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MIDWIFERY, MEDICAL TECHNOLOGY LABORATORY, PUBLIC HEALTH,
AND HEALTH INFORMATION MANAGEMENT
(SeSICNiMPH)**

*“Advancing Public Health Care Capacity Beyond COVID-19
Pandemic Towards Sustainable Development Goals*

**SYEDZA SAINTIKA INSTITUTE
OF HEALTH SCIENCE**

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THE 1ST SYEDZA SAINTIKA INTERNATIONAL CONFERENCE ON NURSING, MIDWIFERY, MEDICAL LABORATORY TECHNOLOGY, PUBLIC HEALTH, AND HEALTH INFORMATION MANAGEMENT (SeSICNiMPH)

“ADVANCING PUBLIC HEALTH CARE CAPACITY BEYOND COVID-19 PANDEMIC TOWARDS SUSTAINABLE DEVELOPMENT GOALS (SDG’S)”

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Table of Countens

Oral Presentation

THE OVERVIEW OF BLOOD PRESSURE AT ELDERLY IN SOCIAL HOME TRESNA WERDHA BATUSANGKAR	1- 3
Rezi Prima ^{1*} ,Sisca Oktaini ²	
DESCRIPTION OF CHARACTERISTICS OF IMPLEMENTATION OF MENTAL HEALTH CARE	4- 9
Nofrida Saswati ^{1*} , Isti Harkomah ² , Sutinah ³ ,Dian Octavia ⁴ , Mohd Syukri ⁵	
THE EFFECTOF SOCIAL SKIIL TREATMENT (SST) THERAPYONTHE ABILITYOF SOCIAL INTERACTIONIN PATIENTS WITH SOCIAL ISOLATIONAT REJOSO PUBLIC HEALTH CENTER, NGANJUK REGENCY	10- 18
Endang Yuswatiningsih ^{1*} , Iva Milia Hani Rahmawati ²	
THE RELATIONSHIP BETWEEN ABSOLUTE NEUTROPHIL COUNT AND ERYTHROCYTE INDEX IN HYPERURICEMIA PATIENTS	19- 24
Meri Meri ^{1*} , Noval Pahrul Nurhidayat ²	
THE EFFECT OF SLOW DEEP BREATHING EXERCISE ON BLOOD PRESSURE ELDERLY IN PSTW SABAI NAN ALUIH, SICINCIN PADANG PARIAMAN, 2020	25- 33
Novriani Husna ^{1*} , Trimonarita Johan ²	
ANALYSIS OF BLAST INCIDENCE IN HIGH SCHOOL STUDENTS IN PEKANBARU CITY	34- 39
Ainil Fitri ^{1*} , Lora Marlita ²	
THE EFFECT OF GIVING GREEN SPINACH WITH FE TABLET PREPARATIONS ON CHANGES IN HEMOGLOBIN LEVELS IN PREGNANT WOMEN	40- 43
Liva Maita ^{1*} , Ani Triana ²	
BULLYING AMONG ADOLESCENTS AT TELUK KUANTAN RIAU	44- 51
Saniya ^{1*} , Tari Audina ² , Roni Saputra ³	
ADAPTATION PSYCHOLOGY OF PREGNANT WOMEN IN PANDEMIC COVID-19	52- 56
Ratna Widhiastuti ^{1*} , Anggit Pratiwi ²	

EXPERIENCE OF EARLY MARRIED ADOLESCENTS: A STUDY OF PHENOMENOLOGY	57- 64
Mila Triana Sari ^{1*} , Daryanto ² , Delia Ersa Mayori ³	
THE RELATIONSHIP BETWEEN RELIGIOSITY, SOCIAL SUPPORT, AND PSYCHOLOGICAL WELL BEING TOWARD ADOLESCENTS IN DISASTER-PRONE AREAS IN PADANG CITY	65- 71
Helena Patricia ^{1*} , Dwi Christina Rahayuningrum ²	
THE ADOLESCENT'S CHARACTERISTICS IN THE CONFLICT WITH MOTHER	72- 79
Emira Apriyeni ^{1*} , Rizanda Machmud ² , Rika Sarfika ³	
THE RELATIONSHIP BETWEEN KNOWLEDGE AND FAMILY SUPPORT WITH FAMILY COMPLIANCE IN CONTROLLING THE CLIENT'S MEDICATION WITH SCHIZOPHRENIA	80- 85
Dwi Christina Rahayuningrum ^{1 *} , Helena Patricia ²	
HE EFFECTIVENESS OF BRANDT DAROFF EXERCISES ON VERTIGO EVENTS IN SUBJECTS OF VERTIGO PATIENTS	86- 89
Andika Herlina ^{1*} , Ibrahim ² , Vino Rika Nofia ³	
THE RELATED OF FAMILY SUPPORT WITH MOTIVATION OF ELDERLY VISITED TO POSYANDU KEJORA IN KOLOK MUDIK VILLAGE SAWAHLUNTO CITY 2020	90- 95
Sandra Hardini ^{1*} , Weni Sartiwi ² , Silvy Firdawati ³	
CHARACTERISTICS AND PHYSICAL ACTIVITY WITH INCIDENCE OF OSTEOARTHRITIS IN HOSPITAL	96- 103
Weni Sartiwi ^{1*} , Etryanti ² , Edison ²	
MUROTAL INFLUENCE ON SLEEP QUALITY IN VERTIGO PATIENTS AT RSU MAYJEN H.A. THALIB KABUPATEN KERINCI IN 2020	104- 110
Novita Amri [*]	
THE EFFECT OF EDUCATION ON EARLY DETECTION OF STROKE WITH THE <i>ACT FAST</i> METHOD ON <i>THE EFFICACY OF</i> PATIENTS WITH HIGH RISK OF STROKE	111- 120
Mike Asmaria ^{1*} , Hilma Yessi ² , Hidayati ³	
EFFECTIVENESS OF COUNSELING TO INCREASE THE FAMILY OF SOUL PATIENTS ABOUT DRUG COMPLIANCE	121- 125
Dian Rahmi [*] , Rikayoni ²	
DESCRIPTION OF FORMER CHARACTERISTICS OF DRUG USERS	126- 131

(NARCOTICS, ALCOHOLS, PSYCHOTROPICS AND OTHER ADDICTIVES) POST REHABILITATION OF THE NATIONAL NARCOTICS AGENCY (BNN) IN THE CITY AND DISTRICT OF SOLOK

Marizki Putri^{1*}, Siska Damaiyanti²

THE RELATIONSHIP BETWEEN PARENTING STYLE AND SELF-CARE ABILITY IN CHILDREN WITH MENTAL RETARDATION AGES 6 TO 12 YEARS IN BUKITTINGGI SPECIAL SCHOOLS 132- 142

Siska Damayanti^{1*}, Virlia Putri Khairami²

THE EFFECT OF CRYOTHERAPY ON THE REDUCTION OF PAIN LEVELS IN GOUT ARTHRITIS PATIENTS IN JAMBI CITY 143- 148

Bri Novrika^{1*}, Mareta Akhriansyah²

THE DECREASE OF STAPHYLOCOCCUS AUREUS COLONY BY NaCl 0,9% ON DIABETIC ULCER 149- 153

Siti Aisyah Nur^{1*}, Siska Sakti Anggraini², Putri Dafriani³

ROSELLA FLOWER TEA ON BLOOD PRESSURE REDUCTION IN HYPERTENSION PATIENTS 154- 159

Siska Sakti Anggraini^{1*}, Siti Aisyah Nur², Honesty Diana Morika³, Ratna Indah Sari Dewi⁴

THE EFFECT OF MOSQUITO BANANA (MusaParadisiaca. S) ON BLOOD PRESSURE IN HYPERTENSION PATIENTS 160- 167

EtriYanti^{1*}, Vino Rika Nofia²

THE EFFECT OF STRECHING ON DYNAMIC BALANCE IN ELDERLY IN THOSE TRESNA WERDHA SABAI NAN ALUIH SICINCIN 168- 177

Harmawati,^{1*}Patricisia Helena²

MOTIVATION WITH THE IMPLEMENTATION OF THERAPEUTIC COMMUNICATIONS TO HOSPITAL HEALTH PERSONNEL 178- 184

Indah Komala Sari^{1*}, Honesty Diana Morika²

THE EFFECT OF BROKEN WATER SIRSAK LEAVES ON PAIN IN GOUT ARRITICAL PATIENTS IN THE WORKING AREA OF PUSKESMAS ANDALAS PADANG 185- 192

Vino Rika Nofia^{1*}, Etri Yanti²

THE EFFECT OF EARLY MOBILIZATION ON PAIN INTENSITY IN PATIENTS POST APPENDICCTOMY IN THE IN PATIENT ROOM TK.III. DR. REKSODIWIRYO HOSPITAL PADANG	193- 198
Veolina Irman ^{1*} , Ika Yulia Darma ²	
RELATIONSHIP SUPERVISION TO HEAD OF THE ROOM WITH COMPLIANCE THE APPLICATION OF HAND HYGIENE NURSE	199- 204
Rhona Sandra ^{1*} , Eliza Arman ² , Anita Sari ³	
THE EFFECT OF BACK MASSAGE THERAPY ON THE INTENSITY OF DISMENOREA PAIN IN KARTIKA 1 - 5 PADANG HIGH SCHOOL STUDENTS IN 2019	205- 210
Ratna Indah Sari Dewi ¹ , Vino Rika Novia ²	
RELATIONSHIP OF TYPES OF LABOR AND BIRTH WEIGHT WITH ICTERIC EVENTS IN NEONATES	211- 220
Honesty Diana Morika ^{1*} , Indah Komala Sari ² , Rhona Sandra ³	
RELATIONSHIP OF KNOWLEDGE AND FAMILY SUPPORT WITH COMPLIANCE WITH DIET IN CHRONIC KIDNEY DISEASE PATIENTS (CKD) UNDERGOING HEMODIALYSIS AT RSUP DR. M. DJAMIL PADANG	221- 231
Maidawilis ^{1*} , Nisa Aulia Rahman ²	
EFFECT OF DEEP BACK MASSAGE ON THE LEVEL OF LABOR PAIN WHEN 1 ACTIVE PHASE IN NORMAL MATERNITY MOTHERS IN GAJAH MADA TEMBILAHAN HEALTH CENTER	233-237
Mia Rita Sari [*]	
THE RELATIONSHIP OF KNOWLEDGE AND ATTITUDE WITH UTILIZATION OF BIRTH WAITING HOUSE IN THE WORK AREA TEMBILAHAN HULU HEALTH CENTER	238-244
Dewi Erlina Asrita Sari [*]	
THE EFFECT OF MATERNITY MOTHER'S HEMOGLOBIN LEVELS ON NEWBORN WIGHT IN VK UPT ROOM PUSKESMAS GAJAH MADA TEMBILAHAN INDRAGIRI HILIR REGENCY IN 2020	245-250
Nurul Indah Sari [*]	
REASONS FOR EARLY MARRIAGE IN ADOLESCENT GIRLS IN TEMBILAHAN, RIAU	251-258
Haryati Astuti [*]	
ANALYSIS OF FACTORS RELATED TO EARLY BREASTFEEDING IN INFANTS WITH MOTHER POST SECTIO CAESAREA AT 3M PLUS HOSPITAL	259-266

Sandra Harianis*	
RISK FACTOR OF STUNTING AMONG CHILDREN AGED 24-59 MONTH IN PUJON, EAST JAVA	267-274
Mega Ulfah ^{1*} , Ni Luh Putu Herli Mastuti ² , Astri Proborini ³ , Ovy Annisya Putri ⁴ , Puja ⁵	
ANALYSIS OF MATERNAL AND FAMILY FACTORS ON THE INCIDENCE OF STUNTING	275-281
Astik Umiyah ¹ , Azizatul Hamidiyah ^{2*}	
ENTERPRENEUR INNOVATION ON SERVICES OF MIDWIFERY PRACTICE IN BENGKULU CITY	282-288
Tria Nopi Herdiani ^{1*} , Waytherlis Apriani ²	
EFFECT OF THE IMPLEMENTATION ACTIVE BIRTH TECHNIQUE USING BIRTH BALL AND HYPNOBIRTHING ACCELERATED THE PROGRESS OF THE FIRST STAGE OF LABOR AMONG INTRAPARTUM MOTHER	289-294
Ika Yulia Darma ^{1*} , Nurul Abdillah ²	
FACTORS THAT AFFECT LANGUAGE DEVELOPMENT AND SPEECH IN TODDLERS	295-302
Fenny Fernando ^{1*} , Melia Pebrina ² , Dewi Fransisca ³	
THE DIFFERENCE RESULT OF PERINEAL MASSAGE AND KEGEL EXERCISES TOWARD PREVENTING OF PERINEAL LACERATION DURING LABOR	303-309
Meldafia Idaman ^{1*} , Ika Yulia Darma ² , Fitra Afrida Amna ³	
THE DIFFERENCES IN THE INCREASING OF AVERAGE BLOOD PRESSURE IN 1-MONTH INJECTING ACCEPTORS WITH 3-MONTH IN ACCEPTORS	310-315
Dewi Fransisca ^{1*} , Ramah Hayu ²	
RELATIONSHIP OF PARENT PARENTS WITH NUTRITIONAL STATUS IN CHILDREN AGE (3-5 YEARS)	316-320
Melia Pebrina ^{1*} , Ika Yulia Darma ² , Fenny Fernando ³	
THE DIFFERENCE IN THE SECOND STAGE OF LABOR DURATION IN PRIMIGRAVIDA MOMS WHO DO PREGNANCY EXERCISE DURING THIRD TRIMESTER OF PREGNANCY IN THE WORKING AREAS OF ANDALAS AND LUBUK BUAYA HEALTH CENTER PADANG CITY IN 2018	321-325
Febby Herayono*	

DIFFERENCES IN VITAMIN C LEVELS IN NORMAL PREGNANCY WITH THE INCIDENCE OF ABORTION	326-329
Hartati Deri Manila*	
ANALYSIS OF FACTORS RELATED TO IMPLEMENTATION OF COMPLETE BASIC IMMUNIZATION IN WORK AREA OF PUSKESMAS PENGAMBIRAN PADANG CITY	330-338
Ade Nurhasanah Amir*	
THE ASSOCIATION CORTISOL LEVELS OF MATERNAL BETWEEN PRETERM AND ATERM LABOR	339-344
Fanny Jesica ^{1*} , Fafelia Rozyka Meysetri ²	
DIFFERENCES BETWEEN FASTING BLOOD GLUCOSE LEVELS IN THE ACCEPTORS OF THREE MONTHLY (DMPA) AND CONTRACEPTIVE INJECTIONS ACCEPTOR MONTHLY (CYCLOFEM)	345-350
Fafelia Rozyka Meysetri ^{1*} , Fanny Jesica ²	
ANALYSIS OF DETERMINAN FAKTORS OF EXCLUSIVE BREASTFEEDING IN INDONESIA: A CASE OF ULAKAN TAPAKIS OF DISTRICT	351-359
Marisa Lia Anggraini*	
THE DESCRIPTION OF SELECTION OF BREAST MILK CONTAINER AND FAT CONTENT IN THE BREASTFEEDING MOTHERS AT ANDALAS COMMUNITY HEALTH CENTER WORKING AREA	360-367
Ramah Hayu ^{1*} , Rauza Sukma Rita ² , Dewi Fransisca ³	
RELATIONSHIP MAGNESIUM LEVELS IN BREASTMILK WITH WEIGHT OF BABY AGED 0-6 MONTH AT LUBUK BUAYA HEALTH CENTER PADANG	368-373
Aprima Yona Amir*	
THE CORRELATION BETWEEN PREGNANT WOMEN'S LEVEL OF KNOWLEDGE AND THEIR BEHAVIOR OF CONSUMING FE TABLETS DURING PREGNANCY IN PUSKESMAS MELAYU KOTA PIRING IN 2019	374-380
Nining Sulistyowati*	
THE EFFECT OF CONSUMPTION OF Moringa Leaves To PREGNANT WOMEN'S HEMOGLOBIN LEVELS IN THE VILLAGE OF WAIMITAL, KAIRATU DISTRICT, WEST SERAM REGION, MALUKU IN 2019	381-387
Astuti. Asih Dwi ¹ , Rochmaedah. Siti ² , Arsanti ³	

WHAT DO ANTENATAL CARE MEAN FOR A WOMAN WHO HAS HOME BIRTH WITH THE HELP OF UNTRAINED FAMILY MEMBERS?	388-393
Nila Kusumawati Elison ^{1*} , Dhini Anggraini Dhillon ²	
RISK FACTORS FOR PREVENTION OF ADOLESCENT HYPERTENSION IN THE WORK AREA OF MENDAHARA HEALTH CENTER, TANJUNG JABUNG TIMUR DISTRICT- JAMBI PROVINCE	394-397
Novi Berliana ^{1*} , Renny Listiwyat ² ,	
STUDY ON RELATIONSHIP OF EXCLUSIVE BREASTFEEDING AND MOTHER EDUCATION WITH SEVERELY STUNTING CASE: EVIDENCE FROM PADANG CITY	398-403
Rury Moryanda ^{1*} , Oktariyani Dasril ² , Ilma Nuria Sulrieni ³	
THE RELATIONSHIP BETWEEN KNOWLEDGE AND ATTITUDE TO THE INCIDENCE OF HIV / AIDS IN THE SEBERANG PADANG COMMUNITY HEALTH CENTER	404-411
Watra Wilita ¹ , Sri Handayani ² , Eliza Trisnadewi ³	
THE RELATED FACTORS WITH THE EXISTENCE OF AEDES SP. LARVAE IN PREVENTION OF DENGUE HAEMORRHAGIC FEVER IN THE BUFFER AREA OF TELUK BAYUR PORT PADANG CITY IN 2019	412-419
Annisa Novita Sary ¹ , Eliza Trisnadewi ² , Wiya Elsa Fitri ² , Sonya Oktarita ²	
FACTORS RELATED TO MEDICINAL PLANT SELECTION AS FIRST AID FOR HEALTH PROBLEMS IN COMMUNITIES AROUND AIR DINGIN LANDFILL AREA	420-428
Wiya Elsa Fitri ^{1*} , Oktaiyani Dasril ² , Adewirli Putra ³	
DEVELOPMENT OF ANTI CORRUPTION EDUCATION AS A MEDIA OF SELF-CONTROL OF STUDENTS IN HEALTH EDUCATIONS	429-434
Inge Angelia ^{1*}	
THE RELATIONSHIP BETWEEN THE ROLE OF PEERS AND THE INCIDENCE OF HIV / AIDS IN THE SEBERANG PADANG COMMUNITY HEALTH CENTER	435-439
Sri Handayani ^{1*} , Eliza Trisnadewi ² , Watra Wilita ³	
FACTORS RELATED TO THE UTILIZATION OF HEALTH SERVICES BY PARTICIPANTS RECEIVING ASSISTANCE IN THE HEALTH CENTER OF SIJUNJUNG, 2020	440-448
Eliza Trisnadewi ^{1*} , Annisa Novita Sari ² , Syaiful Syari ³	

RELATIONSHIP OF PATIENT WAITING TIME WITH PATIENTS SATISFACTION AT PUSKESMAS (PUBLIC HEALTH CENTER) LUBUK BEGALUNG PADANG	449-454
Chamy Rahmatika ^{1*} , Fajrilhuda Yuniko ²	
PATIENT'S SATISFACTION TOWARDS EXCELLENT SERVICE IN PUBLIC HEALTH CENTER PADANG, INDONESIA	455-460
Ropendi Pardede ^{1*} , Roza Marlinda ² , Elviza Yeni Putri ³	
ANALYSIS OF IMPLEMENTATION OF HIV/AIDS PREVENTION PROGRAM IN TELUK BAYUR SEAPORT	461-467
Ilma Nuria Sulrieni ^{1*} , Fajrilhuda Yuniko ²	
ANALYSIS OF FACTORS RELATED TO PARTICIPATION OF USERS AND NON-USERS OF BPJS (SOCIAL HEALTH INSURANCE ADMINISTRATION BODY) AT MAPADDEGAT HEALTH CENTER	468-476
Alfita Dewi ^{1*} , Ilma Nuria Sulrieni ² , Fajrilhuda Yuniko ³	
PERFORMANCE ANALYSIS OF DATA MINING CLASSIFICATION METHODS USING C4.5 ALGORITHM FOR STUDENT GRADUATION PREDICTION (CASE STUDY AT SYEDZA SAINTIKA STIKES)	477-482
Nurul Abdillah ^{1*} , Fajrilhuda Yuniko ²	
THE CORRELATION OF ASPECT OF PATIENT RELATIONSHIP TO STAFF TOWARD THE SATISFACTION LEVEL OF OUTPATIENT INSTALLATION AT RSUD (REGIONAL PUBLIC HOSPITAL) PARIAMAN	483-488
Fajrilhuda Yuniko ^{1*} , Werman ²	
COMPARISON OF THE COMBINATION OF DEEP BREATHING EXERCISE-NEUROMUSCULAR TAPING AND DEEP BREATHING EXERCISE-SLOW STROKE BACK MASSAGE TO REDUCE HIGH BLOOD PRESSURE	489-493
Nova Relida Samosir ^{1*} , Sari Tri Yulianti ²	
THE EFFECT OF ALLIUM CEPA ON BLOOD GLUCOSE LEVELS FOR DIABETES MELLITUS TYPE II IN PUSKESMAS KOTO KATIK KOTA PADANG PANJANG	494-503
Ibrahim ^{1*} , Andika Herlina Marda Prawata ² , Megawati ³	
PEER NEGATIVE SUPPORT RELATIONSHIP WITH SEXUAL BEHAVIOR IN ADOLESCENTS	504-509
Rahmi Novita Yusuf ^{1*} , Niken ² , Tio Nurmi BR ³ , Nainggolan ⁴	
COMPARING THE NUMBER OF RETICULOCYTES IN PATIENTS WITH IRON DEFICIENCY ANEMIA BEFORE AND AFTER	510-515

TREATMENT WITH IRON PREPARATIONS

Arniat Christiani Telaumbanua*

**THE EFFECTIVENESS OF PSEUDOMONAS FLUORESCENS AS A
CADMIUM METAL ABSORBER IN THE LEACHATE OF COLD
WATER WASTE LANDFILLS** 516-523

Yanti Rahayu^{1*}, Dina Putri Mayaserly², Corry Handayani³

**DIFFERENCES OF HEMOGLOBIN LEVEL, HEMATOCRITE VALUE
AND THE NUMBER OF ERYTHROCYTE IN ISCHEMIC AND
HEMORRHAGIC STROKE AT M. HATTA BRAIN HOSPITAL** 524-528

Annita^{1*}, Deswita²

Poster Presentation

**RELATIONSHIP OF TYPES OF LABOR AND BIRTH WEIGHT WITH
ICTERIC EVENTS IN NEONATES** 529-533

Irma Fidora^{1*}, Silvia Adi Putri², Ropika Ningsih³

**LITERATURE REVIEW: THERAPY REDUCES THE RISK OF VIOLENT
BEHAVIOR** 534-540

Indra Maulana^{1*}, Hesti Platini², Iwan Shalahuddin³

**EFFECT OF *Lactobacillus acidophilus* ON NUTRIGENOMICS IN NEW
NORMAL ERA** 541-546

Yeti Eka Sispita Sari^{1*}, Dita Artanti², Fitrotin Azizah³

**THE RELATIONSHIPS BETWEEN PRE-PREGNANCY BODY MASS
INDEX WITH HEPICIDIN AND FERITIN LEVELS** 547-551

Putri Engla Pasaalina^{1*}, Afrah Diba Faisal²

**REPRODUCTIVE HEALTH EDUCATION AND THE ESTABLISHMENT
OF CADRES IN DARUL ULUM ISLAMIC BOARDING SCHOOL AIE
PACAH PADANG** 552-556

Hendri Devita^{1*}, Putri Engla Pasaalina², Sevilla Ukhtil Huvaid³

**THE EFFECT OF BOILING WATER OF PIPER CROCATUM LEAVES
TO THE BLOOD SUGAR LEVELS ON PATIENTS DIABETES
MELLITUS TYPE 2 IN THE WORK AREA OF ANDALAS PHC PADANG** 557-563

Aulia Asman^{1*}, Hidayati², Dwi Happy Anggia Sari³

**IMPROVEMENT OF PARAGRAPH WRITING SKILLS THROUGH
DIRECT OBJECT TECHNIQUES FOR LEVEL 1 STUDENTS D3 STUDY
PROGRAM NUTRITION SCIENCE POLTEKKES KEMENKES PADANG**

564-571

Sinta Wahyuni^{1*}, Ayu Gustia Ningsih², Sufia Retti³, Sri Mures Walef⁴, Neneng
Wahyuni⁵

**QUALITY OF LIFE FOR FEMALE PRISONERS
IN CORRECTIONAL FACILITY, CLASS IIB, YOGYAKARTA**

572-576

Sitti Khadijah^{1*}, Dheska Arthyka Palifiana²

Oral Presentation



EFFECT OF *Lactobacillus acidophilus* ON NUTRIGENOMICS IN NEW NORMAL ERA

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ABSTRACT

New normal era COVID-19 crucial problem of immunity. Nutrigenomic concept by utilizing one of the beneficial bacteria for the body, *Lactobacillus acidophilus*. Research purposes This is to obtain information about the effect of *Lactobacillus acidophilus* on nutrigenomics on increasing body immunity in terms of body weight and height. **Method** was a laboratory experimental using experimental animals (Mus Musculus). Treatment of mice (Mus Musculus) consisted of 6 treatment groups, namely, giving 100% *Lactobacillus acidophilus* bacteria in capsule form plus vitamin C (P1), giving 100% *Lactobacillus acidophilus* bacteria in supplement form plus vitamin C (P2), giving yogurt + vitamins C (P3), giving vitamin C (K1+), giving 100% *Lactobacillus acidophilus* bacteria in capsule form (K2+) and negative control without any administration (K-). **Analysis** using ANNOVA Windows SPSS type- 24 followed by Dunnett test T3 d e n g a n α level of 0.05 or 5%. **Result** shows that not there is a real difference to the weight gain in P1 with the results from 11 to 24.86 \pm 0.6 to 13.8, the error factor is the granting suspension P1 using the sonde, the P2, P2, K (-), K1 (+), K2 (+) there is an increase in weight yield of about 18.4 to 28.86 \pm 0.6 -3.3. While the results of the research on the increase in height showed that P1 still did not increase in height with the results of 5.67-17.67 \pm 0.57-1.11, and on P2, P2, K (-), K1 (+), K2 (+) there is an increase in the height of the results around 16.33-19 \pm 0-2.08. **Conclusion** is that giving *Lactobacillus acidophilus* bacteria to Nutrigenomics can increase body immunity, especially in increasing height.

Keywords: New normal era, COVID-19, Nutrigenomic, *Lactobacillus acidophilus*

INTRODUCTION

The COVID-19 pandemic restlessness has succeeded in making the government and all Indonesian citizens uneasy, but with the issuance of various policies and actions by the government, the number of Covid 19 transmission has not decreased, many reasons are found in the field starting from a decrease in buying and selling power, the number of factories being closed which results in increased unemployment. Coupled with the government policy to provide leniency by releasing many assisted citizens, crime is rampant, so that people do not heed policies that are made and do whatever they want until the slogan "INDONESIA WHATEVER" appears^{4,5,6}.

With the food we consume, we can turn off our bad genes and express the genes so that

we can optimize our health. The development of nutrigenomic science is a crucial moment to revolutionize human understanding of what is eaten^{9,11}It has been found that food can interact with single nucleotide polymorphisms (snips) in DNA and activate certain genes. For example, eating shrimp can cause skin allergies, while assuming broccoli rich in anti-cancer properties can activate detoxification^{10,15}.

We strive to provide solutions in the New Normal era based on nutrigenomics using *Lactobacillus acidophilus* bacteria which are added or processed in the form of milk, supplements in capsules and tablets to help the absorption of nutrients, vitamins in the body so that it can increase personal immunity, so that it can pass the era this new normal with a healthy body and free of covid19.



MATERIAL AND METHODS

This type of research is experimental with the aim of knowing whether there is an increase in the body's absorption of nutrients and vitamins consumed by mice after consuming *Lactobacillus acidophilus*.source. A total of 30 mice were prepared with details of 5 treatments with 5 repetitions, a total of 25 and we added 5 to the reserves, assuming each treatment had 1 mouse reserve.Any modifications to existing methods should also be described. Treatment of mice (*Mus Musculus*) consisted of 6 treatment groups, namely, giving 100% *Lactobacillus acidophilus* bacteria in capsule form plus vitamin C (P1) , giving 100% *Lactobacillus acidophilus* bacteria in supplement form plus vitamin C (P2) , giving yogurt + vitamins C

(P3) , giving vitamin C (K 1 +) , giving 100% *Lactobacillus acidophilus* bacteria in capsule form (K 2 +) and negative control without any administration (K-)

DATA ANALYSIS TECHNIQUE

Data analysis was carried out by qualitative analysis based on data, facts and information collected while promoting representative tracing to avoid biased data¹⁴. Then it is studied qualitatively in accordance with the theory used and developed. Because this research is a case study, the analysis is still based on case study principles. Researchers can build new domains as long as they relate to the aspects being analyzed ³. Using Anova Windows SPSS type- 24 followed by Dunnet test T3 dengan α level of 0.05 or 5%.

RESULTS

Tabel. 1.1 Hasil penelitian.

PERLAKUAN	ULANGAN	PERHITUNGAN BERAT BADAN (g)							RATA-RATA	Standar Deviasi
		1	2	3	4	5	6	7		
Achidophilus 100% + Vit.C	1	24	27	0	0	0	0	0	7.286	12.473
	2	22	23	22	21	19	20	21	21.143	1.345
	3	24	25	25	27	25	25	26	25.286	0.951
	4	22	27	28	0	0	0	0	11	13.844
	5	25	26	25	25	24	24	25	24.857	0.69
Achidopilus Suplemen + Vit.C	1	22	25	23	23	23	22	21	22.714	1.254
	2	24	30	29	29	19	28	28	26.714	3.904
	3	22	23	22	23	24	23	23	22.857	0.69
	4	22	24	24	25	25	25	25	24.286	1.113
	5	20	19	18	20	18	17	17	18.429	1.272
Yogurt + Vit.C	1	24	30	30	30	30	27	30	28.714	2.36
	2	21	23	23	25	25	25	25	23.857	1.574
	3	24	26	27	30	28	27	28	27.143	1.864
	4	20	23	23	21	22	19	20	21.143	1.574
	5	26	31	28	31	30	28	28	28.857	1.864
Kontrol Negatif (-) Makanan	1	23	26	26	27	25	25	26	25.429	1.272
	2	25	28	25	29	29	29	29	27.714	1.89
	3	24	24	26	27	26	26	27	25.714	1.254
	4	22	23	27	26	24	25	26	24.714	1.799
	5	19	19	26	24	23	24	26	23	2.944
Kontrol Positif (+) Vit.C	1	22	26	24	26	27	23	24	24.571	1.813
	2	23	26	26	28	28	27	29	26.714	1.976
	3	24	26	25	27	26	26	25	25.571	0.976
	4	22	29	22	29	29	28	29	26.857	3.338
	5	23	25	19	27	26	25	27	24.571	2.82
Kontrol Positif (+) Achidopilus 100%	1	24	24	23	23	22	20	20	22.286	1.704
	2	25	27	27	29	28	28	30	27.714	1.604
	3	23	27	27	28	28	27	27	26.714	1.704
	4	20	23	24	25	26	23	24	23.571	1.902
	5	24	25	23	26	25	24	25	24.571	0.976



Tabel 1.2 . Perhitungan Dunnett

Multiple Comparisons							
Dependent Variable:							
(I) Perlakuan			Mean Difference	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Dunnett T3	Achidopilus 100% + Vit.c	Achidopilus suplemen+Vit.c	-5.0857	3.9382	0.91	-23.167	12.995
		Yogurt + Vit.c	-8.0286	3.9921	0.57	-25.996	9.939
		K(-) Makanan	-7.4	3.7775	0.604	-26.063	11.263
		K(+) Vit.C	-7.7429	3.7327	0.554	-26.649	11.163
	Achidopilus suplemen+Vit.c	K(+) Achidopilus 100%	-7.0571	3.8317	0.659	-25.478	11.363
		Achidopilus 100% + Vit.c	5.0857	3.9382	0.91	-12.995	23.167
		Yogurt + Vit.c	-2.9429	2.0181	0.858	-10.819	4.933
		K(-) Makanan	-2.3143	1.5508	0.836	-8.819	4.19
	Yogurt + Vit.c	K(+) Vit.C	-2.6571	1.4383	0.654	-9.252	3.938
		K(+) Achidopilus 100%	-1.9714	1.6784	0.955	-8.663	4.72
		Achidopilus 100% + Vit.c	8.0286	3.9921	0.57	-9.939	25.996
		Achidopilus suplemen+Vit.c	2.9429	2.0181	0.858	-4.933	10.819
	K(-) Makanan	K(-) Makanan	0.6286	1.683	1	-6.594	7.851
		K(+) Vit.C	0.2857	1.58	1	-7.091	7.663
		K(+) Achidopilus 100%	0.9714	1.8014	1	-6.34	8.283
		Achidopilus 100% + Vit.c	7.4	3.7775	0.604	-11.263	26.063
K(+) Vit.C	Achidopilus suplemen+Vit.c	2.3143	1.5508	0.836	-4.19	8.819	
	Yogurt + Vit.c	-0.6286	1.683	1	-7.851	6.594	
	K(+) Vit.C	-0.3429	0.9103	1	-4.053	3.368	
	K(+) Achidopilus 100%	0.3429	1.2558	1	-4.639	5.324	
K(+) Achidopilus 100%	Achidopilus 100% + Vit.c	7.7429	3.7327	0.554	-11.163	26.649	
	Achidopilus suplemen+Vit.c	2.6571	1.4383	0.654	-3.938	9.252	
	Yogurt + Vit.c	-0.2857	1.58	1	-7.663	7.091	
	K(-) Makanan	0.3429	0.9103	1	-3.368	4.053	
K(+) Achidopilus 100%	K(+) Achidopilus 100%	0.6857	1.1139	1	-4.118	5.489	
	Achidopilus 100% + Vit.c	7.0571	3.8317	0.659	-11.363	25.478	
	Achidopilus suplemen+Vit.c	1.9714	1.6784	0.955	-4.72	8.663	
	Yogurt + Vit.c	-0.9714	1.8014	1	-8.283	6.34	
Dunnett t (2)	Achidopilus 100% + Vit.c	K(-) Makanan	-0.3429	1.2558	1	-5.324	4.639
		K(+) Vit.C	-0.6857	1.1139	1	-5.489	4.118
		K(+) Achidopilus 100%	-7.0571*	2.5549	0.043	-13.943	-0.171
		K(+) Achidopilus 100%	-1.9714	2.5549	0.901	-8.858	4.915
Yogurt + Vit.c	K(+) Achidopilus 100%	0.9714	2.5549	0.995	-5.915	7.858	
	K(+) Achidopilus 100%	0.3429	2.5549	1	-6.543	7.229	
K(+) Vit.C	K(+) Achidopilus 100%	0.6857	2.5549	0.999	-6.201	7.572	

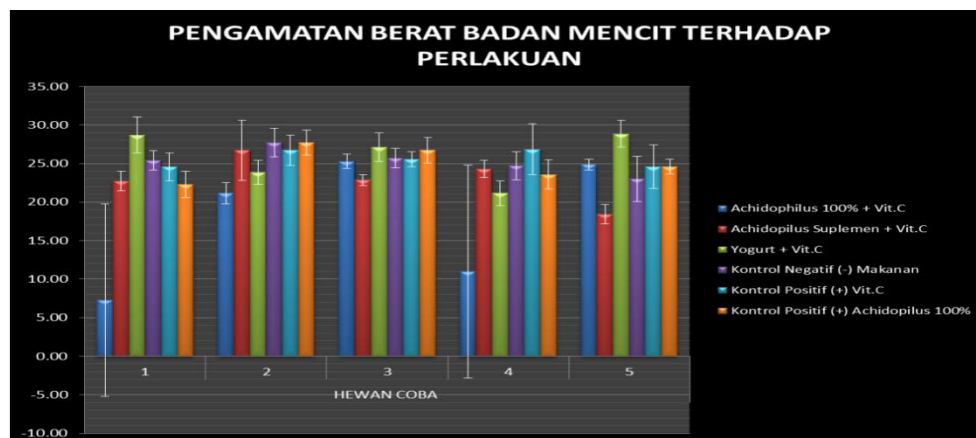
*. The mean difference is significant at the 0.05 level.

a. Dunnett t-tests treat one group as a control, and compare all other groups against it.

Tabel 1.3 Standard Deviasi

PERLAKUAN	HEWAN COBA				
	1	2	3	4	5
Achidophilus 100% + Vit.C	7.29	21.14	25.29	11.00	24.86
STANDAR DEVIASI	12.4728	1.345185	0.95119	13.84437	0.690066
PERLAKUAN	HEWAN COBA				
	1	2	3	4	5
Achidophilus Suplemen + Vit.C	22.71	26.71	22.86	24.29	18.43
STANDAR DEVIASI	1.25357	3.9036	0.690066	1.112697	1.272418
PERLAKUAN	HEWAN COBA				
	1	2	3	4	5
Yogurt + Vit.C	28.71	23.86	27.14	21.14	28.86
STANDAR DEVIASI	2.36039	1.573592	1.864454	1.573592	1.726149
PERLAKUAN	HEWAN COBA				
	1	2	3	4	5
Kontrol Negatif (-) Makanan	25.43	27.71	25.71	24.71	23.00
STANDAR DEVIASI	1.27242	1.889822	1.253566	1.799471	2.94392
PERLAKUAN	HEWAN COBA				
	1	2	3	4	5
Kontrol Positif (+) Vit.C	24.57	26.71	25.57	26.86	24.57
STANDAR DEVIASI	1.81265	1.976047	0.9759	3.338092	2.819997
PERLAKUAN	HEWAN COBA				
	1	2	3	4	5
Kontrol Positif (+) Achidophilus 100%	22.29	27.71	26.71	23.57	24.57
STANDAR DEVIASI	1.70434	1.603567	1.704336	1.902379	0.9759

Grafik 1.1. Hasil Pengamatan Berat Badan





DISCUSSION

Lactobacillus acidophilus occurs naturally in the human body as well as many fermented foods, such as sauerkraut and miso². Manufacturers also add *L. acidophilus* to yogurt and other dairy products. Probiotics are beneficial strains of live yeast and bacteria¹⁷. Studies indicate that consuming probiotics, such as *L. acidophilus*, can help support digestion and may offer a range of other health benefits⁷. Genomics-based nutrition can increase knowledge for diet and lifestyle choices that may change susceptibility to disease and increase health potential¹. Though research results have shown there is an interaction between nutrition and disease. These interactions involve micronutrients that can affect protein, transcription factors and genomics in body metabolism. Nutrients intake can directly contribute to disease¹⁶. The highest average results of weight change were found in the treatment of yogurt and vitamin C. The yogurt given here contains 100% *Lactobacillus acidophilus*. Shows that not there is a real difference to the weight gain in P1 with the results from 11 to 24.86 ± 0.6 to 13.8, the error factor is the granting suspension P1 using the sonde, the P2, P2, K (-) , K1 (+), K2 (+) there is an increase in weight yield of about 18.4 to 28.86 ± 0.6 -3.3 . While the results of the research on the increase in height showed that P1 still did not increase in height with the results of 5.67-17.67 ± 0.57-1.11, and on P2, P2, K (-), K1 (+), K2 (+) there is an increase in the height of the results around 16.33-19 ± 0-2.08.

CONCLUSION

Different components have distinct roles in microbial growth and may modulate functions of the intestinal microbiome¹³, *Lactobacillus acidophilus* occurs naturally in the human and animal gastrointestinal tract and mouth² Some strains of *Lactobacillus acidophilus* may be considered to have probiotic characteristics These strains are commercially used in many dairy products, sometimes together with *Streptococcus*

thermophilus and *Lactobacillus delbrueckii* subsp. *bulgaricus* in the production of acidophilus-type yogurt, or acidophiline^{7,8}. *Lactobacillus acidophilus*, like many probiotic supplements, have many claims made of health benefits when consumed, generally by improving or restoring the gut flora¹⁷. Its genome has been sequenced that giving *Lactobacillus acidophilus* bacteria to Nutrigenomics can increase body immunity, especially in increasing height.

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