



# THE 2<sup>ND</sup> INTERNATIONAL CONFERENCE ON SAFETY AND PUBLIC HEALTH

"GLOBAL RESEARCH AND INNOVATION FOR SAFETY AND PUBLIC HEALTH"

Hosted by:

**FACULTY OF PUBLIC HEALTH, UNIVERSITAS HASANUDDIN**



15 - 16 October 2025  
Hasanuddin University

## Co-Host :



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The 2<sup>nd</sup> International Conference on Safety and Public Health

# ICOS – PH 2025

15 - 16 October 2025, Hasanuddin University

“Global Research and Innovation For Safety and Public Health”

**Hosted by:**

Faculty of Public Health Hasanuddin University

## Welcoming Speech



Prof. Sukri Palutturi, SKM., M.Kes., MSc. PH., Ph.D.

Distinguished Guests, Respected Speakers, and Esteemed Conference Participants,

On behalf of the Faculty of Public Health, Hasanuddin University, it is my great pleasure to warmly welcome you to the International Conference Occupational Safety and Public Health 2025. We are deeply honored to host this important international forum, which brings together experts, policymakers, researchers, and practitioners from diverse backgrounds and countries.

This year we gather under the crucial theme of Global Research and Innovation for Safety and Public Health. As the global community continues to face rapid industrial development and technological advancement, ensuring the health, safety, and well-being of workers has become a critical global priority. Recent challenge such as pandemics, workplace hazards, and psychosocial risks have highlighted the urgent need for stronger occupational health and safety systems that are adaptive, inclusive, and sustainable. Therefore, this year we gather and discussed it in an impactful and rewarding conference.

Through this conference, we aim to promote meaningful dialogue, disseminate innovative research, and strengthen collaboration across sectors and nations. We hope that the knowledge shared and partnerships formed during this event will contribute to safer workplaces, improved occupational health policies, and the long-term sustainability of the global workforce.

I would like to extend my sincere appreciation to all distinguished speakers, panelists, and participants for generously sharing their expertise and insights. My heartfelt thanks also go to the organizing committee for their commitment and hard work in ensuring the success of this conference.

Once again, welcome to Makassar. I wish you all a rewarding, engaging, and impactful conference experience.

Warm regards,  
Prof. Sukri Palutturi, SKM., M.Kes., M.Sc.PH., Ph.D  
Dean, Faculty of Public Health  
Hasanuddin University

## The 2<sup>nd</sup> International Conference on Safety and Public Health

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 Andi Agung Patawari P

## LIST OF REVIEWERS

No	Name
1	Prof. Yahya Thamrin, SKM, M.Kes, M.OHS, Ph.D
2	Prof. Dr. Lalu M. Saleh, SKM, M.Kes
3	Dr. Balqis, SKM, M.Kes, M.Sc.PH
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12	Suci Rahmadani, SKM., M.Kes
13	Rahma, SKM, M.Sc
14	Arif Anwar, SKM., M.Kes
15	Fajaruddin Natsir, SKM, M.Kes
16	Andi Imam Arundhana Thahir, S.Gz., M.PH., Ph.D
17	Marini Amalia, SKM, M.PH

## ACKNOWLEDGEMENTS

We extend our profound appreciation to all individuals and institutions whose dedication and collaboration have contributed to the success of the 2nd International Conference on Occupational Safety and Public Health. This event stands as a testament to the collective commitment of professionals, researchers, and practitioners who share a vision for advancing safety and public health worldwide. It is with great respect and gratitude that we acknowledge.

### **Organizing Committee**

Our sincere appreciation goes to the organizing committee and supporting teams, whose steadfast dedication, strategic coordination, and exceptional professionalism have shaped this conference into a remarkable academic forum. Their tireless efforts, expertise, and enthusiasm have made every element of this program possible.

### **Co-Host**

We gratefully recognize the valuable partnership and collaborative spirit of our co-organizer. Their unwavering support and shared mission have significantly strengthened the implementation, impact, and overall excellence of this event.

### **Distinguished Speakers and Session Moderators**

We express our deepest gratitude to the esteemed speakers and session moderators, whose insightful perspectives, scholarly contributions, and thought provoking discussions have enriched our collective understanding and inspired continued progress in occupational safety and public health.

### **Sponsors and Collaborative Partners**

We extend heartfelt thanks to our sponsors and partners for their generous support, contributions, and commitment to advancing research, innovation, and professional development within this vital field.

### **Participants and Presenters**

Last but not least, we sincerely appreciate the active participation of all attendees, presenters, and researchers. Your engagement, knowledge exchange, and meaningful contributions have created an intellectually vibrant environment and an enriching learning experience for all.

Thank you for being an integral part of this meaningful and transformative journey.

## CONFERENCE AGENDA

NO	TIME		SCHEDULE
	TIME	DURATION	
<b>DAY 1</b> <b>(15 October 2025)</b>			
1	07.30 - 09.00	90"	Registration
<b>OPENING CEREMONY</b>			
2	09.00 - 09.05	5"	Welcome from MC
3	09.05 - 09.10	5"	Safety Induction
4	09.10 - 09.13	3"	Indonesia Raya
5	09.13 - 19-18	5"	Traditional Dance
5	09.18 - 09.21	3"	Reading Prayer
6	09.21 - 09.25	4"	OC Chairman's Report ( <b>A. Wahyuni, S.KM., M.Kes.</b> )
	09.25 - 09.30	5"	Welcoming Remarks from Chairman Scientific Committee ( <b>Prof. Yahya Thamrin, S.KM., M.Kes., MOHS., Ph.D</b> )
7	09.30 - 09.40	10"	Welcoming Speech from Dean of Public Health Faculty Hasanuddin University ( <b>Prof. Sukri Palutturi, S.KM., M.Kes., M.Sc.PH., Ph.D.</b> )
8	09.40 - 09.50	10"	Welcoming Speech from Rector of Hasanuddin University ( <b>Prof. Dr.Ir. Jamaluddin Jompa, M.Sc.</b> )
9	09.50 - 10.00	10"	Welcoming Speech from Governor of South Sulawesi ( <b>Andi Sudirman Sulaeman</b> )
10	10.00 - 10.05	5"	Opening Ceremony, Beat the drum
11	10.05 - 10.10	5"	Documentation
12	10.10 - 10.15	5"	Prepare for Keynote Speech and Plenary Session
13	10.15 - 10.30	15"	Keynote Speech Minister of Health of the Republic of Indonesia ( <b>Ir. Budi Gunadi Sadikin, CHFC., CLU.</b> )
14	10.30 - 10.45	15"	Keynote Speech Minister of Manpower of the Republic of Indonesia ( <b>Prof. Yassierli, S.T., M.T., Ph.D.</b> )

<b>Session Plenary 1 (Moderator: Dr. Sudirman Natsir, S.Ked., MWH., Ph.D.)</b>			
14	10.45 - 11.15	30"	<b>Prof. Orawan Kaewbooncho</b> (Mahidol University) "Environment and Psychological Factors Influencing Mental Health and Quality of Life among Elderly"
15	11.15 - 11.45	30"	<b>Prof. Dino Pisaniello, Ph.D.</b> (University of Adelaide) "Research Training in Industrial Hygiene"
16	11.45 – 11.55	10"	Discussion and Closing Session Plenary 1
17	11.55 - 13.00	65"	Break
<b>Session Plenary 2 (Dian Sidik Arsyad, S.KM., M.KM., Ph.D)</b>			
19	13.00 – 13.30	30"	<b>Dr. Ismaniza Ismail, Ph.D.</b> (University Teknologi MARA) "Women in the Informal Sector: Psychosocial Risk, Realities, and the Way Forward"
20	13.30 – 14.00	30"	<b>Prof. dr. Veni Hadju, M.Sc., Ph.D</b> (University of Hasanuddin) "Moringa Oleifera as a Potential Intervention to Improve Nutritional Status and Health Outcomes of Pregnant Women in Indonesia"
21	14.00 – 14.30	30"	Discussion and Closing Session Plenary 2
<b>ORAL PRESENTATION</b>			
23	14.30 - 14.40	10"	Oral Presentation 1
24	14.40 - 14.50	10"	Oral Presentation 2
25	14.50 - 15.00	10"	Oral Presentation 3
26	15.00 - 15.10	10"	Oral Presentation 4
27	15.10 - 15.20	10"	Oral Presentation 5
28	15.20 - 15.25	5"	Closing Day-1

NO	TIME		SCHEDULE
	TIME	DURATION	
<b>DAY 2 (16 OCTOBER 2025)</b>			
<b>ORAL PRESENTATION</b>			
1	08.00 - 08.10	10"	Oral Presentation 6
2	08.10 - 08.20	10"	Oral Presentation 7
3	08.20 - 08.30	10"	Oral Presentation 8
4	08.30 - 08.40	10"	Oral Presentation 9
5	08.40 - 08.50	10"	Oral Presentation 10
6	08.50 - 09.00	10"	Oral Presentation 11
<b>ORAL PRESENTATION</b>			
7	09.00 - 09.10	10"	Oral Presentation 12
8	09.10 - 09.20	10"	Oral Presentation 13
9	09.20 - 09.30	10"	Oral Presentation 14
10	09.30 - 09.40	10"	Oral Presentation 15
11	09.50 - 10.00	10"	Oral Presentation 16
<b>Session Plenary 3 (Moderator: Ulfah Najamuddin, S.Si., M.Kes., Ph.D.)</b>			
12	10.00 - 10.30	30"	<b>Prof. Yahya Thamrin, S.KM., M.Kes., MOHS., Ph.D.</b> (University of Hasanuddin) "Informal Sector Occupational Safety and Health"
13	10.30 - 11.00	30"	<b>Dr. Paul Rothmore, Ph.D.</b> (University of Adelaide) "The effect of heat on worker health and productivity"
14	11.00 - 11.30	30"	Discussion and Closing Session Plenary 3
15	11.30 - 13.00	90"	Break
<b>ORAL PRESENTATION</b>			
16	13.30 - 13.40	10"	Oral Presentation 17
17	13.40 - 13.50	10"	Oral Presentation 18
18	13.50 - 14.00	10"	Oral Presentation 19
19	14.10 - 14.20	10"	Oral Presentation 20
20	14.20 - 14.30	10"	Oral Presentation 21
21	15.00 - 16.00	60"	<b>Closing Ceremony</b>

## CV Book of Conference

### Professor Orawan Kaewboonchoo

Professor Orawan Kaewboonchoo is a senior academic at the Faculty of Public Health, Mahidol University, Thailand, where she has developed a distinguished career in occupational health research since 1988. Her work spans large-scale epidemiological studies on occupational health surveillance, workplace health promotion, job stress, and psychosocial risk factors, with a particular focus on non-communicable disease outcomes among diverse worker populations. She has also led and collaborated on international projects, including the development of an online WHO training program on NCD prevention and a multi country randomized controlled trial of digital stress-management interventions for healthcare workers. Her research portfolio further includes environmental exposure assessment, notably phthalate exposure among older adults, as well as the integration of artificial intelligence into chest radiography for tuberculosis detection. Professor Kaewboonchoo has held several key leadership roles, such as Program Chair for the Master of Nursing Science in Occupational Health and Deputy Dean for International Relations. With an extensive record of peer-reviewed publications in regional and international journals, she is widely recognized for her contributions to advancing occupational health science in the Asia-Pacific region.



### Professor Veni Hadju



Professor Veni Hadju, MD, MSc, PhD, is a leading scholar in public health nutrition and one of Indonesia's most productive researchers in the field. Trained at Cornell University in International Nutrition, he has devoted more than three decades to advancing knowledge on maternal and child nutrition, micronutrient deficiencies, the interaction between infectious diseases and nutrition, and community-based nutrition

interventions. His research portfolio includes more than 180 studies, ranging from helminth infections and anemia to stunting prevention, Moringa-based supplementation, and nutrition programs for vulnerable populations across Indonesia. Over the course of his career, Professor Hadju has held prominent academic leadership positions, including Dean of the School of Public Health at Hasanuddin University, Head of the Doctoral Program in Public Health, and Head of the Indonesian Center on Nutrition. He has also served as an expert for UNICEF, JICA, the World Bank, and national government agencies in the development of nutrition policies and program evaluation. His extensive publications in respected international journals indexed by Scopus and Web of Science position him as a key figure in shaping Indonesia's research agenda and public health nutrition strategies.

## Professor Yahya Thamrin

Professor Yahya Thamrin, SKM, M.Kes, MOHS, PhD, is an expert in public health and occupational safety whose academic and research work centres on improving health and safety outcomes for vulnerable worker groups in Southeast Asia. He holds a doctoral degree in Occupational Health and Safety from the University of Adelaide, and his research has addressed ergonomics, work fatigue, musculoskeletal disorders, and occupational risks among seaweed farmers, fishermen, and young migrant workers. His doctoral research on safety perceptions among international university students in Australia has also contributed to the global discourse on occupational health among student workers. Professor Thamrin has led a series of multi-year projects on ergonomic tool development, workplace health promotion, and cyber safety among adolescents. His work has been published in international journals such as the International Journal of Environmental Research and Public Health, Gaceta Sanitaria, and NeuroQuantology. He has presented his research at major international forums, including the World Congress on Safety and Health and the Asian Network of Occupational Hygiene Conference. Through his academic leadership and engagement with communities and policymakers, he continues to advance the field of occupational health in both scholarly and applied settings.



## Ts. Dr. Ismaniza Ismail



Ts. Dr. Ismaniza Ismail, a Senior Lecturer at Universiti Teknologi MARA, is a prominent specialist in occupational and environmental hygiene in Malaysia. A Professional Technologist registered with the Malaysian Board of Technologists and a lifetime member of the Malaysian Industrial Hygiene Association (MIHA), she has been actively involved in capacity building and professional development in occupational hygiene. Her

expertise covers occupational hygiene, environmental health, and public health, with a strong emphasis on strengthening professional standards and supporting national-level initiatives. Dr. Ismaniza has served in multiple advisory roles, including as a Subject Matter Expert for the Ministry of Health on the National Environmental Health Action Plan. She is an HRDF-accredited trainer and a sought-after speaker, frequently collaborating with training providers and consultancy firms to enhance occupational hygiene competencies nationwide. Her academic service includes appointments as external examiner, assessor, visiting lecturer, and curriculum advisor for various institutions. In addition to her academic work, she is active in public science communication, contributing articles to newspapers to raise awareness and foster better understanding of environmental and occupational health issues.

## Associate Professor Paul Rothmore

Associate Professor Paul Rothmore is a leading specialist in occupational health, ergonomics, and physiotherapy at The University of Adelaide, where he serves as Deputy Head of School and Physiotherapy Program Director. A Fellow of the Australian College of Physiotherapists with a PhD from The University of Adelaide, he has built a distinguished career examining musculoskeletal disorders, behavioural approaches to injury prevention, workplace ergonomics, and the effects of extreme heat on worker health and productivity. His research spans



randomized controlled trials, longitudinal evaluations, and large-scale policy studies, supported by substantial external funding from agencies such as SafeWork SA and Adelaide City Council. He has delivered invited presentations at major international forums, including the International Congress on Occupational Health, the World Physiotherapy Congress, and PREMUS, and his work is published in leading journals such as Safety Science, Applied Ergonomics, Environment International, and Science of the Total Environment.

Beyond his research impact, Dr. Rothmore contributes broadly to academic leadership, professional accreditation, and knowledge translation. He has served as a reviewer for national research councils, a mentor and specialist examiner for the Australian College of Physiotherapists, and a committee member for national and international occupational health bodies. He also holds editorial board appointments with peer-reviewed journals and has played key roles in curriculum development and workforce capability initiatives. Through his integrated contributions across research, education, and professional practice, Associate Professor Rothmore continues to advance evidence-based strategies that enhance work ability, prevent injury, and improve health and safety outcomes across diverse working populations.

The 2<sup>nd</sup> International Conference on Safety and Public Health

# ICOS - PH 2025

15 - 16 October 2025, Hasanuddin University

"Global Research and Innovation For Safety and Public Health"

## MODERATOR



**Sudirman Nasir, S.Ked., M.WH., Ph.D**  
Health Promotion and Behavioral Science  
Department Hasanuddin University



**Dian Sidik Arsyad, S.KM., M.KM., Ph.D**  
Epidemiology Department Hasanuddin University



**Ulfah Najamuddin, S.Si., M.Kes., Ph.D**  
Nutritional Department Hasanuddin University

## Registration Information

All participants, including authors and presenter of the ICOS-PH 2025 are required to purchase the appropriate registration fees.

## Registration Fees

\*ICOS-PH member institute will have a special benefit on registration fee as follows.

Category			Registration Fee	
			Earlybird	Regular
Presenter	Student	National (Indonesia)	Rp. 850.000	Rp. 1.000.000
		International	USD 150	USD 200
	General	National (Indonesia)	Rp. 950.000	Rp. 1.100.000
		International	USD 50	USD 65
Non Presenter	National (Indonesian)		Rp. 500.000	Rp. 600.000
	International		USD 200	USD 250

## Registration Include

- Full conference activities
- Conference toolkit
- Coffe break and lunch
- Abstrack book (soft file)

## CONFERENCE INFORMATION

This conference was held at Unhas Hotel and Convention with the following details.

**Address** : Universitas Hasanuddin Campus, Street PerintisKemerdekaan No. 10,  
Tamalanrea Indah, Makassar City, South Sulawesi 90245

**Website** : <https://hotelunhas.com/>

**Maps:** <https://bit.ly/SimpleWaytoUnhasHotel>



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# Occupational Health Disease



## **Ergonomic Risk Analysis of Musculoskeletal Disorder (MSDs) Complaints Among Garment Tailors in Makassar City**

Muhammad Fandi Ahmad<sup>1\*</sup>, Lucia Yogyana Suramas<sup>1</sup>, Ayu Wulandari Pertiwi Hamid<sup>1</sup>, Asti Hardianti Azis<sup>1</sup>, Nur Fitriyani Arifuddin<sup>1</sup>

<sup>1</sup>Bachelor's Program in Occupational Safety and Health, Stella Maris College of Health Sciences Makassar, Indonesia

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The garment industry is a rapidly growing sector that plays a vital role in Indonesia's economy. However, workers in this industry are often exposed to ergonomic risks that may lead to Musculoskeletal Disorders (MSDs). Non-ergonomic working postures, repetitive movements, and prolonged working hours are among the main contributing factors to these disorders.

This study aims to analyze the relationship between ergonomic risk, age, gender, and length of service with musculoskeletal disorder (MSD) complaints among garment tailors in Makassar City. This research employed a quantitative approach with a cross-sectional design. The study involved 25 tailors at CV. Emerald Indonesia, Makassar, selected through total sampling. Ergonomic risk was assessed using the Rapid Entire Body Assessment (REBA) method, while MSD complaints were evaluated using the Nordic Body Map questionnaire. Data were analyzed using univariate and bivariate analyses with the Chi-Square and Fisher's Exact Test at a 95% confidence level ( $\alpha = 0.05$ ). The findings showed a significant relationship between ergonomic risk ( $p=0.014$ ), gender ( $p=0.015$ ), age ( $p=0.015$ ), and length of service ( $p=0.015$ ) with MSD complaints. Tailors with high ergonomic risk, female workers, those aged  $\geq 30$  years, and those with more than 10 years of service were more likely to experience higher levels of MSD complaints. High ergonomic risk levels are significantly correlated with increased MSD complaints among garment tailors. Ergonomic interventions such as improving workstation design, providing adjustable chairs and tables, and implementing regular posture training and stretching programs are recommended to reduce the risk of MSDs.

**Keywords:** Ergonomic risk, Musculoskeletal Disorders (MSDs), garment tailors, REBA, Nordic Body Map.



## **The Effect of Work Environment on Employee Performance Through Work Stress Among Light Brick Production Workers at Pt Kalla Beton Makassar**

Syamsiar S. Russeng<sup>1\*</sup>

<sup>1</sup>Department of Occupational Health and Safety, Faculty of Public Health, Hasanuddin University, Makassar, Indonesia

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Work stress triggered by environmental and psychosocial factors has been proven to be a significant barrier in maintaining employee performance. This study aims to analyze the influence of social relationships, mental workload, and work climate on work stress, as well as to assess the direct and indirect effects of these three factors on employee performance, with work stress as a mediating variable among lightweight brick production workers at PT Kalla Beton Makassar. This research employed a quantitative cross-sectional design involving 106 respondents selected using a total sampling technique. Research instruments included questionnaires (for social relationships, mental workload, and employee performance). The questionnaires used had been validated through content validity testing and reliability analysis (Cronbach's  $\alpha > 0.7$ ). A heat stress monitor (to measure work climate), and a cocorometer (to objectively assess work stress through salivary alpha-amylase enzyme). Data were analyzed using path analysis with a 95% confidence level ( $\alpha = 0.05$ ). The results of this study with a confidence level of 95% or  $CI = 0.05$  show that social relationships and mental workload have a significant effect on work stress ( $p=0.001$ ;  $p=0.025$ ), and social relationships and mental workload also affect employee performance directly or through work stress as a significant mediator ( $p=0.040$ ;  $p=0.045$ ). The work climate had no effect on work stress and employee performance ( $p>0.05$ ), as well as when going through work stress as a mediator was insignificant ( $p=0.240$ ). This study highlights that psychosocial factors (social relationships and mental workload) are more dominant in influencing employee performance compared to physical factors (work climate). Recommendation: Companies are advised to strengthen communication and collaboration among employees, and to equip workers with stress management skills to maintain productivity despite high job demands.

**Keywords:** Work Stress, Social Relationships, Mental Workload, Work Climate, Employee



## **Local Wisdom and Occupational Safety among Traditional Workers in Untia, Biringkanaya, Makassar, South Sulawesi**

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Occupational safety is often framed through technical guidelines and biomedical approaches, while cultural dimensions tend to be overlooked. This qualitative study examined the role of local wisdom in occupational safety among traditional fishing communities in Untia, Biringkanaya District, Makassar, South Sulawesi. The research, conducted over six weeks in June-July 2025, employed in-depth interviews and participant observation with five key informants, including traditional fishermen, a community leader, and a local health worker. Findings indicate that local wisdom plays a crucial role in shaping fishermen's safety practices. Traditional beliefs such as prohibitions against sailing on specific days, rituals of collective prayer before departure, and reliance on environmental cues like winds, tides, and moon phases function as indigenous safety mechanisms. Occupational safety is further reinforced through gotong royong (mutual assistance), which strengthens collective responsibility and support during accidents or hardships at sea. However, safety is frequently perceived not merely as a preventive measure but as predestined, which limits the adoption of modern safety equipment such as life jackets. While older generations strongly adhere to cultural practices, younger fishermen are more pragmatic, increasingly relying on new technologies such as GPS and motorized boats. This generational divergence reflects an ongoing negotiation between tradition and modernization in occupational safety practices. This study concludes that while local wisdom provides cultural resilience, it remains insufficient to comprehensively address occupational hazards. Therefore, integrating traditional knowledge with evidence-based occupational safety practices is essential to enhance cultural relevance, foster acceptance, and reduce health risks among fishing communities. These findings underscore the importance of adopting a cultural epidemiology perspective when designing occupational health programs for traditional fishermen in Untia, Makassar.

**Keywords:** Occupational Safety; Local Wisdom; Cultural Epidemiology; Fishermen; Untia Makassar

# Occupational Health Ergonomics and Psychology



## **Factors Associated With Low Back Pain Complaints Among Waste Collectors At The Baubau City Environmental Service**

Taswin<sup>1\*</sup>, Maria Kristina Hoba<sup>2</sup>, Fitriani<sup>3</sup>, Rininta Andriani<sup>4</sup>, Dahmar<sup>5</sup>, Wahyuddin<sup>6</sup>, Eky Endriana Amiruddin<sup>7</sup>, Darsal Dzulfakar Dafid<sup>8</sup>

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Localized or radiating low back pain, or both, is caused by musculoskeletal conditions and worsens with activity, while pain caused by other conditions is unaffected by activity. The purpose of this study was to determine Factors Associated With Low Back Pain Complaints In Waste Collectors At The Baubau City Environmental Service This research method is quantitative using an analytical survey approach with a cross-sectional study design. The population and sample were all 147 waste collectors at the Baubau City Environmental Service. The sampling technique is total sampling with univariate and bivariate research data analysis using the chi-square test. This research was conducted in Juni 2025. The research instrument used was a research questionnaire on work posture, workload, and work duration based on recognized ergonomic standards. Sizes confidence intervals in 95% with alpha value = 0,05. The results of the study showed a relationship between work posture (p-value = 0.001 < 0.05), workload and work duration (p-value < 0.001 < 0.05), and complaints of lower back pain among waste collectors in Baubau City. The conclusion of this study is factors were associated with low back pain (work posture, workload, and work duration) among waste collectors in Baubau City. Suggestions include increasing awareness and training in work ergonomics, optimal workload management, adequate work duration and rest periods, and the provision of adequate work aids.

**Keywords:** Work duration; Workload; Work posture



## **Factors Associated With Low Back Pain Complaints Among Waste Collectors At The Baubau City Environmental Service**

Taswin<sup>1\*</sup>, Maria Kristina Hoba<sup>2</sup>, Fitriani<sup>3</sup>, Rininta Andriani<sup>4</sup>, Dahmar<sup>5</sup>, Wahyuddin<sup>6</sup>, Eky Endriana Amiruddin<sup>7</sup>, Darsal Dzulfakar Dafid<sup>8</sup>

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**Keywords:** Work duration; Workload; Work posture



## The Relationship Between Age, Working Hours, and Workload with the Fatigue Level of Farmers

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In the Bungi Community Health Center work area, a large number of farmers were found to be experiencing symptoms of work fatigue, such as general fatigue, lack of focus, and drowsiness. The workload of these farmworkers is also quite excessive, requiring them to work for long periods of time each day, typically around 8-9 hours or more. The purpose of this study is to determine the relationship between age, working hours, and workload with the level of worker fatigue among farmers. This research used a quantitative method with a cross-sectional study. The population included all farmers registered at the Occupational Health and Safety (UKK) Post in the work area of the Bungi Public Health Center, totaling 77 individuals. The sampling technique used was total sampling. This research was conducted in August-September 2024. The research variables are Age, Working Hours, and Workload. The largest category of work fatigue was severe work fatigue was most common (n = 52; 67.5%). The results showed a significant relationship between age (p-value = 0.000 < 0.05), working hours (p-value = 0.025 < 0.05), and workload (p-value = 0.042 < 0.05) with the level of work fatigue among farmers in the work area of Bungi Public Health Center, Baubau City. The results of the study explain that in adulthood, namely 25-44 years, the physical condition of farm workers is still quite strong even though the physical work is heavy, they still have good energy and stamina. The conclusion of this study is that there is a relationship between age, working hours, and workload with the level of work fatigue among farmers in the work area of Bungi Public Health Center, Baubau City. Further research will focus on the cumulative impact on work fatigue, musculoskeletal complaints, and productivity.

**Keywords:** Age, WorkFatigue, Working Hours, Workload



## **Occupational Ergonomic Risk Assessment of Musculoskeletal Disorders Among Oil Palm Plantation Workers**

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Musculoskeletal disorders (MSDs) are among the most common occupational health problems worldwide, with agricultural workers particularly vulnerable due to physically demanding tasks, repetitive movements, and awkward postures. In Malaysia, oil palm plantation workers form a significant labor force, yet limited research has examined their ergonomic risks despite the sector's major contribution in the economy. This study aimed to assess the ergonomic risk factors associated with routine plantation tasks and evaluate their potential contribution to the development of MSD, with implications for occupational safety and public health. A cross-sectional field study was conducted among 30 oil palm plantation workers in Parit Sulong, Johor, performing tasks such as harvesting, loose fruit collection and loading. Data were collected using the Cornell Musculoskeletal Discomfort Questionnaire (CMDQ) to capture self-reported symptoms and the Initial Ergonomic Risk Assessment (IERA) to evaluate repetitive motion, awkward posture, and forceful exertion of the workers. Observational methods, including photo and video documentation. Descriptive statistics and ergonomic risk scoring were applied to identify tasks with the highest risk levels. Results showed that the majority of the discomfort was frequently reported in the shoulder (60%), and lower back (70%), followed by the neck (50%), with the upper limbs (30%), and hip/buttocks (20%) being the lowest. Harvesting and loading tasks produced the highest ergonomic risk scores due to repetitive overhead cutting and manual handling of heavy loads. Overall, many plantation tasks, especially harvesting and loading fell within the medium-to-high risk category, highlighting significant ergonomic challenges. These findings confirm that oil palm plantation workers are exposed to considerable ergonomic hazards that not only compromise safety, productivity and long-term. The study underscores the need for ergonomic interventions such as mechanical aids, job rotation, and targeted worker training to support safer work practices in the plantation sector.

**Keywords:** Ergonomic Risk Assessment, Ergonomic Risk Factors, Musculoskeletal Disorders (MSD), Oil Palm Plantation Workers

# Occupational Safety & Health in Hospital



## **Analysis of the Relationship between Knowledge, Attitudes, and History of Covid-19 Exposure to the Behavior of Medical, Paramedical, and Medical Support Personnel in Handling Medical Waste at PMI Hospital Bogor**

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Data from the Indonesian Red Cross Hospital in Bogor shows that the volume of medical waste doubled in 2021 (26,772 kg) compared to 2020. As of March 9, 2022, in addition to cleaning staff, 173 people at the PMI Hospital in Bogor had been diagnosed with Covid-19, of which 60 were still self-isolating. Currently, there are 96 cleaning staff, 6 laboratory staff, 43 paramedics, 19 doctors on duty in the emergency room, and 28 medical personnel in the isolation ward who are directly involved in handling Covid-19 patients. To determine the factors that most influence medical waste handling behavior at PMI Hospital Bogor. Quantitative, cross-sectional study design with 200 respondents. All variables were observed and then measured simultaneously to determine whether there was a relationship between the dependent and independent variables. The results of the study indicate that there is a relationship between knowledge, attitudes, and Covid-19 exposure to the behavior of medical, paramedical, and medical support personnel in handling medical waste at PMI Hospital Bogor. by looking at the value of the knowledge variable (p Value = 0.002), attitude variable (p Value = 0.001), Covid-19 exposure variable (p Value = 0.000). Socialization should be carried out regarding Standard Operating Procedures (SOP) in efforts to handle medical waste and provide inclusive education not only as an alternative but as a principle regarding waste management, in addition to providing assistance, supervision and reprimands if there is a wrong attitude in handling waste.

**Keywords:** Medical Waste Handling Behavior, Knowledge, Attitude, Exposure History



## **Patient Safety Model in the Operating Room with a Safety Culture Strengthening Strategy in Hospitals: A Literature Review**

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The operating room (OR) is a high-risk environment where system reliability, teamwork, and communication directly affect patient outcomes. Surgical adverse events occur in up to 38% of hospital admissions, with nearly 47% being preventable. Strengthening safety culture has been shown to reduce adverse events by 30-40%. To develop an integrated patient safety model for the OR that combines system-based interventions and safety culture strengthening strategies applicable to hospitals. This research is a review of related literature was conducted, covering meta-analyses, implementation trials, and systematic reviews from reputable journals. Search and collect literature using the Google Chrome search engine with the keywords patient safety and safety culture in the operating room. Quantitative data were extracted on teamwork, checklist adherence, incident reporting, and surgical outcomes. High-fidelity implementation of the WHO Surgical Safety Checklist improved team performance by 4.3 points and reduced device-related interruptions by 86.5%. Strengthening non-punitive culture increased incident reporting rates by 88%. Excessive OR door openings increased surgical site infection risk. Training programs such as TeamSTEPPS significantly improved teamwork and safety attitudes across all measured domains. An integrated safety model combining standardized checklists, team-based training, leadership engagement, and structured feedback loops effectively enhances safety culture and reduces operative risk. Hospitals should to implement a programs safety culture by conducting baseline culture assessments, establishing leadership walk rounds, continuous simulation-based team training, and digital reporting systems. Sustained auditing and adaptive feedback mechanisms are essential to maintain long-term safety improvement and prevent adverse surgical events.

**Keywords:** patient safety, safety culture, strengthening strategy, operating room, hospitals



## **Mental Workload as a Key Predictor of Work Stress among Inpatient Nurses at Lasinrang Hospital, Pinrang**

**A. Wahyuni<sup>1</sup>, Ainun Awaliyah Tang<sup>2</sup>, A. Muflihah Darwis<sup>3</sup>.**

Work stress is an important occupational health and safety issue that may impair nurses' wellbeing and performance, particularly in inpatient wards where service demands are continuous. High task demands, multiple responsibilities, and shift schedules may increase stress risk. Physical and mental workload are frequently cited determinants of stress among nursing staff, yet evidence varies across settings. This study examined the relationship between physical workload and mental workload and nurses' work stress in the inpatient ward of Lasinrang Hospital, Pinrang Regency, Indonesia (2022). An analytical observational study with a cross-sectional design was conducted. A total of 107 inpatient nurses were selected using probability sampling with proportional stratified random sampling. Work stress was assessed using the Stress Diagnostic Survey. Mental workload was measured using the NASA Task Load Index (NASA-TLX), and physical workload was assessed using oximeter-based measurements. Data were summarized using univariate analysis, and associations were tested using the chi-square test and Fisher's exact test where appropriate. Statistical significance was set at  $p < 0.05$ . Marital status was significantly associated with work stress ( $p = 0.017$ ). Physical workload was not associated with work stress ( $p = 0.295$ ). Mental workload showed a significant relationship with work stress ( $p = 0.002$ ). Working period was not associated with work stress ( $p = 0.422$ ), while work shift was significantly associated with work stress ( $p = 0.022$ ). Work stress among inpatient nurses was related to mental workload, marital status, and work shift, but not to physical workload or working period. Stress management programs and improved shift staffing are recommended, particularly for night shifts.

**Keywords:** work stress; nurses; mental workload; NASA-TLX; physical workload; shift work; inpatient ward.

# Occupational Safety & Health Management



## Determinants of Stunting Incidence at Katobengke Health Center, Baubau City, 2024

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Stunting is a condition of impaired growth and development in children under five years old due to chronic malnutrition, resulting in the child being too short for their age. Malnutrition occurs from the time the baby is in the womb and during the early period after birth, but stunting only becomes apparent after the child reaches 2 years of age. This study aims to identify the factors that influence the incidence of stunting in the working area of Katobengke Health Center. This type of research is quantitative, using an analytical observational method with a cross-sectional study design. The population consisted of 804 individuals, with a sample size of 267. The sampling technique used was random sampling. The research was conducted from March to June 2024. The research instrument uses a questionnaire. Data analysis was univariate and bivariate using the Chi-Square Test statistical analysis by reviewing the test value, if  $< \alpha$  ( $\alpha = 0.05$ ), it is considered significant. The results of this study showed that the economic factor variable had a p-Value =  $0.004 < 0.05$  and maternal education had a p-Value =  $0.005 < 0.05$  at Katobengke Health Center, Baubau City. This study found that there was a significant relationship between economic factors and maternal education with the incidence of stunting in the working area of Katobengke Health Center, Baubau City. It is expected that Katobengke Health Center can enhance health activities related to stunting for families with infants and toddlers.

**Keywords:** Determinants of Stunting Incidence, Toddlers



## **Analysis of Factors Causing Compliance in the Use of Personal Protective Equipment (PPE) in the Complaints Service Sector at PT PLN (Persero) UP3 Baubau in 2025**

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The Safety Triad Theory by Geller, states that compliance is one of the factors in the behavioral component that is influenced by human factors (person), and the environment (environment), aligning with efforts to improve PPE compliance. This study aims to explore and interpret the perceptions, lived experiences, and practical applications of Personal Protective Equipment (PPE) among complaints service officers at PT PLN (Persero) UP3 Baubau. Through a qualitative approach, the research seeks to uncover contextual factors that influence PPE compliance and implementation within the operational dynamics of the complaints service sector. This study was conducted using qualitative design with a phenomenological approach with five informants: ULP Manager, K3L and the team of Occupational Health, safety, Environment and Security. The results of the study indicate that the length of work experience did not influence compliance in using PPE at PT PLN (Persero) UP3 Baubau. From the results, it was found that there were still workers who did not fully use personal protective equipment because they felt uncomfortable and forgot to bring it when they were going to do the work. However, some workers were still obedient in using PPE in carrying out their work. The conclusion of this study indicates that factors such as worker attitudes, supervisory practices, occupational health and safety (OHS) policies, knowledge, and the availability of Personal Protective Equipment (PPE) significantly influence compliance with PPE usage among complaints service officers. The length of work experience does not appear to affect PPE compliance. The recommended that the company consistently reinforces PPE usage through regular reminders and supervision, ensuring that all workers—regardless of their tenure—adhere to safety protocols in the workplace.

**Keywords:** PPE, Compliance, Qualitative Research



## **Risk Factors For Acute Respiratory Infection (ARI) In Coastal Communities in Liwuto Village Baubau City, Indonesia**

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Acute Respiratory Infections (ARI) are one of the public health problems that are still commonly found in various regions, including coastal areas. Environmental conditions in coastal areas, such as high humidity, population density, the habit of burning garbage, and exposure to cigarette smoke, can increase the risk of respiratory disease transmission. In addition, limited access to adequate health facilities and low public awareness of clean and healthy living behaviors further exacerbate the situation. The Liwuto community health center is a health service facility located in Kokalukuna District, with a working area covering most of the coastal settlements. Based on data from the Liwuto community health center, ARI is among the top ten diseases with the highest number of cases in the last three years. The age group most vulnerable to ARI is infants and toddlers, with an increasing trend each year. In 2021, there were 318 cases of ARI, increasing to 364 cases in 2022, and reaching 429 cases in 2023. From January to October 2024, the number of cases increased again to 472 cases. The results demonstrated that all tested variables were significantly associated with ARI incidence, namely cigarette smoke exposure ( $p = 0.000$ ), healthy living behavior ( $p = 0.000$ ), home ventilation ( $p = 0.000$ ), housing density ( $p = 0.000$ ), and wall type ( $p = 0.024$ ). These findings indicate that both behavioral and environmental factors contribute to the high of ARI in coastal communities. In conclusion, exposure to cigarette smoke, poor healthy living behaviors, inadequate home ventilation, high housing density, and non-optimal wall type are significantly related to ARI incidence among coastal communities in the Liwuto community health center. Strengthening public health interventions through environmental hygiene improvement and community education on healthy living practices is essential to reduce ARI cases.

**Keywords:** Acute Respiratory Infection (ARI), Cigarette Smoke Exposure, Healthy Living Behavior, Home Ventilation, Housing Density



## **Factors Related to Work Fatigue in Asphalt Production Workers at PT. Putindo Bintech, Buton Regency, Southeast Sulawesi Province**

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Work fatigue is a common condition in the workplace and can increase the risk of accidents and reduce worker performance. Data from the Southeast Sulawesi Manpower and Transmigration Service shows that the number of work accidents has increased over the past three years, with 263 cases in 2022 and 479 cases in 2023, and increased again to 504 cases in 2024. This study aims to analyze the factors related to work fatigue in asphalt production workers at PT. Putindo Bintech, Buton Regency, Southeast Sulawesi Province. This research is quantitative using a cross-sectional study design. The measuring tool used for work fatigue is the Fatigue Assessment Scale (FAS) questionnaire. The population is all asphalt production workers, totaling 32 people. The sample used was Total Sampling. Data analysis is univariate and bivariate analysis using the chi square test. The study showed that there was a relationship between age (p-Value = 0.002 < 0.05), marital status (p-Value = 0.000 < 0.05), Work Period (p-Value = 0.000 < 0.05), and there is no relationship between education (p-Value = 0.625 > 0.05). In the study, there was a relationship between age, marital status, work period, with work fatigue among workers at PT. Putindo Bintech, Buton Regency, Southeast Sulawesi Province. Suggestion that task rotation is necessary to avoid fatigue due to monotony, and provide annual leave, and periodic complete health checks for workers and for further researchers it is advisable to consider other variables that have not been studied namely physical work environment factors such as temperature, lighting, and noise which can also affect work fatigue.

**Keywords:** Age; Education; Marital Status; Work Period; Work Fatigue



## Mining Safety and Health Maturity As a Predictor of Accident Reduction in Indonesian Nickel Mining Companies (2024)

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In 2023, the Government of Indonesia mandated all mining companies to assess their Mining Safety and Health Performance Maturity Level (MSHPML) as part of occupational safety and health (OHS) governance. However, in 2024, 42 accidents and 8 work-related fatalities were still reported in the nickel mining sector, revealing a gap between policy and outcomes. This study aimed to analyze the relationship between MSHPML and OHS lagging indicators in Indonesian nickel mining companies. A cross-sectional quantitative design was employed using 2024 official reporting data from 77 companies across Sulawesi, Maluku, and Papua. The independent variable was the MSHPML score, while dependent variables were accident frequency rate (FR), accident severity rate (SR), morbidity frequency rate (MFR), absence severity rate (ASR), and cases of accidents or occupational diseases. Data were processed using Poisson regression, Spearman correlation, and linear regression with appropriate assumption testing. Results showed that higher MSHPML scores were significantly associated with fewer accidents ( $\rho = -0.35, p < 0.01$ ), lower FR ( $r = -0.475, R^2 = 0.226, p = 0.001$ ), and lower SR ( $r = -0.394, R^2 = 0.156, p < 0.001$ ). Risk control implementation had the strongest effect, significantly reducing SR ( $p = 0.046$ ). In contrast, no significant associations were found with health outcomes such as MFR, ASR, or occupational disease cases (all  $p > 0.05$ ). The findings suggest that MSHPML is a valid predictor of safety outcomes but remains insufficient for addressing occupational health dimensions. Refining the framework by integrating health-specific indicators is recommended to enhance its comprehensiveness and long-term impact.

**Keywords:** Mining, Nickel, Occupational Health and Safety, Safety Maturity, Accident



## **Factors Related to Work Fatigue in Asphalt Production Workers at PT. Putindo Bintech, Buton Regency, Southeast Sulawesi Province**

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**Keywords:** Age; Education; Marital Status; Work Period; Work Fatigue



## **A Literature Review on the Structural Equation Modeling (SEM-PLS) Approach to Analyze Internal and External Determinants of Nurses' Performance in Hospitals**

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Nurse performance is a crucial element in providing quality health services. Nurses performance serves as a vital component in ensuring the overall quality and efficiency of hospital care. Previous studies have consistently reported that performance is affected by an interplay of various internal and external determinants. This literature review aims to synthesize and critically evaluate prior research that explored these influencing factors through the Structural Equation Modeling-Partial Least Squares (SEM-PLS) framework. Relevant empirical studies were systematically searched across Google Scholar, PubMed, and Science Direct databases for the period 2019-2024. Out of 68 retrieved publications, 24 met the inclusion criteria, namely: (1) quantitative studies employing SEM-PLS, (2) a focus on hospital-based nurse performance, and (3) inclusion of measurable internal and external variables. Studies that did not meet these standards were excluded. The synthesis revealed that internal dimensions motivation, job satisfaction, competence have a significant influence on performance. Conversely, external influences include work environment, management support, workload. The findings underscore the utility of SEM-PLS in mapping complex causal relationships and offer valuable insights for hospital leaders seeking to develop evidence driven strategies for enhancing nurses' performance and the quality of healthcare delivery.

**Keywords:** Nurses' performance, hospital, motivation, job satisfaction, Competence, Work environment, Management support, Workload, SEM-PLS

# Occupational Safety & Health Informal Sector



## Strengthening Occupational Safety and Health Awareness Among Informal Workers: A Literature Review

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More than half of the global workforce works in the informal sector, which remains highly vulnerable to occupational accidents and diseases due to the disruption of formal work regulatory frameworks. Globally, an estimated 2.9 million deaths annually are caused by work-related factors, representing 5.8% of global GDP. Limited access to information, weak social protection, and inadequate regulations contribute to low awareness of occupational safety and health (OSH) among informal workers. This literature review aims to synthesize empirical evidence on OSH awareness and its influencing factors among informal workers. A narrative thematic synthesis approach was applied to 13 empirical studies indexed in Scopus, published between January 2020 and June 2025, selected according to the PRISMA framework. Boolean operators ("AND", "OR") were used to refine keyword combinations. The methodological quality of each article was assessed using the Joanna Briggs Institute (JBI) Critical Appraisal Tools, and potential bias was minimized through independent double-screening. The synthesis identified five key themes: (1) risk perception and safety behavior, (2) literacy training and effectiveness, (3) social and cultural support, (4) psychosocial well-being, and (5) policy and environmental context. Although risk awareness was generally high, consistency in safety behavior especially the use of PPE remained low due to inconvenience, economic constraints, and limited access. Participatory learning and training methods proved effective in improving safety literacy and promoting safe practices. Strong social and cultural support fostered positive safety attitudes, while psychosocial well-being improved retention and a culture of safety. In conclusion, reducing occupational risks and improving protection for informal workers requires integrated interventions that simultaneously strengthen regulations, improve OSH literacy, and strengthen social support mechanisms.

**Keywords:** Informal Sector, Occupational Safety and Health, Safety Awareness, Participatory Training, Social Support, Policy Adaptation.



## Hazard Identification Risk Assessment Fishermen in Kodingareng Island

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Fishermen are one of the informal sector workers with a high risk of occupational accidents. This study aims to identify the hazards experienced by fishermen on Kodingareng Island. This study uses a quantitative observational method with the object of research being all types of fishing activities based on the type of boat used. Data collection uses questionnaires and HIRA (Hazard Identification Research Assessment) sheets and interview sheets. This data collection is carried out in stages starting from the type of activity, the use of tools and materials and the hazards that may arise, then categorizing the risks of the hazards based on the parameters of possibility (likelihood), severity (severity), and level of exposure (exposure), then mapped in the HIRA risk matrix. The results show that there are 5 types of fishermen with different work patterns and tools used which are seen based on the type of vessel. The risk results of each vessel are Jolloro vessels, there are 1 potential hazard with extreme risk (very high) and 6 high risks, Bagang vessels 2 high risks, Jalepara 1 extreme risk 6 high risks, Lepa-lepa vessels 1 extreme risk 8 high risks while Pagae has 6 potential hazards with high risks. The high risk experienced by the 3 vessels is high waves. This condition cannot be avoided because it is during high waves that mackerel fish appear, this condition has an impact to death and the opportunity or possibility of appearing 1 time a year so that it is categorized as an extreme condition from the results of the HIRA calculation. In conclusion, there is a risk of work accidents that are categorized as extreme (very high) that can be experienced by fishermen and 22 potential hazards in all types of activities that are categorized as high, further research is recommended to see the extent of risk reduction in potential hazards experienced by fishermen with risk control efforts that have been used so far.

**Keywords:** Fishermen, HIRA, Kodingareng Island, Informal Sector.



## **Postural Ergonomic Assessment and Musculoskeletal Disorders among Shallot Farmers in Malua Subdistrict, Enrekang**

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Shallot cultivation involves multiple physically demanding tasks that may expose farmers to ergonomic risks and musculoskeletal disorders (MSDs). This study aimed to examine the association between individual and work-related factors with MSD complaints among shallot farmers in Dulang Village, Malua Subdistrict, Enrekang Regency, Indonesia. An analytical observational study with a cross-sectional design was conducted among 98 respondents selected using purposive sampling. Data were obtained using questionnaires on individual characteristics and the Nordic Body Map (NBM), while work posture was evaluated using the Rapid Entire Body Assessment (REBA) method via the Ergofellow Type 3.0 application. The Chi-square test was applied to identify associations between variables, and potential confounders such as age and employment duration were considered during analysis. Results showed that 59.2% of respondents reported high MSD complaints. Age ( $p = 0.012$ ), employment duration ( $p < 0.001$ ), and work posture ( $p = 0.022$ ) were significantly associated with MSDs, whereas gender ( $p = 0.767$ ), body mass index ( $p = 0.852$ ), and daily working hours ( $p = 0.891$ ) showed no significant relationships. Farmers are encouraged to maintain proper ergonomic postures, avoid prolonged bending, and take sufficient rest periods during cultivation activities to reduce MSD risk.

**Keywords:** ergonomics, musculoskeletal disorders, occupational health, REBA, shallot farmers



## **Hygiene And Urinary Chromium Exposure of Motorcycle Workshop Workers in Makassar City In 2025 (Preliminary Study)**

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Chromium is a heavy metal commonly found in the workplace, particularly in the automotive and repair industries and widely used in lubricants, metal cleaning agents, and coatings containing chromium. One of the most dangerous forms of chromium is hexavalent chromium (Cr VI), which is known to be toxic and carcinogenic. Long-term exposure is known to cause various health issues, such as kidney and liver damage, respiratory tract irritation, immune system disorders, and an increased risk of cancer, particularly lung cancer. To determine the relationship between hand hygiene, skin hygiene, smoking habits, the use of personal protective equipment (PPE) and the chromium exposure levels of motorcycle workshop workers. This study is a cross-sectional design using the accidental sampling technique with total sampling of 70 respondent. Data collection was conducted using questionnaires accompanied by observation of working process. Data analysis was performed using the Pearson correlation test. There is a direct relationship between hand hygiene and the levels of chromium exposure in the urine of motorcycle workshop workers. However, skin hygiene, smoking habits, and the use of personal protective equipment (PPE) are not directly related to chromium exposure levels in the workers' urine. Workers' hand hygiene is associated with the levels of chromium exposure in the urine of workers at workshops in Makassar city. Therefore, it is recommended that workers should routinely wash their hands properly to reduce the risk of harmful chromium exposure.

# Occupational Safety & Health Multi Sectors



## **Physical and Mental Workload and Job Stress among Airport Rescue and Fire Fighting (ARFF) Personnel at Sultan Hasanuddin International Airport**

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Airport Rescue and Fire Fighting (ARFF) personnel are part of an emergency response unit that operates in high-risk environments, requiring both physical endurance and mental alertness. Their duties include responding to fire incidents, conducting safety inspections, and maintaining equipment readiness. These responsibilities often involve intense physical activity and continuous psychological pressure, which may contribute to fatigue and stress. Understanding their workload and stress profiles is essential to promote occupational health and sustainable work environments. This study aimed to describe the levels of physical workload, mental workload, and job stress among ARFF personnel at Sultan Hasanuddin International Airport, Makassar. A quantitative descriptive design was applied, involving all 75 ARFF employees. Physical workload was assessed using the Cardiovascular Load (CVL) method, mental workload using the NASA Task Load Index (NASA-TLX), and job stress using the Stress Diagnostic Survey (SDS-30). Results showed that most workers experienced heavy physical workload (92%) and heavy mental workload (81.3%), while 66.7% reported high job stress. Shift distribution was relatively balanced between day (52%) and night (48%) workers. The findings reveal that ARFF personnel generally face demanding physical and cognitive workloads, accompanied by a high level of job stress. These results underline the importance of implementing periodic workload evaluations, stress awareness programs, and preventive occupational health initiatives to sustain safety and worker well-being.

**Keywords:** ARFF; descriptive analysis; job stress; occupational health and safety; workload



## Humour and Memes in Occupational Safety and Health Communication: A Systematic Review in the Safety-II Framework

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Workplace accidents in high-risk industries remain a persistent concern globally and in Indonesia, underscoring the limitations of compliance-focused Safety-I systems. The Safety-II paradigm offers a proactive alternative by emphasizing resilience, adaptability, and the central role of effective communication. Yet occupational safety and health (OSH) communication is often undermined by message fatigue, where repeated exposure reduces engagement, retention, and ultimately safety performance. This study presents a Systematic Literature Review (SLR), conducted according to PRISMA 2020 guidelines, to examine how humour and digital memes have been applied in OSH communication and to assess their potential within a Safety-II framework. Searches were conducted in Scopus for studies published between 2010 and 2025 using four thematic blocks: (1) OSH communication and paradigms, (2) humour and memes, (3) message outcomes, and (4) occupational safety contexts. The initial search yielded 2,686 records. After deduplication, filtering, and title/abstract screening, 13 studies were assessed at full text, with 11 included in the final synthesis. The results show that humour has been studied in leadership, training, and cultural contexts, consistently improving attention, engagement, and positive attitudes. However, effects on retention are mixed, and humour must be contextually appropriate to avoid cynicism. Memes, in contrast, are almost absent from OSH literature, with only isolated use of meme-style visuals in laboratory safety. Moreover, message fatigue has not been directly measured in occupational contexts, despite its recognition in health communication as a barrier to effectiveness. This review highlights a significant research gap and affirms the potential of humour- and meme-based approaches to refresh OSH communication, mitigate fatigue, and strengthen Safety-II practices. These findings provide a systematic foundation for future empirical studies and practical interventions aimed at advancing safety culture and resilience in high-risk industries.

**Keywords:** Occupational Safety and Health (OSH), OSH Communication, Safety-II, Humour, Memes, Message Fatigue

# Health Risk Assessment



## Dermal Exposure Risk Assessment: Optimizing Glove Efficacy for Oil Palm Pesticide Handlers

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Pesticide handlers in oil palm plantations face significant risks from dermal exposure, particularly when applying solvents-based herbicides like Triclopyr Butotyl. While nitrile gloves are commonly used as personal protective equipment (PPE), their long-term chemical resistance and durability under tropical conditions remain uncertain, raising potential health risks from permeation and physical failure. This study applied a dual-method approach to evaluate glove safety and dermal pesticide exposure, using convenience sampling among 190 handlers from 15 Malaysian oil palm plantations. Laboratory permeation testing, following AS/NZS 2161.10.3:2005, assessed Rubberex Super Nitrile gloves (RNF 15) for breakthrough time and cumulative permeation of triclopyr butotyl under simulated hot conditions (45 °C), analyzed using HPLC-UV. Complementary field observations, adapted from the Dermal Exposure Assessment Method (DREAM), systematically recorded pesticide handling practices, glove use behaviours, and time-to-failure (rips, punctures, degradation) during routine application. Observations covered 184 workers (78.6% of the cohort), with exposure scores linked to work practices and behaviours. Glove integrity remained intact after 8 hours of exposure to triclopyr butotyl at application strength, with thickness decreasing from 0.45  $\mu\text{m}$  ( $\text{SD}\pm 0.04$ ) to 0.40  $\mu\text{m}$  ( $\text{SD}\pm 0.04$ ), indicating early degradation. Permeation rates remain low, ranging from 0.02  $\mu\text{g}/\text{min}$  ( $\text{SD}\pm 0.02$ ) at 20 minutes to 0.26  $\mu\text{g}/\text{min}$  ( $\text{SD}\pm 0.03$ ) at 8 hours, with cumulative permeation reaching 1,975.17  $\mu\text{g}$  ( $\text{SD}\pm 86.43$ ). Crucially, field observations and Kruskal-Wallis analysis demonstrated that behavioral and physical failures presented the dominant risk. While PPE coverage varied significantly across the Head/Neck ( $p=0.04$ ) and Wrist/Hands ( $p=0.01$ ), the greatest contamination risk stemmed from Transfer and Emission activities, with contaminated hands serving as the most exposed conduit for distribution (Mean=2.00 for transfer;  $p<0.001$ ). This study, integrating precise lab data with empirical field observations, provides actionable, evidence-based recommendations for improving handler safety, informing better PPE selection policies, and developing targeted training protocols for pesticide applicators in the oil palm industry.

**Keywords:** Glove Performance, Dermal Exposure, Triclopyr Butotyl



## **Analysis of Risk Factors for Hypertension in the Elderly in the Lapandewa Health Center Working Area, South Buton Regency**

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Hypertension is the cause of premature death worldwide (WHO). Hypertensive disease in Lapandewa health center ranks second in the top 10, hypertension sufferers are mostly elderly. The purpose of this study was to determine the Risk Factor Analysis of Hypertension Events in the Elderly in the Lapandewa Health Center Working Area, South Buton Regency. This research method is quantitative with a cross sectional study design. The population is all elderly Lapandewa District as many as 107 people with a sample of 67 people. sampling technique is accidental sampling with univariate and bivariate analysis using chi square data test. The results showed that there was a relationship between age ( $p\text{-Value} = 0.003 < 0.05$ ), Gender ( $p\text{-Value} = 0.005 < 0.05$ ), Family History ( $p\text{-Value} = 0.002 < 0.05$ ), with the incidence of hypertension in the Lapandewa Health Center work area. The conclusion in this study is that there is a relationship between age, gender, family history, with the incidence of hypertension in the Lapandewa Health Center working area of South Buton Regency. Suggestions need to increase health promotion / counseling and socialization of hypertension risk factors as a form of effort.

**Keywords:** Age, Gender, Family History, Hypertension, South Buton Regency

# Mental Health and Wellbeing



## Employment Profile Prior to Stroke Among Post-Stroke Patients in Kadatuan Tana Luwu, South Sulawesi

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Occupation plays an important role in determining individual health risks, including the likelihood of stroke. Excessive physical activity, occupational stress, and an unbalanced lifestyle are common contributing factors, particularly among people of productive age. In the Kadatuan Tana Luwu region of South Sulawesi, most of the population works in agricultural and manual labor sectors that require high physical effort. These conditions may increase both physical and psychological workloads, potentially leading to cardiovascular disorders. Therefore, this study aimed to describe the employment profile prior to the onset of stroke among post stroke patients in the Kadatuan Tana Luwu region. This study employed a descriptive quantitative design involving 206 stroke patients documented in the Kadatuan Tana Luwu health registry. Data were collected using structured questionnaires and analyzed descriptively through frequency distribution to determine the proportion of patients according to their occupational type. The findings showed that 71.8 percent of stroke patients were employed (148 individuals), while 28.2 percent were unemployed (58 individuals). Based on occupational type, the majority were farmers (71 individuals; 34.5 percent), followed by entrepreneurs (36; 17.5 percent), private employees (12; 5.8 percent), laborers (13; 6.3 percent), and civil servants or military and police personnel (16; 7.8 percent). Occupations involving heavy physical workloads such as farming and manual labor had the highest proportions among stroke patients, indicating a link between strenuous work activity and increased stroke risk. Most stroke patients in the Kadatuan Tana Luwu region had a history of active employment, particularly in physically demanding sectors such as agriculture. This finding underscores the significant contribution of occupational factors to stroke risk. Promotive and preventive efforts focusing on occupational health, including stress management, healthy lifestyle education, and early detection of risk factors, are essential to protect active workers in this community.

**Keywords:** Stroke, employment status, occupational risk, workplace health



## The Positive Effect of Self-Talk on Reducing Anxiety Levels in Pregnant Women

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Anxiety is one of the psychological disorders commonly experienced by individuals, including pregnant women. Anxiety about childbirth is a common psychological complaint experienced by pregnant women, both during their first pregnancy and subsequent pregnancies. One of the non-pharmacological interventions that can be used to reduce anxiety is positive self-talk, which is a cognitive strategy of giving positive suggestions to oneself to form more adaptive thinking patterns and emotional responses. This study aims to assess the effectiveness of reducing anxiety levels in pregnant women through positive self-talk education intervention using a quasi-experimental pretest-posttest one-group design. Data collection was conducted using the Parinatal Anxiety Screening Scale (PASS) questionnaire, which was then analyzed using the Wilcoxon test. The sample size in this study was 15 people, determined using non-probability sampling with a purposive sampling approach. The results showed that before the intervention, 11 respondents (73%) had high anxiety levels, with the highest parity in the multigravida group at 83%. Only 4 respondents (27%) were in the low anxiety category, with the highest parity in the primigravida group at 33%. After the intervention was given, all respondents experienced a decrease in anxiety levels to the low anxiety category (100%). This indicates that previous pregnancy experiences do not necessarily reduce anxiety; in fact, they can increase concerns due to previous childbirth experiences, potential complications, or traumatic memories from previous pregnancies. Statistical test results showed a significant effect of positive self-talk on reducing anxiety levels in pregnant women with a p-value = 0.001. Thus, it can be concluded that positive self-talk is an effective non-pharmacological intervention in reducing anxiety levels in pregnant women.

**Keywords:** positive self-talk, anxiety, pregnant women



## The Pathways Of Treatment Seeking Behavior And Delays In Mental Health Care In Sudan

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In 2023, the Government of Indonesia mandated all mining companies to assess their Mining Safety and Health Performance Maturity Level (MSHPML) as part of occupational safety and health (OHS) governance. However, in 2024, 42 accidents and 8 work-related fatalities were still reported in the nickel mining sector, revealing a gap between policy and outcomes. This study aimed to analyze the relationship between MSHPML and OHS lagging indicators in Indonesian nickel mining companies. A cross-sectional quantitative design was employed using 2024 official reporting data from 77 companies across Sulawesi, Maluku, and Papua. The independent variable was the MSHPML score, while dependent variables were accident frequency rate (FR), accident severity rate (SR), morbidity frequency rate (MFR), absence severity rate (ASR), and cases of accidents or occupational diseases. Data were processed using Poisson regression, Spearman correlation, and linear regression with appropriate assumption testing. Results showed that higher MSHPML scores were significantly associated with fewer accidents ( $\rho = -0.35, p < 0.01$ ), lower FR ( $r = -0.475, R^2 = 0.226, p = 0.001$ ), and lower SR ( $r = -0.394, R^2 = 0.156, p < 0.001$ ). Risk control implementation had the strongest effect, significantly reducing SR ( $p = 0.046$ ). In contrast, no significant associations were found with health outcomes such as MFR, ASR, or occupational disease cases (all  $p > 0.05$ ). The findings suggest that MSHPML is a valid predictor of safety outcomes but remains insufficient for addressing occupational health dimensions. Refining the framework by integrating health-specific indicators is recommended to enhance its comprehensiveness and long-term impact.

**Keywords:** Mining, Nickel, Occupational Health and Safety, Safety Maturity, Accident Reduction



## **Unraveling the Nexus Between Mental Health Service Quality, Healthcare Worker Competence, and Patient Satisfaction: A Comprehensive Literature Review**

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Mental health services today are required not only to provide clinically effective interventions but also to be responsive to patients' needs and expectations. This study aims to examine in depth the interrelationship between mental health service quality, healthcare worker competence, and patient satisfaction as three key pillars of modern mental health systems. The method employed was a comprehensive literature review, analyzing 15 peer-reviewed articles published between 2020 and 2025, retrieved from PubMed, Scopus, and Google Scholar databases. The inclusion criteria consisted of articles written in English, focusing on service quality, healthcare competence, and patient satisfaction within mental health contexts, while irrelevant or duplicate studies were excluded. The findings indicate that high-quality services, which are characterized by recovery-oriented practices, trauma-informed approaches, and digital accessibility, significantly enhance patient satisfaction. In addition, healthcare worker competence, which includes clinical expertise, digital literacy, cultural sensitivity, and resilience, plays an essential role in ensuring service quality and building strong therapeutic alliances. Patient satisfaction ultimately emerges not only as an outcome but also as a catalyst for service improvement, strengthening adherence, and providing valuable feedback for health policy. This review concludes that investing in sustainable competence development and enhancing service quality are key strategies in creating a mutually reinforcing cycle to achieve optimal mental health outcomes. The implication is that these findings provide a foundation for formulating more integrative mental health policies while promoting sustainable, adaptive, and patient-centered clinical practices.

**Keywords:** Service Quality, Healthcare Worker Competence, Patient Satisfaction, Mental Health



## Smartphone Use, Fear of Missing Out (FoMO), and Mental Health: Evidence from Information Systems Students at Hasanuddin University

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Mental health challenges among university students have become increasingly associated with the growing presence of digital technology, especially smartphones. This study explores how smartphone use and the psychological phenomenon of fear of missing out (FoMO) relate to mental health among Information Systems students at Hasanuddin University. Using a cross-sectional quantitative design, data were collected from 217 purposively selected participants. Smartphone use was categorized by intensity and activity type, FoMO was measured using the Fear of Missing Out Scale (FoMOs), and mental health was assessed with the Depression Anxiety Stress Scale-21 (DASS-21). Data were analyzed using Chi-Square tests with a significance level of  $\alpha = 0.05$ . The findings revealed that students with high-intensity smartphone use were significantly more likely to experience severe stress (30.4%), moderate depression (32.6%), and severe anxiety (42.4%) ( $p = 0.000$ ). Likewise, those who primarily used smartphones for social connection reported greater levels of severe stress (40.5%) and depression (22.8%) compared to students who used them mainly for information or entertainment ( $p = 0.000$ ). High FoMO levels were also strongly associated with poorer mental health, including severe stress (35.0%) and very severe anxiety (43.3%) ( $p = 0.000$ ). Overall, these results indicate that not only the duration of smartphone use but also its purpose and underlying psychological factors play a decisive role in shaping students' mental well-being. The findings underscore the importance of campus-based interventions focusing on digital literacy, mental health awareness, and strategies to manage FoMO in university populations.

**Keyword:** Mental Health, Smartphone Use, Students

# Others Safety Topics



## Analysis of Single and Multiple Traffic Accident Prevention on the Cikopo-Palimanan Toll Road

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Traffic accidents are one of the leading causes of death worldwide. According to the Sustainable Development Goals (SDGs), the United Nations, and the Decade of Action for Road Safety (DoA), traffic accidents have been identified as a top priority issue requiring immediate initiatives to reduce fatalities and serious injuries. A global target has been set to reduce the number of road traffic deaths and serious injuries by 50% by the year 2030 (WHO, 2021), in alignment with the Safe System approach. The existence of toll road infrastructure, recognized as a capital-intensive industry with advanced technology and potential for labor absorption, contributes to regional economic growth by enhancing interconnectivity and creating employment opportunities. However, traffic accidents—resulting in fatalities, severe and minor injuries, property damage, environmental harm, and other consequences—pose significant operational risks to toll road management. Despite various safety efforts and systems implemented by both the government and Toll Road Business Entities (BUJT), accidents continue to occur. System failures in vehicle components, road infrastructure, road users, and the interactions among them can trigger traffic accidents (Borsos et al., 2015; Vlkovský et al., 2017; Evans, 1996). Therefore, research on traffic accident prevention models on toll roads can serve as a reference for Toll Road Business Entities, road users, and relevant government institutions in reducing accident risks arising from the interaction of human, vehicle, road, and environmental factors. This study aims to analyze systemic factors within the Safe Toll Road framework to prevent single and multiple accidents, based on accident investigation data from 2022 to 2024 on the Cikopo-Palimanan toll road. The analysis employs Multiple Logistic Regression to identify the contributing factors. The multivariate analysis from 2022 to 2024 on the Cikopo-Palimanan Toll Road revealed a consistent upward trend in accident risks, showing a statistically significant association between the type of contributing factor and accident type even after controlling for weather, lane, and road conditions. Vehicle-related factors were found to be the primary determinants of single-vehicle accidents, with the odds ratio (OR) increasing from 7.795 in 2022 to 11.206 in 2024, indicating that such factors were over 11 times more likely to cause single-vehicle accidents than human-related ones. Conversely, human-related factors consistently emerged as the dominant contributors to multiple-vehicle accidents, with a similar OR escalation from 7.795 to 11.206 across the same period, suggesting that human errors made multiple-vehicle accidents over 11 times more likely than those triggered by vehicle-related causes. These findings underscore the importance of tailored intervention strategies that target vehicle-related issues to prevent single-vehicle accidents and focus on human factor improvements to reduce multiple-vehicle crashes.

**Keywords:** Toll Road, Single-Vehicle Accident, Multiple-Vehicle Accident, Road Safety



## From Risk to Readiness: Boosting Outdoor Worker Heat Awareness With The "My Heat Index" App

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**Introduction:** Malaysia faces a critical challenge as persistently high temperatures, fueled by climate change and the El Niño phenomenon, intensify the threat of heat stress. This elevated risk disproportionately affects the outdoor workforce, making effective intervention essential for worker safety and health. **Objective:** This study aimed to develop a dynamic mobile application to enhance the real-time alertness of outdoor workers to heat exposure throughout their daily working hours. Furthermore, the research sought to identify the direct impact of this mobile application on improving worker awareness and mitigating exposure risks. **Method:** A development of the mobile application, "My Heat Index," using Android Studio. The core functionality relies on integrating a free, open-source Application Programming Interface (API) for weather data. By activating the device's GPS sensor, the app retrieves the current temperature and humidity data for the user's precise location. This data is then used to perform a manual calculation of the Heat Index, which forms the basis of the risk assessment. **Findings:** The "My Heat Index" application is designed to enhance worker safety by providing several critical features: it delivers real-time hourly data on the user's current temperature and humidity, which is used to generate a clear, dynamic heat exposure risk assessment that updates every 15 minutes. To facilitate immediate response, the app also provides actionable guidance in the form of easy-to-understand "do's and don'ts," and offers personalized safety recommendations that are dynamically adjusted based on the user's current risk level. **Conclusion:** Based on these findings, the "My Heat Index" application is highly effective in delivering timely, actionable information and real-time alerts to outdoor workers. By successfully educating users and providing continuous awareness tools, the application represents a significant, practical step toward mitigating heat exposure risk and ensuring a safer working environment for the outdoor workforce.

**Keywords:** heat stress, mobile application, working outdoor, apps

# Environmental Health



## **Health Literacy Gaps in Leptospirosis Prevention: Evidence from an Analysis of Knowledge, Attitudes, Practices, and Perceptions in Limboto Lake, Gorontalo**

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In Indonesia, leptospirosis is a zoonotic disease with rats as the main reservoir that remains a serious public health problem, especially in areas with high prevalence, including Lake Limboto and Gorontalo. The purpose of this study was to identify the presence of *Leptospira* in rats and examine the relationship between knowledge, attitudes, practices, and perceptions (KAPP) and health literacy. This study used a cross-sectional design with laboratory examination using PCR on 34 rat samples and a survey of KAP, perceptions, and health literacy among 168 respondents in two villages along Lake Limboto. Analysis of the relationship between variables was performed using the chi-square test. A total of 14 of 34 rat samples (41.2%) were detected positive for *Leptospira*. The study findings showed a strong correlation between health literacy and perceptions ( $p=0.002$ ), practices ( $p=0.023$ ), attitudes ( $p=0.008$ ), and knowledge ( $p<0.001$ ). Significant gaps in health literacy are highlighted by these findings, underscoring the need for integrated community-based interventions aligned with the one health paradigm. Reducing the burden of leptospirosis in coastal communities requires increased knowledge, improved risk perception, and encouragement of ongoing preventive measures.

**Keywords:** Leptospirosis, health literacy, KAP, One Health, Gorontalo



## **Dengue Hemorrhagic Fever Incidence Based on Ovitrap index and Prevention of Mosquito Bites in Cenrana District, Bone Regency, Indonesia**

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The incidence of dengue fever in Bone Regency has increased from 2021 to August 2023. This study aims to determine the incidence of dengue fever based on the ovitrap index and measures to prevent mosquito bites in Cenrana District, Bone Regency, Indonesia. The type of research used is an observational method. Sampling was carried out by interview using a questionnaire and installation of an ovitrap. The population is houses of dengue sufferers, houses around houses of dengue sufferers, and public buildings. The sampling method is random sampling. The results of the ovitrap index in Cenrana were 24.48% indoors and 11.22% outdoors. The prevent mosquito bites were that 87.6% of dengue sufferers did not use anti-mosquito medication and 91.9% did not use mosquito nets. 100% of dengue sufferers did not use mosquito nets and 86.2% did not use mosquito nets for dengue sufferers. Those not using wire gauze were 87.6% of DHF sufferers and 94.3% of non-DHF sufferers. Those not using long clothes were 100% of DHF sufferers and 51.9% of non-DHF sufferers. Those not using repellent were 100% of DHF sufferers and non-DHF sufferers DHF 93.3%. The ovitrap index in the Cenrana Community Health Center working area was higher indoors than those outdoors. Most people do not take measures to prevent mosquito bites.

**Keywords:** DHF incidence, ovitrap index, prevention of mosquito bites



## **Developing Green Dentistry Indicators Based on Green Supply Chain Management for Sustainable Public Health**

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Dental services significantly contribute to environmental challenges through high energy consumption, medical waste generation, and complex supply chain activities that rarely prioritize sustainability. Implementing Green Supply Chain Management (GSCM) principles in dentistry, known as green dentistry, offers an innovative framework to minimize ecological impacts while ensuring patient safety and high-quality care. This study aimed to develop and validate comprehensive sustainability indicators for green dentistry based on Green Supply Chain Management principles. A mixed-method research design was applied, involving a systematic literature review, Focus Group Discussions (FGDs) with practitioners, academics, and policymakers, followed by expert validation using the Modified Delphi technique and Structural Equation Modeling (SEM) with the AMOS program. The SEM results demonstrated a good model fit ( $\chi^2 = 290.392$ ;  $df = 74$ ;  $GFI = 0.755$ ;  $CFI = 0.928$ ;  $TLI = 0.911$ ;  $RMSEA = 0.150$ ), confirming the robustness of the proposed model.



Environment Change significantly influenced Technology Change (standardized estimate = 1.10), while Technology Change influenced Resource Change (standardized estimate = 0.69). The direct relationship between Environment Change and Resource Change (estimate = 0.33) was moderate, indicating that technological advancement mediates environmental effects on resource optimization. These findings highlight the pivotal role of technology in bridging environmental initiatives and resource efficiency within dental health institutions. The validated indicators provide measurable benchmarks for assessing sustainability, supporting accreditation systems, and guiding environmentally responsible policies in dental health care. Integrating green dentistry practices within Green Supply Chain Management principles can enhance efficiency, promote occupational safety, and foster innovation toward a sustainable and environmentally responsible dental care system.

**Keywords:** Environmental Health, Green Dentistry, Green Supply Chain Management, Occupational Safety, Sustainable Public Health



## Quantifying resource consumption in the hotel sector: water-energy-waste nexus in Thailand

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The hospitality industry is a significant contributor to resource consumption, particularly the hotel sector, which operates as high-demand service facilities to maintain guest comfort. However, hotels in Thailand still lack comprehensive data on how resources are consumed and managed. To establish benchmarks, identify inefficiencies, and implement targeted improvements, quantifying resource consumption within the water-energy-waste nexus is essential. This study focused on fifty hotels located in Thailand that applied for the "Green Hotel" program in the fiscal year 2024, operated by the Department of Climate Change and Environment (DCCE) of Thailand. During the program, participating hotels were required to report their monthly electricity and water consumption based on utility bills covering a period of no less than three years. These data were subsequently normalized by the number of guest nights per month. In case of solid waste generation rates, data were available from only a subset of hotels that were able to implement effective waste weighing and recording procedures. In collaboration with DCCE, utility consumption and waste generation rates (unit per guest night) were collected and statistically analyzed to determine the average consumption levels among these fifty hotels. The results indicated that participating hotels, on average, consumed 661 liters of water and 36.8 kilowatt-hours of electricity per guest night, and generated 0.9 kilograms of solid waste per guest. Some hotels in this study were able to report their utility consumption rates retrospectively, covering periods prior to the COVID-19 pandemic. It was evident that resource consumption rates in hotels increased significantly during the COVID-19 pandemic period, primarily due to low occupancy rates and hotel closures. Further studies are being conducted to obtain more robust and meaningful data, enabling the establishment of benchmarks across various hotel characteristics such as type, location and star rating.

**Keywords:** Hotel Industry, Sustainable Consumption, Green Hotel, Food Waste, Benchmarking



## **Risk Factors For Acute Respiratory Infection (ARI) in Coastal Communities in Liwuto Village Baubau City, Indonesia**

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Acute Respiratory Infections (ARI) are one of the public health problems that are still commonly found in various regions, including coastal areas. Environmental conditions in coastal areas, such as high humidity, population density, the habit of burning garbage, and exposure to cigarette smoke, can increase the risk of respiratory disease transmission. In addition, limited access to adequate health facilities and low public awareness of clean and healthy living behaviors further exacerbate the situation. The Liwuto community health center is a health service facility located in Kokalukuna District, with a working area covering most of the coastal settlements. Based on data from the Liwuto community health center, ARI is among the top ten diseases with the highest number of cases in the last three years. The age group most vulnerable to ARI is infants and toddlers, with an increasing trend each year. In 2021, there were 318 cases of ARI, increasing to 364 cases in 2022, and reaching 429 cases in 2023. From January to October 2024, the number of cases increased again to 472 cases. The results demonstrated that all tested variables were significantly associated with ARI incidence, namely cigarette smoke exposure ( $p = 0.000$ ), healthy living behavior ( $p = 0.000$ ), home ventilation ( $p = 0.000$ ), housing density ( $p = 0.000$ ), and wall type ( $p = 0.024$ ). These findings indicate that both behavioral and environmental factors contribute to the high of ARI in coastal communities. In conclusion, exposure to cigarette smoke, poor healthy living behaviors, inadequate home ventilation, high housing density, and non-optimal wall type are significantly related to ARI incidence among coastal communities in the Liwuto community health center. Strengthening public health interventions through environmental hygiene improvement and community education on healthy living practices is essential to reduce ARI cases.

**Keywords:** Acute respiratory infection (ARI), cigarette smoke exposure, healthy living behavior, home ventilation, housing density



## The Relationship of Sanitation, Infection, and Nutrition in Toddlers (Pantoloan Boya)

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The importance of basic environmental sanitation in influencing the nutritional status of toddlers. Poor sanitation, such as lack of access to proper toilets and adequate clean water facilities, can increase the risk of infection and digestive disorders in toddlers. This can hinder nutrient absorption and contribute to toddler nutritional problems. The aim of this research is to identify the relationship between basic sanitation conditions and history of infectious diseases with the nutritional status of children under five in Pantoloan Boya Village, Tawaili District, Palu City. This study employs a cross-sectional methodology and a quantitative research design. A sample of 36 toddlers was chosen at random from among the moms in Pantoloan Boya Village who had toddlers. The chi-square test was used to analyze the data and determine how these factors related to toddlers' nutritional status. The results of the study showed that there was a significant relationship between the condition of clean water ( $p = 0.000$ ), latrines ( $p = 0.000$ ) with the nutritional status of toddlers. Apart from that, there is also a significant relationship between the presence of infectious diseases and the nutritional status of children under five ( $p = 0.000$ ). Water has a  $\rho = 0.000$  ( $\rho$  Value  $\leq 0.05$ ) correlation with toddlers' nutritional status, toilets have a  $\rho = 0.000$  ( $\rho$  Value  $\leq 0.05$ ) correlation with toddlers' nutritional status, waste disposal guidelines have a  $\rho = 0.023$  ( $\rho$  Value  $\leq 0.05$ ) correlation with toddlers' nutritional status, and infectious diseases have a  $\rho = 0.000$  ( $\rho$  Value  $\leq 0.05$ ) correlation with the nutritional status of children under five.

**Keyword:** Environmental Sanitation; Infectious Diseases; Nutritional Status.



## **Analysis Of Acute Respiratory Infection (ARI) Trends And Their Relationship With Air Pollutant Parameters In Mining Areas: Implications For Public Health And Safety**

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Mining operations contribute significantly to air pollution through particulate and gaseous emissions, which may increase the risk of Acute Respiratory Infection (ARI). This research employed a literature review approach, analyzing 15 or more journal articles published between 2020 and 2024 to explore the relationship between air pollutant parameters and Acute Respiratory Infection (ARI) in mining areas. Relevant articles were identified using PubMed, Scopus, and Google Scholar with keywords "ARI," "air pollution," "mining," and "particulate matter," complemented by national health reports and environmental monitoring data. Findings indicate that ARI incidence in mining regions ranges from 18-27% of exposed populations annually, while concentrations of particulate matter frequently exceed WHO thresholds (e.g.,  $PM_{2.5} > 50 \mu g/m^3$ ,  $PM_{10} > 120 \mu g/m^3$ ). Several studies also suggest that seasonal conditions, particularly extended dry periods, intensify dust dispersion and heighten respiratory vulnerability. Evidence from multiple sources shows an association between elevated pollutant levels and increased ARI cases, though variations exist across locations and populations. This review underscores the need for integrated monitoring systems, stricter emission control in mining activities, and community-based respiratory health interventions. The implications extend beyond health, positioning ARI as an indicator of both environmental sustainability and occupational safety in mining areas.

**Keywords:** ARI, air pollution, mining, environmental health, particulate matter



## **Larvicidal Efficacy of Clove Leaf Oil (*Syzygium aromaticum*) Formulation Against *Culex* sp and *Anopheles* sp Larvae**

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Vectors are a global health problem that requires comprehensive management. Control should be based on local knowledge of biological resources. This study aims to determine the efficacy of a biolarvicidal formulation of clove leaf waste oil (*Syzygium aromaticum*) in killing *Culex* sp and *Anopheles* sp mosquito larvae. This study used an experimental method conducted at the Entomology Laboratory of the Donggala Public Health Laboratory Center. This study used a test method based on the 2005 WHO Guideline standard with stage III test larvae reared in the laboratory. The material for this study was a formulation of clove leaf waste oil (*Syzygium aromaticum*) with concentrations of 100 ppm, 200 ppm, and 400 ppm with 3 replicates and observation periods of 1 hour and 24 hours. The results showed that this biolarvicidal formulation was effective in killing *Culex* sp and *Anopheles* sp mosquito larvae in 24-hour observations. For *Culex* sp larvae, the effective mortality rate was found at concentrations of 200 ppm and 400 ppm with mortality rate 100%, while for *Anopheles* sp larvae, it was effective at concentrations 400 ppm with mortality rate 100%. A biolarvicidal formulation made from clove leaf waste oil (*Syzygium aromaticum*) is effective as a natural control agent for the vector mosquitoes *Culex* sp. and *Anopheles* sp.

**Keywords:** Efficacy, Formula, Clove Oil, *Culex* sp., *Anopheles* sp.



## **The Implementation Of Palu City Regulation Number 3 Of 2016 Due To Garbage Management**

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Palu city still keeps facing garbage matter which is a focus of people. The garbage around the people could endanger health and environment if it is bad managed. The management is aimed to save health and environment and to achieve benefits for people welfare. This research aims to find out the implementation of Palu Regulation number 3 of 2016 related to garbage management. This is a descriptive research with qualitative approach. Informants in this study included the head of the Public Order Agency (Satpol PP), the head of the waste transportation section and community representatives. Techniques of the data collection are observation, in-depth interview and documentation. The research results show that these regional regulations have not been optimally implemented. The lack of public awareness about independent waste management in the area, as well as the lack of cooperation between the Environment Agency (DLH) and other agencies, such as the Public Order Agency (Satpol PP), in its implementation, have led to citizens being unaware of these regulations, let alone applying them in their daily lives. The conclusion of this study is that waste management regulations have not been implemented due to local managers' lack of awareness about independent waste management.

**Keywords:** Implementation, Regional Regulation, and Garbage Management



## Comparative Phytoremediation Efficiency of Four Aquatic Macrophytes for Mercury Reduction from Artisanal Gold Mining Waste

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Artisanal and small-scale gold mining (ASGM) is a major source of global mercury pollution, contaminating aquatic ecosystems and threatening human health. Conventional remediation methods remain costly and environmentally disruptive. Phytoremediation, employing aquatic macrophytes, offers a low-cost and sustainable alternative. This study aimed to compare the mercury removal efficiencies of four aquatic species—*Ipomoea aquatica* (water spinach), *Pistia stratiotes* (water lettuce), *Nymphaea* spp. (lotus), and *Eichhornia crassipes* (water hyacinth)—under controlled laboratory conditions. Experiments were conducted using ASGM effluent containing an initial mercury concentration of 0.00448 mg/L. Each macrophyte species was tested in triplicate for a 14-day exposure period, with water samples analyzed at Day 0, Day 9, and Day 14. Mercury concentrations were quantified using Atomic Absorption Spectrophotometry (AAS), and removal effectiveness was calculated as a percentage reduction from baseline levels. All four species achieved significant mercury reductions, though with interspecies differences. By Day 14, water hyacinth reduced concentrations to 0.00003–0.00008 mg/L, corresponding to 99.26–99.33% removal. Lotus demonstrated similar performance, achieving 98.21–98.44% efficiency. Water spinach showed intermediate reductions (85.04–94.42%; mean = 89.17%), while water lettuce was least effective (83.71–86.38%; mean = 84.89%). Time-dependent uptake was evident, with substantial reductions observed by Day 9 and maximal removal achieved by Day 14. Comparative analysis confirmed that root morphology, biomass, and rhizosphere interactions are critical drivers of species-specific differences. These results align with global case studies highlighting the exceptional phytoremediation capacity of water hyacinth, especially where invasive species management is a concern. The study confirms aquatic macrophytes as effective agents for mercury phytoremediation in ASGM effluents. Water hyacinth is the most efficient candidate, though ecological concerns necessitate cautious deployment. A 14-day treatment period is recommended for optimal removal. These findings provide evidence-based guidance for species selection and operational design in field-scale remediation projects.

**Keywords:** Mercury pollution, artisanal gold mining, phytoremediation, aquatic macrophytes

# Health Administration



## **The Influence of Perceptions on Inpatient Services on Reusing Services at Ulin Hospital Banjarmasin**

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Quality healthcare services are one of the key factors in improving patient satisfaction and loyalty. This study aimed to analyse the influence of patients' perceptions of inpatient service quality on their intention to revisit Ulin General Hospital (RSUD Ulin) Banjarmasin. This research used a quantitative method with a cross-sectional design. Sampling was conducted using accidental sampling technique, with a total sample of 74 respondents. Data collection was carried out using a Likert-scale questionnaire. Data analysis was performed through univariate analysis, bivariate analysis, and MANOVA testing. The results indicated a significant influence of reliability, healthcare staff attitudes, accessibility, service recovery, and service environment on patients' intention to reuse inpatient services at RSUD Ulin Banjarmasin. The study concludes that patients' positive perceptions of service quality impact their loyalty in reusing healthcare services. It is recommended that RSUD Ulin Banjarmasin continues to optimise resource utilisation, whether in terms of human resources, facilities, or service technology.

**Keywords:** Perception, Inpatient Services, Revisit Intention



## Comparative Study on the Implementation of HL7 FHIR Data Exchange System, in Indonesia and Taiwan

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The development of information and communication technology has significantly impacted the healthcare sector, particularly in patient data management in primary healthcare facilities such as community health centers (Puskesmas) and clinics. One global solution supporting digital transformation is the Health Level Seven (HL7) Fast Healthcare Interoperability Resources (FHIR) standard. This study compares the implementation of an HL7 FHIR-based data exchange system at the Karanganyar District Health Office and a clinic in Taiwan. Taiwan has a relatively advanced and digitally integrated healthcare system, whereas Indonesia is in the process of transforming its healthcare system to be more digitally integrated. The research approach employed was qualitative, utilizing purposive sampling techniques and in-depth interviews with healthcare workers at the Gondangrejo Community Health Center (DKK Karanganyar) and one clinic in Taiwan. The results showed that both settings have conducted training and data collection activities to support the implementation of HL7 FHIR. However, Indonesia still faces challenges, including miscommunication between officers and delays in data entry, due to the delegation of tasks as the country continues its data transformation process. In contrast, Taiwan carries out data entry in an integrated manner through a medical information system. The organizational structure and professional roles of healthcare workers must be aligned with job descriptions, while technological barriers primarily stem from a limited understanding of application flows among healthcare workers. This study emphasizes the importance of human resource readiness, organizational readiness, and technological adaptation to ensure the successful implementation of HL7 FHIR in primary healthcare.

**Keywords:** Implementation of HL7 FHIR, Information Technology, Puskesmas, Clinic



## Factor Related to Disaster Preparedness Among Palu City Regional Disaster Management Agency (BPBD) Employees

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Palu City is one of the cities with a high level of disaster risk. The Palu City Regional Disaster Management Agency (BPBD) is a regional government agency responsible for disaster management, particularly local disasters. Reflecting on the earthquake that struck Palu City, it was revealed that the Palu City BPBD's preparedness was not optimal in disaster management efforts, including pre-disaster, emergency response, and post-disaster stages. Based on the results of a preliminary study conducted by researchers through interviews with Palu City BPBD employees, it was shown that employees were not optimal in disaster emergency response and participating in disaster management training. Due to the very limited number of personnel at the Palu City BPBD, the implementation of disaster preparedness was not optimal. The purpose of this study was to analyze the relationship between attitude, emergency response plan, and disaster mobilization with disaster preparedness among Palu City BPBD employees. The research was conducted in the BPBD of Palu City from June to August 2025. This type of research is quantitative research with an analytical design and uses a cross-sectional approach. The sample in this study was 83 Palu City BPBD employees with total sampling technique. Data collection was carried out using a questionnaire distributed to respondents and interview results. Data analysis was carried out using univariate and bivariate methods. The results of the study indicate a relationship between attitude (p-value=0.035), emergency response plan (p-value=0.042), and resource mobilization (p-value=0.046) with disaster preparedness among employees at the Palu City BPBD. It is recommended that the Palu City BPBD conduct outreach regarding disaster planning to employees.

**Keywords:** Disaster Preparedness, Employees



## **Analysis Of the Readiness for Implementing the Primary Health Care Integration Program (Iip) In Community Health Centers of Padang City**

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Integrated Primary Care (ILP) is a national health transformation strategy in Indonesia aimed at strengthening primary health services through a life-cycle approach. However, its implementation at community health centers (puskesmas) still faces challenges related to human resources, infrastructure, governance, and digitalization. This study analyzes the readiness of puskesmas in Padang City to implement ILP, focusing on input, process, and output components. A qualitative exploratory case study was conducted in 24 puskesmas through in-depth interviews, observations, and document reviews with 72 informants, consisting of heads of puskesmas (24), health promotion staff (24), and posyandu/pustu cadres (24). Data were thematically analyzed to identify readiness, experiences, and barriers in ILP implementation. On the input side, most puskesmas had sufficient health personnel with cluster-based task distribution, but shortages of doctors, nurses, analysts, and cadres were still reported, and facilities at pustu and posyandu remained limited. For the process, ILP socialization and training had been conducted in all puskesmas, but not all cadres were reached. Cluster-based services had begun, yet cadre distribution and the digitalization of Local Area Monitoring (PWS) were not fully optimized. Regarding the output, puskesmas demonstrated initial readiness through cluster-based structures and several active ILP posyandu, though minimum cadre standards, service networking, and digital monitoring had not been fully achieved. The readiness of puskesmas in Padang City to implement ILP is relatively adequate in terms of structure and commitment but remains constrained by workforce distribution, infrastructure, cadre capacity, and digitalization. Strengthening inputs, optimizing processes, and accelerating outputs are essential for effective and sustainable ILP implementation.

**Keywords:** Integrated Primary Care, Puskesmas, Qualitative Study, Padang City



## **Towards Excellent Service: The Relationship between Service Quality on Patient Satisfaction and Revisit Intention in BPJS Outpatients**

Saparuddin Iatu

The negative stigma associated with healthcare services for BPJS users persists as a deterrent for individuals to utilize government-provided services. Consequently, delivering exemplary service is essential to fostering patient satisfaction among BPJS beneficiaries and encouraging repeat visits. Therefore, this research endeavours to examine the association between service quality and patient satisfaction, as well as the correlation between patient satisfaction and revisit intention at Daya General Hospital in Makassar City. A quantitative method was employed, utilising a descriptive analytical research design, with data collected through questionnaires distributed to 96 respondents. The data analysis was conducted using the Chi-Square test facilitated by SPSS software. The findings revealed a statistically significant relationship between service quality and patient satisfaction, as indicated by a Pearson Chi-Square value of 5.493 and a significance level of  $p = 0.019$  ( $p < 0.05$ ). Furthermore, a highly significant association was observed between patient satisfaction and revisit intention, as demonstrated by a Pearson Chi-Square value of 17.726 and  $p = 0.000$  ( $p < 0.05$ ). These findings suggest that an increase in the quality of service delivered correlates with higher patient satisfaction, consequently amplifying the probability of patients returning to utilize hospital services.

**Keywords:** Chi-Square, Hospital, Patient Satisfaction, Revisit Intention, Service Quality



## **Relationship Between Policy Compliance on Reducing Single-Use Plastics and Single-Use Plastic Consumption Behaviour in Tondo, Palu**

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This study was motivated by the global issue of single-use plastic waste, which has serious environmental consequences. Indonesia ranks as the second-largest contributor to marine plastic waste after China, followed by the Philippines, Vietnam, and Bangladesh. The policy on plastic reduction is a central government effort to address waste management. The main objective of this research was to examine the relationship between policy compliance on reducing single-use plastics and single-use plastic consumption behaviour in Tondo Sub-District, Palu City. This study involved 100 residents of Tondo Sub-District, Palu City, as respondents. The research employed a quantitative design with a cross-sectional approach. Data collection was conducted using questionnaires and analysed with the chi-square test. The results indicated that most policy compliance fell under the "compliant" category (70%), with high knowledge levels (72%), positive attitudes (65%), good practices (53%), and unsupportive behaviour (55%). The findings revealed a significant relationship between policy compliance and knowledge (p-value 0.006), but no significant relationship between policy compliance and attitude (p-value 0.253), practices (p-value 0.088), or behaviour (p-value 0.150). In conclusion, there is no significant relationship between policy compliance on reducing single-use plastics and single-use plastic consumption behaviour in Tondo Sub-District, Palu City. The implications of these findings highlight the critical need for new policies that can better support environmental preservation and sustainability.

**Keywords:** Policy compliance, single-use plastics, plastic consumption behaviour, environmental policy.



## Development of A Digital Monitoring Form Model For Pregnant Women to Strengthen Pmt Programs

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Monitoring the nutritional status of pregnant women plays a strategic role in improving the effectiveness of Supplementary Feeding Programs (PMT) as a key intervention for stunting prevention. This study aimed to develop and validate a digital monitoring form model for pregnant women to strengthen program administration and data-driven management in Bukit Indah Village, Soreang District, Parepare City. A mixed-methods design was applied, combining qualitative needs assessment with quantitative validation through expert evaluation and field implementation. The digital form was designed using a user-centered approach, integrating essential indicators such as maternal nutritional status, pregnancy development, and adherence to PMT intake. Validation results demonstrated significant improvements in data accuracy, reporting efficiency, and administrative accountability compared with traditional manual systems. Field testing across seven sub-districts revealed high PMT adherence among most participants (82.1%), though physiological barriers such as nausea and food aversion reduced compliance in certain cases. These findings indicate that the digital form not only facilitates accurate monitoring but also enhances the responsiveness of health facilities in managing nutritional interventions. Overall, the developed model offers a practical, efficient, and validated digital instrument that supports real-time monitoring, strengthens PMT program management, and contributes to accelerating stunting prevention at the local level.

**Keywords:** adherence, digital form, pregnant women monitoring, stunting prevention, supplementary feeding program



## **Drug Management System the National Health Insurance (JKN): A Case Study at Bhayangkara Hospital Makassar**

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The drug management system is a vital component in ensuring the quality of healthcare services and the sustainability of Indonesia's National Health Insurance (JKN) program. According to the World Health Organization (WHO) framework, drug management consists of four core components: selection, procurement, distribution, and rational use. A crucial element of this process is the availability of medicines listed in the National Formulary (FORNAS), established by the Ministry of Health of the Republic of Indonesia. FORNAS comprises essential medicines selected based on quality, clinical efficacy, and cost-effectiveness, expected to address approximately 80% of common diseases in Indonesia. However, the implementation of FORNAS policies and e-catalogue-based procurement systems continues to face systemic challenges, including distribution delays, limited budget flexibility, and weak coordination across units. This study aims to analyze the drug management system of the JKN program at Bhayangkara Hospital Makassar, based on WHO principles. A descriptive qualitative approach was employed through direct observation and in-depth interviews with nine key informants involved in the drug management process. Thematic data analysis was conducted, and the validity of findings was ensured through triangulation of methods and sources. The results indicate that drug management at Bhayangkara Hospital has been conducted systematically in accordance with national guidelines and WHO standards, particularly in planning, procurement, receiving, and distribution. Nonetheless, systemic barriers remain, including supply delays due to e-catalogue stock shortages, limited budget flexibility, and weak coordination with pharmaceutical distributors (PBF). Strengthening real-time stock monitoring, conducting verification prior to distribution, and improving inter-unit coordination are necessary. Overall, the JKN drug management system at Bhayangkara Hospital meets most WHO standards but still requires adaptive, data-driven pharmaceutical policy reforms to enhance healthcare sustainability.

**Keywords:** FORNAS, E-Catalogue, WHO Drug Management Framework, Pharmaceutical Policy, JKN



## **Level of Satisfaction of Urban Communities with Implementation of Class Standard Inpatient (KRIS) BPJS at Dr. Tadjuddin Chalid Hospital Makassar**

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The Class Standard Inpatient (KRIS) policy is a government initiative to improve hospital service quality and ensure equitable treatment for BPJS Health participants. This study aims to evaluate the level of satisfaction among urban communities regarding the implementation of KRIS at Dr. Tadjuddin Chalid Hospital in Makassar. A quantitative, Observational survey design was employed. Data were collected through structured questionnaires distributed to 174 inpatient respondents covered by BPJS Health. Descriptive analysis was used to determine the distribution of satisfaction levels across various service aspects including administrative procedures, timeliness, cost, facilities, staff behavior, and complaint handling. The results showed that most respondents expressed satisfaction or high satisfaction with KRIS implementation. The highest satisfaction levels were found in staff behavior and complaint management, while cost and staff competence aspects require further improvement. These findings indicate that KRIS has had a positive impact on service quality and patient satisfaction. The study provides valuable insights for policymakers and hospital administrators to enhance equitable, high-quality, and patient-centered care within the national health insurance framework.

**Keywords:** Class Standard Inpatient (KRIS), BPJS Health, Patient Satisfaction, Hospital Service Quality



## **A Qualitative Study: The Development of Cross-Sector Collaboration Indicators for Accelerating the Reduction of Stunting in the South Sulawesi Province, Indonesia**

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The drug management system is a vital component in ensuring the quality of healthcare services and the sustainability of Indonesia's National Health Insurance (JKN) program. According to the World Health Organization (WHO) framework, drug management consists of four core components: selection, procurement, distribution, and rational use. A crucial element of this process is the availability of medicines listed in the National Formulary (FORNAS), established by the Ministry of Health of the Republic of Indonesia. FORNAS comprises essential medicines selected based on quality, clinical efficacy, and cost-effectiveness, expected to address approximately 80% of common diseases in Indonesia. However, the implementation of FORNAS policies and e-catalogue-based procurement systems continues to face systemic challenges, including distribution delays, limited budget flexibility, and weak coordination across units. This study aims to analyze the drug management system of the JKN program at Bhayangkara Hospital Makassar, based on WHO principles. A descriptive qualitative approach was employed through direct observation and in-depth interviews with nine key informants involved in the drug management process. Thematic data analysis was conducted, and the validity of findings was ensured through triangulation of methods and sources.



The results indicate that drug management at Bhayangkara Hospital has been conducted systematically in accordance with national guidelines and WHO standards, particularly in planning, procurement, receiving, and distribution. Nonetheless, systemic barriers remain, including supply delays due to e-catalogue stock shortages, limited budget flexibility, and weak coordination with pharmaceutical distributors (PBF). Strengthening real-time stock monitoring, conducting verification prior to distribution, and improving inter-unit coordination are necessary. Overall, the JKN drug management system at Bhayangkara Hospital meets most WHO standards but still requires adaptive, data-driven pharmaceutical policy reforms to enhance healthcare sustainability.

**Keywords:** FORNAS, E-Catalogue, WHO Drug Management Framework, Pharmaceutical Policy, JKN

# Health Promotion



## Living Under the Shadow: Stigma and Resilience among Couples Living with HIV

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Couples living with HIV face challenges that extend beyond medical concerns, as stigma strongly influences disclosure, intimacy, and relationship dynamics. In Indonesia, stigma intersects with cultural, religious, and gender norms, producing silence and limiting access to social support. This study aimed to explore how HIV-related stigma shapes the lived experiences of couples living with HIV and to identify the ways in which resilience emerges within their daily lives. A qualitative phenomenological design was employed. Data were collected through 34 participants from in-depth interviews and focus group discussions with people living with HIV and their partners, complemented by insights from peer support groups, non-governmental organizations, and religious leaders. Thematic analysis revealed that stigma operated at multiple levels. Internalized stigma created feelings of shame and fear, while societal stigma led to delayed disclosure and avoidance of open communication within families and communities. Women in particular expressed limited agency to negotiate openness due to cultural expectations and gendered power relations. Despite these challenges, resilience was evident. Couples drew strength from peer support groups that provided safe spaces for sharing and encouragement, and from religious leaders who reframed HIV within narratives of compassion rather than judgment. Through these resources, couples redefined commitment, rebuilt trust, and sustained intimacy despite the “shadow” of stigma. These findings underscore that HIV prevention and care must address stigma not only as a barrier but also as a context where resilience can be nurtured. Integrating peer support and faith-based approaches can enhance the wellbeing and dignity of couples living with HIV in Indonesia.

**Keywords:** HIV, Stigma, Resilience, Couples, Qualitative Research



## Analysis of Factors Related to Early Marriage Among Students at SMK Pancasila Palu

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Early marriage remains a serious issue in Central Sulawesi, with a prevalence rate of 12.65% in 2022 and 24 recorded cases at the Mantikulore District Office of Religious Affairs (KUA) in 2023. This phenomenon has significant implications for women's health, education, and employment opportunities. This study aims to analyze the factors associated with early marriage among students at SMK Pancasila Palu, particularly those residing in the Mantikulore District, to formulate effective policies for reducing early marriage in the area. This quantitative study employed a cross-sectional design, with a randomly selected sample of 69 respondents. Data were analyzed using the Chi-square test. The results showed that belief, socioeconomic status, and parental role were significantly associated with early marriage ( $p = 0.001$ ,  $p = 0.020$ , and  $p = 0.016$ , respectively). In contrast, peer association (promiscuity) was not significantly related ( $p = 0.631$ ). Multivariate analysis revealed that only belief remained significantly associated with early marriage ( $p = 0.011$ ), while parental role ( $p = 0.899$ ) and socioeconomic status ( $p = 0.232$ ) were not significant predictors. These findings suggest that belief—strongly influenced by cultural and religious values—plays a dominant role in shaping perceptions of early marriage. In conclusion, belief, socioeconomic status, and parental role are factors associated with early marriage, although only belief demonstrates a significant independent effect.

**Keywords:** Belief, Socioeconomic Status, Parental Role, Peer Association, Early Marriage



## Positive Health Literacy among Undergraduate Students at Hasanuddin University: A Cross-Sectional Study

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Positive health literacy, defined as the capacity to access, understand, appraise, and apply health information not only to prevent disease but also to actively promote well-being and resilience, is increasingly recognized as a critical determinant of health outcomes among young adults. However, evidence on positive health literacy among university students in low- and middle-income countries remains limited. This study aimed to assess the level of positive health literacy and identify its associated factors among undergraduate students at Hasanuddin University, Indonesia.

A cross-sectional survey was conducted among 378 undergraduate students selected through stratified random sampling across 15 faculties. Data were collected using a validated 40-item questionnaire structured around four dimensions: knowledge of positive mental health, skills in seeking health information, self-awareness of mental state, and trust in available support systems. Descriptive statistics, Pearson correlation, and multiple linear regression analyses were performed using SPSS version 26.

The overall mean score of positive health literacy was 3.12 (SD = 0.41) on a 4-point Likert scale, indicating a moderate level. Students showed relatively high knowledge of positive health concepts (mean = 3.35) and trust in support systems (mean = 3.28), but lower scores in information-seeking skills (mean = 2.94) and self-awareness (mean = 3.01). Significant predictors of higher positive health literacy included female gender ( $\beta = 0.18$ ,  $p < 0.01$ ), higher academic year ( $\beta = 0.14$ ,  $p < 0.05$ ), and prior exposure to campus mental health programs ( $\beta = 0.22$ ,  $p < 0.001$ ).

**Keywords:** positive health literacy, mental well-being, undergraduate students, resilience



## Factors Influencing Quality of Life and Health Status Among Menopausal Women In Central Java: A Cross-Sectional Study

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Menopause is a natural change in women caused by hormonal fluctuations, leading to a decline in physical, psychological, and social well-being. Common symptoms include hot flashes, insomnia, mood swings, and urinary/genital problems, which reduce the quality of life (QoL) of women entering menopause. Appropriate interventions are needed to ensure that menopausal women have a good quality of life in their later years. This study aims to identify factors that influence the quality of life and health of menopausal women. Methods: A cross-sectional study was conducted with 500 menopausal women aged 45-60 living in urban and rural areas. Data were collected using the Menopause Rating Scale (MRS) for symptoms, the Short Form-36 (SF-36) health survey for QoL, and a demographic/lifestyle questionnaire. Data analysis using descriptive statistics, correlation, and multiple regression. The prevalence of moderate to severe menopausal symptoms was quite high, with vasomotor-related complaints (such as hot flashes) and psychological symptoms being the most common. There was a strong negative association between more severe symptoms and lower QoL ( $r = -0.65$ ). Regular physical activity and a balanced diet were positively correlated with better QoL. Women who took hormone therapy and had regular health check-ups reported better QoL and less severe symptoms. Furthermore, age, education level, and socioeconomic status also predicted QoL. Menopausal symptoms significantly impair women's QoL and health. Lifestyle changes and appropriate medical interventions such as hormone therapy and regular consultations are crucial for symptom relief and improved QoL. These findings emphasize the need for comprehensive, tailored care and public health initiatives to support women during menopause, to achieve healthy aging and improve overall well-being.

**Keywords:** Hormone Therapy, Menopausal Symptoms, Quality of Life, Women's Health

# Epidemiology



## WHO STEPSwise Model for Noncommunicable Disease Control in Coastal Communities of Makassar City

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Noncommunicable diseases (NCDs) account for approximately 71% of all deaths worldwide and pose a particular challenge for coastal communities owing to their geographical isolation, limited healthcare access, and unique socioeconomic characteristics. This study aimed to develop a comprehensive NCD control model using the WHO STEPSwise framework in the coastal areas of Makassar, Indonesia. A cross-sectional study was conducted in February 2025, involving 138 adults aged  $\geq 18$  years from five coastal sub-districts. The WHO STEPSwise approach was applied in three steps: Step 1 (questionnaire on demographic and behavioral risk factors), Step 2 (physical measurements), and Step 3 (biochemical measurements). Data were analyzed using Structural Equation Modeling (SEM) with R software and the lavaan package. The resulting model demonstrated excellent structural validity with fit indices of CFI = 0.994, TLI = 0.993, RMSEA = 0.039, and SRMR = 0.016, explaining 61.4% of the variance in NCD control outcomes ( $R^2 = 0.614$ ). Among the components, biochemical parameters (Step 3) were the strongest predictors ( $\beta = 0.333$ ,  $p < 0.001$ ), followed by physiological conditions (Step 2) ( $\beta = 0.309$ ,  $p < 0.001$ ) and behavioral factors (Step 1) ( $\beta = 0.261$ ,  $p < 0.001$ ). A significant indirect effect of behavioral factors on biochemical factors through physiological improvement was also observed ( $\beta = 0.558$ ,  $p < 0.001$ ). These findings confirm that the proposed model reflects a valid and contextually relevant framework for NCD control in coastal communities. This model may serve as a basis for planning NCD prevention strategies for other vulnerable populations.

**Keywords:** STEPSwise, noncommunicable diseases, coastal communities, disease control, public health



## **Projecting Tuberculosis Cases in Sikka Regency (2025-2027): A Sub-district Level Spatial Predictive Approach**

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As a communicable disease that causes significant mortality, tuberculosis (TB) has been designated a priority program by the Indonesian Ministry of Health. However, the main challenge lies in undiagnosed cases, which have the potential to become new sources of transmission. Sikka Regency has consistently recorded an increase in TB cases every year. This study was conducted to model TB prediction and mapping that can inform endemicity levels and estimate the number of cases in each subdistrict in the coming years. The research employed a quantitative descriptive design utilizing time series analysis. Specifically, the trend line method was adopted to analyze historical patterns and project future caseloads. The study's population and sample were comprehensive, encompassing all officially recorded TB cases within Sikka Regency, sourced from the District Health Office, for the five-year period from 2020 to 2024. This historical data provides a robust foundation for identifying underlying trends in disease incidence. The analysis was disaggregated to the sub-district level to capture nuanced geographical variations in TB distribution. The analysis results show that the incidence of cases during the 2025-2027 period is projected to fluctuate, culminating in a peak in 2027. The forecasted case numbers are 342 for 2025, 337 for 2026, and 373 for 2027. Furthermore, Alok Timur Sub-district is anticipated to be the most affected area, contributing 112 cases in the peak year of 2027. The implication of this study is the strengthening of the database for more precise and efficient TB control interventions for the government and the community.

**Keywords:** Spatial Prediction, Time Series Forecasting, Tuberculosis.



## Mapping Of Epidemiological Variabeles For Diarrhea Cases In The Oesapa Community Health Center Working Area In 2024

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Diarrhea remains a major public health concern in developing countries like Indonesia, particularly among children under five. Spatial analysis using Geographic Information Systems (GIS) can visualize disease patterns, identify risk factors, and support public health interventions. This study aimed to map the epidemiological variables of diarrhea cases in the Oesapa Community Health Center working area in 2024, focusing on age, gender, nutritional status, time of occurrence, and residential area. This descriptive quantitative study employed a spatial mapping approach. A total of 416 diarrhea cases reported in 2024 were included using total sampling. Secondary data were obtained from health records. Spatial analysis was conducted using ArcView GIS software. A total of 416 diarrhea cases were recorded with uneven distribution across five urban villages. The highest number of cases occurred in Oesapa (160 cases; 38.5%) and Lasiana (148 cases; 35.6%), followed by Oesapa Barat (67 cases), Kelapa Lima (32 cases), and Oesapa Selatan (9 cases). Oesapa and Lasiana were identified as high-priority areas for diarrhea prevention and control. Spatial mapping revealed that epidemiological variables (age, gender, nutritional status, and residential environment) influenced the distribution of diarrhea cases. GIS proved to be an effective tool in identifying high-risk areas and supporting more targeted public health interventions.

**Keywords:** Diarrhea, Spatial analysis, GIS, Epidemiology, Oesapa Health Center



## Unintended Pregnancies in Indonesia: Prevalence, Determinants, and Consequences from the 2023 National Survey

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Unintended pregnancy occurs when a pregnancy is not adequately planned, increasing maternal health risks. This study estimates the prevalence and examines factors and consequences of unintended pregnancy in Indonesia. We analysed data from the 2023 Indonesian Health Survey (Survei Kesehatan Indonesia [SKI]), which included 64,034 married women aged 15 or older who had been pregnant. Logistic regression identified significant factors associated with unintended pregnancy. Unintended pregnancies accounted for 6.5% of all pregnancies, with the highest prevalence among younger women (14.1%). Significant factors included region, age, employment status, age at first pregnancy, gravidity, parity, and history of hypertension. Younger women (aPR: 3.75), those with more than two children (aPR: 2.12), and urban residents (aPR: 2.01) had the highest likelihood of unintended pregnancies. Consequences included fewer antenatal care (ANC) visits (cPR: 1.18), incomplete ANC services (cPR: 1.11), risk factors during pregnancy (cPR: 1.61), complaints during pregnancy (cPR: 1.57), depression (cPR: 3.51), mental health issues (cPR: 2.75), delivery complications (cPR: 1.42), delivery method (cPR: 1.18), birth attendant (cPR: 1.18) and place of delivery (cPR: 1.30). The prevalence of unintended pregnancy remains high in Indonesia, with significant risk factors and adverse consequences. These findings highlight the need for enhanced family planning counselling and support to reduce risks, particularly in developmental contexts.

**Keywords:** Unintended Pregnancy, Prevalence, Determinants, Risk Factors, And Consequences.



## Social Determinant of Double Burden Malnutrition Among Children: Evidence Form Birth Cohort Study in Makassar

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Child malnutrition remains a major public health challenge in Indonesia, including in Makassar City, with high prevalence of stunting, wasting, and underweight. These conditions adversely affect child growth and development and increase the risk of morbidity and mortality. Overweight/obesity mother and undernourished child (stunting or wasting or underweight) which was considered as the double burden of malnutrition. This study utilized data from an ongoing birth cohort study in Makassar, which was originally designed to track maternal and child health from pregnancy to the postnatal period. A cross-sectional analysis was conducted on 142 mother-child pairs aged 6-13 months living in densely populated areas of Tallo District. Mothers body mass index calculated using measured height and weight. Child nutritional status was assessed using three WHO standard anthropometric indicators: height-for-age (HAZ), weight-for-height (WHZ), and weight-for-age (WAZ). Data were analysed using STATA with descriptive statistics and binary logistic regression to identify determinants of double burden malnutrition. The findings revealed a prevalence of 23.9% for stunting, 19.7% for wasting, and 12.0% for underweight, while 14.8% of children experienced more than one form of malnutrition simultaneously. Furthermore, nearly 11.97% suffered double burden malnutrition. Overall, there is a low prevalence of double burden of malnutrition among mother-child pairs in Tallo District, Makassar City. Children of mothers with low education (COR = 2.44; 95% CI: 0.81-7.33) and fathers with low education (COR = 2.07; 95% CI: 0.74-5.80) showed higher but non-significant odds of double burden malnutrition. Poor sanitation (COR = 2.97; 95% CI: 0.71-12.39) also showed increased risk. Although not statistically significant, the direction of associations suggests that lower parental education and poor sanitation may contribute to double burden malnutrition risk in urban low-income settings.

**Keyword:** Double Burden Malnutrition, Child Health, Maternal Factors, Makassar



## DETERMINANTS OF VIRAL LOAD TEST RESULTS IN PEOPLE WITH HIV (ODHIV) IN THE TECHNICAL IMPLEMENTATION UNIT OF UNDATA REGIONAL GENERAL HOSPITAL, CENTRAL SULAWESI PROVINCE

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Estimated Data for Central Sulawesi Province in 2023, People living with HIV numbered 4702 people, People living with HIV were alive and knew their status 3846 (61%), from the target of 95%, People living with HIV knew their status and were receiving ARV treatment, 1542 (51%), from the target of 95% People living with HIV were undergoing ARV treatment who were tested for VL 626 people and People living with HIV were undergoing ARV treatment whose virus was suppressed 575 (34%), from the target of 95% in the data results it was found that the target had not been reached. The aim of this study was to determine the determinants of viral load testing for people with HIV at the Undata Regional Hospital UPT, Central Sulawesi Province. This research method used a cross-sectional study design. The population comprised all 321 people living with HIV who visited the Undata Regional General Hospital (UPT) in Central Sulawesi Province for viral load testing between January and May 2024. A sample size of 77 respondents was selected using the Consecutive Sampling technique. There is a significant relationship between knowledge ( $p=0,000$ ), medication adherence ( $p=0,001$ ) and sexual behavior ( $p=0,0024$ ) with viral load test results in people with HIV. The results of this study align with field observations, where respondents' improved knowledge can increase their motivation to adhere to treatment regimens as directed, including routine viral load testing according to the prescribed schedule. This also raises respondents' awareness that these test results can provide information on the amount of HIV in the body, indicating the effectiveness of the medication. According to several respondents, when people living with HIV adhere to their medication, they experience a better quality of life because the effectiveness of antiretroviral (ARV) therapy suppresses viral replication in their bodies. Based on respondents' explanations and field observations, indicate that people living with HIV who regularly take ARVs as recommended by their medical team can maintain a suppressed viral load. Therefore, even people living with HIV at risk can maintain a suppressed viral load if they engage in safe sex and adhere to the correct medication regimen. Conversely, people living with HIV who do not adhere to ARV therapy can experience an increase in viral load, even though they have safer sexual behavior. Furthermore, respondents also stated that risky sexual behavior that causes the number of viruses in the body to continue to increase based on the results of viral load tests, may be due to the behavior of people living with HIV who do not disclose their status to new partners whose HIV status is also unknown. This has the potential to lead to reinfection if it turns out that the new partner of the person living with HIV also has HIV with an unknown viral load or perhaps an unsuppressed viral load. Further researchers can expand the scope of the research, both in terms of the number of samples, the research methods used, and need to consider the practical implications of the findings for interpretation in the development of government policies or programs in realizing Ending AIDS 2030.

**Keyword :** Determinant, Viral Load Test, HIV



## **Analysis of social determinants among Men who have sex with men (MSM) on HIV/AIDS Transmission Vulnerability in Palu City.**

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Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS) remains a global health concern, with men who have sex with men (MSM) or Lelaki Seks Lelaki (LSL) identified as a key population at higher risk. In Indonesia, HIV prevalence among LSL has risen sharply, particularly in Palu City, Sulawesi Tengah. Despite government prevention efforts, persistent stigma, discrimination, and limited access to healthcare continue to heighten vulnerability. Social determinants such as family rejection, economic hardship, and the influence of social media further exacerbate HIV transmission risks. Understanding these social and cultural dynamics is crucial for developing inclusive, community-based interventions to reduce HIV vulnerability among LSL. This study aims to analyse the social determinants affecting the vulnerability of men who have sex with men (MSM) to HIV/AIDS transmission in Palu city. A qualitative approach was employed, with data collected through in-depth interviews with primary informants, triangulated with key informants with the total Of 12 informants, and supported by relevant documentation. Data were analysed using thematic methods grounded in grounded theory, facilitated by Nvivo 12 plus software for data organization. The findings reveal six primary social determinants contributing to MSM vulnerability to HIV/AIDS transmission: stigma and discrimination, level of knowledge, policy, economic condition, family factors, and the influence of social media on risky sexual behavior. stigma and discrimination were found to limit access to healthcare services, while limited knowledge reduced awareness of preventive practices. Inadequate policy support and family-related factor further exacerbated the social isolation experienced by MSM. Economic hardship worsened the situation by restricting access to comprehensive healthcare service and, in some cases, compelling MSM to engage in risky sexual behaviours as a means of livelihood. Social media played an ambivalent role, providing positive information on one hand while facilitating impulsive sexual behaviours on the other. This study underscores the urgent need for cross-sector, community - based interventions that are culturally sensitive to effectively address the HIV epidemic among key populations in Palu City.

**Keywords:** Social Determinants, Vulnerability, HIV/AIDS, MSM, Palu City

# Hospital Management



## **The Relationship between Completeness of Medical Information and the Accuracy of Coding of Fracture Neck of Femur Cases and External Causes to Improve Hospital Management Efficiency**

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Hospital operational efficiency is influenced by various aspects, including the accuracy of diagnosis coding. Accurate diagnosis coding not only supports the accuracy of financing claims but also plays a crucial role in health data management, service planning, and managerial decision-making. This study aims to determine the relationship between the completeness of medical information and the accuracy of coding cases of femoral neck fractures and external causes in hospitals, in supporting hospital management efficiency. The results showed that 77 documents (74.75%) had complete medical information, 26 documents (25.24%) were incomplete, and 90 documents (87.37%) had accurate diagnosis and external cause codes, with 13 documents (12.62%) inaccurate codes. The data were processed using the chi-square test in SPSS, resulting in a p-value of 0.001, indicating  $p < 0.05$ . The conclusion is that there is a relationship between the completeness of medical information and the accuracy of coding cases of femoral neck fractures and external causes. Hospital staff should improve awareness and compliance with the complete and accurate completion of medical information, particularly information about the cause of injury. Hospitals can consider implementing a reminder system or checklist to ensure that the cause of injury information is complete and accurate. Periodic evaluations should be conducted to ensure that medical personnel consistently complete medical record documents, given the importance of complete information for accurate diagnosis codes and hospital efficiency in financing claims.

**Keywords:** Completeness of Medical Information, Accuracy Code, Femoral Neck Fracture and External Cause, Hospital Management Efficiency



## GREEN INFRASTRUCTURE AND SUSTAINABLE HOSPITAL MANAGEMENT

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Green infrastructure in hospital environments is gaining attention for its role in enhancing patient recovery, reducing stress among medical staff, and promoting environmental sustainability. While hospitals provide essential medical care, they also contribute to high energy consumption, resource depletion, and waste generation. Green hospital initiatives aim to reduce environmental impact while improving health outcomes, yet challenges remain in their scientific implementation, economic feasibility, and functional integration.

A systematic literature review was conducted by analyzing studies on green hospital design, sustainability initiatives, and environmental management practices. Research articles were sourced from Scopus, PubMed, and Cochrane Library using keywords such as "Green Hospital," "Hospital Sustainability," and "Eco-Friendly Healthcare." A total of 25 relevant studies were analyzed using qualitative and quantitative content analysis techniques.

Findings reveal a strong correlation between green infrastructure and patient well-being, with hospital-affiliated green spaces contributing to faster recovery, lower anxiety, and improved mental health. Green operational practices, including waste management, energy efficiency, and sustainable water use, enhance hospital efficiency and environmental sustainability. However, while green management strategies improve patient satisfaction and hospital reputation, evidence of direct cost savings remains inconclusive. The integration of smart energy systems and IoT-based sustainability monitoring is highlighted as a promising approach to enhancing efficiency and effectiveness.

This study emphasizes the need for systematic, data-driven strategies in implementing sustainable hospital management. Hospitals should adopt adaptive green solutions tailored to regional needs, regulatory frameworks, and resource availability. Future research should focus on quantifying economic benefits, optimizing hospital green spaces, and advancing smart environmental management technologies to enhance sustainability. Implementing these strategies is crucial for minimizing environmental impact, promoting sustainable healthcare practices, and enhancing the well-being of patients and healthcare professionals.

**Keywords:** Green hospital, sustainability, environmental management, eco-friendly healthcare



## Evaluation of the Implementation of the Hospital Management Information System (HIMS) at Makassar City Regional Hospital in 2025

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**Background:** The Hospital Management Information System (MIS RS) is a crucial component in improving the quality of healthcare services. Makassar City Hospital has implemented the MIS RS since 2015, but initial observations indicate problems such as user complaints, system bugs, and slow data access. This can impact service efficiency and user satisfaction. **Objective:** This study aimed to evaluate the implementation of the HMIS based on the DeLone and McLean Information System Success Model at Makassar City Hospital in 2025. **Methods:** This is a quantitative cross-sectional study involving 196 respondents who use the MIS RS, selected using proportional stratified random sampling. Data were collected using a questionnaire and analyzed using the Spearman test. **Results:** There is a significant relationship between system quality, information quality, and service quality with SIM RS usage and user satisfaction. In addition, usage is associated with user satisfaction. Usage and user satisfaction also show a significant relationship with net benefits, with a Sig. (2-tailed) value of 0.000 (<0.05) for each variable. The strongest relationship was found between service quality and user satisfaction. **Conclusion:** All dimensions of the DeLone and McLean model demonstrate significant relationships: system quality, information quality, and service quality are related to usage and user satisfaction, while usage and user satisfaction are associated with net benefits.

**Keywords:** Hospital Information System Management System; DeLone and Mclean Model; Information System Evaluation



## Exploring Dimensions and Indicators for Measuring the Potential of Value Innovation in Hospitals

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Value innovation has emerged as a strategic approach to simultaneously create value for patients and improve hospital efficiency. However, studies examining the potential for value innovation in the hospital sector remain limited, and there is no specific measurement instrument available. This study aims to develop a valid and reliable instrument for assessing the potential of value innovation in hospitals, taking into account the unique characteristics of healthcare services. The study employed a qualitative approach using in-depth interviews with eight informants, including stakeholders, hospital structural officials, and academics, from five hospitals in Makassar. Data were analyzed using NVivo 12 software to identify the dimensions and indicators of value innovation potential. The findings revealed ten key dimensions, each accompanied by its corresponding indicators: Meaningful Work, Risk-Taking Culture, Customer Orientation, Agile Decision Making, Business Intelligence, Open Communication, Empowerment, Business Planning, Learning Organization, and Commitment to Innovation (a newly identified dimension). These dimensions were reinforced through theoretical triangulation, including Self-Determination Theory, Adaptive Organization Theory, and Blue Ocean Strategy. The findings provide a foundation for developing a measurement instrument that meets feasibility and acceptability criteria (effectiveness, burden, ethics, and coherence). This instrument is expected to assist hospital management in evaluating their existing potential, designing data-driven strategies, and creating superior value for patients while enhancing operational efficiency.

**Keywords:** Agile decision making, hospital management, innovation potential, value innovation



## **Challenges in Implementing Standard Inpatient Care in Indonesia: A Case Study at Baubau Regional Hospital**

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The Standard Inpatient Care Class (KRIS) is a national policy under Indonesia's National Health Insurance (JKN) programme, aiming to standardise inpatient services through twelve mandatory criteria to ensure equitable healthcare for all BPJS Kesehatan participants. Grounded in John Rawls' theory of justice, KRIS promotes fairness and equality in healthcare delivery. This qualitative study assessed the readiness of Baubau Regional General Hospital to implement KRIS, as mandated by Presidential Regulation No. 59 of 2024, with national implementation targeted for 31 December 2025. Data were collected through indepth interviews with four key informants and direct observations, and analysed using SWOT and Fishbone methods to identify barriers. Findings indicate that the hospital has not fully met several KRIS criteria, particularly regarding building materials, ventilation, lighting, bed facilities (including nurse call systems), curtains, en suite bathrooms, bathroom accessibility, and oxygen outlets. Major constraints included limited funding, differences in governance between regional and Ministry of Health hospitals, and insufficient internal coordination, and gaps between existing conditions and KRIS requirements. The study concludes that the hospital is unprepared for KRIS implementation and recommends applying PDCA (Plan-Do-Check-Act) strategies to accelerate readiness. This study contributes to evidence based policymaking and provides insights for improving hospital preparedness in similar regional settings.

**Keywords:** Hospital Readiness, Health Equity, KRIS, SWOT, Fishbone Diagram



## Challenges in Implementing Standard Inpatient Service (KRIS) in Indonesia: A Case Study of Baubau Regional General Hospital

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Standard Inpatient Class (KRIS) is a strategic national policy that aims to standardize inpatient services through 12 mandatory criteria to ensure fair access to health services for all participants in the National Health Insurance Program (JKN). Based on John Rawls' theory of justice, KRIS reflects the principle of fair distribution in the health system, with a focus on protecting vulnerable groups. However, in its implementation, there are still gaps between health care facilities. This study aims to analyze the readiness of Baubau Regional General Hospital in implementing KRIS in accordance with Presidential Regulation No. 59 of 2024. A qualitative approach was used through in-depth interviews with four key informants and direct observation. Data validation was conducted using source triangulation and techniques to ensure consistency and credibility. Data analysis used the SWOT framework and Fishbone diagram to systematically identify the main causes. The result showed that Baubau Regional General Hospital does not yet meet most of the KRIS criteria, particularly those related to low-porosity building materials, ventilation, lighting, bed equipment (nurse call system), privacy curtains, indoor bathrooms, accessibility, and oxygen outlets. The main obstacle includes limited fiscal capacity, differences in governance structures compared to Ministry of Health hospitals, and inadequate internal coordination and socialization. This study concludes that Baubau Regional General Hospital is not yet ready for KRIS implementation. To overcome these obstacles, it is recommended that the local government and hospital management develop a PDCA (Plan-Do-Check-Act)-based strategic and acceleration plan, strengthen coordination between units, increase fiscal capacity through budget advocacy, and establish a monitoring and evaluation system aligned with KRIS indicators.

**Keywords:** Hospital Readiness, Health Equity, KRIS, SWOT, Fishbone Diagram

# Biostatistics and Health Reproduction



## THE EFFECTIVENESS OF E-BOOK MEDIA, ANIMATED VIDEOS, AND PEER GROUPS ON INCREASING ADOLESCENT LITERACY ABOUT PREMATURE SEX

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Adolescence is a crucial phase of individual development, beginning with the maturation of reproductive organs that enable a person to reproduce, so that the problem of pregnancy among teenagers becomes a serious health issue and its prevalence is relatively high. The purpose of this study was to analyze the effectiveness of e-books, animated videos, and peer education methods in increasing adolescent literacy about premarital sex. The research objects were junior high and high school students, because there are differences in developmental stages, where junior high school adolescents are in the early phase with cognitive and emotional abilities that are still being formed, while high school adolescents are more mature and have a higher risk of exposure, so that it can compare the effectiveness of educational interventions in the two age groups as measured through two dimensions of literacy, namely cognitive and affective. Research design quasi experiment with a pretest-posttest approach in three intervention groups. The sample consisted of 102 students from class VIII of SMPN 2 Sirenja and class XI of SMAN 1 Sirenja, using purposive sampling and divided evenly into three intervention groups. Data analysis used the Wilcoxon test to see changes before and after the intervention, and the Kruskal-Wallis test to compare effectiveness between groups with a significance level of  $p < 0.05$ . The results showed that there was effectiveness of e-books, animated videos, and peer groups in increasing adolescent literacy regarding premarital sex, both in junior high and high school. In junior high school students, there was an increase in literacy both in terms of knowledge and attitude scores before and after the intervention in all media. In the e-book group, the knowledge score increased from 59.76 to 75.12 and the attitude score from 20.76 to 22.41. In the animated video media, knowledge increased from 74.82 to 85.47 and the attitude from 23.68 to 26.62. In the peer group method, the knowledge score increased from 72.62 to 83.41 and the attitude score from 24.53 to 27.03. In high school students there was also an increase, where the e-book media knowledge score increased from 64.50 to 78.35 and attitudes from 18.15 to 22.88. In animated videos, knowledge increased from 70.79 to 82.76 and attitudes from 19.15 to 22.53. In peer groups, knowledge scores increased from 76.12 to 86.97 and attitude scores from 20.82 to 24.62 and the results of this study were also statistically significant ( $p$ -value  $< 0.05$ ). The conclusion is that there is effectiveness in using e-book media, animated videos, and peer groups to increase adolescent literacy regarding premarital sex in junior high and high school, namely the three media are able to significantly increase adolescent knowledge and attitudes.

**Keywords:** E-Book, Animated Videos, Peer Groups, Adolescent Literacy, Premarital Sex



## THE EFFECTIVENESS OF E-BOOK MEDIA, ANIMATED VIDEOS, AND PEER GROUPS ON INCREASING ADOLESCENT LITERACY ABOUT PREMATURE SEX

Sriyana Herman<sup>1</sup>, Rizky Nur Fadila H<sup>2</sup>, Syamsuriati<sup>3</sup>, Julia Fitriyaningsih<sup>4</sup>, Arfenti<sup>5</sup>, Hari Basuki<sup>6</sup>, Rusli<sup>7</sup>

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**Keywords:** E-Book, Animated Videos, Peer Groups, Adolescent Literacy, Premarital Sex



## Environmental Factors Influencing Malaria Incidence in East Nusa Tenggara, Indonesia

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Malaria incidence in East Nusa Tenggara Province exhibited fluctuating patterns between 2020 and 2023, complicated by significant outliers in the surveillance data. This study aimed to identify key environmental factors influencing malaria cases by applying advanced analytical methods, namely robust regression using S-estimation, to effectively manage outliers. A quantitative observational analytic approach was employed, analyzing secondary data from provincial health profiles. Both ordinary least squares (OLS) and robust regression models were fitted and compared to handle outliers and violation of standard assumption. Diagnostic testing revealed violations of classical regression assumptions and multiple influential observations via Cook's Distance. Robust regression consistently identified access to safe drinking water as a significant negative predictor of malaria incidence throughout the period. Additionally, sanitation and housing quality demonstrated significant impacts in 2021 and 2022-2023 respectively. Conversely, OLS failed to detect significant predictors due to sensitivity to outliers and assumption breaches. Findings highlight the validity and superior performance of robust regression for epidemiological modeling with heterogeneous data. Policy emphasis should be placed on improving water access, sanitation, and housing conditions for comprehensive malaria control in the region. Further research integrating quantitative and qualitative methods is recommended to deepen understanding of environmental impacts on malaria transmission.

**Keywords:** Malaria Incidence, Environmental Determinants, Water And Sanitation, Housing Quality, East Nusa Tenggara



## Adolescents' Perceptions of Climate Change and Its Implications for Sexual and Reproductive Health: A Qualitative Study in a Coastal Village of South Sulawesi, Indonesia

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The climate crisis has generated significant impacts, particularly among vulnerable populations living in coastal areas, including adolescents. This study aimed to explore adolescents' perceptions of how the climate crisis and climate-induced events affect their lives, with a particular focus on sexual and reproductive health (SRH). A qualitative approach was employed, involving two focus group discussions (FGDs) with adolescent girls and boys, as well as ten in-depth interviews (IDIs) with adolescents in Kalukubodo Village, Takalar District. The findings revealed that adolescents had experienced several climate-related events, such as tidal flooding, drought, and tornadoes. However, participants perceived these events as relatively minor, stating that they did not have a major impact on their daily lives or well-being. Both male and female adolescents indicated that the effects of these events did not significantly influence their sexual and reproductive health. Adolescent girls mentioned that they could still access SRH services at the nearby community health center (puskesmas), primarily for iron supplementation (TTD). Meanwhile, adolescent boys reported that they had never accessed SRH-related services. Furthermore, informants acknowledged that no educational programs or counseling related to disaster preparedness or reproductive health had ever been conducted in their village. This absence of information and preventive education is concerning, considering the high rate of early marriage in the community. The study highlights that although the direct effects of climate-related events appear minimal, the lack of SRH education and preparedness initiatives exposes adolescents to underlying vulnerabilities. It is therefore recommended that the local government and health centers develop and implement adolescent-friendly programs focusing on sexual and reproductive health education and disaster preparedness. Strengthening such integrated services would help ensure that adolescents are better informed and more resilient in facing the growing challenges of the climate crisis.

**Keywords:** Climate Change, Adolescent Health, Sexual and Reproductive Health, Perceptions, Coastal Community.



## FAMILY RISK FACTORS FOR CHILD UNDERWEIGHT STATUS IN URBAN SLUMS.

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The current study aimed to examine the association between family socioeconomic status (SES) and child underweight status in the context of urban slums, and the mediating roles of the number of children under age of five years old, parental smoking, and insensitive parenting in this association.

The sample consisted of 98 mothers (M = 30.5 years, SD = 6.9) and their 2-4-year-old children (M = 38.8 months, SD = 9.5; 55% girls) residing in urban slums in Makassar, Indonesia. Mother-child dyads were videotaped in naturalistic observations, from which maternal sensitivity was observed and coded using the Ainsworth scales (Ainsworth, Bell, & Stayton, 1974). Mothers were interviewed to assess their family SES, the number of children and parental smoking status. Anthropometric measurements (weight and height) were taken to identify child underweight status.

Children from low-SES families were more likely to have underweight status ( $r(96) = -.23, p < .05$ ). Because SES was not associated with any of the mediating variables, the hypothesized mediating mechanisms were not supported. However, parental smoking was associated with child underweight status ( $r(96) = .27, p < .01$ ). The number of children under the age of five years was also associated with child underweight status when controlling for parental smoking (AOR = 2.35; 95% CI = 1.03 - 5.35). Children with parents who were smokers and children living with more siblings under the age of five years were more likely to have underweight status.

This study showed that worse socioeconomic conditions were a risk factor for child underweight status in the urban slums context. Parental smoking and the number of children under five years were interrelated and also associated with child underweight status, contributing to the growing number of research about family risk factors for child underweight status in Indonesia.

**Keywords:** SES, child underweight status, parental smoking, children under age of five years old, insensitive parenting

# Health Nutrition



## **Analisis Faktor Pelayanan Kesehatan dan Genetik dengan Kejadian Stunting di Puskesmas Katobengke Kota Baubau Tahun 2024**

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Stunting secara global mempengaruhi sekitar 22,2% atau 150,8 juta anak dibawah usia 5 tahun. Kasus stunting Kota Baubau mengalami fluktuatif selama tahun 2020-2022. Puskesmas Katobengke sebagai salah satu Puskemas yang berada di wilayah Kota Baubau masih memiliki angka prevalensi stunting lebih dari 16%. Penelitian ini bertujuan untuk mengetahui hubungan faktor pelayanan kesehatan dan genetik dengan kejadian stunting di Wilayah Kerja Puskesmas Katobengke Kota Baubau. Jenis penelitian ini adalah kuantitatif menggunakan metode observasional analitik dengan desain cross sectional study. Populasi sebanyak 804 balita dengan jumlah sampel 267 balita. Teknik penentuan sampel yaitu probability sampling. Waktu penelitian dilakukan pada bulan Maret-Juni 2024. Analisis data dengan uji bivariat menggunakan Chi Square Test ( $\alpha = 0,05$ ). Hasil penelitian ini menunjukkan variabel antenatal care dengan p-value = 0,000 ( $p < 0,05$ ), imunisasi dasar 0-9 bulan dengan p-value = 0,000 ( $p < 0,05$ ), dan tinggi badan ibu dengan p-value = 0,000 ( $p < 0,05$ ). Penelitian ini menunjukkan bahwa antenatal care, imunisasi 0-9 bulan dan tinggi badan ibu berhubungan secara signifikan dengan kejadian stunting di wilayah kerja Puskesmas Katobengke Kota Baubau. Saran dalam penelitian ini yaitu perlunya melakukan edukasi kesehatan dan gizi kepada remaja putri, sosialisasi kepada ibu yang memprogram hamil akan pentingnya antenatal care serta imunisasi dasar bagi keluarga yang memiliki bayi dan balita.

**Kata Kunci:** antenatal care, imunisasi, tinggi badan, stunting, balita



## RISK FACTORS FOR HYPERTENSION IN THE ELDERLY IN THE WORKING AREA OF THE LAPANDEWA PUBLIC HEALTH CENTER, LAPANDEWA DISTRICT, SOUTH BUTON REGENCY

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Analysis of Risk Factors for Hypertension in the Elderly in the Lapandewa Health Center Working Area, South Buton Regency. Hypertension is the cause of premature death worldwide (WHO). Hypertensive disease in Lapandewa health center ranks second in the top 10, hypertension sufferers are mostly elderly. The purpose of this study was to determine the Risk Factor Analysis of Hypertension Events in the Elderly in the Lapandewa Health Center Working Area, South Buton Regency. This research method is quantitative with a cross sectional study design. The population is all elderly Lapandewa District as many as 107 people with a sample of 67 people. sampling technique is accidental sampling with univariate and bivariate analysis using chi square data test. The results showed that there was a relationship between Obesity (p-Value = 0.000 < 0.05), Physical Activity (p-Value = 0.013 < 0.05) with the incidence of hypertension in the Lapandewa Health Center work area. The conclusion in this study is that there is a relationship between obesity, physical activity, with the incidence of hypertension in the Lapandewa Health Center working area of South Buton Regency. Suggestions need to increase health promotion / counseling and socialization of hypertension risk factors as a form of effort.

**Keywords:** Obesity, Physical Activity and Incidence of Hypertension, Buton Selatan



## **Analysis of Nutrition Programs for Pregnant Women with Chronic Energy Deficiency (CED) in Laompo Village, Batauga Community Health Center Working Area**

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The prevalence of pregnant women with Chronic Energy Deficiency (CED) in the Batauga Community Health Center work area in 2023 was 79 cases, decreasing to 34 cases in 2024. The aim of this study was to description analyze the nutrition program for pregnant women with Chronic Energy Deficiency (CED) in Laompo Village, Batauga Health Center working area. This research method uses a qualitative method with a case study approach. Six informants were selected using purposive sampling. The process of selecting the informant is based on suitability and adequacy. Data collection techniques include interviews, observation, documentation, and triangulation. That is qualitative data analysis is carried out interactively and takes place continuously until it is complete, so that the data is saturated. The research results that the nutrition program for pregnant women with Special Needs (KE) in Laompo Village, Batauga Health Center Working Area, namely the Provision of Supplementary Food (PSF) has been implemented according to the technical guidelines. This program has been running for 3 years starting from 2023 to 2025, this follows the guidelines of the Ministry of Health's 2025 Technical Instructions on the Provision of Supplementary Food Made from Local Food for Pregnant Women and Toddlers with Nutritional Problems. Suggestions for the target group are to follow all programs run by the local Health Center and for Batauga Health Center it is recommended to review all regulations related to the analysis of the nutrition program for pregnant women with special needs. The conclusion of this study is that the Nutrition Program in Mothers has been well implemented Pregnant with Chronic Energy Deficiency (CED) in Laompo Village, Batauga Health Center Working Area

**Keywords:** Chronic Energy Deficiency, Nutrition, Pregnant Women



## **Beyond the Plate: Picky Eating, Parenting, and Maternal Knowledge as Influences on Preschool Children's Nutrition in Rural Indonesia**

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Preschool-aged children (4-6 years) are a crucial asset for Indonesia's future, and proper nutrition during this period is essential for growth and development. Picky eating is a common problem in this age group and may be influenced by parenting styles and maternal knowledge. This study examined the relationship between picky eating, parenting, and maternal knowledge with the nutritional status of preschool children in rural Indonesia. A cross-sectional study was conducted among 78 children and their parents from TK ABA Baraka and TK PGRI Balla in Baraka District, Enrekang Regency. Data were collected through structured questionnaires on child and parental characteristics, parenting styles, maternal knowledge, and picky eating behavior, while anthropometric measurements were used to assess nutritional status. Associations were analyzed using chi-square and Fisher's exact tests. Results showed that 28.2% of children were undernourished, 51.3% normal, and 20.5% overweight. Picky eating was observed in 41.0% of children, half of whom were undernourished ( $p=0.000$ ). Parenting styles were significantly associated with nutritional status ( $p=0.023$ ). Authoritative parenting was linked with better nutritional outcomes (52.5% normal), while neglectful and authoritarian parenting were associated with undernutrition and overweight. Maternal knowledge also played a critical role, with poor knowledge linked to undernutrition (48.5%) and good knowledge associated with normal nutritional status (62.2%) ( $p=0.003$ ). These findings highlight the interplay of picky eating, parenting, and maternal knowledge in shaping child nutrition. Interventions that strengthen maternal knowledge and promote positive parenting practices are essential to improve nutritional outcomes among preschool children in rural settings.

**Keywords:** Picky eating; Parenting styles; Maternal knowledge; Nutritional status; Preschool children



## Effectiveness of Fruit and Vegetable Juices in Reducing Blood Pressure Among Hypertensive Patients: A Review

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Hypertension is a global health issue with a continually increasing prevalence, including in Indonesia. Efforts to control hypertension are not only carried out through pharmacological therapy but also through non-pharmacological interventions such as the consumption of fruit and vegetable juices. This study is a systematic literature review of ten articles published from 2020 to 2025 that assess the effectiveness of fruit and vegetable juices in reducing blood pressure in hypertensive patients in Indonesia using keywords: Hypertension, fruit and vegetable juice, and blood pressure, from Indonesian electronic databases such as Google Scholar, PubMed, Science Direct, and Researchgate. Data analysis used PRISMA (Preferred Reporting Items for Systematic Review and Meta-Analysis). The analysis focuses on the effectiveness of various types of fruit and vegetable juices in lowering blood pressure in hypertensive patients in Indonesia. The results of the analysis indicate that various types of juices, such as spinach, celery, starfruit, beet, tomato, carrot, and cucumber, both individually and in combination, significantly reduce both systolic and diastolic blood pressure. Bioactive compounds such as potassium, nitrates, polyphenols, and antioxidants are believed to play a role in the mechanisms of vasodilation and improvement of endothelial function; thus, this table illustrates that the consumption of fruit and vegetable juices has great potential as an effective non-pharmacological therapy, is easy to implement, and can serve as a promotive and preventive strategy in controlling hypertension in the community. This systematic review shows that fruit and vegetable juices have significant effectiveness in lowering blood pressure in hypertensive patients. A combination of several types of juices is even more effective than single consumption. Although most studies are still small-scale with short intervention durations, these findings support the use of fruit and vegetable juices as a non-pharmacological therapy in the management of hypertension in the community.

**Keywords:** Hypertension, Fruit And Vegetable Juice, Blood Pressure, Non-Pharmacological Therapy



## Validity of Body Fat Percentage Measurement Using Tanita BC-545N Compared to InBody 270 as the Gold Standard among University Students

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Body fat percentage (%BF) is an important indicator of nutritional status and metabolic health, providing greater insight than body mass index (BMI) alone. Accurate assessment is essential for both research and clinical practice. InBody 270, a multifrequency bioelectrical impedance analyzer, is often regarded as the gold standard for field measurement; however, its availability is limited by cost and technical requirements. Tanita BIA BC-545N is a simpler and more affordable device, but its validity compared with InBody requires further evaluation. This cross-sectional study was conducted among 160 university students aged 18-22 years, of whom 97.5% were female and 56.9% were classified as having normal nutritional status by BMI. Body fat percentage was measured using both Tanita BC-545N and InBody 270 under standardized conditions. Descriptive statistics, the Wilcoxon signed-rank test, and the Intraclass Correlation Coefficient (ICC) were employed for analysis. The mean %BF measured by Tanita (31.35%) was consistently lower than that measured by InBody (35.32%). The Wilcoxon test confirmed a statistically significant difference between the two devices ( $p < 0.001$ ). ICC analysis (Two-Way Mixed, Absolute Agreement) yielded a single measures ICC of 0.707 (95% CI: 0.307-0.854;  $p < 0.001$ ), indicating moderate agreement. These results suggest that Tanita BC-545N systematically underestimates %BF compared with InBody 270, although the two methods still demonstrate acceptable concordance. In practical terms, Tanita may be considered a feasible alternative for field monitoring and population-level screening, but it cannot fully replace InBody 270 as the gold standard for precise assessment.

**Keywords:** Body Fat Percentage, Tanita BC-545N, Inbody 270, Validity, Intraclass Correlation Coefficient



## **Inadequate Macronutrients Intake and Underweight Status in Low-Socioeconomic Preconception Women: Evidence from Takalar District, South Sulawesi, Indonesia**

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The disruption of maternal nutritional status in form of low body weight is caused by several factors, which include inadequate food intake. Therefore, this study aims to assess low body weight and the factors that influence the poor nutritional status of preconception women in Takalar District, South Sulawesi Province, Indonesia. This observational study was conducted from October 2 to December 10, 2021, in North Polongbangkeng Sub-district, Takalar District, and involved 130 preconception women aged 18-30 years. The data on nutritional intake and status were collected using questionnaires, 24-hour recall, and anthropometric measurements. The nutritional intake was analyzed with Nutrisurvey, categorized based on Indonesian Recommended Dietary Allowance (RDA), and the variable analysis was carried out using the Chi-square test. The mean age of mothers is 20-30 years (80.8%), where 71.5% work as a housewife, while the average occupation of the father as an entrepreneur is 46.9%. The average education of mothers and fathers was high, and the family income is above 1 million rupiah (56.2%). The majority of maternal energy, protein, carbohydrate, and fat intakes were in the less category (<80% RDA). The results of the analysis showed a significant association between pre-conception maternal age and nutritional status, with younger mothers (<20 years old) having a greater likelihood of being underweight. There was also an association between low education and income and low protein intake ( $p=0.043$  and  $p=0.019$ , respectively). Furthermore, there was a correlation between maternal unemployment and energy ( $p=0.012$ ), carbohydrate ( $p=0.023$ ), and protein ( $p=0.003$ ) intakes, with  $p<0.05$ . Preconception women in Takalar District are prone to a lack of nutritional intake, specifically in terms of energy, protein, carbohydrate, and fat intake. This is influenced by mothers' education, occupation, and family income.

**Keyword:** Macronutrients Intake, Preconception Women, Underweight, Socioeconomic



## **Multivariable Analysis of Hypertension Determinants Among Coastal Women in Bajoe, Indonesia: an Epidemiological Nutrition Perspective**

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Hypertension is a leading non-communicable disease globally, with increasing prevalence among in coastal regions due to unique nutritional and lifestyle patterns. This study aims to identify the determinants of hypertension among coastal women in Bajoe, Bone District, Indonesia, using a multivariable epidemiological nutrition approach. A cross-sectional study was conducted among 102 hypertension women aged 30-75 in Bajoe with purposive sampling criteria. Data were collected through structured interviews, anthropometric measurements, and blood pressure assessments. Variables analysed included age, education level, body mass index (BMI), family history of hypertension, sodium and fat intake, adherence to antihypertension medication and passive smoking exposure. Multivariable logistic regression was used to identify significant predictors. Hypertension prevalence in Bone District was 29,33%. Significant predictors included age  $\geq 50$  years (OR = 6,15; 95%CI: 2,29-16,46), sodium and fat intake (OR=3,25;95% CI: 1,09-9,68). The model demonstrated good explanatory power (Nagelkerke R<sup>2</sup> =0,30) and acceptable fit to the data (Hosmer-Lemeshow p=0,15), supporting its validity for identifying key determinants in this population. Hypertension among coastal women in Bajoe is influenced by modifiable factors and non-modifiable factors. Community based interventions targeting dietary sodium and fat reduction and education for women health.

**Keyword:** Hypertension, Coastal Women, Multivariable Analysis.



## Nutritional Composition and Shelf Life of Jawawut-Mackerel Cookies for Preventing Chronic Energy Deficiency in Pregnant Women

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Chronic Energy Deficiency (SEZ) in pregnant women is still a serious nutritional problem in Indonesia with a prevalence of 16.9% in 2023. This condition increases the risk of obstetric complications, low birth weight (BBLR), and maternal and infant mortality. One of the strategic efforts to prevent this is the development of local food that is highly nutritious, practical, and has an adequate shelf life. Jawawut (*Setaria italica*) is rich in complex carbohydrates, protein, and dietary fiber, while mackerel (*Rastrelliger kanagurta*) is a source of animal protein, minerals, and omega-3 fatty acids. This study used a descriptive analytical research with the formulation of cookies substitution of 15% jawawut flour and 5% mackerel flour. Nutritional analysis was carried out by proxy method, while the shelf life was calculated using the Arrhenius model's Accelerated Shelf Life Test (ASLT) based on moisture content. The microbiological test was carried out using the Total Plate Count (TPC) method. The results show that a serving size of 50 g (10 pieces @ 5 g), cookies contribute 251.9 kcal (9.88% AKG), 4.44 g protein (6.34% AKG), fat 12.58 g (18.69% AKG), and 30.23 g (7.55% AKG) carbohydrates. This product is able to meet 140% of the additional energy needs of the first trimester (180 kcal) and 84% of the additional needs of the second and third trimester (300 kcal). The shelf life of cookies is estimated to be 132.99 days (25°C), 126.70 days (37°C), and 123.40 days (44°C). The TPC results showed that microbial contamination was below the maximum limit of SNI 2973:2022. Jawawut and mackerel-based cookies have superior nutritional content, adequate shelf life, and are safe to consume. This product has the potential to be developed as a local food-based Supplementary Feeding (PMT) for the prevention of SEZ in pregnant women in a sustainable manner.

**Keywords:** Chronic Energy Deficiency, Pregnant Women, Cookies, Jawawut, Mackerel



## Parents' Perspectives Regarding Their Child's Nutritional Behavior: What Do We Learn from Our Microbiome Study Population

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Parental knowledge, food security, and feeding attitudes critically influence children's dietary behavior and may shape gut microbial composition and nutritional outcomes. Within the framework of our microbiome-nutrition study exploring the double burden of malnutrition (DBM) among school-aged children in South Sulawesi, this sub-study investigated how parents perceive and practice healthy eating for their children. This cross-sectional analysis involved 117 parents of 156 participating children recruited from urban, coastal, and mountainous areas. Structured interviews assessed sociodemographic conditions, breakfast frequency, food security, and parental attitudes toward balanced meals. Food security was evaluated using the Household Food Insecurity Access (HFIA) tool. HFIA categories were analyzed overall and by household income and size. Most respondents were mothers (60.5%). Nearly half (48.7%) reported that both parents worked for income, while 41.2% had monthly household income below Rp 3 million. Overall, 44.2% experienced some level of food insecurity, consisting of 13.6% mild, 13.6% moderate, and 17.1% severe food insecure. Food insecurity was more prevalent in lower-income and larger households. Although 78% of parents attempted to implement a healthy diet, 30% reported being unable to afford desired foods at times. Family meals were common (84%), and 77% recognized the importance of vegetables in daily meals. However, dietary environments were still obesogenic with over 90% of children received money for canteen snacks, 72% bought snacks more than once daily, 51% brought lunch from home, and households reported occasional availability of sugar-sweetened beverages (30%) and chips (66%). In conclusion, while parents demonstrate strong awareness and intent to provide balanced meals, financial limitations and an obesogenic food environment hinder the consistent practice of healthy eating for their children. Integrating future data collection on children's dietary intake, nutritional status, and gut microbiome will enable a more comprehensive understanding of how parental behaviors translate into biological and health outcomes.

**Keywords:** Parental Perspectives; Food Security; School-Aged Children; Gut Microbiota; Double Burden Of Malnutrition



## Parents' Perspectives Regarding Their Child's Nutritional Behavior: What Do We Learn from Our Microbiome Study Population

Andi Imam Arundhana Thahir<sup>1\*</sup>, Muhammad Rachmat<sup>2</sup>, Andi Zulkifly Agussalim<sup>3</sup>, Khadijah Nur Hasanah Assegaf<sup>4</sup>, Aminuddin Syam<sup>5</sup>

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Parental knowledge, food security, and feeding attitudes critically influence children's dietary behavior and may shape gut microbial composition and nutritional outcomes. Within the framework of our microbiome-nutrition study exploring the double burden of malnutrition (DBM) among school-aged children in South Sulawesi, this sub-study investigated how parents perceive and practice healthy eating for their children. This cross-sectional analysis involved 117 parents of 156 participating children recruited from urban, coastal, and mountainous areas. Structured interviews assessed sociodemographic conditions, breakfast frequency, food security, and parental attitudes toward balanced meals. Food security was evaluated using the Household Food Insecurity Access (HFIA) tool. HFIA categories were analyzed overall and by household income and size. Most respondents were mothers (60.5%). Nearly half (48.7%) reported that both parents worked for income, while 41.2% had monthly household income below Rp 3 million. Overall, 44.2% experienced some level of food insecurity, consisting of 13.6% mild, 13.6% moderate, and 17.1% severe food insecure. Food insecurity was more prevalent in lower-income and larger households. Although 78% of parents attempted to implement a healthy diet, 30% reported being unable to afford desired foods at times. Family meals were common (84%), and 77% recognized the importance of vegetables in daily meals. However, dietary environments were still obesogenic with over 90% of children received money for canteen snacks, 72% bought snacks more than once daily, 51% brought lunch from home, and households reported occasional availability of sugar-sweetened beverages (30%) and chips (66%). In conclusion, while parents demonstrate strong awareness and intent to provide balanced meals, financial limitations and an obesogenic food environment hinder the consistent practice of healthy eating for their children. Integrating future data collection on children's dietary intake, nutritional status, and gut microbiome will enable a more comprehensive understanding of how parental behaviors translate into biological and health outcomes.

**Keywords:** Parental Perspectives; Food Security; School-Aged Children; Gut Microbiota; Double Burden Of Malnutrition



## Determinants of Stunting Incidence at Katobengke Health Center, Baubau City, 2024

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Stunting is a condition of impaired growth and development in children under five years old due to chronic malnutrition, resulting in the child being too short for their age. Malnutrition occurs from the time the baby is in the womb and during the early period after birth, but stunting only becomes apparent after the child reaches 2 years of age.

This study aims to identify the factors that influence the incidence of stunting in the working area of Katobengke Health Center. This type of research is quantitative, using an analytical observational method with a cross-sectional study design. The population consisted of 804 individuals, with a sample size of 267. The sampling technique used was probability sampling. The research was conducted from March to June 2024. Data collection was carried out through primary and secondary data. Data analysis was univariate and bivariate using the Chi-Square Test statistical analysis by reviewing the test value, if  $< \alpha$  ( $\alpha = 0.05$ ), it is considered significant. The results of this study showed that the economic factor variable had a p-Value =  $0.004 < 0.05$  and maternal education had a p-Value =  $0.005 < 0.05$  at Katobengke Health Center, Baubau City. This study found that there is a relationship between economic factors and maternal education with the incidence of stunting in the working area of Katobengke Health Center, Baubau City. It is expected that Katobengke Health Center can enhance health activities related to stunting for families with infants and toddlers.

**Keywords:** Determinants of Stunting Incidence, Toddlers



## Occupational Health and Safety in Thailand: Current & Emerging Challenges

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The government of Thailand has recognized Occupational Health and Safety as a National Agenda since 2006. After almost 20 years, there have been remarkable progress in the development of administrative framework including policies, master plans, legislations, promotional activities, etc. However, the changes in labor structure/characteristics and employment pattern as well as some global situations brought about new issues and challenges. From statistics reported by the Office of Workmen's Compensation Fund, rates of work accidents and injuries have declined steadily. In recent years, rates of work-related fatalities, as an international OSH performance indicator, have stayed at roughly 5-6 cases/100,000 workers. These are still too high as benchmarked with some countries in the region. For occupational diseases, although the numbers of cases are dramatically underreported, but it is noticeable that musculoskeletal disorders dominated by over 50% of all cases. Some major challenges arise from changing work environments, such as increased work-related stress and other psychosocial issues, and ergonomic problems alongside traditional hazards like exposure to silica, lead and other chemicals. In terms of OSH administration, emerging issues include the rapidly increase in number of migrant workers from neighbor countries, new forms of employment such as long-distance and platform workers, and workplace management against biological hazards in the post COVID19 era. Existing OSH programs often focus on larger companies, leaving out some significant portions of workforce especially those in SMEs, migrant workers, and those in informal sector. To address these, the country is improving its OSH administration by updating laws and standards to better inform policies, and expand their coverages to protect all vulnerable workers. In line with the global OSH strategies, all workplaces are encouraged to focus on building a strong safety culture through preventive measures and advanced reporting systems to foster a proactive approach to health and safety at work.

**Keywords:** OH&S challenges, OSH administration, emerging issues, Thailand



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