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## LIST OF ISSUES

[\(/index.php/icash/issue/archive\)](https://publications.inschool.id/index.php/icash/issue/archive)

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[Archives \(https://publications.inschool.id/index.php/icash/issue/archive\)](https://publications.inschool.id/index.php/icash/issue/archive)

[/ No 1 \(2017\)](https://publications.inschool.id/index.php/icash/issue/view/1)

[https://publications.inschool.id/index.php/icash/issue/view/1\)](https://publications.inschool.id/index.php/icash/issue/view/1)

Journal Content

## No 1 (2017)

Search

[Table of Contents \(https://publications.inschool.id/index.php/ic](https://publications.inschool.id/index.php/ic)

Search Scope

Search

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» [By Issue](#)

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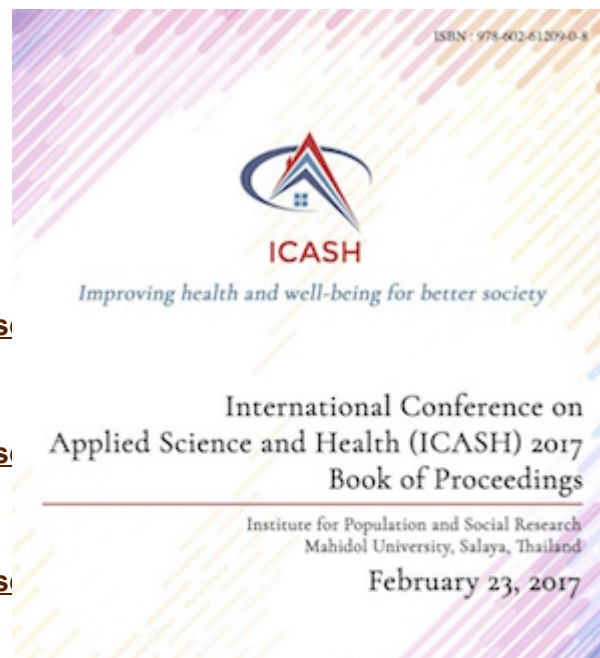
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<https://publications.ins>

» [By Title](#)

<https://publications.ins>

» [By Sections](#)



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(<https://publications.inschool.id>)

» Other Journals

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## LIST OF ISSUES

([/index.php/icash/issue/archive](https://publications.inschool.id/index.php/icash/issue/archive))

[Home \(https://publications.inschool.id/index.php/icash/index\)/](https://publications.inschool.id/index.php/icash/index/)

[Archives \(https://publications.inschool.id/index.php/icash/issue/archive\)](https://publications.inschool.id/index.php/icash/issue/archive)

[/ No 1 \(2017\)](#)

<https://publications.inschool.id/index.php/icash/issue/view/1/showToc>

Journal Content

## No 1 (2017)

Search

Search Scope

All

A joint conference between Diponegoro University, Universitas 'Aisyiyah Yogyakarta and Institute for Population and Social Research Mahidol University Thailand

"Improving health and well-being for better society"

Browse

» [By Issue](#)

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» [By Author](#)

(<https://publications.inschool.id/index.php/icash/search/authors>)

» [By Title](#)

(<https://publications.inschool.id/index.php/icash/search/titles>)

» [By Sections](#)

Health and well-being is a fundamental right of every human being. Government of every nation responsible to provide facilities and supporting policies to enable people accessing health care services. As the Sustainable Development Goals have highlighted the commitment to end the epidemics of AIDS, tuberculosis, malaria and other communicable diseases by 2030 by putting good health and well-being as the indicator, it is important to review the current situation to provide the policy makers and government designing future health programs. Not only government, individuals as community members are also responsible for their own health and well-being. Better society can be established when

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governments, community members, and private sectors are working together at the same direction to reach the goals.

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The joint conference aims to exchange the knowledge and experiences to gain better understanding of the most important issues in the South East Asia region. Experts, practitioners, professionals and students from three parties will be invited to share their expertises, experiences, and furthermore, to provide evidence-based studies to direct the government and policy makers in designing strategic planning for the future growth and development of the regions.

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for the future growth and development of the regions.

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We do believe that the success of this event will benefit the mankind, especially the governments and policy makers in designing strategic planning for the future growth and development of South East Asian countries, as well as for the scientists, scholars, professionals and practitioners in order to keep updated with the latest issues of applied science and health.



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## Table of Contents

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INTERNATIONAL  
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~~(https://publications.inschool.id/index.php/icas)~~

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### ANALYSIS OF HEAT EXPOSURE PREVENTION ONSTREET VENDORS WORKERS AROUND DIPONEGORO UNIVERSITY CAMPUS SEMARANG

<https://publications.inschool.id/index.php/icash/article/v>

Baju Widjasena, Siswi Jayanti

### RELATIONSHIP BETWEEN JOB STRESS AND FRAI RISK ON EMPLOYEES AT THE NATIONAL EYE CEN HOSPITAL X

<https://publications.inschool.id/index.php/icash/article/v>

Suhat Suhat, Furi Destiana Umami, Gurdani Yogisutanti

### UNMET NEED FOR FAMILY PLANNING PROGRAM; SITUATIONAL ANALYSIS OF BIRTH SPACING AND

### LIMITING AMONG REPRODUCTIVE AGE WOMEN IN BANGKALPINANG CITY, BANGKA BELITUNG PROV ONESIA

<https://publications.inschool.id/index.php/icash/article/v>

Antarini, Siti Masfiah, Ayu Fitriani, Lili Junaidi

### FACTORS AFFECTING EMPLOYEE PERFORMANC CASE STUDY AT PERMATA HATI HOSPITAL RIAU, ONESIA

<https://publications.inschool.id/index.php/icash/article/v>

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	TH 1,682		AU 275
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etty Ismainar, Sandi Ilijanto, Efrianti Efrianti

**KNOWLEDGE AND MOTIVATION OF WOMAN IN REPRODUCTIVE AGE GIVEN HEALTH EDUCATION ABOUT EARLY DETECTION OF CERVICAL CANCER**

<https://publications.inschool.id/index.php/icash/article/v>

um Estiyani, Sigit Ambar W, Ima Syamrotul, Wulan Margiana

**REGNANCY EXERCISES AND DELIVERY PROCES OTHERS GIVING BIRTH AT SUMOWONO HEALTH**

**CENTER SEMARANG REGENCY**

<https://publications.inschool.id/index.php/icash/article/v>

Dwi Okta Diarini, Yuliaji Siswanto, Heni Hirawati Pranoto, Ima Syamrotul, Wulan Margiana, Hamdiah Hamdiah

**FACTORS AFFECTING THE OCCURRENCE CARIES DENTAL ON ELEMENTARY SCHOOL STUDENTS IN PADANGSARI II BANYUMANIK SEMARANG**

<https://publications.inschool.id/index.php/icash/article/v>

Hermien Nugraheni, Tri Wiyatini, Maria Okta Afia

**THE POPULATION OF FLIES IN CIKOLOTOK LAND PASAWAHAN DISTRICT, PURWAKARTA REGENCY, INDONESIA**

<https://publications.inschool.id/index.php/icash/article/v>

Danang Wahansa Sugiarto, Retno Hestningsih, Rully Rahadian

**THE EVALUATION OF EARLY INITIATION BREASTFEEDING PRACTICE in Dr. mohammad hospital palembang**

<https://publications.inschool.id/index.php/icash/article/v>



<https://publications.inschool.id/index.php/icash/article/v>

Nuswil Bernolian, Amal C. Sjaaf

**ASSOCIATION OF PREMENSTRUAL SYNDROME TO STRESS INCIDENT AMONG XI GRADERS IN YOGYAKARTA, INDONESIA**

<https://publications.inschool.id/index.php/icash/article/v>

Ajeng Maharani Pratiwi, Erinda Nur Pratiwi, Dheby Kurnia Utami, Pratiwi Lestari

**SHOULDER FLEXIBILITY IN COLOR GUARD PLAYERS FOLLOWING POSTERIOR SHOULDER STRETCHING AND MUSCLE ENERGY TECHNIQUE**

<https://publications.inschool.id/index.php/icash/article/v>

Tria Fitri Nurjani, Hilmi Zadah Faidlullah

**THE RELATIONSHIP BETWEEN AGE AND PARITY IN MYOMA UTERI IN DR. H. SOEWONDO HOSPITAL KENDAL**

<https://publications.inschool.id/index.php/icash/article/v>

Dian Kusumaningtyas, Sari Ardiyanti, Norwidya Priansiska, Winda W

**NURSE'S ATTITUDE TOWARD PATIENT SAFETY PROGRAM IN BALI ROYAL HOSPITAL, INDONESIA: INDIVIDUAL APPROACH USING HEALTH BELIEF MODEL**

<https://publications.inschool.id/index.php/icash/article/v>

Dewa Ayu Dyah Widya, Adang Bachtiar, Dumilah Ayuningtyas, Vetty Permanasari

**A QUALITATIVE STUDY: EVALUATION OF WAITING TIME IN REGISTRATION FROM HUMAN RESOURCES WITH**

---

**MALCOM BALDRIGE APPROACH**

<https://publications.inschool.id/index.php/icash/article/v>

Sukaria Susana Br. Ginting, Adang Bachtiar

---

**FACTORS INFLUENCING PATIENT SATISFACTION A  
SYSTEMATIC REVIEW**

<https://publications.inschool.id/index.php/icash/article/v>

Edwin Zakaria

---

**TEACHERS AS AGENTS OF CHANGE: SCHOOL-B  
DIAGNOSIS AND TREATMENT OF MALARIA POSIT  
IMPACTS CHILD MORBIDITY**

<https://publications.inschool.id/index.php/icash/article/v>

Ronald Mukisa, Andrew Macnab, Sharif Mutabazi, Rachel Steed

---

**HOME BASED CARE BY PROVIDING PREVENTION  
MOTHER- TO-CHILD TRANSMISSION (PMTCT)  
HANDBOOK ON WOMEN'S PERCEPTION OF HIV/A****PREVENTION IN MOTHER TO CHILD IN PURWOKE**

<https://publications.inschool.id/index.php/icash/article/v>

Walid Walid, Dina Indrati Dyah Sulistyowati, Mardiyono Mardiyono, F  
Ratifah

---

**THORAX MULTI-SLICE COMPUTER TOMOGRAPHY  
(MSCT) EXAMINATION TECHNIQUE IN THE CASE C  
MEDIASTINUM TUMOR AT RADIOLOGY INSTALATI  
OF SEMARANG DISTRICT GENERAL HOSPITAL**

<https://publications.inschool.id/index.php/icash/article/v>

Ike Mayasari, Hermina Sukmaningtyas, Ardi Soesilo Wibowo, Aris Sa  
M. Choerul Anwar, Leny Latifah

**PREGNANT EXERCISE INFLUENCE ON THE BABY:  
BIRTH WEIGHT AND POSTPARTUM HEMORRHAGE**

<https://publications.inschool.id/index.php/icash/article/v>

Siti Fatimah, M. Zen Rahfiludin, Apoina Kartini

**KNOWLEDGE AS DETERMINANTS INCREASE CLEAN  
AND HEALTHY LIVING BEHAVIORS AMONG STUDENTS  
IN GENERAL PRIMARY SCHOOL 07 LANDAU-LEBA  
SUB DISTRICT MELAWI IN 2015**

<https://publications.inschool.id/index.php/icash/article/v>

Sriwidodo Sriwidodo, Santosa Santosa

**COST EFFECTIVENESS AND EFFICIENCY ANALYSIS  
HOSPITAL WASTEWATER TREATMENT PLANT: A  
SYSTEMATIC REVIEW**

<https://publications.inschool.id/index.php/icash/article/v>

Catherine Maname Uli Nainggolan, Vetty Yulianty Permanasari

**EFFECT OF HEAT STRESS AND NUTRITION STATUS  
WORKER FATIGUE AT TRADITIONAL MUSIC GAME  
INDUSTRY**

<https://publications.inschool.id/index.php/icash/article/v>

Lusi Ismayenti

**POTENTIAL CHEMOPREVENTIVE AGENT: STUDY ON  
APOPTOSIS IN THE EXTRACTS OF SPONGE-  
ASSOCIATED FUNGI FROM YOGYAKARTA AGAINST  
CERVICAL CANCER HeLa CELL LINE**

---

[\(<https://publications.inschool.id/index.php/icash/article/v>](https://publications.inschool.id/index.php/icash/article/v)

Eka Ramadhani, Fajar Priyambada, Abrory Agus Cahya Pramana, A Nur Subchan, Gian Aditya Pertiwi, Raden Aditya Aryandi Setiawibaw Hendy Eka Putra, Nur Rofika Ayu Shinta Amalia, Nastiti Wijayanti

---

**THE BENEFITS OF AUTOMATED DISPENSING MACHINES AS SOLUTIONS FOR HOSPITAL PHARMACY IN INDONESIA: A SYSTEMATIC REVIEW**

[\(<https://publications.inschool.id/index.php/icash/article/v>](https://publications.inschool.id/index.php/icash/article/v)

Haryman Utama Suryadinata

---

**SCOURING-RUSH HORSETAIL'S (Equisetum hyemale) CAPABILITY TO REDUCE DETERGENT, COD AND PHOSPHAT (PO<sub>4</sub>) LEVELS OF LAUNDRY WASTEWATER IN PURWOKERTO IN 2016**

[\(<https://publications.inschool.id/index.php/icash/article/v>](https://publications.inschool.id/index.php/icash/article/v)

Hari Rudijanto Indro Wardono, Sugeng Abdullah, Zaeni Budiono

---

**FACTORS RELATED WITH HOSPITAL INFORMATION SYSTEM (HIMS) POOR PERFORMANCE FROM USE EVALUATIONS THOROUGH MALCOLM BALDRIGE CONCEPT IN KERTHA USADA HOSPITAL SINGARAJAYA BALI**

[\(<https://publications.inschool.id/index.php/icash/article/v>](https://publications.inschool.id/index.php/icash/article/v)

I Wayan Parna Arianta

---

**POSTPARTUM CARE IN CENTRAL JAVA TRADITIONAL**

[\(<https://publications.inschool.id/index.php/icash/article/v>](https://publications.inschool.id/index.php/icash/article/v)

Ita Rahmawati

---

**BODY WEIGHT EFFECT ON JOINT SPACE WIDTH**

**BODY WEIGHT EFFECT ON JOINT SPACE WIDTH AND TIBIO FEMORAL ANGLE OF KNEE JOINT MEASUREMENT FOR OSTEOARTHRITIS DETECTION USING IMAGEJ**

<https://publications.inschool.id/index.php/icash/article/view/132>

Agung Nugroho Setiawan, Suryono Suryono, Sugiyanto Sugiyanto, F Fatimah, Gatot Murti Wibowo

**OPTIMIZATION OF R-FACTOR AT GRAPPA PARALLEL ACQUISITION TECHNIQUE ON THE IMAGE INFORMATION T2 AXIAL BRAIN MRI**

<https://publications.inschool.id/index.php/icash/article/view/133>

Saifudin Saifudin, Hermina Sukmaningtyas, Rini Indrati, Aris Santjaka

**RELATIONSHIP BETWEEN EARLY MOBILIZATION AND FIRST URINARY ELIMINATION ON MOTHER POSTPARTUM**

<https://publications.inschool.id/index.php/icash/article/view/134>

Fulatul Anifah, Rizki S Emilia, Syuhrotut Taufiqoh, Nurul F Hidayati

**COMPARISON TRANSCUTANEOUS ELECTRICAL NERVE STIMULATION KINESIO TAPING AND DECREASING SCALE BACK PAIN IN PREGNANT WOMEN UNDER THIRD TRIMESTER IN PUBLIC HEALTH DISTRICT JUWIRING KLATEN, INDONESIA**

<https://publications.inschool.id/index.php/icash/article/view/135>

Sri Wahyuni, Lilik Hartati, Novita P. Dewi, Jusmala Sari

**RELATIONSHIP OF EDUCATION, FAMILY INCOME, COMPLIANCE AND PROCEDURE CONSUMPTION (C**

---

**IRON TABLET TO ANEMIA AMONG PREGNANT WC**

<https://publications.inschool.id/index.php/icash/article/v>

Septi Indah Permata Sari, Aris Noviani, Sri Nuriyaty Masdiputri, Nuru

---

**RELATIONSHIP BETWEEN MOTHER'S PARTICIPAT  
SUPPORT GROUPS WITH EXCLUSIVE BREASTFEED  
PRACTICE IN PUSKESMAS UMBUL HARJO I  
YOGYAKARTA, INDONESIA**

<https://publications.inschool.id/index.php/icash/article/v>

Nur Laela, Siti Naili Ilmiyani, Etni Dwi Astuti, Warsiti Warsiti

---

**THE CORRELATION AMONG DURATION OF ORAL  
CONTRACEPTION WITH THE INCIDENCE OF MELA  
IN SUMBERWUDI, LAMONGAN, EAST JAVA, INDON**

<https://publications.inschool.id/index.php/icash/article/v>

Dina Sulviana Damayanti, Putu Irma Pratiwi, Gracea Petricka

---

**THE RELATIONSHIP OF FAMILY SUPPORT TO  
MOTIVATION (INTENTION) FOR MEDICAL TREATM****PATIENTS WITH CERVICAL CANCER IN LIGAR MEI  
CLINIC, WEST JAVA – INDONESIA**

<https://publications.inschool.id/index.php/icash/article/v>

Aulia Ridla Fauzi, Sri Yuniarti

---

**STUDENTS COPING MECHANISM TOWARD STRES  
WRITING SCIENTIFIC PAPERS AT SARI MULIA  
MIDWIFERY ACADEMY BANJARMASIN, INDONESIA**

<https://publications.inschool.id/index.php/icash/article/v>

Widya Astutik, Aulia Rahmi

**FACTORS ASSOCIATED WITH IRON ANEMIA  
DEFICIENCY IN CHILDREN AGED 12 TO 36 MONTH  
PUBLIC HEALTH CENTER JATILAWANG, BANYUM,  
CENTRAL JAVA**

<https://publications.inschool.id/index.php/icash/article/v>

Sawitri Dewi, Purnomo Suryantoro, Sulistyaningsih Sulistyaningsih

**EFFECT OF VARIATION IN THE NUMBER OF THICK  
SLAB ON THE SCAN TIME AND IMAGE INFORMATI  
ON THE EXAMINATION OF MAGNETIC RESONANC  
CHOLANGIOPANCREATOGRAPHY (MRCP)**

<https://publications.inschool.id/index.php/icash/article/v>

Ni Putu Rita Jeniyanthi, Leny Latifah, Donny Kristanto Mulyantoro, S  
Sudiyono, Faisal Amri

**IMPLEMENTATION AND EVALUATION OF BREAST  
TO THE CHILDBED MOTHER IN COMBINED WARD  
PUSKESMAS TEGALREJO YOGYAKARTA, INDONE**

<https://publications.inschool.id/index.php/icash/article/v>

Rosmawati Rosmawati, Fitri H. Susanto, Retno Purwanti

**EFFECTIVENESS OF PREGNANCY EXERCISE ON F  
REDUCTION AMONG WOMEN IN THE FIRST STAGI  
LABOR**

<https://publications.inschool.id/index.php/icash/article/v>

Septa Sari, Dwi Handayani, Pratiwi Puji, Nurhidayah Nurhidayah

**THE DESIGN OF RADIOLOGY VIEWING BOX USING  
POTENTIOMETER SYSTEM**

.....

[\(<https://publications.inschool.id/index.php/icash/article/v>](https://publications.inschool.id/index.php/icash/article/v)

Anak Agung Aris Diartama, Susy Suswaty, Win Priantoro, Sudiyono Sudiyono, Sugiyanto Sugiyanto, Muhammad Choirel Anwar, Leny L Aris Santjaka, Faisal Amri, Donny Kristanto Mulyantoro

### **CONSTRUCTION DESIGN OF AN ASSISTING TOOL**

### **IMMOBILIZATION IN THORAX AND ABDOMEN**

### **EXAMINATION ON PEDIATRIC PATIENTS**

[\(<https://publications.inschool.id/index.php/icash/article/v>](https://publications.inschool.id/index.php/icash/article/v)

Arif Budiman, Rini Indrati, M. Choerul Anwar, Sudiyono Sudiyono, Je Ardiyanto, Donny Kristanto Mulyantoro, Leny Latifah

### **RISK FACTORS OF BIRTH ASPHYXIA IN PKU**

### **MUHAMMADIYAH HOSPITAL, BANTUL**

[\(<https://publications.inschool.id/index.php/icash/article/v>](https://publications.inschool.id/index.php/icash/article/v)

Eka Riana, Fitria Yulastini, Umi Khasanah

### **CORRELATION BETWEEN MOTIVATION AND STUD**

### **ACHIEVEMENT IN MIDWIFERY CARE AND DELIVER**

### **PROGRAM IN AISYIYAH UNIVERSITY YOGYAKARTA**

[\(<https://publications.inschool.id/index.php/icash/article/v>](https://publications.inschool.id/index.php/icash/article/v)

Fitria Yulastini, Novita Puspita Dewi, Dwi Handayani, Gracea Petrick

### **THE RELATIONSHIP BETWEEN KNOWLEDGE OF**

### **HEPATITIS B-0 IMMUNIZATION AND HEPATITIS B-(**

### **IMMUNIZATION TIMING IN JETIS PRIMARY HEALTH**

### **CENTRE, YOGYAKARTA, INDONESIA**

[\(<https://publications.inschool.id/index.php/icash/article/v>](https://publications.inschool.id/index.php/icash/article/v)

Nindya Mayangsari, Sari Ardiyanti

### **INFLUENCE OF KEGEL GYMNASTICS ON**

**PRIMIGRAVIDA FREQUENCY TOWARDS THE**



**PRIMIGRAVIDA PREGNANCY TOWARDS THE  
INCIDENCE OF A PERINEAL RUPTURE IN BASIC  
ESSENTIAL OBSTETRIC CARE NEONATES  
SURAKARTA, INDONESIA**

<https://publications.inschool.id/index.php/icash/article/v>

Umi Khasanah, Fitria Yulastini

**RELATIONSHIP BETWEEN KNOWLEDGE, ATTITUDE  
AND PRACTICE WITH APPLICATION DOCUMENTATION  
PARTOGRAPH BY MIDWIFERY STUDENTS OF BUN  
KALIMANTAN BANJARMASIN**

<https://publications.inschool.id/index.php/icash/article/v>

Aulia Rahmi, Widya Astutik

**KNOWLEDGE OF SIDE EFFECTS AND ITS ASSOCIATION  
TO COMPLIANCE IN IRON TABLETS CONSUMPTION  
AMONG THIRD TRIMESTER PREGNANT WOMEN**

<https://publications.inschool.id/index.php/icash/article/v>

Nurhidayah Nurhidayah, Dwi Handayani, Pratiwi Puji Lestari, Fitria Y

**THE RELATIONSHIP BETWEEN FAMILY SUPPORTS  
TOWARDS THE EARLY COMPLEMENTARY FEEDING  
0-6 MONTHS BABIES IN PUBLIC HEALTH CENTER,  
SEWON I BANTUL, INDONESIA**

<https://publications.inschool.id/index.php/icash/article/v>

Apriani Tiasna, Dhesi Ari Astutik

**RELATIONSHIP BETWEEN LEARNING MOTIVATION  
LEARNING ACHIEVEMENT AMONG MIDWIFERY  
STUDENTS IN IN 'AISYIYAH UNIVERSITY YOGYAKARTA**

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**INDONESIA**

<https://publications.inschool.id/index.php/icash/article/v>

Jusmala Sari, Lilik Hartati, Novita Puspita Dewi, Isti Chana Zuliyati

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**THE RELATIONSHIP BETWEEN WEIGHT INCREASE WITH UPPER ARM CIRCUMFERENCE AMONG THIRD TRIMESTER PREGNANT WOMEN IN YOGYAKARTA INDONESIA**

<https://publications.inschool.id/index.php/icash/article/v>

Deby Kurnia Utami, Pratiwi Puji Lestari, Ajeng Maharani Pratiwi

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**THE DURATION OF PERINEAL WOUND HEALING BETWEEN BASTE AND INTERRUPTED SUTURE AMONG POSTPARTUM MOTHERS IN BANTUL, YOGYAKARTA INDONESIA**

<https://publications.inschool.id/index.php/icash/article/v>

Isti Chana Zuliyati, Umu Hani Edi Nawangsih, Dian Pratiwi, Ajeng Hayuning Tiyas

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**THE RELATIONSHIP BETWEEN EMOTIONAL INTELLIGENCE AND ACADEMIC ACHIEVEMENT OF MIDWIFERY STUDENTS IN STIKES MEDIKA CIKARANG INDONESIA**

<https://publications.inschool.id/index.php/icash/article/v>

Ajeng Hayuning Tiyas, Dian Pratiwi, Istichana Zuliyati

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**THE INFLUENCE OF DEEP BREATHING RELAXATION TECHNIQUES TO DECREASE PAIN LEVELS IN THE MOTHERS INPARTU ACTIVE PHASE OF THE FIRST STAGE AT KERTHA USADA HOSPITAL SINGARAJA**

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[\(<https://publications.inschool.id/index.php/icash/article/v>](https://publications.inschool.id/index.php/icash/article/v)

Putu Irma Pratiwi, Dina Sulviana Damayanti, Grace Petricka

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**THE IMPACT OF COMPLEMENTARY FEEDING TYPE ON THE NUTRITION STATUS OF INFANTS 6 TO 12 MONTHS OF AGE IN SUBURBAN SEMARANG INDONESIA**

[\(<https://publications.inschool.id/index.php/icash/article/v>](https://publications.inschool.id/index.php/icash/article/v)

Suyatno Suyatno

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**FARMER EMPOWERMENT IN REDUCING EXPOSURE TO PESTICIDES AND RESIDUAL PESTICIDES IN VEGETABLES: A CROSS-SECTIONAL STUDY AT KUTAI KARTANEGARA DISTRICT, INDONESIA**

[\(<https://publications.inschool.id/index.php/icash/article/v>](https://publications.inschool.id/index.php/icash/article/v)

Ryan Ningsih, Ratih Wirapuspita

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**MODE OF DELIVERY, HOSPITAL OWNERSHIP AND PREDICTORS MATERNITY LENGTH OF STAY IN TROPICAL COUNTRIES**

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**HOSPITALS IN JAKARTA**

[\(<https://publications.inschool.id/index.php/icash/article/v>](https://publications.inschool.id/index.php/icash/article/v)

Cicik Opitasari

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**NURSES' ROLES IN HEALTH PROMOTION PRACTICES: A SYSTEMATIC REVIEW**

[\(<https://publications.inschool.id/index.php/icash/article/v>](https://publications.inschool.id/index.php/icash/article/v)

Budi Widiyanto

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**THE ASSOCIATION BETWEEN KNOWLEDGE AND ILLICIT DRUG CONSUMPTION AMONG PREGNANT WOMEN**

**TABLET CONSUMPTION AMONG PREGNANT WOMEN IN**  
**PONDOK KACANG, SOUTH TANGERANG CITY,**  
**INDONESIA**

<https://publications.inschool.id/index.php/icash/article/view/12345>

Siti Riptifah Tri Handari, Munaya Fauziah, Nirmala Harahap, Mohamad Ainul Maruf

**THE ASSOCIATION BETWEEN HIV AND AIDS KNOWLEDGE AND UPTAKE OF HIV TESTING AMONG SEXUALLY ACTIVE YOUNG POPULATION AGE 15-24 IN DISTRICT MERAUKE, PAPUA PROVINCE, INDONESIA**

<https://publications.inschool.id/index.php/icash/article/view/12346>

Nurul Azmi

**THE EFFECT OF STUDENTS' RESPONSE IN USING PROBLEM BASED LEARNING WITH SIMULATION TOWARD STUDENTS' ACHIEVEMENT (LIGHT CONCEPT)**

<https://publications.inschool.id/index.php/icash/article/view/12347>

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**ICASH-A20**

**PREGNANT EXERCISE INFLUENCE ON THE BABY'S BIRTH WEIGHT AND POSTPARTUM HEMORRHAGE**

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**ABSTRACT**

**Background:** The benefits of exercise during pregnancy have been reported to be higher than its negative side effects. A reduction in low birth weight, a decrease in heart rate abnormalities of the baby and a decrease in excessive bleeding after 24 hours of labor are among those positive outcomes of the exercise during pregnancy.

**Aims:** This study was meant to determine the effects of exercise during pregnancy

**Methods:** This research was an explanatory research using cross sectional design. The research respondents were 42 mothers who were admitted to give birth in Hermina Hospital. Twenty-one mothers who practiced twice a week of a combined yoga, pilates, hypnotherapy, and tai chi were recruited as a case group in this study. Meanwhile, 21 mothers who did not practice exercise during pregnancy were requested to participate in the control group of this study. The infants' birth weight was weighed immediately after birth with the baby scales, and the mothers' post-partum hemorrhage (PPH) were measured by the need bandages and blood ejected through similar toilet  $\geq 500$  ml. A statistical test used is the T-Test Independent and Mann-Whitney.

**Results:** The results showed that the postpartum hemorrhage occurrence was less among respondents who practiced a regular exercise during pregnancy than who did not. However, there was no evidence of statistically difference between the two groups. The average of birth weight babies born to mothers who practiced a regular exercise during pregnancy was  $3,418 \pm 215$  grams or greater as compared ( $2643 \pm 180$  grams). It showed a significant difference in birth weight between mothers who did exercise during pregnancy than mothers from other group ( $p = 0.001$ ).

**Conclusion:** In conclusion, the exercise during pregnancy has a positive impact on the birth weight of the babies. Thus, the authors suggest to all maternal and child health service providers to plan a pregnancy exercise program.

**Keywords:** Pregnant exercise, Postpartum hemorrhage, Birth Weight, Hermina Hospital, Semarang

**INTRODUCTION**

The success of a pregnancy can be measured if the birth weight  $> 2500$  g and the mothers do not experience hemorrhage the child birth. The expected impact of the baby and his mother are spared from death, because of maternal and perinatal mortality is an indicator of the success of health care.

The success of the pregnancy can be realized with a normal birth weight and no postpartum hemorrhage. Fetal growth is influenced by the amount and quality of food also the mother who is routinely doing the pregnancy exercise [1].

Pregnancy exercise can increase the amount of oxygen in the mother's blood circulation, causing the supply of sufficient oxygen through the placenta, so that optimal fetal growth. Pregnancy exercise can improve maternal glucose tolerance, thus becomes optimal fetal growth.. Birth weight

are critical to the morbidity and mortality of infant, and child development in the next life cycle [2,3]. Movement exercises during pregnant may increase fetal brain development so that the baby has a score of languages and intelligence skill at the age of five [2].

Pregnant exercise is a exercise movement specially designed by medical and fitness experts to strengthen the uterine and the pelvic floor muscles, in order to facilitate the delivery process and reduce the risk of hemorrhage postpartum. Combined yoga, Pilates, hypnotherapy, and tai chi called Yophyta Maternal [1].

Pregnancy exercise has been reported to decrease the incidence of low birth weight, heart rate normal heart rate, and also reducing hemorrhage after childbirth [1,3]. Exercise during pregnancy can increase the norepinephrine, which serves to improve the frequency and strength of uterine muscle contraction, so that postpartum hemorrhage can be reduced [4].

Pregnancy exercise can increase the concentration of estrogen and miometrium perfusion, that can improve the receptors oxytocin and prostaglandin, so it has an adequate quality of uterine contractions, as a result of postpartum hemorrhage can be minimized [2]. Cc

Postpartum hemorrhage is loss of blood through the vagina more than 500 ml after give birth. If the blood loss occurred in the first 24 hours after give birth called primary postpartum hemorrhage. Secondary postpartum hemorrhage refers to excessive vaginal bleeding between 24 hours - 6 minggu postpartum [5-7]. Hermina Hospital Pandanaran is a hospital in Semarang that provide health services to the community, especially for maternal and child health issues. Hermina hospital held a pregnancy exercise program twice a week, led by a certified instructor under the supervision of a specialist in obstetrics and gynecology [8].

## **METHODS**

This research was an explanatory research using cross sectional design. The study population is mothers who was give birth at Hermina Hospital in 2009. Inclusion criteria include: primiparas, aged 20-35 years, practiced twice a week. Exclusion criteria included: Gemelli, history pre eclampsia, injuries to the birth canal. The study and control groups distinguished by routine exercise during pregnancy. The number of samples in each group is 47 mothers give birth, according to the criteria by taking purposive sampling. Infant birth weight were measured immediately after birth up to 24 hours with the baby scale, whereas postpartum hemorrhage is measured based the sanitary pads that are used in a day and blood ejected through the toilet wich equivalent to > 500 ml for 3 days postnatal care in hospital [9-11].

This analysis is used to provide an overview of research data in the form of a frequency distribution. Analysis was conducted to PPH difference test using Independent T Test, being the difference birth weight use Mann Whitney.

## RESULT

### *Characteristic of the sample*

Table 1. Characteristic of the samples

Variable	f	%
Education		
Junior high school	17	36,2
Senior high school	1	2,1
Undergraduate	27	57,4
Graduate	2	4,3
children Job		
Housewife	11	23,4
Employee	15	31,9
Private employees	21	44,7
Ante Natal Care		
≥ 4 times	29	61,7
< 4 times	18	38,3

Table 1 showed that most of the samples is education undergraduate, worked as a private employees, and perform antenatal care  $\geq 4$  times. all samples are classified as middle socio-economic.

### *Effect of Pregnancy Against exercise ostpartum Hemorrhage*

The average PPH group which doing the exercise routinely during pregnancy ( $194 \pm 16$  ml), and those who do not exercise during pregnancy ( $214 \text{ ml} \pm 20$  ml). Mann-Whitney test showed no significant difference between maternal postpartum hemorrhage who do exerciseduring pregnant and not doing exercise (  $p = 0.691$  ). although not statistically proven no correlation exercise during pregnancy with postpartum hemorrhage, but showed a tendency that if during pregnancy do gymnastics regularly at least 2 times / week, then the PPH can be minimized.

### *Effect of Pregnancy Gymnastics Against Birthweight Infants*

The average birth weight of babies born by those who routinely perform pregnancy exercise routine ( $3418 \pm 200$  grams) is greater than the group that did not do exercise pregnant ( $2643 \pm 126$  grams). Results of cross-tabulation show the incidence of LBW ( Low Birth Weight) that is  $< 2500$  grams not found in women who do exercise during pregnancy.

Table 2. birth Weight Infants

Variable	Birth Weight Infants			
	$\geq 2500$ g		$< 2500$ g	
	frequency	%	frequency	%
Pregnant Exercise	47	100,0	0	0,0
Not Pregnant Exercise	33	70,2	14	29,8

Table 2 showed that the incidence of low birth weight is common in women who did exercise during pregnancy, whereas in women who regularly exercise during pregnancy at least 2 times / week was no baby is born with a birth weight  $< 2500$  g. Independent T Test showed the difference in birth weight between mothers who do exercise during pregnant than who do not exercise ( $p=0,001$ )

## **DISCUSSIONS**

### ***The impact of exercise during pregnancy with postpartum hemorrhagic***

Pregnant women who didn't exercise regularly usually have (214 ml $\pm$  20 ml) and (194  $\pm$  16 ml) to those who did it on regular basis. Although not proven the existence of statistically significant difference. Only 10 ml bleeding difference between mothers who regularly exercise during pregnancy or not. This is because the measurement of bleeding is based on the number of pads used per day, as well as bleeding issued through the toilet.

Pregnancy exercise can improve the quality of the uterine muscle contraction (amplitude, frequency, duration) in the delivery process. Pregnancy exercise can increase the concentration of estrogen and perfusion myometrium (uterine muscle). It increases oxytocin and prostaglandin receptors and ultimately the quality of adequate uterine contractions, so that PPH can be reduced / prevented. Exercise is known to increase circulating levels of norepinephrine and epinephrine. Norepinephrine has been shown to increase both the strength and the frequency of uterine contractions. In contrast, epinephrine has an inhibiting effect on uterine activity.

The lower of hemoglobin levels, injuries to the birth canal and the placenta remaining in the uterus can also affect postpartum hemorrhage [2,6,7].

### ***Effect of Pregnant Exercise on Birth Weight Infants***

The results showed on the mother who did a routine exercise while pregnant will not be found low birth weight. t test showed significant differences in birth weight among mothers who do exercise routine for pregnant and do not do exercise. Some studies suggest a physical and physiological benefits for the baby, if the mother doing exercise during pregnancy.

Pregnant exercise will increase the amount of oxygen in the blood throughout the body of the mother, and therefore the flow of oxygen to the baby through the placenta will also be smooth, so that the growth of fetus during pregnancy run optimally [2]. When the pregnant woman doing exercise, then the blood circulation becomes smooth, so that the supply of oxygen to the baby through the placenta more leverage, the impact is the growth of the fetus will be maximal, and reduce the incidence of low birth weight.

Regular exercise during pregnancy can be affect glucose tolerance, so that the growth fetus become better. According to a Canadian study, pregnant women who exercise regularly better glucose tolerance, so that the risk of giving birth to babies weighing > 4000 grams or low birth weight lower than pregnant women who do not do exercise [11]. Another study showed that pregnant women do exercise routine has an average birth weight of more than 5 ounces of pregnant women who do not do exercise. these results do not correspond with Haakstad research that states that exercise during pregnancy has nothing to do with birth weight infants [3,4,12,13,14,15,16].

Research in Norway has found that mothers who do exercise regularly have a lower risk of having a baby with birth weight > 400 grams (Macrosemia). Movement during pregnancy exercise affect the fat removal on the baby's body, thus preventing the occurrence macrosemia. [17].

## **CONCLUSIONS**

In conclusion, the exercise during pregnancy has a positive impact on the birth weight of the babies. so the authors suggest to all layananan maternal and child health, can plan a pregnancy exercise program. This study is only based on the number of sanitary pads used per day and the bleeding had been spent on toilet. Next work should include the medical records part of the delivery room, postpartum hemorrhage, especially measuring devices untested validity, because it.



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