHIMA Co-Chair, Global Health Workforce Council) Moderator: Dr. Hj. Hosizah, S.KM., M.KM..
10:45 – 11:30	Discussion Sesion
11:30-13:00	Break
13:00-15:00	Call for Papers: <ul style="list-style-type: none"> • Electronic Medical Record (EMR) • Clinical Coding and Reimbursement • Health Information Management (HIM) • Health Workforce Education • Health Information Technology • Public Health
15:00-16:00	Conference Remarks
	Closing Ceremony



PREFACE

Praise Allah SWT Almighty God, for the grace and guidance of this proceedings and International Scientific Meeting on Health Information Management (ISMoHIM) activities can be held; Saturday, December 19, 2020, at the zoom meeting.

Through the theme ‘Reinforcing Health Information Management Professionals in The Industrial Revolution 4.0’. The Industry 4.0 is based on the concept of smart factory, where the machines are integrated with men through cyber-physical systems (CPS). In other words, Industry 4.0 is a new level of organization that manages and controls the whole value chain of personalized products to satisfy customer needs. Digitalization is the most important element in Industry 4.0 because it allows to connect man and technology. It is hoped that it can improve the quality of medical record education & health information management. As well, it can improve cooperative relations between universities both at home and abroad, and between universities and associations. The international Scientific Meeting, was the beginning of a series of activities for the APTIRMIKI national conference (Munas II).

“I hope this time ismohim will run successfully and smoothly. And in the future, the existing cooperation can be further improved.

Nuryati, S.Far, MPH
Chair, APTIRMIKI



PREFACE

Dear distinguished readers. Welcome to the 2nd International Scientific Meeting on Health Information Management (ISMohIM) 2020. The theme ‘Reinforcing Health Information Management Professionals in The Industrial Revolution 4.0’.

The 2nd International Scientific Meeting on Health Information Management (ISMohIM) is to be held in Solo, Indonesia, on December 19, 2020 by zoom meeting. This activity themed “Reinforcing Health Information Management Professional in The Industrial Revolution 4.0” with Keynote Speaker Dr. Dra Gemala Hatta, MRA., M.Kes (Regional Director Southeast Asia – Indonesia)

There are six clusters of oral presentation of research works offered at this conference: (1) Electronic Medical Record (EMR); (2) Clinical Coding and Reimbursement; (3) Health Information Management (HIM); (4) Health Workforce Education; (5) Health Information Technology; (6) Public Health. More than 115 papers of research work presented at this conference.

In this opportunity, please allow us to say to the speakers, discussants, moderators, Mr. / Ms. entire committee ISMohIM who have taken the time, energy and thoughts for the success of this activity, Mr / Ms Lecturer and Student contributor to research articles in this activity. Hopefully these proceedings book can give benefit to us all, for the sake of the development of science and technology. In addition, it is also expected to be a reference to the efforts of nation building. Lastly, there is no ivory that is not cracked, sorry if there are things - things that are not pleasing.

Tominanto, S.Kom, M.Sc

Chair, 2nd International Scientific Meeting on Health Information Management



TABLE OF CONTENT

Efficiency of Recording Patient Medication History with Electronic Medical Records <i>Alvionita Eka Saputri, Muh Afif Ali Imron, Nurhayati, Tominanto</i>	1
Study of Healthcare Data Related to Hospital Readmission of Patients with Cardio Vascular Diseases Using Machine Learning Tools <i>Venkat Lellapalli</i>	6
Development of the Health Information Analytics Dashboard Using Big Data Analytics <i>Anisatul Afifah, Krisostomus Nova Rahmanto</i>	13
Accuracy and Conformity of Coding Diagnosis Case of Road Care Patients on Medical Records Using Hospital Management Information System <i>Kori Puspita Ningsih, Lily Widjaja, Zakharias Kurnia Purbobinuko, Angga Eko Pramono, Febi Nuraeni</i>	20
Management of Storage of Medical Records for Covid-19 Cases in Central Java Regional Hospitals <i>Elise Garmelia, Subinarto, Zefan Adiputra Golo</i>	28
Quality Evaluation of Try Out Competency Test of Indonesian Medical Record and Health Information Association to Support Graduation Achievement <i>Lily Widjaja, Kori Puspita Ningsih, Ida Sugiarti</i>	34
Positive and Negative Sentiments Regarding BPJS-Kesehatan Premium Increase: An Analysis Using Text Data Mining on Twitter <i>Dewa Ngakan Gde Wahyu Mahatma Putra, Ricko Pratama Ridzkyanto, Globila Nurika</i>	41
Legal Certainty Regarding Electronic Medical Record Retention Period <i>Rano Indradi Sudra</i>	48
Prototype Program Reporting System DHIS 2-Based Nutrition In Puskesmas <i>Nuryati, Angga Eko Pramono, Dian Budi Santoso</i>	55
The Correlation between Inpatient Characteristics and Length of Stay for Cerebro Vascular Accident at dr. Soedjono Magelang Hospital <i>Yeni Tri Utami, Eni Nur Rahmawati, Febriana Siska Saputri</i>	67
Regional-Based Competency Test for Medical Record and Health Information Management Students in Indonesia <i>Sri Sugiarsi, Erna Adita Kusumawati, Rohmadi, Trismianto Asmo Sutrisno</i>	76



Cause of Death Reported and Administrative Code with Sepsis and Trend in Panembahan Senopati General Hospital <i>Laili Rahmatul Ilmi, Sis Wuryanto</i>	82
Utilization of Electronic Medical Records for Monitoring The Health of Toddlers and Pregnant Women at Posyandu <i>Annisa Setiyawati, Fina Daniyati Rahayu, Agung Suryadi, Sri Widodo</i>	87
Transforming The Manual Electronic Medical Record to Electronic Medical Record in RSI Klaten <i>Fajar Rofik Nur Khoiriyah, Nur Rokhman</i>	93
User Satisfaction with an Implementaiton Electronic Medical Record <i>Feby Erawantini, Sustin Farlinda</i>	100
The Factor's Whom Influencing The Incidence of Speech Delay in House of Fatima Child Center Malang City <i>Anis Ansyori, Retno Dewi Priskusanti, Arif Efendi</i>	104
Analysis of Performance-Based Capitation Payments at the Community Health Services in Semarang City <i>Anton Kristijono, Setya Wijayanta, Galih Putra Permana</i>	109
Descriptive Study of Factors Related to The Accuracy of The Diagnosis Code of TB (Case Study in 2 Hospitals and 1 Puskesmas) in Semarang City in 2019 <i>Zaenal Sugiyanto, Imareta Prisilia Widyawati, Anggie Eka Pravitasari, Audita Argianti</i>	114
Examination of Technology Acceptance Model on Attitude Toward SIHA in Wonosobo Indonesia <i>Julia Pertiwi, Anita Nugrahaeni</i>	122
Digitizing Medical Records within National Health Coverage Era in Indonesia <i>Dian Budi Santoso, Angga Eko Pramono, Nuryati</i>	130
Optimizing Antenatal Care by Digitalization Pregnancy Risk Screening <i>Hosizah Hosizah, Fachmi Tamzil, Mulyo Wiharto</i>	139
Identification of Medical Outpatient Medical Record Distribution in Tk.III Hospital Dr. Reksodiwiryo Padang <i>Linda Handayuni, Azyyati Ridha Alfian, Dewi Mardawati, Rahmadhani</i>	145
Strategic Planning Development of Information System and Information Technology in X Hospital Using Ward and Peppard Method <i>Fahmi Hakam</i>	151



Health Information Management Professionals: Efforts to Reinforcing The Ability of Indonesian Health The Officer in The Industrial Revolution 4.0 <i>Wahyu Wijaya Widiyanto, Artika Fristi Firnawati, Agustyarum Pradiska Budi</i>	165
Reporting Automation Through a Web Based Daily Inpatient Census System <i>Aura Lisa Pradany, Dewi Nafika Wati, Nurhayati, Fachruddin Edi Nugroho Saputro</i>	171
Codification of Death Index, Complications, and Secondary Diagnosis of HIV AIDS Patients Who Died at RSUD Dr. Soetomo <i>Masyfufah, Wahyuni, Triyono, Sulistyoadi, Winarti</i>	178
Does The Medical Record Graduates Have More Competence Than The Non-Medical Record Graduates? <i>Nanda Aula Rumana, Ria Mawarni Aprilia, Deasy Rosmala Dewi, Laela Indawati, Noor Yulia, Wiwik Viatiningsih</i>	189
The Correlation Between The Completeness of Patient Anamnesis Form and External Causes Diagnosis Code Accuracy in Bahagia Hospital Makassar <i>Asriyanti, Arief Azhari Ilyas, Yulita</i>	194
Feasibility of Development and Implementation of Mobile-Based Homecare Applications for Mother and Children Services in Indonesia <i>Nurvita Wikansari, Agung Kurniawan, Dian Budi Santoso</i>	201
Blood Glucose Control in Patient Diabetes Mellitus During Covid-19: Literature Riview <i>Agung Widiastuti, Purnama Sismika Sökkiani, Muzaroah Ermawati Ulkhasanah, Anisa Indah Prastiti, Yulistiani Mustiah</i>	208
How WhatsApp Group Information Influence People’s Perception About Covid-19? <i>Prita Devy Igiyany, Farid Setyo Nugroho</i>	216
Utilization of Electronic Medical Records for Anggrek 7 Integrated Servant Post <i>Nurhayati, Sega Ardhea Reza, Tominanto</i>	226
Implementation of Medical Record Services in The Pandemic Time of Covid-19 in Muhammadiyah Selogiri Hospital Health Services <i>Yul Asriati, Fahmi Hakam</i>	232
Review Accuracy of Codefication to Support The Quality Top Ten of Disease in Cimahi Hospital <i>Weningsih Imelda, Devani Claudia</i>	238
Time-Series Analysis of Climate Change Effect on Increasing of Dengue Hemorrhagic Fever (DHF) Case with Geographic Information System Approach in Yogyakarta, Indonesia <i>Marko Ferdian Salim, M. Syairaji</i>	248



Analysis of Efficiency of Hospital Service Bor Indicator in “Prof. Dr. R. Soeharso” Orthopaedy Hospital in Surakarta Quarterly 1-3 in 2019 <i>Fiqi Nurbaya, Risma Gilang, Husnun Afifah, Ihsantri Koespriyanti, Diah Lestari</i>	257
Electronic-Based Medical Records Auditing System in Indonesian Hospital: Development and Trials <i>Angga Eko Pramono, Dian Budi Santoso, Nuryati</i>	266
Assessment Electronic Form in The Covid-19 Pandemic Period <i>Linda Widyaningrum, Tominanto, Eka Fitriyana, Diva Oktia Farasari</i>	273
The Relationship of Difficulties’s Question Test with Final Year Student’s Competence of Medical Records and Health Information Management Program Study <i>Antik Pujihastuti, Tri Lestari, Sri Mulyono</i>	278
Training Activities Yoga to Reduce Primigravida Anxiety with Labor: Literature Riview <i>Muzaroah Ermawati Ulkhasanah, Agung Widiastuti, Utur Kardatun, Erna Kusumawati, Elfiana Dwi Safitri</i>	282
Development Clean and Healthy Life Behavior (PHBS) for Citra Medika Group Health Vocational School Students <i>Nur Hikmah, Nopita Cahyaningrum, Darah Ifalahma</i>	289
Accuracy Review Diagnose Codefication on Labor Case Based ICD-10 Book at RSU Tangerang District <i>Ita La Tho, Fenita Purnama Sari, Laras Serina Hutari</i>	295
Association Rule Mining to Analyze Diagnosis Pattern Based on Electronic Medical Record Data <i>Jerhi Wahyu Fernanda, Gangga Anuraga, Ni’matu Zuliana</i>	305
Strengthening SIKNAS Through Evaluation of Health Information System in Bali Regional Health Office by HMN Framework Method <i>Suandari, P.V.L, Made Karma Maha Wirajaya, Putu Ayu Laksmi</i>	312
Outpatient Android Application to Facilitate Patient Registration at RSAU dr. Siswanto Lanud Adi Soemarmo <i>Lina Andriani, Luna Reksia Ananda, Tominanto, Nurhayati</i>	319
Design and Build e-Complaints in Hospitals Based on SMS Gateway <i>Sustin Farlinda, Muhammad Yunus, Aries Wijaya</i>	326
Path Analysis Factors of Changes in Rates of INA-CBGs for Inpatients at Hospitals <i>Maryati Warsi, Yuliani Novita, Justika Ani Ismayani</i>	334



The Effectiveness of Bed Occupancy, Using The Barber Johnson Graphic Method at The Muhammadiyah Hospital Selogiri <i>Arifatun Nisaa, Prita Devy Igiyany, and Julia Pertiwi</i>	345
The Role of Health Information Management (HIM) Department Manager in Monitoring and Evaluating The Quality of Medical Record at AN-NISA Tangerang Hospital <i>Tria Saras Pertiwi, Faisal Lukmanul Hakim</i>	357
Descriptive Analysis of The Quality of Health Services The Hospital X The District of Kediri with a Net Death Rate (NDR) in 2019 <i>Krisnita Dwi Jayanti, Eva Firdayanti Bisono</i>	364
Path Analysis of Factors Related to The Events of Low Born Weight Babies in Bangil Hospital <i>Retno Dewi Priskusanti, Anis Ansyori, Arif Efendi</i>	369
Factors That Related to The Completeness of Medical Record in Out-Care Patient Polyclinic in Pariaman Regional Public Hospital <i>Chamy Rahmatiqqa, Ilma Nuria Sulrieni, Werman</i>	376
Evaluating The Usability of Hospital Information System (HIS) Through Human Organization Technology-Fit (Hot-Fit) Model <i>Atma Deharja, Maya Weka Santi, Nyoman Anita Damayanti, Arief Hargono, Nurhasmadiar Nandini</i> ..	380
Perceptions of Consumer Acceptance of the Application of Personal Health Records in America <i>Laela Indawati, Rizka Nurianti, Nanda Aula Rumana, Deasy Rosmala Dewi</i>	390
Legal Protection of Work Safety and Health Medical Records Filing Unit Officers in X Hospital of Kediri <i>Indah Susilowati, Wisnaningsih, Chury Wardah Nihayati</i>	398
Error in Filling Death Certification on HIV Cases at A Teaching Hospital <i>Titin Wahyuni, Lilis Masyfufah AS, Winarti, Sulistyoadi, Erwin Astha Triyono</i>	408
The Correlation between Characteristics of Patient and Their Behavior of Bringing Patient Card in The Registration of Puskesmas Tlogosari Wetan Semarang City <i>Endah Widaningtyas, Asih Prasetyowati, Nizarudin Annas Fasabi</i>	413
Survey of Patient's Satisfaction with Medical Record Services at The Registration of Outpatients at Puskesmas in Mataram <i>Syamsuriansyah, Uswatun Hasanah, Ria Rahmatul Istiqomah, Reni Chairunisa, Helmina Andriani, Jihadil Qudsi, Iin Anggraeni Sukma, Ikhwan, Nik Azliza bt Nik Arifin</i>	420
Electronic Retrieval System Design for Outpatient Medical Record Filling at Puskesmas Lubuk Buaya Padang <i>Hendra Nusa Putra, Ns. Dian Sari, Maisharoh</i>	432



Spatial Analysis for Maternal Mortality in Special Region of Yogyakarta, Indonesia <i>M. Syairaji, Marko Ferdian Salim</i>	439
The Relationship of Husbands, Friends and Health Workers Support on the Implementation of Voluntary, Counseling and Testing (VCT) on Housewives <i>Ervina Rachmawati, Ida Nurmawati, Faiqatul Hikmah</i>	446
Prototyping of Medical Record Quantitative Analysis Information System (Case Study: Patut Patuh Patju Public Hospital, West Lombok) <i>Noor Alamsyah, Syamsuriansyah, Reni Chairunnisah, Rizal Pratama Adi Putra, Helmina Andriani</i>	454
Application of Lean Distribution in National Vaccine Program of Indonesia: Case Study in Banten Province <i>Putu Eka Cita</i>	463
Analysis Difference of Diagnosis of Patients in Admission and Discharge Summary Form with Ina-Cbgs Verification Form in Hospital by Literature Study <i>Oktamianiza, Devid Leonard, Deni Maisa Putra</i>	471
Case Study of Factors Causing Lost to Follow Up of HIV Patients in Antiretroviral Treatment at Kencong Public Health Center, Jember, East Java <i>Faiqatul Hikmah, Ervina Rachamawati, Septianingtyas Risti Anggraeni, Ida Nurmawati, Hari Basuki Notobroto</i>	478
System Design of Web-Based Medical Record Content in Fulfilling Medical Record and Information Management 13.4 SNARS Edition 1.1 in Santosa Hospital Bandung Central <i>Sali Setiatin, Muzna Iqbal Nurzeha, Aris Susanto</i>	485
Wristband as identity and as Evidence of Patient Safety <i>Ida Sugiarti, Ani Radiati, Fery Fadly</i>	497
Evaluation of the Utilization of Sidoarjo Prevent Mother and Child Death Rate (Si Cantik) Information System <i>Umi Khoirun Nisak, Nova Mellania, Alfinda Ayu Hadikasari, Novilia Risnawati, Nur Cholifah, Cholifah</i>	502
The Mental Health Information and Geographic Distribution in Urban Areas: SIMPUS Dataset Analysis of Patients with Schizophrenia <i>Hendra Rohman, Nor Naela Bella Arrizah</i>	507
Pending Claim Correlation with Claim Completeness Requirement BPJS Outpatients Arya Medika Hospital <i>Amika Rois, Supriyanto, Yulika</i>	522



Designing and Manufacturing Application of Electronic Medical Record for Clinic Dental in Health <i>Sustin Farlinda, Feby Erawantini, Anggun Puspitasari, Saiful Anwar</i>	526
Provision of Application of Reporting on Outpatient at Soemitro Air Force Hospital Surabaya <i>Amir Ali, Firdha Arinta Firstanty, Diah Wijayanti Sutha</i>	535
Data Processing System Hospitalization Web-Based in Hospital <i>Yunita Wisda Tumarta Arif, Sri Widodo, Nurul Stevia Ningrum</i>	540
Workload Based Need For Assembling Staff Analyzed With Workload Indicators Staff Need (WISN) <i>Nopita Cahyaningrum, Triyanta, Nia Fahni Ferdhaniah</i>	548
The clinic's customer satisfaction depends on the first impressions of patient registration <i>Rita Dian Pratiwi, Tanatsa Fahma A Husna</i>	556
Implementation of INA-CBGS Rates and Hospital Costs in Case of Typhoid Fever in Inpatient of The Indonesian National Health Insurance (JKN) Patients <i>Nina Rahmadiliyani, Elin Maslianti</i>	565
Implementation of Occupational Safety and Health Standards in Health Care Facilities <i>Azir Alfanan, Elisabeth Deta Lustiyati</i>	572
Training Activities Yoga to Reduce Primigravida Anxiety with Labor: Literature Review <i>Muzaroah Ermawati Ulkhasanah, Erna Kusumawati, Agung Widiastuti, Elfiana Dwi Safitri, Utur Kardatun</i>	583
Optimization of The Combination of Tween 80 and Carbopole 940 Gel Formula Vitamin E with Sld Method <i>Wardani Siska Tatiana, Dewi Arbitya Belinda, Setianto Rony, Artini Siwi Kusumaningtyas, Erikania Susanti, AlFajri Rasyid Faizur Muhammad</i>	590
Regional-Based Competency Test for Medical Record and Health Information Management Students in Indonesia <i>Imas Masturoh, Dedi Setiadi, Fery Fadly</i>	599
Knowledge and Behavior of the People of Karanganyar Regency to Covid-19 <i>Puguh Ika Listyorini, Devi Pramita Sari, Muhammad Indrawan Nur Huda</i>	613
Two Years Security Life of Drug Resistant Tuberculosis Patients In Moewardi Hospital of Surakarta Year 2010-2014 <i>Artika Fristi Firnawati, Riris Andono Ahmad, Heni Retnowulan, Arvan Fetura</i>	619



Relationship of Exclusive Breastfeeding with The Incidence of Acute Diarrhea in Infant <i>Annisa, Y, Ikrima, R, Dwi, N, Alfinna, H</i>	627
Relationship of Mother's Knowledge on Balanced Nutrition with Malnutrition Energy Protein (Kep) Levels in Children in Jelok Cepogo Boyolali 2020 <i>Musta'in, Huwaida H, Lestari D, Widiati A, Tri Yuniarti</i>	632
Drug Information Services by Pharmacist and Patient Compliance in Drug Use <i>Kusumaningtyas Siwi Artini, Tommy Julianto Bustami Effendi, Weri Veranita, Muladi Puta Mahardika, Anita Dwi Septiarini, Ema Ananda Perdana</i>	641
Effectiveness of Interprofesional Education Implementation in Health Services: Literature Review <i>Totok Wahyudi, Endrat Kartiko Utomo, Susi Lastianingsih, Panji Azali, Oktavia Nurcahyani</i>	649
Children Under-five Health Transition Information System <i>Noviati Fuada1 and Sidiq Purwoko</i>	656
Risk Factors for Non-Communicable Diseases Among Adolescents in The City Yogyakarta <i>Naomi Nisari Rosdewi, Heni Trisnowati, Hesti Yuningrum</i>	666
Effect Exercise on Fatigue in Patient Heart Failure: Literature Review <i>Endrat Kartiko Utomo, Arifin Saputra, Totok Wahyudi, Slamet Purnomo, Muhammad Fahri Januar..</i>	671
Antibacterial Activity Tests of N-Hexane, Ethyl Acetate and Methanol Extracts of Breadfruit Leaves on Escherichia Coli and Staphylococcus Aureus <i>Weri Veranita, Muhamad Faiz Othman, Kusumaningtyas Siwi Artini, Silvi Ayu Wulandari, M. Ikhwan Setiawan, Errol Rakhmad Noordam</i>	683
Factors Related to Tuberculosis Prevention Behavior in Pendrikan Kidul Sub-District, Semarang, Central Java 2019 <i>Nugraeni Novita, Pramitasari Ratih, Yoni Setyo N Bayu, Maulana Alvin</i>	687
Management Completeness Analysis Result of The Pulmonary Tuberculosis 01 (Tuberculosis Patient Treatment Card) at Outpatient Unit of Semarang Public Health Center Year 2019 <i>Retno Astuti Setijaningsih, Arif Kurniadi</i>	694
Case Study: Building a Comprehensive Learning Experience in Effective Communication Course Using Mini Seminar Method on Health Information Management Undergraduate Study Program <i>Lakhmudien, Qonita Ulfiana</i>	707
Relationship Between Parenting Patterns with Juvenile Delinquency <i>Dwi Lestari Mukti Palupi, Wulansari Syifa Fauziah, Wulansari Syifa Fauziah, Ns.Ikrima Rahmasari, Diana Hardiyanti</i>	712



The Online Community's Literacy About Patient Rights in Hospital (A Case Study of WhatsApp Group Online Community) <i>Qonita Ulfiana, Lakhmudien</i>	719
Systematic Review: Factors Causing Cases of Cervical Cancer Deaths in Indonesia Year 2018 <i>Deasy Rosmala Dewi, Nanda Aula Rumana, Meti Anisa, Wiwik Viatiningsih</i>	725
Anti Inflamed Activity Test of Extract, Water Fraction, Ethyl Acetate, and N-Hexan Sendok Leaf (Plantago Major L.) to Red Blood Cell Membrane Stability <i>Dewi Maha Putri Kezia, Septiarini Dwi Anita, Wardani Siska Tatiana, Veranita Weri, Setianto Rony, Mahardika Putra Muladi, Wardani Siska Tatiana, Setianto Rony, Septiarini Dwi Anita, Veranita Weri, Mahardika Putra Muladi</i>	734
Analysis of Design Form "Do Not Resuscitate" <i>Ratih Kumala Dewi, Rano Indradi Sudra</i>	743



Path Analysis of Factors Related to The Events of Low Born Weight Babies in Bangil Hospital

1st Retno Dewi Priskusanti
Prodi Rekam Medis ITSK
RS dr. Soepraoen Malang
retnodewi2503@gmail.com

2nd Fita Rusdian Ikawati
Prodi Rekam Medis ITSK
RS dr. Soepraoen Malang

3rd Arif Efendi
Prodi Rekam Medis ITSK
RS dr. Soepraoen Malang

4th Suwito
Prodi Rekam Medis ITSK
RS dr. Soepraoen Malang

ABSTRACT

Low birth weight (LBW) is one of the main factors influencing perinatal and neonatal mortality. According to UNICEF (United Nations International Children's Emergency Fund) in the asian parent (2015) the number of LBW in Indonesia in 2011 was high, namely around 11.1%. The aim of the study was to analyze the risk factors for low birth weight at Bangil Hospital, Pasuruan Regency, East Java. Method: This type of research is *ex post facto* because this research does not make treatment or conditioning of variables with a case control approach. This research was conducted at the Bangil Regional Hospital, Pasuruan Regency and the time of data collection was in June 2016. The sample was selected by fixed disease sampling, using a ratio of 1: 3 between the case group and the control group with 120 subjects. The data collection technique used a questionnaire. Data were analyzed using STATA13 Path Analysis (Path analysis) and it is said to be significant if the *p* value is <0.05 . Results: There was a relationship between maternal hemoglobin levels ($b = -2.69$; 95% CI -4.59 to -0.79; $p = 0.006$), maternal LILA ≥ 23.5 cm ($b = -2.10$; CI95% -3.82 to -0.38; $p = 0.017$), and ANC ≥ 4 times ($b = -2.70$; 95% CI -4.01 to -1.40; $p = <0.001$) with a logit reduction in the risk of delivering LBW babies. There was a relationship between maternal stress and the increased risk of giving birth to low birth weight babies ($b = 1.96$; 95% CI 0.36 to 3.57; $p = 0.016$). There is a relationship between family income ($b = 1.45$; 95% CI 0.09 to 2.81; $p = 0.036$) and maternal education ($b = 2.19$; 95% CI 0.88 to 3.49; $p = 0.001$) with an increased logit risk of having a hemoglobin level ≥ 11 grams%. There was a relationship between family income ($b = 1.60$; 95% CI 0.19 to 3.02; $p = 0.026$), education ($b = 1.78$; 95% CI 0.40 to 3.17; $p = 0.012$) with an increase in logit risk of having LILA nutritional

status ≥ 23.5 cm. There was an association between passive smoking and a decrease in risk of nutritional status LILA ≥ 23.5 cm ($b = -1.94$; 95% CI -3.61 to -0.26; $p = 0.023$). There is a relationship between family income ($b = 2.00$; 95% CI 0.76 to 3.25; $p = 0.002$) and education ($b = 1.66$; 95% CI 0.55 to 2.77; $p = 0.003$) with an increase in logit risk of doing ANC ≥ 4 times. There was a relationship between maternal education and the increased risk of having a family income \geq UMK ($b = 1.81$; 95% CI 0.73 to 2.88; $p = 0.001$). There was a correlation between maternal education and a decrease in the risk of exposure to cigarette smoke ($b = 1.06$; 95% CI -2.02 to -0.10; $p = 0.031$). Conclusion: There is a direct relationship between ANC, stress, Hb, nutritional status with the incidence of LBW. There is an indirect relationship between education, family income, smoking and the incidence of LBW.

Keywords: Low Birth Weight (LBW), Risk Factors.

I. INTRODUCTION

Low Birth Weight (LBW) is a baby born with a birth weight of less than 2,500 grams regardless of gestation. In general, the cause of LBW babies is multifactorial, both from maternal factors, placental factors, fetal factors and other factors. Low birth weight (LBW) is one of the main factors affecting perinatal and neonatal mortality (Nugroho et al, 2015).

The infant mortality rate in Indonesia according to the 2008-2012 Demographic and Health Survey is 32 deaths per 1,000 live births, the infant mortality rate occurs at the age of less than 1 month. Low Birth Weight (LBW) and asphyxia are the causes of high neonatal



mortality. Neonates with low birth weight have a risk of death 6.5 times greater than babies born with normal weight. Low birth weight has a higher risk of death than babies with normal weight at birth, especially deaths during the perinatal period. IDHS, 2012)

According to UNICEF (United Nations International Children's Emergency Fund) in the Asian Region (2015), the low birth weight rate in Indonesia in 2011 was high, namely around 11.1%, compared to neighboring countries with low birth weight rates such as Vietnam (5.3 %) and Thailand (6.6%). Then WHO noted that Indonesia is ranked ninth in the world with a percentage of LBW of more than 15.5% of baby births each year. The 2013 Riskesdas results stated that the percentage of children under five (0-59 months) with BLR was 10.2%. The highest percentage of LBW was in Central Sulawesi Province (16.8%) and the lowest was North Sumatra (7.2%) (Ministry of Health, Republic of Indonesia, 2014).

The factors that influence the risk of LBW incidence are the socio-demographic characteristics of the mother (age less than 20 years and age more than 34 years), black race, insufficient socioeconomic status, illegitimate marital status, low education level. Maternal medical risks before pregnancy also play a role in the incidence of LBW including parity, body weight and height, having given birth to LBW, birth spacing. The reproductive health status of the mother at risk for LBW including the mother's nutritional status, infections and diseases during pregnancy, pregnancy history and pregnancy complications). The status of antenatal services includes the frequency and quality of antenatal services, health workers where pregnant check-ups, gestational age at the first pregnancy examination can also be at risk of giving birth to LBW (Sistiarini, 2008).

The condition of the mother before and during pregnancy can affect the growth of the fetus that is being conceived. Low birth weight

babies are babies born weighing less than 2500 grams or 5.5 pounds. Factors that affect the weight of the baby at birth can be maternal factors, environmental factors, and fetal factors (Latifah, 2009). Every time pregnancy can develop into problems or experience complications or complications. Therefore, it is necessary to monitor the health of pregnant women during their pregnancy. Pregnant women class is a means to learn together about health for pregnant women, in the form of face-to-face groups which aims to increase the knowledge and skills of mothers regarding pregnancy, pregnancy care, childbirth, postnatal care, care for newborns, myths, infectious diseases. and birth certificates. So far, general counseling on maternal and child health is still carried out through individual consultations or on a case-by-case basis which is given when mothers check their wombs / at the deadline for posyandu activities.

II. SUBJECTS AND METHODS

This type of research is *ex post facto* because this study does not treat or condition variables, with a case control approach, namely an epidemiological study that studies the relationship between exposure (research factors) and disease, by comparing the case group and the control group based on their exposure status. According to Murti, 2013. The sampling technique used purposive sampling technique. The sample was selected using Fixed disease sampling with a ratio (1: 3) with case control as many as 30 subjects and control as many as 90 subjects Exogenous variables: mother's education, family income, smoking behavior (passive), psychological stress. Endogenous variables (dependent variable): ANC regularity, maternal nutritional status, hemoglobin (Hb) levels, LBW.



Bivariate data processing to determine the relationship between variables using chi-square and multivariate analysis with STATA13 Path Analysis (Path analysis) and it is said to be significant if the p value <0.05.

III. RESULTS

Characteristics of respondents in this study were maternal age, education, maternal occupation, maternal nutritional status (cm), HB levels (gram%), passive smoking, psychological stress, LBW. Of the 120 research subjects, it was found that maternal age at 20-35 years dominated the case and control groups, namely 57% and 63%, mothers who did not work in the case and control groups were more than 73% and 88%, mother's education in the group cases with low education as much as 57% and control with high education as much as 74%, family income in the case group of low UMK cases <Rp. 1,924,000 57% and control of high UMK \geq Rp. 1,924,000 as much as 71%, the nutritional status of mothers in the case and control groups LILA \geq 23.5 cm was 77% and 99%, the hemoglobin level in the Hb case group <11 g% was 53% and the control Hb \geq 11 gr% was 98%, Passive smokers in the case group were exposed to cigarette smoke as much as 70% and controls who were not exposed to cigarette smoke as much as 63%, psychological stress in the stressed case group was 73% and the non-stressed control group was 92%, infants in the case group were 25% and cases as much as 75%.

The results of the analysis used STATA13 Path Analysis (Path analysis) and it is said to be significant if the p value is <0.05.

The results of calculations using STATA 13 computer program software, there is a relationship between maternal hemoglobin levels and a reduced risk logit for delivering LBW babies, and this relationship is statistically significant. Mothers with hemoglobin levels \geq 11

grams% had a logit risk of 2.69 lower than those with hemoglobin levels <11 grams% (b = -2.69; 95% CI = -4.59 to -0.79; p = 0.006).

There was an association between maternal LILA and a reduced risk logit for delivering babies with LBW, and the association was statistically significant. Mothers with LILA \geq 23.5cm had a logit risk of 2.10 lower than mothers with LILA <23.5cm (b = -2.10; 95% CI = -3.82 to -0.38; p = 0.017).

There is a relationship between maternal stress and the increased risk logit for delivering LBW babies, and this relationship is statistically significant. Pregnant women who were stressed had a logit risk of 1.96 higher than mothers who were not stressed (b = 1.96; 95% CI = 0.36 to 3.57; p = 0.016).

There is an association between ANC and a reduced risk logit for delivering LBW babies, and this relationship is statistically significant. Mothers who did ANC \geq 4 times had a logit risk of 2.70 lower than mothers with ANC <4 times (b = -2.70; 95% CI = -4.01 to -1.40; p = <0.001).

There is a relationship between family income and an increase in logit to have a hemoglobin level of \geq 11 grams%, and this relationship is statistically significant. Mothers with family income \geq UMK had a logit risk of 1.45 higher than mothers with family income <UMK (b = 1.45; 95% CI = 0.09 to 2.81; p = 0.036).

There is a relationship between maternal education and an increase in logit to have a hemoglobin level of \geq 11 grams%, and this relationship is statistically significant. Mothers with \geq SMA education had a logit risk of 2.19 higher than mothers with education <SMA (b = 2.19; 95% CI = 0.88 to 3.49; p = 0.001).

There is a relationship between family income and a logit increase for having a nutritional status of LILA \geq 23.5cm, and this relationship is statistically significant. Mothers with income \geq UMK had a logit risk of 1.60

higher than mothers with income <UMK ($b = 1.60$; 95% CI = 0.19 to 3.02; $p = 0.026$).

There is a relationship between education and a logit increase in having a nutritional status of LILA ≥ 23.5 cm, and this relationship is statistically significant. Mothers with \geq SMA education had a logit risk of 1.78 higher than mothers with education <SMA ($b = 1.78$; 95% CI = 0.40 to 3.17; $p = 0.012$).

There is an association between passive smoking and a decrease in logit for having a nutritional status of LILA ≥ 23.5 cm, and this relationship is statistically significant. Mothers with passive smoking who were exposed to secondhand smoke had a lower logit risk of 1.94 to have a good nutritional status than mothers who were not exposed to secondhand smoke ($b = -1.94$; 95% CI = -3.61 to -0.26; $p = 0.023$).

There is a relationship between family income and an increase in logit for doing ANC ≥ 4 times, and this relationship is statistically significant. Mothers with family income \geq UMK had a logit risk of 2.00 higher than mothers with income <UMK ($b = 2.00$; 95% CI = 0.76 to 3.25; $p = 0.002$).

There is a relationship between education and an increase in logit for doing ANC ≥ 4 times, and this relationship is statistically significant. Mothers with \geq SMA education had a logit risk of 1.66 higher than mothers with education <SMA ($b = 1.66$; 95% CI = 0.55 to 2.77; $p = 0.003$).

There is a relationship between maternal education and a logit increase for having a family income \geq UMK, and this relationship is statistically significant. Mothers with \geq SMA education had a logit risk of 1.81 higher than mothers with education <SMA ($b = 1.81$; 95% CI = 0.73 to 2.88; $p = 0.001$).

There is a relationship between maternal education and a decrease in logit for exposure to cigarette smoke, and this relationship is statistically significant. Mothers with \geq SMA

education had a logit risk of 1.06 more education than mothers with education <SMA ($b = 1.06$; 95% CI = -2.02 to -0.10; $p = 0.031$).

IV. DISCUSSION

The association between maternal hemoglobin level and the decrease in logit risk for delivering babies with LBW, and the association was statistically significant ($b = -2.69$; 95% CI = -4.59 to -0.79; $p = 0.006$). This means that there is a relationship between Hb levels and the incidence of LBW babies. The results of this study are in line with research conducted by Aisyah Tarya Utari (2014) regarding the relationship between anemia in pregnant women and the incidence of low birth weight in RSUD Abdul Wahab Sjahranie Samarinda in 2013, which states that mothers with a history of anemia during pregnancy are one of the risk factors that have a major influence. against the incidence of LBW.

According to WHO (World Health Organization) (2009) anemia in pregnant women occurs when the hemoglobin (Hb) level in their blood is less than 11.0 g%. The blood volume of pregnant women increases by approximately up to 50% which causes the concentration of red blood cells to decrease. Hemoglobin is needed by the human body for various cell metabolism in transporting O₂ throughout the body. The condition of concern is the condition after giving birth.

According to Sulistiani (2014), the results of the study obtained an OR value of 8,719 (95% CI = 2.806 to 27,089). So that the OR value is significant or it can be concluded that the incidence of KEK has a risk of 8,719 times giving birth to LBW babies. The results of this study are in line with research conducted by Siva Candra Rukmana concerning the relationship between nutritional intake and nutritional status of third trimester pregnant women with birth weight of babies in the working area of



the Puskesmas The Semarang regency stated that there is a relationship between the level of energy adequacy, protein adequacy level, Fe intake / day, folate intake / day, upper arm circumference and hemoglobin levels with the birth weight of the baby.

The relationship between maternal stress and the increased logit risk for childbirth with LBW, and this relationship was statistically significant ($b = 1.96$; 95% CI = 0.36 to 3.57; $p = 0.016$). According to Mesarini (2013), that the physical and emotional tension that accompanying psychological stress causes discomfort to a person. This makes a person motivated to do something to reduce psychological stress, or it can be called a coping mechanism. Psychic stress conditions will have a wide influence on the body, including dizziness, headaches, chest palpitations, difficulty sleeping, changes in appetite.

The association between ANC and the reduction in logit risk for delivering babies with LBW, and the association was statistically significant ($b = -2.70$; 95% CI = -4.01 to -1.40; $p = <0.001$). The results of this study are in accordance with research conducted by Septiani (2013) which showed that the likelihood of LBW in mothers who had ANC visits 1-3 times during pregnancy was 1.26 times greater than mothers who had ANC visits ≥ 4 times during pregnancy (95% CI 1.09 to 1.4) The implementation of ANC has an important role in improving the health of mothers and children, because ANC visits are one of the sources to get Fe tablets and education about important nutritional needs during pregnancy, besides through antenatal visits for pregnant women It can increase awareness in maintaining fetal health and maternal health because during pregnancy checks, pregnant women get services such as tetanus toxoid vaccination, explanation of signs of complications, receiving iron pills (Fe) and blood pressure checks. All these health services

are very beneficial for the quality of the baby to be born and the health of the mother herself.

The relationship between maternal hemoglobin levels with family income and maternal education is an indirect relationship to the incidence of low birth weight babies. Several studies have examined family income with the incidence of LBW babies, such as in the Bhaskar (2015) study which examined risk factors for LBW infants in Nepal, found a significant relationship between family income (OR = 2.06, 95% CI: 1.19 -3.55) and mother. illiterate is more at risk of having LBW babies than mothers with education up to SLC or more (OR = 3.04, 95% CI: 1.54-5.98).

According to Arisman (2009), the weight of a newborn is determined by the nutritional status of the fetus. The nutritional status of the fetus is determined, among others, by the nutritional status of the mother at delivery and this condition is also influenced by the nutritional status of the mother at the time of conception. Maternal nutritional status at conception is influenced by; the socio-economic condition of the mother before pregnancy, the condition of the mother's health and nutrition, birth spacing, parity, and the age of the first pregnancy.

Socio-economy is one measure to describe the level of social difference, which includes income, employment and education level. Low socioeconomic levels cannot directly affect fetal development, but act as an intermediary for adverse risk factors at birth, such as maternal nutrition, maternal physical activity, lack of access to quality prenatal care and maternal psychosocial (Abusaad, 2010).

Education level, the National Language Center (2002) defines education as the process of changing and managing a person or group of people in an effort to mature humans through teaching and training efforts, processes, methods, actions to educate. According to the research of Ramadhan (2012) the results of statistical tests,



Chi-square are obtained $p = 0.004$ ($p \leq 0.05$), it can be concluded that there is a significant relationship between passive smoking pregnant women and the incidence of low birth weight (LBW).

Socio-economy is one measure to describe the level of social difference, which includes income, employment and education level. Low socioeconomic levels cannot directly affect fetal development, but act as an intermediary for adverse risk factors at birth, such as maternal nutrition, maternal physical activity, lack of access to quality prenatal care and maternal psychosocial (Abusaad, 2010).

There is a relationship between family income and an increase in logit for doing ANC ≥ 4 times, and this relationship is statistically significant. Mothers with family income \geq UMK had a logit risk of 2.00 higher than mothers with income $<$ UMK ($b = 2.00$; 95% CI = 0.76 to 3.25; $p = 0.002$).

There is a relationship between education and an increase in logit for doing ANC ≥ 4 times, and this relationship is statistically significant. Mothers with \geq SMA education had a logit risk of 1.66 higher than mothers with education $<$ high school ($b = 1.66$; 95% CI = 0.55 to 2.77; $p = 0.003$). That the relationship between ANC regularity and family income and maternal education is a significant relationship, indirectly to LBW babies.

It was concluded that the relationship between family income and maternal education was an indirect relationship with LBW babies. Because families with high education will theoretically have high income and have a low risk of baby LBW.

This is reinforced by research by Abusaad (2010) that socio-economy is one measure to describe the level of social difference, which includes income, employment and education level. Low socioeconomic level can not directly

affect fetal development, but as an intermediary for adverse risk factors at birth, such as maternal nutrition, physical activity of the mother, poor access to quality prenatal care and maternal psychosocial.

The risk of dying of babies who experience LBW is very high. A passive smoking pregnant mother can have a 20 percent higher risk of giving birth to a low weight baby than a mother who is not exposed to secondhand smoke. Cigarette smoke that is continuously inhaled by pregnant women, then the baby is very at risk of experiencing LBW. The toxic content in cigarette smoke can reduce oxygen and the fetus (carboxyhemoglobin levels in the blood of the mother and fetus. So this is what causes disruption in the development of children from womb to after birth (Saibatin, 2016).

There is a relationship between maternal education and a decrease in logit for exposure to cigarette smoke, and this relationship is statistically significant. The relationship between passive smoking and education is an indirect relationship to the incidence of LBW infants.

V. REFERENCES

- Abusaad K, (2010). Maternal Nutrition and birth outcomes. Oxford University Press.
- Adiningrum Y, Dwiyan, Lestari TE. (2013). Trimming Model Path Analysis to Determine the Factors That Affect Learning Motivation on Student Academic Achievement. Online Journal of the State University of Malang. 1-2.
- Arisman (2009). Textbook of nutrition science of food poisoning. Jakarta: EGC p. 3
- Depkes RI, (2004). Assessment of K I and K IV. Jakarta: Depkes RI
- Depkes RI. 2008. Antenatal Service Guide. Jakarta: Depkes RI



- Depkes RI. (2009). *Balanced Nutrition Towards a Healthy Life for Babies, Pregnant Women and Breastfeeding Mothers (Puskesmas Officer Guidelines)*. Jakarta: Depkes RI.
- Dinkes Pasuruhan (2015). *Data for low birth weight babies in 2014, 2015*
- Dinkes Prov Jatim (2015). *Data for low birth weight babies in 2010, 2011, 2015*
- Kemenkes RI, (2014). *Indonesia Health Profile 2013*. Jakarta
- Masoumeh Kordi, Soheila Mohamadirizi and Mohamad Taghi Shakeri (2013). The relationship between occupational stress and dysmenorrhea in midwives employed at public and private hospitals and health care centers in Iran (Mashhad) in the years 2010 and 2011. *Iranian Journal of Nursing and Midwifery Research*. 18 (4): 316-322.
- Latifah (2009). *The association of pregnancy in adolescence with the incidence of prematurity, low birth weight and asphyxia*. Public health sciences, Jenderal Sudirman University.
- Mufdlilah. (2009). *ANC Focus*. Nuha. Yogyakarta: Medika
- Murti, B. (2013). *Design And Sample Size For Quantitative And Qualitative Research In The Health Sector*. Yogyakarta: Gajah Mada University Press.
- Murti, B. (2016). *The Influence of Biopsychosocial Factors of Pregnant Women on the Health of Children in Later Days and Age of Adults*. Postgraduate Program of Public Health Sciences, Sebelas Maret University
- Prima Maulana Cahyo Nugroho, Lilia Dewiyanti, Afiana Rohmani (2013). The severity of asphyxia neonatorum in low birth weight babies (LBW). *Muhammadiyah Medical Journal* volume 2 number 1 in 2015
- Saibatin, (2016). *This pregnant woman is the danger of being passive smokers*. <http://www.saibatin.com/2016/01/ibu-hamiltoni-bahaya-jadi-perokok-pasif.html>. accessed on 12 June 2016
- Sistiarani, C (2008). *Maternal Factors And Quality Of Antenatal Services That Are Risks To Incidence Of Low Birth Weight (LBW)*. Thesis. Not published. Faculty of Public Health, Diponegoro University, Semarang.
- SDKI (2012). *National Population and Family Planning Agency*. Central statistical agency of the Ministry of Health
- Unicef Indonesia (2012). *Health of both mother and child*. <http://www.unicef.org/indonesia/id>. Retrieved 26 November 2015
- WHO (2004). *Maternal and Neonatal Health Services*. Jakarta: Media Aesclapius Press
- Yuliva, Djauhar Ismail, Diah Rumekti (2009). Relationship between mother's work status and birth weight at RSUP Dr. M. Djamil. *Community Medical News*. Volume 25 No. 2 pp. 96-108.