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THEME:

“PROMOTING POPULATION MENTAL HEALTH AND WELL-BEING”

Best Western Premier Hotel
Solo, Central Java, Indonesia
February 13 - 14
2019



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5th INTERNATIONAL CONFERENCE ON PUBLIC HEALTH
2019

THEME: PROMOTING POPULATION MENTAL HEALTH AND WELL-BEING

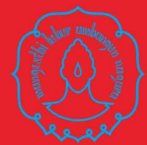


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**INTERNATIONAL CONFERENCE
ON PUBLIC HEALTH 2019**

**Theme:
“PROMOTING POPULATION MENTAL HEALTH
AND WELL-BEING”**

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Organized by:

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Universitas Sebelas Maret

In Collaboration with:

World Psychiatric Associations (WPA)
InterAction Council
Umeå University
University of Melbourne
Yayasan Damandiri
Universitas Indonesia
School of Health Polytechnics, Surakarta

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The 5th International Conference on Public Health
“Promoting Population Mental Health and Well-Being”
Best Western Premier Hotel, Solo, Indonesia
February 13-14, 2019

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PREFACE



Prof. Bhisma Murti

Chair, ICPH

Dear distinguished readers. Welcome to the 5th International Conference on Public Health 2019. The theme of this conference is “Promoting Population Mental Health and Well-Being”. I consider population mental health issues are important to address. As WHO has defined it, health is “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”. However, the WHO reported, around 450 million people currently suffer from mental or neurological disorders, placing mental disorders among the leading causes of ill-health and disability worldwide. The sizeable suffering and burden of mental disorders are predicted to rise significantly over the next decades.

Mental disorders are inextricably linked to human rights issues. Persons with mental disorders often suffer a wide range of human rights violations and social stigma. The WHO calls the abusive conditions endured by people with mental health conditions a hidden human rights emergency.

Therefore, stakeholders of population mental health, including government, international agencies, non-government organizations, private sector, health professionals, social organizations, society, academics, and researchers, all together have yet to pay more attention and exert their efforts to address the current and growing mental health challenges.

The 5th International Conference on Public Health is to be held at Best Western Premier Hotel, in Solo, Indonesia, on February 13-14, 2019. The 5th ICPH seeks to address issues on how to prevent mental disorders in the communities and to improve population mental health by implementation of urgently needed social and economic policies that redress inequity, by creating supportive social environment, and by ensuring access to appropriate, quality mental health services.

This conference offers 4 programs undertaken in two days: (1) Symposium; (2) Workshop; (3) Oral Presentation; and (4) Poster Presentation. The distinguished international speakers invited to attend this conference are as follows:

1. Professor Helen Herrman (Australia)
President, World Psychiatric Association. The National Centre of Excellence in Youth Mental Health, and Centre for Youth Mental Health, The University of Melbourne
2. Prof. Haryono Suyono (Indonesia)
Former Head of the National Coordinating Board of Family Planning (BKKBN).

3. Prof. Adang Bachtiar (Indonesia)
Chair of the Advisory Board, Indonesian Public Health Association (IAKMI).
Faculty of Public Health, University of Indonesia, Jakarta.
4. Professor Joanna Nurse (UK)
Strategic advisor to the InterAction Council advancing a collaborative partnership on “One Health for People and Planet”.
5. Professor Nicola Reavley (Australia)
Centre for Mental Health, Melbourne School of Population and Global Health | Faculty of Medicine, Dentistry and Health Sciences, The University of Melbourne, Victoria, Australia
6. Prof. Budi Anna Keliat (Indonesia)
Faculty of Nursing, University of Indonesia, Jakarta, Indonesia
7. Prof. Aris Sudiyanto (Indonesia)
Department of Psychiatry, Dr. Moewardi Hospital/ Faculty of Medicine, Universitas Sebelas Maret, Surakarta, Indonesia
8. Prof. Vita Ratri Cahyani (Indonesia)
Vice Director in Academic Affairs, Graduate School, Universitas Sebelas Maret, Surakarta, Indonesia
9. Dr. Anne Claire Stona (France)
Global mental health policy maker and advisor, public health physician, working in France.
10. Professor Malin Eriksson (Sweden)
Professor in Public Health, Department of Social Work, Umeå University, Sweden.
11. Professor Mehdi Ghazinour (Sweden)
Professor at Police Education Unit, Umeå University, Sweden.
12. Prof. Bhisma Murti (Indonesia)
Head, Masters Program in Public Health, Graduate School, Sebelas Maret University, Surakarta, Indonesia
13. Dr Hanung Prasetya (Indonesia)
Medical Hypnosis and Neuro-Linguistics Practitioner, School of Health Polytechnics Surakarta, Indonesia

There are five clusters of oral and poster presentation of research work offered at this conference: (1) Epidemiology and Public Health; (2) Health Promotion and Behavior; (3) Maternal and Child Health; (4) Health Policy and Management; (5) Medicine. More than 283 abstracts of research work presented at this conference, including 235 oral presentations and 48 poster presentations.

I want to extend my indebtedness to all those who are participating in this conference, including all the participants and the distinguished speakers. There is a total of 582 participants attending this conference, not to include the number of invited guests. I would like to mention and highlight the participation of institutions with the greatest number of delegates. They include STIKKES Mandala Waluya Kendari (69), Universitas Indonesia (55), Universitas Diponegoro (23), Universitas Cendana (8), Universitas Hassanudin (6), Poltekkes Semarang (6), and STIKKES Muh Kudus (5).

I also would like to acknowledge the support of Universitas Sebelas Maret as the host institution, and Batik Kenanga as the official batik supplier. I hope all these parties and the population at large can benefit much from this conference.

Surakarta (Indonesia), February 13-14, 2019

Prof. Bhisma Murti
Chair, International Conference on Public Health
(ICPH)

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BACKGROUND

1. Definition

Mental health has been defined by the World Health Organization as “a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community”. The positive dimension of mental health is stressed in WHO’s definition of health as contained in its constitution: “Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (WHO, 2014).

Mental health is a state of successful performance of mental function, resulting in productive activities, fulfilling relationships with other people, and the ability to adapt to change and to cope with challenges. Mental health is essential to personal well-being, family and interpersonal relationships, and the ability to contribute to the community or society (Healthy People, 2018).

At the other end, mental disorders are health conditions that are characterized by alterations in thinking, mood, and/or behavior that are associated with distress and/or impaired functioning. Mental disorders contribute to a host of problems that may include disability, pain, or death. Mental illness is the term that refers collectively to all diagnosable mental disorders (Healthy People, 2018).

Mental health and physical health are closely connected. It plays a major role in people’s ability to maintain good physical health. Mental illnesses, such as depression and anxiety, affect people’s ability to participate in health-promoting behaviors. If an individual does not have a healthy mental state it will be hard for that individual to live life to the fullest extent (Lando et al., 2006; Healthy People, 2018).

2. Traditional vs. Positive Mental Health Models

Historically, mental health has been viewed as the absence of mental disorder, despite conceptions that health, in general, is something positive and consists of well-being and not merely the absence of illness (Keyes and Simoes, 2012). The Traditional Mental Health Models are dependent on one-dimensional and negative indicators of diagnosis (i.e., psychopathology). Traditional mental health diagnosis generally uses negative psychopathology (PTH) indicator and takes the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) as standards for psychological diagnosis. As a widely used diagnostic standard, DSM is playing a positive role in diagnosing and treating mental disorder. However, this diagnostic tool just defines whether there is a mental disorder or not in respect to mental health and relates it with negative results (Wang et al., 2011).

Mental health is thus deemed as an inferred by-product of “no mental illness”. Mental health and mental illness are deemed as two opposite poles of a continuum. The research into mental health is restricted in the psychopathology and focuses on mental disorder and neglects the patient’s capacity of self-restoration and self-upgrade (Wang et al., 2011).

On the other hand, the positive mental health views the individual's overall psychological well-being. Rather than the absence of mental illness, mental health refers to the presence of positive characteristics. It is a positive sense of well-being, or the capacity to enjoy life and deal with the challenges an individual faces. It includes the way the individual feels about self, the quality of relationships, and ability to manage feelings and deal with difficulties (WHO, 2014; Canadian Mental Health Association, 2018; HelpGuide, 2018). Good mental health is not just the absence of mental health problems. Being mentally or emotionally healthy is much more than being free of depression, anxiety, or other psychological issues (Canadian Mental Health Association, 2018; HelpGuide, 2018).

People who are mentally healthy have (HelpGuide, 2018):

- A sense of contentment
- A zest for living and the ability to laugh and have fun.
- The ability to deal with stress and bounce back from adversity.
- A sense of meaning and purpose, in both their activities and their relationships.
- The flexibility to learn new things and adapt to change.
- A balance between work and play, rest and activity, etc.
- The ability to build and maintain fulfilling relationships.
- Self-confidence and high self-esteem.

These positive characteristics of mental and emotional health allow an individual to participate in life to the fullest extent possible through productive, meaningful activities and strong relationships. These positive characteristics also help the individual cope when faced with life's challenges and stresses (HelpGuide, 2018).

The Dual-Factor Model of Mental Health (DFM) is a new mental health concept and methodology that is made based on positive psychological concepts and relevant empirical evidences to solve the deficiency in traditional mental health models (Wang et al., 2011). The DFM is aligned with concepts of mental health identified by the World Health Organization (2014) as well as Corey Keyes (2002) description of "flourishing" and "languish". Keyes conceptualizes health and illness as separate continuums wherein an individual with mental illness may "flourish" and conversely, someone without mental illness may "languish" with less than optimal health.

Traditional mental health models used the one-dimensional perspective and placed the Subjective Well-Being (SWB) and psychopathology (PTH) symptoms on two opposite poles. However, the Dual-Factor Model of Mental Health insists from a more comprehensive perspective that mental health is not the absence of mental illness or the high SWB, but a complete state that integrates the absence of mental illness and the high SWB (Wang et al., 2011).

The Dual-Factor Model of Mental Health emphasizes that mental health is a complete state, which is to overcome the clinical deficiencies in traditional

mental health PTH. It changes the one-dimensional model (there is/there is no mental illness) and is a self-improvement in the mental health research field (Wang et al., 2011). Figure 1 shows the dual factor model (DFM) of mental health and mental illness (Wang et al., 2011 based on Keyes and Lopez, 2002).

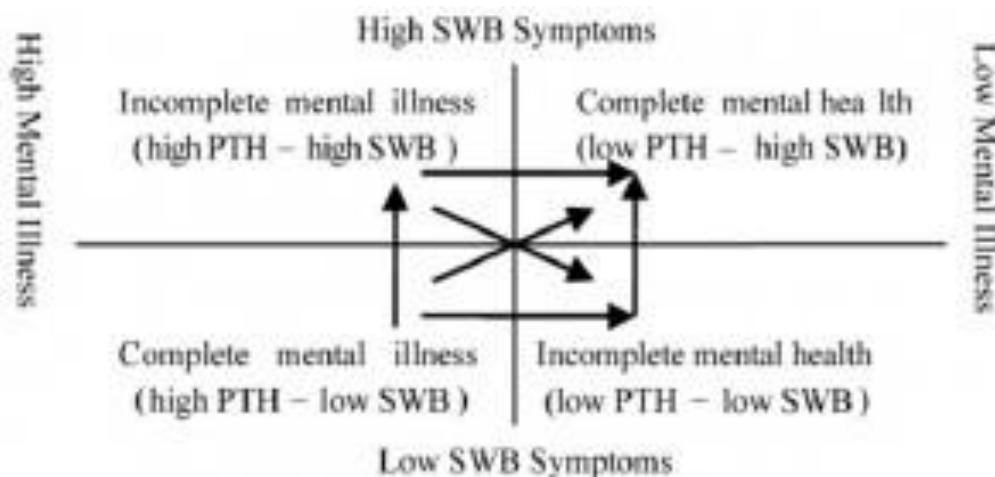


Figure 1 shows the dual factor model (DFM) of mental health and mental illness. PTH= Psycho-pathology. SWB= Subjective Well-Being. Source: Wang et al., 2011 based on Keyes and Lopez, 2002.

The DFM can distinguish the complete state from incomplete state of mental illness and mental health and make diagnosis, which will generate more effective prevention and intervention plans and thus improve the standards on relieving PTH syndromes. This model not only emphasizes the important role of SWB in mental health, but also advocates PTH indicator. It further emphasizes the unsubstitutability and indispensability of the two indicators (Wang et al., 2011).

Incompletely mentally healthy people have low PTH and low SWB, which is called “vulnerable” by Suldo and Shaffer (2008), or “languishing” by Keyes (2002, 2007) called them as “languishing”. They were always overestimated by traditional mental health models since their PTH symptoms did not reach the PTH diagnosis standards. They were often excluded from the research and the service (Suldo and Shaffer, 2008).

Completely mentally healthy people have low PTH and high SWB, and Keyes (2002, 2007) also called them as “flourishing”. Complete mental health is a state that integrates high SWB and no recent PTH and is the optimal wellness of individuals. Therefore, individuals in this group can perform emotional vitality as well as good psychological and social functions. It can be forecasted that they will suffer no mental illness in the near future (12 months) (Keyes, 2007; Wang et al., 2011).

Why Is Mental Health Important?

The magnitude, suffering and burden in terms of disability and costs for individuals, families and societies, due to mental disorders, are substantial.

According to World Health Organization, one in four people in the world will be affected by mental or neurological disorders at some point in their lives. Around 450 million people currently suffer from such conditions, placing mental disorders among the leading causes of ill-health and disability worldwide. Depressive disorders are already the fourth leading cause of the global disease burden. They are expected to rank second by 2020, behind ischaemic heart disease but ahead of all other diseases. The burden of mental disorders is expected to rise significantly over the next 20 years (WHO, 2001).

Mental disorders affect several domains of daily functioning, with considerable limitations in personal and social life, but also with dramatic cutbacks in work productivity. Mood and anxiety disorders were associated with substantial levels of disability. Social, emotional and physical domains were affected (Bonnewyn et al., 2005). Problems with physical health, such as chronic diseases, can have a serious impact on mental health and decrease a person's ability to participate in treatment and recovery (Lando et al., 2006; Healthy People, 2018).

The poor often bear the greater burden of mental disorders, both in terms of the risk in having a mental disorder and the lack of access to treatment. Constant exposure to severely stressful events, dangerous living conditions, exploitation, and poor health in general all contribute to the greater vulnerability of the poor (WHO, 2001).

4. Mental Disorders, Stigma, and Human Rights

Mental disorders are inextricably linked to human rights issues. Persons with mental disorders often suffer a wide range of human rights violations and social stigma. In many countries, people with mental disorders have limited access to the mental health treatment and care they require, due to the lack of mental health services in the area in which they live or in the country as a whole (WHO, 2003).

WHO Atlas Survey showed that 65% of psychiatric patients are in mental hospitals where conditions are extremely unsatisfactory. Many psychiatric institutions have inadequate, degrading and even harmful care and treatment practices, as well as unhygienic and inhuman living conditions. Poor treatment of mentally ill violates their human rights (WHO, 2003; VOA, 2011).

For example, people can be overmedicated to keep them docile and easy to manage. There have been documented cases of people being tied to logs far away from their communities for extensive periods of time and with inadequate food, shelter or clothing. They can be locked in cells or restrained for days and months without food and water, without any human contact and leaving people to urinate and defecate in the very places where they are sleeping (WHO, 2003; VOA, 2011).

Often people are admitted to and treated in mental health facilities against their will. Issues concerning consent for admission and treatment are often ignored, and independent assessments of capacity are not undertaken. This means that

people can be locked away for extensive periods of time, sometimes even for life, despite having the capacity to decide their future and lead a life within their community. Inpatient places should be moved from mental hospitals to general hospitals and community rehabilitation services (WHO, 2003).

For example, “pasung”, an Indonesian term referring to a confinement for people with mental illness, remains awfully existent in Indonesia. Being a developing country, a large chunk of less privileged families do not find a better way than chaining mentally ill people or hemming them in somewhere for an unknown time span. Due to lack of education and wrong belief, mental illness is sometimes considered as a punishment from Almighty (Azeem, 2013). Figure 2 shows “pasung”, the practice of confinement for people with mental illness (Azeem, 2013).



Figure 2 “Pasung”, a confinement for mentally ill. Source: Azeem, 2013

According to a study, the main reason for increasing practice of pasung in Indonesia refers to the lack of governmental interest in this issue and thereby much of the illness burden is born by the affected families and communities. Government supply of the needed psychiatric assistance is lacking (Azeem, 2013).

5. Prevention and Treatment of Mental Health

Treatments are available, but nearly two-thirds of people with a known mental disorder never seek help from a health professional. Some mental disorders can be prevented; most mental and behavioral disorders can be successfully treated; and that much of this prevention, cure and treatment is affordable (WHO, 2001).

Despite the chronic and long-term nature of some mental disorders, with the proper treatment, people suffering from mental disorders can live productive lives and be a vital part of their communities. Over 80% of people with schizophrenia can be free of relapses at the end of one year of treatment with antipsychotic drugs combined with family intervention. Up to 60% of people with depression can recover with a proper combination of antidepressant drugs and psychotherapy. Up to 70% of people with epilepsy can be seizure free when treated with simple, inexpensive anticonvulsants (WHO, 2001). The Dual-Factor

Model of Mental Health has its practical implications for psychological prevention and intervention. The DFM emphasizes positive prevention and advocates to use the aforesaid two-dimensional (PTH and SWB) classification standard to identify which individual need improve the SWB in order to actively prevent mental illness and which individual need intervention, especially to identify incompletely mentally healthy group and those suffering incomplete mental illness, so as to effectively solve the problem that traditional one-dimensional PTH indicator system eliminates incomplete mental health from prevention and intervention and to make such prevention and intervention more specific and better targeted (Suld dan Shaffer, 2008).

6. Investment in Mental Health

World Health Organization reports that mental health efforts are under-invested. The size and effectiveness of the investment in mental health do not match with the magnitude of mental health burden. Currently, more than 33% of countries allocate less than 1% of their total health budgets to mental health, with another 33% spending just 1% of their budgets on mental health. About 25% of countries do not have sufficient medicines to treat schizophrenia, depression and epilepsy at the primary health care level. There is only one psychiatrist per 100 000 people in over half the countries in the world, and 40% of countries have less than one hospital bed reserved for mental disorders per 10 000 people (WHO, 2001).

As former WHO Director General, Lee Jong-wook, has emphasized it, there is an urgent need to increase investment in mental health including financial and human resources. A higher proportion of national budgets should be allocated to developing adequate infrastructure and services for mental health. At the same time, more human resources are needed to provide care for those with mental disorders and to protect and promote mental health (WHO, 2003).

Investment in mental health should be able to provide services, treatment, and support to the nearly 450 million people suffering from mental disorders larger than they receive at present. This investment should include services that are more effective and more humane; treatments that help them avoid chronic disability and premature death; and support that gives them a life that is healthier and richer – a life lived with dignity. Greater financial returns can be expected from increased productivity and lower net costs of illness and care (WHO, 2003).

As mentioned earlier, the stigma, discrimination, and human rights violations that individuals and families affected by mental disorders suffer are intense and pervasive. At least in part, these phenomena are consequences of a general perception that no effective preventive or treatment modalities exist against these disorders (WHO, 2004). However, mental health issues can not be addressed by the provision of needed health care alone. Effective prevention can do a lot to alter these perceptions and hence change the way mental disorders are looked upon by society. However, human rights issues go beyond the specific violations that people with mental disorders are exposed to. In fact, limitations on the

basic human rights of vulnerable individuals and communities may act as powerful determinants of mental disorders. Hence it is not surprising that many of the effective preventive measures are harmonious with principles of social equity, equal opportunity and care of the most vulnerable groups in society (WHO, 2004).

Examples of these interventions include improving nutrition, ensuring primary education and access to the labor market, removing discrimination based on race and gender, and ensuring basic economic security. Many of these interventions are worth implementing on their own merit, even if the evidence for their effectiveness for preventing specific mental disorders is sometimes weak (WHO, 2004).

As Benedetto Saraceno, Director Department of Mental Health and Substance Abuse, World Health Organization, Geneva, reminds it, the search for further scientific evidence on effectiveness and cost-effectiveness should not be allowed to become an excuse for non-implementation of urgently needed social and health policies. Indeed, innovative methods need to be found to assess the evidence while these programmes are designed and implemented. These methods should include qualitative techniques derived from social, anthropological and other humanistic sciences as well as stakeholder analysis to capture the complexity and diversity of the outcomes (WHO, 2004).

One of the models that has been developed to enhance positive population mental health is to support a flourishing, resilient and healthy community that cares for one another, to research and discuss mental health and wellness, to employ quality resources when required, and to realize positive mental health potential collectively. Specific characteristics of the model are as follows (Concordia University of Edmonton, 2018):

1. Promoting strategies and programs for mental health and wellness
2. Reducing stigma through awareness, education, and dialogue
3. Developing early recognition systems for mental illness
4. Aligning policies and procedures with the vision for promoting community-wide mental health
5. Developing sustainable processes and structures to manage issues related to mental illness
6. Providing direct service and support with individuals suffering from mental illness.

7. Summary

The suffering and burden of mental disorders are sizable and are expected to rise significantly over the next decades. The World Health Organization calls the abusive conditions endured by people with mental health conditions a hidden human rights emergency.

The Dual Factor Model of mental health can help distinguish the complete state from incomplete state of mental illness and mental health and make diagnosis, which will generate more effective prevention and intervention plans and thus improve the standards on relieving psycho-pathology syndromes.

Stakeholders of population mental health, including government, international agencies, non-government organizations, private sector, health professionals, social organizations, society, academics, and researchers, all together have yet to pay more attention and exert their efforts to address the current and growing mental health challenges.

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MISSIONS

International Conference on Public Health (ICPH) is a scientific meeting bringing together government leaders, policy makers, academicians, health planners, public health professionals, health practitioners, researchers, allied health students, to address, discuss, and solve issues of public health importance, at global, regional, national, and local levels.

THEME

“Promoting Population Mental Health and Well-Being”

AIM

The 5th ICPH seeks to address issues on how to prevent mental disorders in the communities and to improve population mental health by implementation of urgently needed social and economic policies that redress inequity, by creating supportive social environment, and by ensuring access to appropriate, quality mental health services.

OBJECTIVES

To discuss the complex issues relating to the mental health and welfare population including staff shortages, uneven distribution of staff, gaps in skills and competencies, low retention and poor motivation, and other challenges.

1. To describe policy and priorities for ensuring equity of access to primary mental health and well-being
2. To discuss health promotion strategies to address health issues among the Indonesian about mental health and well-being”
3. To discuss strategies for improvement in the recruitment and retention of skilled and motivated personnel in mental health and well-being (including education, regulation, finance incentives, personal and professional development support)
4. To identify social, economic, cultural, behavioral determinants of mental health and well-being
5. To identify barriers and assign appropriate interventions for mental health and well-being
6. To develop effective partnerships with other providers and community agencies to build a cross-continuum infrastructure that will support population health endeavors mental health and well-being
7. To improve mental health services and mental well-being for the people of Indonesia
8. To describe the potential and application of information and communication technology to better serve people who have mental health problems and their well-being

VENUE AND DATE

1. Conference
Best Western Premier Hotel, Solo, Indonesia.
Date: February 13-14, 2019.
2. Excursion
Borobudur Temple, Magelang and Prambanan Temple, Yogyakarta
Date : February 16, 2019

PARTICIPANTS

National and local leaders, social and health policy makers, health planners, public health professionals, psychiatrists, primary care doctors, allied health practitioners, social workers, allied health students, researchers, and academicians.

CURRICULUM VITAE

Prof. Helen Herrman. Professor Helen Herrman is a psychiatrist and public health physician. She is Professor of Psychiatry and Director of Research at Orygen Youth Health Research Centre and the Centre for Youth Mental Health, The University of Melbourne; and Director of the WHO Collaborating Centre for Mental Health in Melbourne. She is an NHMRC Practitioner Fellow, and Honorary Fellow of the World Psychiatric Association. She is also President-Elect of the Pacific Rim College of Psychiatrists, and Vice President of the International Association of Women's Mental Health. In 2013, she was inducted into the Victorian Honour Roll of Women. From 1992 to 2005, Helen was Professor and Director of Psychiatry in St Vincent's Health Melbourne and The University of Melbourne, with responsibility for the clinical services and academic programs at SVH during development of an integrated community mental health service within Australia's national reform of mental health. In 2001-2002 she acted as regional adviser in mental health for WHO's Western Pacific Region. Her research program focuses on clinical and social psychiatry.

Prof. Joanna Nurse. As a Strategic Advisor to the InterAction Council, Joanna is advancing a collaborative partnership on 'One Health for People and Planet'. This builds upon her former role as Head of Health and Education for the Commonwealth, providing strategic leadership to Ministers across 52 countries, strengthening national systems and capacity for the Education and Health Sectors to enhance security and sustainable development. From 2005-2014, Joanna worked for the UK Government, and during this time, as national lead for Public Mental Health and Well-Being, developed multi-sector policies across the life-course, to promote wider well-being. From 2010, Joanna worked for the WHO, strengthening capacity on national climate change assessments and strategies in Central Asia; this built upon her earlier national responsibility for heat-wave and cold weather planning. Joanna then led on the implementation of the European Action Plan for Public Health, creating partnerships to strengthen public health systems across 53 countries; this was further developed into the World Federation of Public Health Associations 'Charter for the Public's Health' and Implementation tool. Over her career, Joanna has gained experience at local, regional, national and international levels, on addressing inequalities and tackling the social and environmental determinants of health. Across her career, Joanna has gained community based experience working in India, Mexico, Central America and Europe, and in 2003 worked with the WHO in Geneva on gender and violence prevention. Initially qualifying as a medical doctor and training in Primary Health Care, before specialising in Public Health and more latterly, receiving a PhD on Policy.

Prof. Nicola Reavley. Prof Nicola Reavley is a Principal Research Fellow in the Melbourne School of Population and Global Health at the University of Melbourne. Her research focuses on improving public knowledge and beliefs about mental health problems, reducing stigma and discrimination and improving support for those with mental disorders. Prof Reavley is a Chief Investigator on five NHMRC-funded projects, three of which aim to improve mental health literacy in members of the public. She also led a number of projects that aim to assist organisations to better manage mental health issues, including the development of guidelines for implementation of a strategy for the prevention of mental health problems and for supporting employees returning to work after an episode of anxiety or depression, which can be found at <http://workplace-mentalhealth.net.au/>. She also led the conduct of the 2011 National Survey of Mental Health Literacy and Stigma and the 2014 National Survey of Discrimination and Positive Treatment in People with Mental Health Problems.

Dr. Anne-Claire Stona. She is a Senior Healthcare Policy Analyst & Advisor in improving global mental health through effective policy making and innovation. She is a fascinating CV with an over-arching area of expertise. She is medical professional with extensive experience in healthcare policy development, innovation choices, policy execution, and monitoring. She has more than 5 years of international experience in healthcare policy-making and execution including more than 10 years in education and academic environment in France and London. She has completed your medical degree at French Medical School followed by double masters, one from France and another from London along with two diplomas from France. She hold Global Mental Health MSc, Public Health, from London School of Hygiene and Tropical Medicine, and Kings College of London. She possess exceptional knowledge and a thorough understanding of public health, global mental health, humanitarian action and other diseases, care and culture. She continually thrive in shaping strategy and galvanizing the healthcare system through innovation, culture changes and smart adoption of emergent technologies. She has a track record of formulating high impact policies through ambitious, innovative, cost-effective and evidence-based social and clinical advancements. She also has a natural passion for learning new things, meeting diverse people, exploring new countries and adopting emerging technologies. She is a motivating coach who invests in building lasting organisational and people capability and are widely recognized internally and by our agency partners for it.

Prof. Malin Erickson. Prof. Malin Eriksson was born in Ornskoldsvik on April 8, 1969. She is a Professor in Social Epidemiology, Epidemiology and Global Health Unit, Department of Public Health and Clinical Medicine, Faculty of Medicine, Umea University, Umea, Sweden.

Prof. Mehdi Ghazinour. Mehdi Ghazinour is an head of research and treatment, a socionom, certified psychotherapist and clinical supervisor. He has also been a PhD in clinical science at the Faculty of Medicine at Umeå University and is a professor of social work. For several years, he has researched different dimensions of psychological trauma.

He has, inter alia, studied individuals strategies for managing stress and trauma to understand and identify what can explain that some individuals retain their health despite traumatic life experiences while others develop psychological and psychiatric disorders. The Resource Center is run by Professor Mehdi Ghazinour who has more than 20 years of experience working with private individuals and organizations. Organizations with special focus on mental health, communication and conflict management as well as group and leadership development. He has worked for many years in developing countries on behalf of the SIDA and also participates in other international missions.

Prof. Haryono Suyono. Prof. Haryono Suyono have the last level of doctoral education at University of Chicago, USA. Agencies/ work Unit current as a Dmandiri Foundation, Former Head, National Population and Family Planning Board.

Prof. Aris Sudiyanto. He was born on January 31, 1950. He is a graduated doctor from Gajah Mada University was a consultant specialist in a psychiatric college.

Prof. Vita Ratri Cahyani. Served as a Professor in Agricultural Microbiology at Sebelas Maret University. Active lecturer at the Faculty of Agriculture and Sebelas Maret University Postgraduate Program.

Prof. Budi Anna Keliat. She is one of the lecturers at the Faculty of Nursing in the scientific group Soul Nursing and the University of Indonesia Community. She gives often enough training and becoming a mental nursing consultant at mental hospitals in Indonesia. Active in community service activities especially related to psychology. She is known as lecturers. She was born in Kuta Buluh, 5 April 1952. In 1988 she graduated S1 Nursing UI. Then she continued her Masters in Community Department at the University of Sydney at in 1990. And S3 in 2003 at FKM UI majoring in Public Health. She became Chair of BINAWAN STIKES (2002-2004). Once a speaker of Nursing Soul in Swizerland, Thailand, Australia. Her expertise in the field of the soul took her became chairman of the Community Soul Nursing Service Development Team (CMHN) at Aceh after the tsunami (2004-present). She is the principal researcher in Group Activity Therapy Dissemination (1995), Violent Behavior (1996-1997), Patient Independence (2007), and Nurse Performance (2007). He has published several books such as Therapy Group Activity (2004), Mental Nursing Process (2005), MPKP Nursing Module Soul (2005).

Prof. Adang Bachtiar. Prof. Adang Bachtiar has a doctorate degree from the Johns Hopkins School of Hygiene and Public Health. Departement of International Health Baltimore, Maryland-USA, he is a researcher with strong background in Health Policy and Management System anda also Quality Improvement in Health Care. He dedicated large study on Benefit Evaluation Study in ICDC Program, as well as focused studies on Mana-gement and Evaluation of Public Health Program.

Prof. Bhisma Murti. Prof. Bhisma was born in Kupang, on October 21, 1955. He finished his Medical Doctor (MD), Faculty of Medicine, Airlangga University, Surabaya, Indonesia. Master of Public Health (MPH) in Epidemiology and Biostatistics, Tulane School of Public Health and Tropical Medicine, New Orleans, LA, USA. Master of Science (MSc) in Health Economics, University of York, York, UK. Doctor of Philosophy (PhD) in Health Economics at Centre for Clinical Epidemiology and Biostatistics (CCEB), University of Newcastle, Australia. He is Professor in Public Health, Department of Public Health, Faculty of Medicine, Sebelas Maret University, Surakarta, Indonesia.

Head, Masters Program in Public Health, Graduate Program, Sebelas Maret University, Chair, The (National) Indonesia Epidemiology Network (JEN), Editor in Chief, The Indonesian Journal of Medicine.

Dr. Hanung Prasetya. Dr. Hanung was born in Surakarta, on April 4, 1971. He was a Hypnoterapist the copyright owner Hanung Induction is a way of putting the client with effective, comfortable and safe. Hanung Induction is already registered on the Dirjen HAKI Kemenkum HAM RI. Prasetya is actively providing training at various educational institutions, hospital even banking. Until the middle of March 2016 he has given hypnosis training on over 1800 people with a background of Diploma to doctoral degrees. Currently he is finishing an education S-3 with the topic of his dissertation is Hypnoterapi

PROGRAMS

The 5th ICPH consists of four core programs:

1. Symposium
2. Workshop
3. Oral presentation
4. Poster presentation

Participants of ICPH are welcome to submit abstracts of their research work and present in either the oral presentation or poster presentation formats. Bear in mind that all abstracts of research work in any branch of public health are welcome for submission. The abstracts include but are not restricted to the current ICPH theme “Promoting Population Mental Health and Well-Being”.

The collection of abstracts is published both in printed and electronic forms in the 5th ICPH proceedings 2019. Each abstract is assigned with Digital Object Identifier (DOI) and its metadata are sent to CrossRef. The printed ICPH proceedings are published and distributed to the participants at the time of the conference. After the conference, the electronic ICPH proceedings are downloadable from the ICPH website at www.theicph.com.

ICPH Proceedings is currently abstracted and indexed in Crossref (with DOI assigned to each abstract or article), OAIster (OCLC/ WorldCat), Indonesia One Search (IOS), Scientific Indexing Services, BASE, Neliti, Google Scholar, CABI's Global Health, Microsoft Academic Search, Academic Resource Index, ResearchGate, and Index Copernicus International (ICI), and Thomson Reuters. We are making efforts to get it abstracted and indexed in even broader international databases.

INVITED SPEAKERS

1. Symposium (Day 1)

Mental health professionals, populational health professionals, academicians, and researchers, talk on issues on how to improve population mental health and prevent mental health disorders in the communities. Speakers present the current strategies and approaches to redress population mental health, to improve access to quality mental health services, and to create supportive social environment.



Professor Helen Herrman (Australia)

President, World Psychiatric Association Professor of Psychiatry, Orygen, The National Centre of Excellence in Youth Mental Health, and Centre for Youth Mental Health, The University of Melbourne. Director WHO Collaborating Centre in Mental Health Melbourne, Victoria, Australia.

Topic: The Status of Mental Health Promotion



Prof. Haryono Suyono (Indonesia)

Former Head of the National Coordinating Board of Family Planning (BKKBN).

Former Coordinating Minister of Population Welfare, Republic of Indonesia.

Topic:

“The Role of Family Planning Program in Promoting Population Mental Health”



Professor Nicola Reavley (Australia)

Centre for Mental Health, Melbourne School of Population and Global Health | Faculty of Medicine, Dentistry and Health Sciences, The University of Melbourne, Victoria, Australia

Topic:

“Mental Health First Aid: History, Global Spread, and Cultural Adaptation”



Prof. Adang Bachtiar (Indonesia)

Chair of the Advisory Board, Indonesian Public Health Association (IAKMI) Faculty of Public Health, University of Indonesia, Jakarta.

Topic:

“New Approaches to Changing Stigmatized Attitudes and Beliefs towards Individuals with Mental Health Disorders”



Prof. Budi Anna Keliat (Indonesia)

Faculty of Nursing, University of Indonesia, Jakarta, Indonesia

Topic:

“Empowering Community to Stop “Pasung” (Confinement) of the Mentally Ill”



Professor Joanna Nurse (UK)

Strategic advisor to the InterAction Council advancing a collaborative partnership on “One Health for People and Planet”.

Medical doctor and training in primary health care, specialized in public health, and received a PhD in public policy.

Topic:

“Securing our Planet's Health - a Key to Our Own Mental Well-Being”



Prof. Aris Sudiyanto (Indonesia)

Department of Psychiatry, Dr. Moewardi Hospital/ Faculty of Medicine, Universitas Sebelas Maret, Surakarta, Indonesia

Topic:

“Development of Community Mental Health Center in Solo City to Improve Mental Health Promotion and Prevention”



Dr. Anne Claire Stona (France)

Global mental health policy maker and advisor, public health physician, working in France.

Topic:

“Effective Interventions to Reduce Mental Health-Related Stigma and Discrimination in the Medium and Long Term”



Professor Malin Eriksson (Sweden)

Professor in Public Health, Department of Social Work, Umeå University, Sweden.

Topic:

“Different Uses of Bronfenbrenner's Ecological Theory for Guiding Public Mental Health Policy and Practice”



Professor Mehdi Ghazinour (Sweden)

Professor at Police Education Unit, Umeå University, Sweden.

Topic:

“Trauma and Its Psychological, Psychiatric Consequences on Individuals, Groups, and Society”

2. Workshop (Day 2)

With the facilitation by the mental health professionals, populational health professionals, academicians, and researchers, workshop participants learn various strategies and approaches to prevent mental health illness and to improve population mental health. Workshop participants learn how to redress mental illness and disorders with the appropriate interventions at the individual, family, and population levels. At the workshop, participants also update their skills on how to conduct research into mental health issues, how to design and analyze data, and how to publish research papers internationally at highly reputable journals.

Workshop: Cluster A



Prof. Vita Ratri Cahyani (Indonesia)

Vice director, Academic Affairs, Graduate School, Universitas Sebelas Maret, Surakarta, Indonesia

Topic:

“How to Publish a Scientific Paper in SCOPUS Indexed International Journal”



Professor Malin Eriksson (Sweden)

Professor in Public Health, Department of social work, Umeå University, Sweden.

Topic:

“Different Uses of Bronfenbrenner's Ecological Theory for Guiding Public Mental Health Policy and Practice”



Professor Mehdi Ghazinour (Sweden)

Professor at Police Education Unit, Umeå University, Sweden.

Topic:

“Trauma and Its Psychological, Psychiatric Consequences on Individuals, Groups, and Society”



Professor Nicola Reavley (Australia)

Centre for Mental Health, Melbourne School of Population and Global Health | Faculty of Medicine, Dentistry and Health Sciences, The University of Melbourne, Victoria, Australia

Topic:

“Mental Health First Aid: History, Global Spread, and Cultural Adaptation”

Workshop: Cluster B



Dr. Hanung Prasetya (Indonesia)

Secretary, International Conference on Public Health.

Founder and Owner, Sinergy Mind Health Indonesia. International Licensed Master Practitioner of NLP, from The Society of NLP, USA. Lecturer, School of Health Polytechnics, Ministry of Health, Surakarta, Indonesia.

Topic: “How to Heal Online Game Addiction”

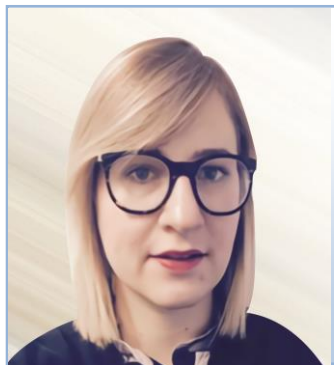


Professor Joanna Nurse (UK)

Strategic advisor to the InterAction Council advancing a collaborative partnership on “One Health for People and Planet”.

Topic:

“Medical doctor and training in primary health care, specialized in public health, and received a PhD in public policy”



Dr. Anne Claire Stona (France)

Global mental health policy maker and advisor, public health physician, working in France.

Topic:

“How to Conduct and Publish Systematic Review/ Meta-Analysis of Health Studies”



Prof. Bhisma Murti (Indonesia)

Chair, International Conference on Public Health.

Head, Master Program in Public Health, Graduate School, Universitas Sebelas Maret, Surakarta, Indonesia

Topic:

“How to Apply Structural Equation Model in Stata to Analyze Health Data”

3. Oral Presentation

This program provides an opportunity for all participants to present their research work in oral presentation format. Participants with research work in any branch of public health are encouraged to submit their abstracts online or by email, particularly those abstracts of original research that address rural and remote health issues.

Participants are expected to email abstracts in either English or Indonesian language with correct grammar, sentence structure, and standard format of abstract (Background, Subject and Methods, Results, and Conclusion) to the ICPH Secretariat. The length of abstract is 250-350 words.

The ICPH committee will screen each abstract for eligibility and review the appropriateness and scientific significance of the abstract. The ICPH committee decide if an abstract is accepted for oral presentation.

If the abstract is accepted, the author is expected to present in English language as this conference is international. Normally duration of each oral presentation is 10 minutes with 5 minutes of discussion/ question and answer. Time schedule of oral presentation will appear in the ICPH proceedings. It covers information on time of presentation, abstract title, name of the author (and co-authors), and presentation room. Oral presentation is carried out on Day 2 of the conference in parallel with the workshop sessions.

The branches of public health about which the participants can submit their abstracts include, but not limited to, the following:

1. Epidemiology and Public Health
2. Health Promotion and Behavior
3. Maternal and Child Health
4. Health Policy and Management
5. Medicine

The collection of abstracts is published in the ICPH proceedings 2019 with digital Object Identifier (DOI) assigned to each abstract. The proceedings is published in printed form and distributed to the participants as well as uploaded online in the ICPH website at www.theicph.com. The printed ICPH proceedings, usually with glossy paper, are distributed to the participants at no extra cost on Day 1 of the conference just before the symposium begins, and are put inside the seminar kit.

Upon completion of the conference, authors of the accepted abstracts for oral or poster presentation may wish to submit and publish their full papers in one of the international open access peer-reviewed journals managed by the Master

Program in Public Health, Universitas Sebelas Maret, as follows:

1. Journal of Epidemiology and Public Health: <http://www.jepublichealth.com>
2. Journal of Health Promotion and Behavior:
<http://www.thejhp.com>
3. Journal of Maternal and Child Health
<http://www.thejmch.com>
4. Journal of Health Policy and Management
<http://www.thejhpm.com>
5. Indonesian Journal of Medicine
<http://www.theijmed.com>

4. Poster Presentation

This program provides an opportunity for all participants to present their research work in poster format. Participants with research work in any branch of public health area encouraged to submit their abstracts online or by email, particularly those abstracts of original research that address rural and remote health issues.

Authors of the poster presentation are expected to email abstracts in either English or Indonesian language with appropriate grammar, sentence structure, and standard abstract format (Background, Subject and Methods, Results, and Conclusion) to the ICPH Secretariat. In addition, they are also expected to email relevant high-resolution pictures describing their research work. The ICPH committee will do the remaining job, including poster printing and poster fixing on the stand. No additional cost is charged for this service.

The branches of public health about which the participants can submit their abstracts for poster presentation include, but not limited to, the following:

1. Epidemiology and Public Health
2. Health Promotion and Behavior
3. Maternal and Child Health
4. Health Policy and Management
5. Medicine

SCHEDULE OF INTERNATIONAL CONFERENCE ON PUBLIC HEALTH 2019

Best Western Premier Hotel, Solo, Indonesia
February 13-14, 2019

Symposium Schedule

Date: Wednesday, February 13, 2019

| No | Time | Topic | Speaker/Moderator |
|----|-------------|---|---|
| 1 | 07.30-08.00 | Registration | Organizing Committee |
| 2 | 08.00-08.05 | 1. Commencement Ceremony 2. National Anthem "Indonesia Raya" | Master of Ceremony |
| 3 | 08.05-08.10 | Aim and Programs of the International Conference on Public Health. | Prof. Bhisma Murti, dr., MPH., M.Sc., Ph.D (Professor, Masters Program in Public Health, Graduate School, Universitas Sebelas Maret Chairman, ICPH). |
| 4 | 08.10-08.15 | Welcoming Address from the Rector of Universitas Sebelas Maret. | Prof.Dr. Ravik Karsidi, M.S. (Rector of Universitas Sebelas Maret, Surakarta, Indonesia). |
| 5 | 08.15-08.20 | Pray | |
| 6 | 08.20-09.00 | Coffee Break | |
| 7 | 09.00-09.35 | Symposium I The Status of Mental Health Promotion | Speaker: Professor Helen Herrman (Australia) (President, World Psychiatric Association Professor of Psychiatry, Orygen, The National Centre of Excellence in Youth Mental Health, and Centre for Youth Mental Health, The University of Melbourne. Director WHO Collaborating Centre in Mental Health Melbourne, Victoria, Australia) Moderator: Prof. Bhisma Murti, dr., MPH., M.Sc., Ph.D |
| 8 | 09.35-10.10 | The Role of Family Planning Program in Promoting Population Mental Health | Speaker : Prof. Haryono Suyono (Indonesia) Former Head of the National Coordinating Board of Family Planning (BKKBN). Former Coordinating Minister of Population Welfare, Republic of Indonesia. |

| No | Time | Topic | Speaker/Moderator |
|----|-------------|---|---|
| | | | Moderator: Prof. Bhisma Murti , dr., MPH., M.Sc., Ph.D |
| 9 | 10.10-10.45 | Mental Health Literacy: Why It Matters, How to Measure It and How to Improve It | Speaker : Professor Nicola Reavley (Australia) (Centre for Mental Health, Melbourne School of Population and Global Health Faculty of Medicine, Dentistry and Health Sciences, The University of Melbourne, Victoria, Australia) Moderator: Prof. Bhisma Murti , dr., MPH., M.Sc., Ph.D |
| 10 | 10.45-11.10 | New Approaches to Changing Stigmatized Attitudes and Beliefs towards Individuals with Mental Health Disorders | Speaker : Prof. Adang Bachtiar (Chairman of the Advisory Board, Indonesian Association of Public Health Professionals (Ikatan Ahli Kesehatan Masyarakat Indonesia/ IAKMI). Faculty of Public Health, University of Indonesia, Jakarta, Indonesia). Moderator: Prof. Bhisma Murti , dr., MPH., M.Sc., Ph.D |
| 11 | 11.10-11.45 | Discussion | Speaker : Prof. Helen Herrman (Australia) Prof. Haryono Suyono (Indonesia) Prof. Nicola Reavley (Australia) Prof. Adang Bachtiar Moderator: Prof. Bhisma Murti , dr., MPH., M.Sc., Ph.D |
| 12 | 11.45-12.45 | Lunch Break | |
| 13 | 12.45-13.20 | Symposium II Empowering Community to Stop “Pasung” (Confinement) of the Mentally Ill | Speaker : Prof. Budi Anna Keliat (Indonesia) (Faculty of Nursing, University of Indonesia, Jakarta, Indonesia) Moderator: CSP Wekadigunawan, dr., MPH., Ph.D |

| No | Time | Topic | Speaker/Moderator |
|----|-------------|--|--|
| 14 | 13.20-13.55 | Securing our Planet's Health - a Key to Our Own Mental Well-Being | Speaker : Professor Joanna Nurse (UK) Strategic advisor to the InterAction Council advancing a collaborative partnership on “One Health for People and Planet”. Medical doctor and training in primary health care, specialized in public health, and received a PhD in public policy. Moderator: CSP Wekadigunawan, dr., MPH., Ph.D |
| 15 | 13.55-14.30 | Development of Community Mental Health Center in Solo City to Improve Mental Health Promotion and Prevention | Speaker : Prof. Aris Sudiyanto (Indonesia) (Department of Psychiatry, Dr. Moewardi Hospital/ Faculty of Medicine, Universitas Sebelas Maret, Surakarta, Indonesia) Moderator: CSP Wekadigunawan, dr., MPH., Ph.D |
| 16 | 14.30-14.55 | Discussion | Prof. Budi Anna Keliat (Indonesia) Professor Joanna Nurse (UK) Prof. Aris Sudiyanto (Indonesia) Moderator: CSP Wekadigunawan, dr., MPH., Ph.D |
| 15 | 14.55-15.10 | Coffee Break | |
| 16 | 15.10-15.45 | Symposium III Effective Interventions to Reduce Mental Health-Related Stigma and Discrimination in the Medium and Long Term | Speaker : Dr. Anne Claire Stona (France) (Global mental health policy maker and advisor, public health physician, working in France). Moderator: CSP Wekadigunawan, dr., MPH., Ph.D |
| 17 | 15.45-16.20 | Different Uses of Bronfenbrenner's Ecological Theory for Guiding Public Mental Health Policy and Practice | |
| 18 | 16.20-16.55 | Trauma and Its Psychological, Psychiatric Consequences on Individuals, Groups, and | Speaker : Professor Mehdi Ghazinour (Sweden) Professor at Police Education |

| No | Time | Topic | Speaker/Moderator |
|----|-------------|---------------|--|
| | | Society | Unit, Umeå University, Sweden. Moderator: CSP Wekadigunawan, dr., MPH., Ph.D |
| 18 | 16.55-17.10 | Discussion | Dr. Anne Claire Stona (France) Professor Malin Eriksson (Sweden) Professor Mehdi Ghazinour (Sweden) Moderator: CSP Wekadigunawan, dr., MPH., Ph.D |
| 19 | 17.10-17.15 | Closing day 1 | |

SCHEDULE OF INTERNATIONAL CONFERENCE ON PUBLIC HEALTH 2019

Best Western Premier Hotel, Solo, Indonesia
February 13-14, 2019

Workshop Schedule

Date: Thursday February 14, 2019

Cluster A

| No | Time | Topic | Resource Person |
|----|-------------|--|--|
| 1 | 07.30-09.00 | | Prof. Dr. Agr. Sc. Ir. Vita Ratri Cahyani, Mp (Indonesia) Moderator: dr. Faradhila Mirshanti, MPH |
| | 09.00-09.15 | Coffee Break | |
| 2 | 09.15-10.45 | How to Apply Grounded Theory Approach to Address Mental Health Issues in a Qualitative Research | Professor Malin Eriksson (Sweden) Professor in Public Health, Department of social work, Umeå University, Sweden. Moderator: dr. Faradhila Mirshanti, MPH |
| 3 | 10.45-12.15 | The Relationship between Traumatic Stress, Family Resilience, Individual Resilience, and Mental Health | Professor Mehdi Ghazinour (Sweden) Professor at Police Education Unit, Umeå University, Sweden. Moderator: dr. Faradhila Mirshanti, MPH |
| | 12.15-13.15 | Lunch Break | |
| 4 | 13.15-15.00 | Mental Health First Aid: History, Global Spread, and Cultural Adaptation | Professor Nicola Reavley (Australia) Centre for Mental Health, Melbourne School of Population and Global Health Faculty of Medicine, Dentistry and Health Sciences, The University of Melbourne, Victoria, Australia Moderator: Aquartuty Tri Damayanti, MKM |
| 5 | 15.00-15.30 | coffe break | |
| 6 | 15.30-17.00 | Kecak dance | |

Cluster B

| No | Time | Topic | Resource Person |
|----|-------------|---|---|
| 1 | 07.30-09.00 | How to Heal Online Game Addiction | Dr. Hanung Prasetya (Indonesia) (Lecturer, School of Health Polytechnics Surakarta, Ministry of Health, Surakarta, Indonesia Certified Consultant Hypnotist from National Guild Hypnotists, USA. Founder/ Owner Sinergy Mind Health Indonesia. Secretary, ICPH). Moderator: Aquartuty Tri Damayanti, MKM |
| | 09.00-09.15 | Coffee Break | |
| 2 | 09.15-10.45 | How to Develop Safe Urban Design to Save Money and Improve Mental Health | Professor Joanna Nurse (UK) Strategic advisor to the InterAction Council advancing a collaborative partnership on “One Health for People and Planet”. Medical doctor and training in primary health care, specialized in public health, and received a PhD in public policy. Moderator: dr. Mardhatillah, MKM |
| 3 | 10.45-12.15 | How to Conduct and Publish Systematic Review/ Meta-Analysis of Health Studies | Dr. Anne Claire Stona (France) Global mental health policy maker and advisor, public health physician, working in France Moderator: dr. Vitri Widyaningsih, Ms., P.hD |
| | 12.15-13.15 | Lunch Break | |
| 4 | 13.15-15.00 | How to Apply Structural Equation Model in Stata to Analyze Health Data | Prof. Bhisma Murti (Indonesia) Chair, International Conference on Public Health. Head, Master Program in Public Health, Graduate School, Universitas Sebelas Maret, Surakarta, Indonesia Moderator: dr. Vitri Widyaningsih, Ms., P.hD |
| 5 | 15.00-15.30 | Coffee Break | |
| 6 | 15.30-17.00 | Kecak dance | |



Prof. Malin Eriksson

A. Different uses of Bronfenbrenner's ecological theory in public mental health research: what is their value for guiding public mental health policy and practice?

Professor in Public Health, Department of Social Work, Umeå University, Sweden

Introduction

Mental health is an integral part of health, defined as “a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community” (WHO 2014). Thus, mental health is more than just the absence of mental disorders or disabilities but a fundamental for good quality of life (WHO 2012). Mental illness is a growing global public health problem. The burden of mental and substance use disorders increased by 37.6% between 1990 and 2010 (Whiteford et al. 2013). In 2010, mental and substance abuse disorder accounted for 7.4% of disability-adjusted life years (DALYs) worldwide, not the least caused by depressive and anxiety disorders (Whiteford et al. 2013).

Depression alone accounts for 4.3% of the global burden of disease and is among the largest single causes of disability worldwide, particularly for women (WHO 2013). A review of the global burden of mental disorders (Kessler et al. 2007), based on data from the WHO mental health survey in 28 countries around the globe, concludes that mental disorders commonly occur in the general population worldwide, often making a debut at an early age, and are often associated with significant adverse costs to society. Since many mental disorders begin in childhood and adolescence (Kessler et al. 2007), early detection and interventions are needed. Given the magnitude of mental health problems worldwide, improvements in population health are only possible if countries make prevention of mental health disorders a public health priority (Whiteford et al. 2013).

Determinants of mental health and illness include individual, social and societal factors, and their interaction with each other (Sturgeon 2007). Thus, mental health needs to be understood from biological, psychological as well as sociocul-

tural perspectives (Kendler 2008), and in order to prevent mental illness and promote mental health, there is a need to simultaneously target several multi-layered factors (WHO 2012). Consequently, a broad public health perspective is needed to promote mental health and prevent mental illness (WHO 2005). Public mental health promotion focuses on the social determinants of health in order to strive for positive mental health for all (Jane´-Llopis et al. 2005). The need for a holistic approach in (mental) health promotion and intervention has been underlined in several international health documents, not the least in the Alma Ata Declaration (WHO 1978), the Ottawa Charter (WHO 1986) and later by the WHO Commission on the Social Determinants of Health (CSDH, WHO 2008). However, in order to clearly understand and act upon these multilayered and interacting social and biological processes that determine mental health, theory is crucial.

Theory offers understandings of the causal pathways between various factors and health and disease, and can thus guide the planning and design of public mental health interventions. Despite this, the use of theory in epidemiology and public health research and interventions is still quite sparse (Krieger 2001). Further, despite the renewed interest in the social determinants of health, the dominant theories in epidemiology and public health have so far mainly been biomedical or lifestyle oriented, implying a focus on individual-level exposures, behaviours and interventions (Krieger 2014). There is clearly a need for theories embracing the complex and multifaceted pathways in mental health, in order to be useful for guiding public mental health policy and practice. An ecological approach to public mental health An ecological perspective offers a way to simultaneously emphasize both individual and contextual systems and the interdependent relations between these two systems, and thus offers a variety of conceptual and methodological tools for organizing and evaluating health-promotion interventions (Stokols 1996).

From a public (mental) health perspective, ecological thinking is appealing since it encompasses several contexts in a very broad sense, including trends such as globalization, urbanization and environmental change, together with (but not solely focusing on) attributes and behaviours of individuals—all relevant aspects for understanding and determining public health (McLaren and Hawe 2004). Ecological theories emanate from many disciplines, but health research has mainly been influenced by psychology, including community and developmental psychology (Richard et al. 2011). The developmental psychologist, Urie Bronfenbrenner, stands out as one of the most influential contributors to ecological thinking in health research. Influenced by his mentor, Kurt Lewin, Bronfenbrenner (1977) started to develop his ecological theory as a new theoretical perspective for understanding human development. His theory underwent significant changes since its first inception during the late 1970s, as he constantly revised the theory until his death in 2005. Even though Bronfenbrenner developed his theory to understand human development, it has been

extensively applied in many other fields including health research (see e.g. Richard et al. 2011; Grzywacz and Fuqua 2000).

The evolution of Bronfenbrenner's theory has been described in different phases (Rosa and Tudge 2013): from an ecological approach to human development during the initial phase (1973–1979), followed by a stronger emphasis on the role of the individual and developmental processes during 1980–1993. Finally, in the last phase (1993–2006), the Process–Person–Context–Time model (PPCT) was developed and described as the most appropriate research design for the theory. This development of Bronfenbrenner's theory has, however, been neglected in most studies. Tudge et al. (2009) examined 25 papers, all explicitly claiming to be based on Bronfenbrenner's theory and published in 2001 or later, and found that only four of these studies built on the latest form (PPCT) of the theory.

In this paper, we use the term “Bronfenbrenner's theory” when referring to any of the versions of his theory, and elsewhere we specify what version or concepts we refer to. Bronfenbrenner's theory is clearly appealing as a conceptual tool for guiding interventions within the field of public mental health. However, the implications that can be drawn for public mental health policy and practice might differ depending on what concepts (i.e. early or later) of the theory are utilized, and how these concepts are applied. Therefore, the aim of this paper was to examine how different concepts of Bronfenbrenner's theory have been utilized in (public) mental health research, and to analyse the value of these different uses for guiding public mental health policy and practice.

This implies that we do not intend to judge what version of the theory is the most correct to use, but rather to assess the value of using different concepts of the theory for guiding public mental health interventions. Even though Bronfenbrenner himself acknowledged the latest form of his theory as the most appropriate (Bronfenbrenner and Evans 2000), we adhere to a pragmatic view of knowledge and theory. In line with Bryant (2009), we believe that “knowledge exists in the form of statements or theories which are best seen as instruments or tools; coping mechanisms, not once-and-for-all-time truths. Rather knowledge [or theory, our note] is a web or a network of statements rather than an edifice, and the value of any form of knowledge [or theory, our note] is its usefulness and applicability which may be constrained in terms of time and place and user” (Bryant 2009, pp. 4–5). Thus, we believe that even use of earlier concepts from Bronfenbrenner's ecological theory might potentially be useful for guiding public mental health interventions.

Methodological approach

Our overall research approach was theoretical in that we examined how different concepts (i.e. earlier versus later) of Bronfenbrenner's theory have been used within the public mental health field and analysed the value of these uses for guiding public mental health policy and practice. The study was conducted in several distinct steps. Initially, we systematically read through a selection of

Bronfenbrenner's key publications (starting with earlier publications and step-wise continuing with later publications) in order to get a good overview and understanding of how his theory evolved and developed over time. Next, we identified key concepts and basic assumptions in the early and later versions of his theory that could be contrasted and compared with regard to mental health. After that, we systematically searched for published articles that have utilized Bronfenbrenner's theory within the field of mental health.

This search was conducted to identify illustrative examples of how different concepts of his theory have been applied in mental health research. We searched for articles in the database Web of Sciences, using the following search terms: "Bronfenbrenner" AND "mental health" (topic, all years until November 9, 2015). This search resulted in 34 articles. These 34 articles were briefly read through to assess their relevance for the purpose of our study. Our criterion for selecting articles for further review was that it should be possible to identify from the article what concepts of Bronfenbrenner's theory were utilized (i.e. earlier or later concepts), even if not specifically stated by the authors. We made an independent assessment of what concepts of the theory were utilized in each paper, beyond the references used by the authors themselves. In some cases, the authors had referred, for example, to Bronfenbrenner's later texts, without using concepts of later versions of the theory.

Other inclusion criteria were that the concepts used should have been clearly described/defined and applied in the study (as opposed to only discussed in relation to results). Further, some kind of mental health indicator ought to have been used as an "outcome variable". Articles that did not fulfil these criteria were excluded from further analysis, including purely methodological and/or theoretical papers. In this way, 15 of the 34 papers were selected for further analysis. In addition, another relevant article was found in the database PubMed, using "Bronfenbrenner" as the search term (all fields, until 9 November 2015). In total, 16 relevant articles were identified, and these papers were used as a basis for analysing the value of using different concepts of Bronfenbrenner's theory for guiding public mental health policy and practice. The selected articles were summarized by content in Appendix 1. They are included in the list of references (indicated by *) and are cited below.

Analysis of selected articles

All 16 papers were read and reread thoroughly in order to identify how concepts of Bronfenbrenner's theory were utilized; the aims of using his theory within the field of mental health; study design; ecological concepts used; main findings with regard to mental health; conclusions drawn and implications for public mental health interventions (see Appendix 1 for a summary of this review). This review was then used as a basis for analysing the overall strengths and limitations of using different concepts of the theory with regard to guiding public mental health interventions.

Results and reflections

This section is structured in three parts: first, we briefly present the development of Bronfenbrenner's theory over time and compare the analytical focus between different conceptual versions of his theory, with regard to mental health. Next, we present a summary of how various concepts of Bronfenbrenner's theory have been applied in mental health research, and finally we discuss the value of these different uses of the theory for guiding public mental health interventions.

Key concepts and basic assumptions in early and later versions of Bronfenbrenner's theory

In this section, we give a brief overview of the development of Bronfenbrenner's theory during the period 1973–2006, mainly based on the three phases proposed by Rosa and Tudge (2013).

Phase 1 (1973–1979)—an ecological approach to human development During the 1970s, Bronfenbrenner named his emerging theory an “ecological model of human development” (Rosa and Tudge 2013). Ecology was defined as a fit between the individual and his/her environment. In order to develop, and not only survive, the fit between the individual and its environment must be even closer (Bronfenbrenner 1975). In this earliest stage of the theory, Bronfenbrenner described the ecological environment as composed of systems at four different levels. The microsystem contains relations between the individual and the immediate environment surrounding the individual, such as the home, school and workplace (Bronfenbrenner 1977). The mesosystem comprises interrelations between major settings containing an individual, such as relations between home and school, home and peer-groups, etc. (Bronfenbrenner 1977).

The exosystem embraces social structures—major institutions of the society—such as the world of work, the mass media and public agencies. These social structures do not themselves contain the developing person but impinge upon the immediate settings in which that person is found, and as such influence what is going on in these settings (Bronfenbrenner 1977). The macrosystem consists of the blueprints of a particular society such as laws and regulations but also unprinted rules and norms (Bronfenbrenner 1978). Analysing the composition of these ecological systems as well as interactions between and within these systems and individual factors was regarded as crucial in order to understand and explain a developmental outcome. The requirement for ecological research was to include at least two different ecological systems in the analysis to understand a particular developmental outcome (Bronfenbrenner 1975). In addition, Bronfenbrenner also emphasized ecological transitions in his early texts, i.e. shifts from one ecological context to another that every person undergoes throughout life (Bronfenbrenner 1979), such as starting school, getting a sibling, marriage, divorce, getting a new teacher, moving, etc.

Investigating the characteristics, qualities and impact of the ecological transitions an individual goes through was also proposed by Bronfenbrenner (1978) as an important part of ecological research. Phase 2 (1980–mid-1990s)—

adding biology and chronosystem into the ecological framework. During this period, Bronfenbrenner further developed ideas about how individual characteristics interplay with context. In a paper from 1994 about the relation between nature and nurture, Bronfenbrenner and Ceci state that genetic material is not finished traits, but interacts with environmental experiences in determining developmental outcomes. According to them (Bronfenbrenner and Ceci 1994) human development involves interaction between the biological and psychological person and his/her environments, and the realization of human potential requires an intervening mechanism that connects the inner with the outer in a two-way process occurring over time.

During this phase, Bronfenbrenner put more emphasis on the close and reciprocal face-to-face interactions with the child's immediate environment (Bronfenbrenner and Ceci 1994). This was later referred to as "proximal processes"—a concept that was fully developed in phase 3 (see below). During this phase, Bronfenbrenner also developed his thinking about time by adding "chronosystems" to his ecological model. Although Bronfenbrenner mentioned time already in his book from 1979, the concept of chronosystem was not added until this second phase. By adding chronosystems, Bronfenbrenner wanted to take into account changes over time, not only within the person but also in the environments in which that person is found, to investigate how these changes may affect a person's developmental outcomes (Bronfenbrenner 1986). This could entail investigating how changes in a parent's work status (part-time, full-time, etc.) over time during a child's school ages could affect patterns of parent-child communication, and how these patterns in turn could influence the child's achievement and social behaviour in school (Bronfenbrenner 1986).

Phase 3 (mid-1990s–2006)—a Process–Person–Context–Time (PPCT) model. During this final phase, Bronfenbrenner finalized his theory by developing his thinking about "proximal processes", now referred to as the "engine of development". Proximal processes involved reciprocal interaction between the developing individual and other (significant) persons, objects and symbols in his/her immediate environment, and these processes could involve activities between parents and child and child and child, such as playing, reading and learning new skills (Bronfenbrenner 1995). Proximal processes were viewed as the most powerful predictor of human development and Bronfenbrenner wanted to show how individual characteristics, together with aspects of the environment, influence proximal processes (Rosa and Tudge 2013). In specifying the nature, operation and developmental effects of proximal processes, Bronfenbrenner "re-conceptualized" the microsystem.

According to him, proximal processes operate within microsystems and involve interaction with three features of the immediate environment: persons, objects and symbols. Persons were further referred to as "significant others" by adopting Mead's terminology (Bronfenbrenner 1995). In further trying to rule out why different developmental outcomes vary between individuals, Bronfenbrenner and his colleagues (Bronfenbrenner and Ceci 1994; Bronfenbrenner 1995; Bronfenbrenner and Evans 2000) developed this hypothesis into a Process–Person–Context–Time model (PPCT), and the model was developed to guide how bioecological research best could be conducted (Rosa and Tudge 2013).

Considering Process would imply assessment of regularly occurring activities and interactions with significant persons, objects and symbols in the developing individual's lives.

Accounting for Person would require analysing how individual characteristics influence proximal processes, such as assessing how age, gender, temperament, intelligence, etc. influence these activities and interactions. Context was described as involving four interrelated systems: microsystem (the immediate environment where the developing person engages in activities and interactions, i.e. where proximal processes occur), mesosystem (interrelations among several microsystems in which that person is situated), exosystems (contexts having an indirect influence on the person) and finally, macrosystem (contexts with a shared belief system). Adding Context could thus imply evaluating the influences of different exosystems (such as parent's work or the mass media) and/or different macrosystems (such as values within cultural groups) on the proximal processes of interest. Finally, considering aspects of Time would ideally require a longitudinal study with at least two measurement points taking into account the current point of historical time (Tudge et al. 2009).

Bronfenbrenner never implied that all four elements have to be included in every study, but underlined that studies involving the PPCT model should focus on proximal processes, showing how they are influenced both by characteristics of the developing individual and by the context in which they occur (Tudge et al. 2009). Table 1 shows that the core of analysis of mental health studies applying the earliest concepts (developed in phase 1) of Bronfenbrenner's theory would be to examine how mental health is determined by mutual influence between individual factors and the ecological systems surrounding an individual/group, as well as interactions between and within these ecological systems. Further, mental health studies applying later concepts (from phase 2) of Bronfenbrenner's theory would also add chronosystem to the ecology. Finally, studies using the most mature concepts of the theory (developed in phase 3) would focus on proximal processes and applying the PPCT model. As Table 1 shows, it is also clear that the earlier phase of the theory put more emphasis on context, while the later phases put more emphasis on the closer environment.

Different uses of Bronfenbrenner's theory in mental health research

From the 16 reviewed articles, we were unable to identify articles that could be regarded as "purely" using concepts from just one of the identified phases of the theory, as outlined by Rosa and Tudge (2013). This probably reflects a general unawareness of how Bronfenbrenner's theory developed over time, a fact also noted by others (Tudge et al. 2009; 2016). Instead, we found three main ways of using concepts from Bronfenbrenner's theory within our 16 reviewed papers. One set of papers (N = 10) used the concepts of ecological system (of which five also included chronosystem) without investigating interactions between these systems, while another set of papers used the concepts of ecological systems by also investigating interactions within and between these systems (N = 4). Another limited set of papers (N = 2) utilized the later concepts of proximal processes and the PPCT model. Two of the reviewed articles (Mutumba and Harper

2015; Romano et al. 2015) used concepts of Bronfenbrenner's theory (at least partly) in conjunction with other theoretical frameworks, while the others were based solely on concepts from Bronfenbrenner's theory. Table 2 summarizes how the theory has been utilized within these three identified groups of articles with regard to the purpose of using Bronfenbrenner's theory; study designs; concepts utilized; main results; implications for public mental health policy and interventions; and strengths and weaknesses for guiding public mental health policy and practice.

Table 2 Overview of how different concepts of Bronfenbrenner's theory are used in mental health research: purpose of using the theory, overall study designs, concepts utilized, main results and implications for policy and practice.

Table 1 A comparison of analytical focuses for different versions of Bronfenbrenner’s theory with regard to mental health

| Bronfenbrenner’s theory | | | |
|-----------------------------------|---|---|---|
| | Phase 1 | Phase 2 | Phase 3 |
| Key concepts | Ecological systems—Micro, Meso, Exo, Macro Ecological transitions | Chronosystems | Proximal processes |
| Core of | How different ecological systems and interactions within and between these systems affect the individual and the outcome in focus | How biological and psychological personal characteristics interplay with context, in particular the immediate face-to-face environment, over time | PPCT model—Process–Person–Context–Time Model How proximal processes influence the individual and the outcome in focus and how these processes are influenced by personal characteristics and the context in which they occur |
| Basic assumption in mental health | Understanding an individual’s mental health requires a pluralistic and multilevel relation perspective | Genes interacts with environmental experiences in determining mental health outcomes | Proximal processes are the most powerful predictors of mental health outcomes |

Table 2 Overview of how different concepts of Bronfenbrenner's theory are used in mental health research: purpose of using the theory, overall study designs, concepts utilized, main results and implications for policy and practice

| Bronfenbrenner's theory | | | |
|-----------------------------|--|---|--|
| | Early concepts | | Later concepts |
| | Ecological system—without considering interactions | Ecological system—considering interactions | Proximal processes PPCTmodel |
| Number of articles reviewed | 10 | 4 | 2 |
| Aims | To identify factors at different ecological levels associated with various mental health outcomes | To analyse factors at different ecological levels associated with various mental health outcomes for different population groups, as well as interactions between risk factors at various levels and cumulative effects of various risk factors | To analyse proximal factors associated with various mental health outcomes for different population groups |
| Study designs | Literature reviews Case studies | Literature reviews Cross-sectional studies | Cross-sectional studies Cohort studies |
| Ecological concepts used | Different ecological systems: micro, meso, exo, macro, and chronosystems as well as individual factors | Different ecological systems: micro- exo-, macrosystem as well as individual factors Interactions within and between systems | Proximal processes PPCT model |
| Main results | Identification of factors at various ecological levels associated with mental health outcomes | Detection of the complex interactions between various risk/protective factors and their associations with mental health outcomes Detection of how various risk factors act in cumulative manner Revealing how the effect of factors at different ecological levels may differ depending on: – Mental health outcome in focus – Gender/sex, age, and sociocultural context | Detection of the (causal) relationship between proximal factors and various mental health outcomes |

Table 2 continued

| Bronfenbrenner's theory | Early concepts | | Later concepts | |
|---|--|---|---|--|
| | Ecological system—without considering interactions | Ecological system—considering interactions | Proximal processes PPCT model | |
| Implications for public mental health interventions | Interventions need to go beyond targeting individuals to the wider social environment | Interventions need to go beyond targeting individuals to the wider social environment Interventions need to be tailored with regard to target groups and specific outcome in focus | Interventions need to go beyond targeting individuals to the wider social environment Interventions need to be tailored with regard to target groups and specific outcome in focus | Interventions need to go beyond targeting individuals to the close social environment Interventions need to go beyond targeting individuals to the close social environment |
| Strengths and limitations with regard to guiding public mental health policy and practice | <p>Strengths</p> <p>Focus on interventions in the wider social environment</p> <p>Limitations</p> <p>Unspecific recommendations for interventions. Unclear who benefits from a particular intervention and why</p> | <p>Strengths</p> <p>Focus on interventions in the wider social environment</p> <p>Specific recommendations can be drawn about what interventions are needed in order to target a specific outcome for a particular group</p> <p>Limitations</p> <p>Knowledge about the complex interactions between risk factors at various levels requires complex interventions</p> | <p>Strengths</p> <p>Specific recommendations can be drawn about what (individually based) interventions are needed in order to target a specific outcome for a particular group</p> <p>Limitations</p> <p>Focus mainly on the close/proximal context, not focused on broad public interventions</p> | |

Studies utilizing ecological systems concepts without considering interactions between and within ecological systems

Table 2 illustrates that ten out of 16 reviewed articles utilized ecological systems concepts without clearly considering interactions within and between these different ecological systems. This implies that the majority of our reviewed articles utilize Bronfenbrenner's theory in a way that was never intended by Bronfenbrenner himself, since even in his earliest writings he underlined the importance of considering interactions within and between ecological systems (Bronfenbrenner 1975). These ten studies have in common that they aim to go beyond individual risk factors for understanding various mental health outcomes, since previous studies have mainly focused on personal characteristics without considering the larger surrounding environments. Thus, these studies use concepts of Bronfenbrenner's ecological theory for identifying factors at different ecological levels that can explain the development of mental health outcomes in general (Pilgrim and Blum 2012; Aston 2014), but also more specific mental health related outcomes such as parenting capacity (Grant and Guerin 2014), bullying and peer victimization in schools (Hong and Espelage 2012; Huang et al. 2013; Upton Patton et al. 2013), school shootings (Hong et al. 2010), and sexual assaults (Campbell et al. 2009).

The concepts used in these studies are naturally different ecological systems (micro, meso, exo, macro, and chrono) as well as various individual factors. Consequently, the results from these studies end up identifying factors at different ecological levels that are positively and/or negatively associated with the particular mental health outcome in focus. Further, even if the need to consider interactions between and within ecological systems in order to understand mental health outcomes is pointed out in (some of) these studies, this is not explicitly done in the analyses. As an example, Hong and Espelage (2012) in their literature review identified risk factors at all ecological levels associated with bullying and peer victimization in school, but did not really consider interactions between these different systems beyond bringing up the fact that the associations between parent– youth relationships and bullying may differ for boys and girls. Likewise, Campbell et al. (2009) point out that the “next step” of developing a model of rape recovery would be to examine interactions across different levels of the social ecology, in order to get a comprehensive understanding.

They (Campbell et al. 2009) further discuss that the mixed results found in their review regarding the influence of individual characteristics and assault characteristics on the mental health effects of sexual assaults probably are due to unexplored cross-level interactions. The policy implications that can be drawn from these studies are consequently quite unspecific. When discussing the policy implications from their review of factors associated with school bullying and peer victimization in the People's Republic of China, Huang et al. (2013) end up in general recommendations such as the need for (1) considering individual factors (age and gender) by targeting younger children and boys in particular (since these groups are more prone to engage in bullying); (2) setting up parent education for abusive parents (micro level); and (3) restricting children's exposure to media violence (exo level). Similarly, Hong et al. (2010),

when discussing the policy implications of how to prevent school shootings, end up with unspecific recommendations such as the need for skill-building programmes for parents and youths on communication and conflict resolution (micro level); setting up of arenas where parents and teachers can meet (meso level); provision of educational material about the detrimental effects of exposure to media violence (exo level); implementing school programmes that address gun violence in school (macro level); and educating governments about the relation between social conditions and negative outcomes among immigrants (chrono level). Likewise, Yakushko and Chronister (2005) outline various counselling strategies and interventions at different ecological levels for immigrant women in the US. They suggest the importance of the counsellor valuing immigrant women's cultural experiences (individual level); assessing changes in women's family structure (micro level); strengthening existing support networks (meso and exo levels); and informing about laws that prohibit discrimination (macro level). Although these recommendations are relevant and valid, one might assume that these recommendations could have been brought up even without using an ecological theoretical framework. Likewise, Mutumba and Harper (2015) use an ecological framework to identify the risk and protective factors for mental health diseases for sexual minority youth at different ecological levels.

However, in their recommendations for treatment and support, they end up in very broad recommendation such as "developing and enforcing child protection systems", without even linking these recommendations to the ecological levels where they "belong". Thus, even though these studies bring up general suggestions for how to move beyond individual factors to also intervene in the social environment, they do not give any detailed advice on how to prevent a specific mental health outcome for a particular target group. One exception though is Pilgrim and Blum's (2012) study about the risk and protective factors for adolescents' mental and physical health in the English-speaking Caribbean. They identified that girls are more likely to experience internalizing problems, while boys are more likely to have externalizing problems. Therefore, interventions focusing on skills training for emotional regulations, coping skills for managing stress and dietary behaviour may be especially beneficial for girls, while policies advocating for reduced youth access to drugs and weapons and programmes focusing on conflict resolution skills may be especially beneficial for boys. However, beyond this example, studies utilizing early concepts of Bronfenbrenner's theory without considering interactions between and within ecological systems tend just to include many factors at various levels in a mental health-risk model, without being able to rule out the complex interactions between these factors.

These kind of results easily lead to the conclusion that "everything affects everything", which is not very helpful for health policy and planning (Grzywacz and Fuqua 2000). Studies utilizing ecological systems concepts by considering interactions within and between systems. Four of the reviewed articles used a more multifaceted ecological analysis by taking into account interactions within and between ecological systems. Beyond identifying factors within different ecological systems (micro, meso, exo and macro) associated with various health

outcomes for different groups of people (e.g. based on gender, age, etc.), these articles also aim to analyse interactions between risk factors at different levels and if and how risk factors act in a cumulative manner. Thus, these studies move beyond focusing on isolated variables and contribute to an understanding of the complex interactions between various risk and/or protective factors and their effect on mental health outcomes for different groups of people. When analysing risk factors for problem behaviour among English and Indian children living in London, Atzaba-Poria et al. (2004) not only identified risk factors at different ecological levels, but also analysed how much of the risk could be attributed to each of the different ecological levels, as well as cumulative risks of various exposures.

They found that regardless of the specific type of risk, the more accumulated risks children experienced, the higher the levels of total problem behaviour. They were also able to detect how different kinds of accumulated risks (emanating from the micro, meso or exo level or individual factors) were associated with different behavioural problems (aggressive behaviour versus anxiety and depression). Likewise, Behnke et al. (2011) were able to detect how the association between factors at different ecological levels and depressive symptoms differed for girls and boys. Equally, Romano et al. (2015), in their review of the complex relationship between childhood maltreatment and later academic achievement and mental health, found that the negative consequences of childhood maltreatment seemed to be greater for boys than girls. They also found that some forms of maltreatment (early in life, multiple, neglect) seemed to be especially harmful for academic achievements. Further, McDaniel et al. (2012) explored interactions between micro and meso level interactions and found that blogging (meso level interactions) positively influenced family relations (micro level interactions) which in turn had a positive effect on maternal well-being. Thus, the positive effects of the mesosystem went through interactions with the microsystem.

The results of these studies show how the influence of different risk factors may vary for different groups and depending on the mental health outcome in focus. Thus, the recommendations for interventions that can be drawn from these studies are in general more specific. One clear example is the study by Atzaba-Poria et al. (2004). They found that interventions within the microsystem were needed in order to prevent aggressive behaviours among children, while interventions in the exosystems (peer and parental relations) were needed in order to prevent anxious and depressive behaviours among children. Behnke et al.'s study (2011) further suggests that interventions targeting adolescents' self-esteem and depressive symptoms need to be tailored differently for boys and girls; targeting neighbourhood factors might have to be especially tailored to meet the needs of boys while targeting societal discrimination has to specifically address the needs of girls. Finally, the review by Romano et al. (2015) suggests that some forms of child maltreatment—neglect, early and multiple—might be especially important to detect and intervene against in order to promote later academic achievement and mental health. These recommendations can thus be used for tailoring interventions for the specific target group and outcome in focus. Consequently, studies using Bronfenbrenner's ecological system concepts

by clearly considering interactions between and within these systems can result in recommendations that are most useful for guiding public mental health policy and practice. However, even if these recommendations might be specific, one needs to acknowledge that the recommendations might not be too easy to implement in practice since they require quite complex societal interventions.

Studies applying later concepts of the theory. We identified only two studies that have utilized the later concepts of Bronfenbrenner's theory. Our review suggests, in line with others (Tudge et al. 2009; Tudge et al. 2016), that the later version of Bronfenbrenner's theory is still less utilized in research, including the field of public mental health. Liem et al. (2010) used longitudinal data from a random sample of young people in Boston, USA, to explore differences in mental health outcomes (depressive symptoms, life satisfaction) between high school dropouts and graduates, while Williams and Nelson-Gardell (2012) used data from the US National Survey of Child and Adolescent Well-Being to examine factors predicting resilience in sexually abused adolescents. Both these studies used all or some elements from the PPCT model to analyse factors positively and negatively associated with mental health outcomes for different population groups. In these studies, proximal factors are given more "weight" for understanding mental health outcomes, although especially Williams and Nelson-Gardell (2012) also considered some more distal factors (family SES) that proved to be of equal importance in predicting clinical symptoms in sexually abused adolescents.

Both these studies found that peer and family support, in combination with an individual's capacity to accept and utilize these resources, is critical for protecting individuals against poor mental health. Thus, these studies underline the importance of a close supporting surrounding environment, and the policy recommendations, therefore, suggest interventions to support and strengthen the parent, peer and child relations. Williams and Nelson-Gardell (2012) conclude that in order to promote resilience in sexually abused adolescents, interventions focusing on caregiver support and school engagement (proximal processes) or addressing caregiver education or economic assistance (contextual factors) will be the most effective and beneficial. In summary, these studies give quite detailed guidance on (proximal) factors influencing the particular mental health outcomes in focus. However, given the weights on factors in the immediate, close environment, the recommendations that can be drawn from these studies focus mainly on interventions in the close and immediate environment, while somewhat downgrading actions are needed in the wider environment.

Conclusion—different uses of Bronfenbrenner's theory; what is their value for guiding public mental health policy and practice?

In summary, our study shows how the majority of mental health studies utilizing Bronfenbrenner's theory seem to use the early developed ecological system concepts without considering interactions within and between these systems. We do not believe that our review covers all studies within the field of public mental health that utilize Bronfenbrenner's theory. Still, it is striking that the

vast majority of the identified articles use concepts of the theory in a way that was never intended by Bronfenbrenner himself. This finding supports Tudge et al.'s (2009) conclusion that one common misuse of early versions of Bronfenbrenner's theory is that it is used to map out contextual and individual factors contributing to an outcome while not analysing mutual interactions between the individual and the context, which was the explicit intention even with the initial version of the theory. Above, we claimed a "pragmatic view of theory", implying that concepts of a theory could be potentially useful (within a specific context) even if used in a way that was never intended. However, our results show that the recommendations for public mental health policy and practice that can be drawn from these studies are not very useful in that they are too broad and unspecific for suggesting what needs to be done for whom in order to influence a particular mental health outcome. As Stokols (1996, p. 288) puts it, "overly inclusive models are not likely to assist researchers in targeting selected variables for study, or clinicians and policy-makers in determining where, when, and how to intervene". Thus, we propose that using early concepts of Bronfenbrenner's theory without considering interactions within and between different ecological systems might be a less valuable use of the theory within the field of public mental health. In contrast, our analysis shows that studies utilizing Bronfenbrenner's ecological system concepts, by clearly considering interactions within and between different ecological systems, can come up with most useful recommendations for public mental health promotion and interventions. These kinds of studies have the potential to rule out the "specific circumstances (e.g. intrapersonal, physical environmental, organizational, cultural) that account for the occurrence and prevalence of particular health problems, and a corresponding analysis of the contextual factors that are likely to influence the effectiveness of health-promotive interventions designed to reduce those problems" (Stokols 1996, p. 288).

These kinds of recommendations may suggest what works for whom to prevent a particular mental health outcome. Therefore, we conclude that studies using early concepts of Bronfenbrenner's theory, by considering interactions within and between different ecological systems, can come up with valuable results for guiding public mental health interventions. This use of the theory offers a way to simultaneously focus on intrapersonal and environmental factors and the dynamic interplay between these factors in determining mental health. This way of using early concepts of the theory therefore corresponds very well to the ecological "needs" within public (mental) health for understanding the complexity of public health problems, including social inequality in health and the effects of place on health (McLaren and Hawe 2004). In addition, using concepts of Bronfenbrenner's theory in this way is well in line with a life course and social determinants of mental health perspective that emphasizes how mental health is shaped not only by individual factors but to a great extent by the social, economical and physical environments in which people live throughout their lives (WHO and Calouste Gulbenkian Foundation 2014).

We found only two mental health studies that had utilized the later concepts of proximal processes and the PPCT model of Bronfenbrenner's theory. This is despite the fact that these concepts were stated to be the most appropriate use

of his theory (Bronfenbrenner and Evans 2000). The lack of studies utilizing these concepts might be due to the fact that this version of the theory is less known and spread in the scientific community, as indicated by Tudge et al. (2009). Alternatively, there may be a considered decision not to use these later concepts, given their main focus on proximal processes at the expense of environmental factors. Our analysis show that these final concepts do not obviously fit a public health and social determinants of mental health perspective, but might be more suitable within other fields such as psychotherapy where person-centred theories are the most appropriate to understand the structure and development of personality, taking into account dimensions of both temperament and character. The PPCT model is well in line with the ideas of Cloninger et al. (1993), who describe four dimensions of temperament: novelty seeking, harm avoidance, reward dependence, and persistence, which are independently heritable and manifest early in life. Cloninger et al. (1993) additionally describe three dimensions of character that mature in adulthood and influence personal and social effectiveness by insight learning about self-concepts.

Selfconcepts vary according to the extent to which a person identifies the self as (1) an autonomous individual, (2) an integral part of humanity, and (3) an integral part of the universe as a whole. Consequently, our study suggests that within the field of public mental health research and practice, the later concepts of Bronfenbrenner's theory might not be the most useful. The final version of his theory, with its emphasis on proximal processes and the immediate environment, lacks a clear focus on how the social, economic and cultural environments that people are exposed to influence mental health. The policy implications that can be drawn from the PPCT model thus focus much more on the individual and consequently lean towards individual health promotion models, with an emphasis on changing individual health behaviour without considering the social and organizational context. These models have previously been extensively used in health promotion but have been criticized, not least for their "victim-blaming" ideology (McLeroy et al. 1988; Baum 2008).

We should, however, remember that Bronfenbrenner was a developmental psychologist - a knowledge field with a clear focus on human growth and development in relation to age. Therefore, the latest concepts of Bronfenbrenner's theory could be seen as a return from a macro level perspective to a more individual-directed perspective where most developmental psychologists operate. In addition, one must also acknowledge that we were able to find very few articles that had tried to utilize these later, most mature concepts of Bronfenbrenner's theory. One of our two identified articles (Williams and Nelson-Gardell 2012) was also brought up in a recent re-evaluation of the uses of Bronfenbrenner's theory (Tudge et al. 2016) where it was evaluated as a study utilizing variables related to the PPCT, but without really testing the theory. The lack of illustrative examples of studies using the PPCT model limits a "fair" assessment of the value of using these concepts to guide public mental health interventions. Indeed, assessing the "influence of individual and contextual characteristics, through their influence on proximal processes" (Bronfenbrenner 1995), might be an appealing approach also in public mental health research.

We believe that further development of an ecological approach in public mental health research would benefit from exploring proximal processes, operating on a more collective level, beyond Bronfenbrenner's more individually focused approach. Finally, even if we conclude that the PPCT model might not be the most useful version of Bronfenbrenner's theory within the field of public (mental) health, we do not claim that individual factors do not matter. In fact, equally important for public mental health policy and practice is to consider the variety of personal attributes such as psychological disposition and behavioural patterns that influence mental health (Stokols 1996). An ecological perspective that can "integrate the community wide, preventive strategies of public health and epidemiology with the individual-level, therapeutic and curative strategies of medicine" (Stokols 1996, p. 286) is needed within public mental health. This dual focus both on the surrounding environment and on personal attributes for explaining and promoting mental health can be achieved by utilizing early concepts of Bronfenbrenner's ecological theory, as long as interactions between and within ecological systems and individual factors are thoroughly investigated and considered.

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A. Strategies to Manage Online Gaming Addiction at Home

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Introduction

Information and communication technologies (ICTs) have become fully integrated in people's day-to-day lives. The increasing engagement in social networking, online videogame playing, and using smartphone applications has brought about new interaction styles. One group that often uses such online applications in both positive and negative ways are adolescents (Kuss and Griffiths 2012; Kuss and Griffiths 2017).

Some contributing factors in the increasing dependence on online games, according to Syahran (2015) and Freddolino and Blaschke (2008), are internal in nature. They are associated with particular psychological mechanisms of addictive behavior that impinges on the players of online games. Among others are:

- a. Playing online games is a way to find enjoyment.
- b. Playing online games is an exploration into a new world
- c. Playing online games is an interesting way to experience different kinds of emotional upsurges

Online games enable interconnections of a number of players and therefore provide a medium for a communication through various joint activities of playing the games such as virtual fighting and shooting or sending messages. In many ways, they work like social media.

Unfortunately, frequent engagement in online games may incite one to imitate the behaviors and actions featured in them in real life such as hitting, yelling and many other kinds of misbehavior or outbursts. Excessive game playing on the Internet would certainly lead to negative impacts since playing online game is a kind of activity that encourages the player to spend long hours sitting in front of a computer and at the same time expending too much energy for experiencing all kinds of emotions typically prompted by gaming. Game addicts generally deprive themselves of adequate sleep, time to eat, physical exercise, and other social activities such as having real interactions with others (Young, 2009: 358).

World Health Organization (WHO) has classified gaming addiction as gaming disorder. Gaming disorder is defined in the 11th Revision of the International Classification of Diseases (ICD-11) as a pattern of gaming behavior (“digital-gaming” or “video-gaming”) characterized by impaired control over gaming, increasing priority given to gaming over other activities to the extent that gaming takes precedence over other interests and daily activities, and continuation or escalation of gaming despite the occurrence of negative consequences.

Online gaming addiction’s detrimental impacts on health

Brain disorders:

1. Decreasing ability to concentrate while studying; 2. Greater risk of developing autism; 3. Declining memory function; 4. Growing risk of brain atrophy or brain shrinkage; 5. Disruption to dopamine neurotransmission; 6. Brain response abnormalities; 7. Hallucination; 8. Circulation disorders such as dizziness, migraine and vertigo

Psychological disorders:

1. Behavior or attitude problems; 2. Anxiety and frustration; 3. Unruly or aberrant behavior; 4. Lack of emotional control; 5. Insomnia; 6. Aggression and agitation; 7. Tendency to lie and manipulate others; 8. Difficulty in socializing with others; 9. Poor performance in carrying out responsibilities at school, at college or at work; 10. Difficulty in evaluating reality or thinking reasonably.

Health problems related to eyes:

1. Prone to red and watery eyes; 2. Too much exposure to radiation from computer monitors; 3. Increasing eye problems; 4. Nearsightedness (myopia), farsightedness (hyperopia) and astigmatism.

Health problems related to ears, nose and throat (ENT):

1. Listening through headphones at a high volume for a long period of time can damage ears and hearing; 2. Buzzing or ringing in the ears (tinnitus) and impaired hearing; 3. Spending a long time playing video games at gaming café increases exposure to negative environmental conditions such as poor air circulation that is made worse by cigarette smoke or other air pollutants.

Internal organ problems

1. Digestion problems are generally the most frequent health problems associated with gaming addiction owing to the fact that the majority of game addicts have a habit of delaying or skipping meals or eating unhealthy food. Some common stomach- or digestion-related ailments reported are acid reflux, gastroenteritis, peptic ulcer, GERD, inflammatory bowel disease (IBD), including hemorrhoids; 2. Gaming addiction can also harm the brain. Radiation from the monitor that affects the player’s eyes could also affect his/her brain with the risk of disturbing neurotransmitter function which would in turn negatively affect hormonal functions, nervous functions and other related functions.

Addiction to online games among children usually results in these following behavioral problems:

1. **Skipping basic necessities**
Addicted children tend to not give themselves enough food, drink and sleep.
2. **Withdrawing from interactions with their peers**
Children with gaming addiction tend to spend most of their time at home playing games instead of taking part in activities with their family or with their friends.
3. **Failing to do homework and chores**
To give themselves plenty of time to play games, addicted children have a habit of neglecting their homework and chores, and it affects their performance at school which are often indicated by poor grades or other academic failures.

Strategies For Treating Gaming Addiction

There are various methods of treating online games addiction. Some of them are suggested below. (Young ,Caldwell & Cunningham, 2010)

1. **Acceptance of the addiction**
The first important step to recover one can take once he is aware of his gaming addiction is accepting it as a fact. Acceptance often requires a great deal of struggle, sincerity and determination. When he has done well in this stage, he will be ready to undertake the following treatment steps that have been planned beforehand.
2. **Changing mindset**
The process of changing negative mindset involves a serious contemplation about future goals or achievements to attain upon healing from the addiction. He can for example setting goals to achieve in 5 years' time. Setting clear goals and focusing on the envisioned achievements will steadily increase his awareness that the habit of spending long hours playing online games is a serious barrier to the accomplishment of his goals, and that the top scores he has been getting in online gaming will mean nothing for his future since they will never help him achieve educational and professional successes.
3. **Giving up 'perfectionist' attitude**
Online games are designed with various challenges that can stimulate their players to play harder to beat them faster. This kind of drive can greatly motivate a player to spend hours or even days tackling all the levels of challenges. In this case, he needs to bear in mind that he will not gain any benefit from all of his gaming accomplishments both in the near future and in the distant future. It is important to make him fully realize that it will be much more beneficial for him to spend his time doing constructive activities rather than playing online games.
4. **Reducing gaming time**
Reducing the amount of time spent in playing games and keeping it moderate is a struggle for a gaming addict. Many of them spend up to 14 hours a week on online games. Be that as it may, with great determination and strong will, an addict will be able to increase his self-control and eventually heal his addiction. Clearly, curbing the span of time for gaming could not be done in one attempt. It is a gradual process that takes a number of steps. For example, if his regular amount of gaming is 20 hours a week, he can first try to reduce it

to 18 hours a week, and then he can make it two hours less in each of the following consecutive weeks until a moderate amount of gaming time is reached.

5. Rewarding oneself for any tangible progress

It is important for an addict to reward himself in any positive way he likes when he has been successful in accomplishing a gradual process of limiting his internet gaming time. He can choose particular activities he enjoys doing such as buying books, watching movies, travelling out of town, or other kinds of hobbies. Giving himself a reward can be an effective way of motivating himself to do much more better things in the future.

6. Using walkthroughs and cheats

Increasing familiarity with certain games commonly leads to decreasing enthusiasm for those games. The more a player is familiar with the scenes, the levels or the challenges, the less he is excited with the games. A gaming addict can take advantage of this tendency by using various *cheat* applications to help him complete many online games easily and therefore help himself reduce his excitement of playing the games.

7. Limiting the number of game applications installed in personal gadgets

Gaming addicts usually play internet games with their fellow gaming addicts through virtual media. Together they create a group of people who spend long hours competing with each other and neglecting their daily responsibilities. One way a gaming addict can do to treat gaming addiction in group is inviting their gaming friends or other gamers to actually meet and play with them in person. It can be an effective treatment because if this face-to-face game playing is made a habit, the players will soon get bored of playing online games and they will be encouraged to think about other activities to do instead of going on spending long hours playing the games.

Strategies to Treat Internet Gaming Disorders in Children

For many teenagers, playing online games is an amusing and engaging activity that can give them a high degree of satisfaction and a reason to avoid working on their homework (Woszczyński, Roth, & Segars dalam Chiang & Lin, 2010: 628). Hence, dealing with internet gaming disorder in teenagers is different from that in adults.

1. Control their internet use

Parents need to make a rule concerning the amount of time allowed for their children to use internet or gadget in one day. It is important to establish a limit for the maximum span of time spent on this kind of activity and thus develop their self-discipline in this matter. No less important is parents' proper ways of behaving for the purpose of giving good examples for their children. Conforming to the rule, they have to limit their own time using their gadgets instead of busying themselves with social media or online chatting when their children are around.

2. Set a password or an application lock

Setting a password or an application lock on personal computers or laptops in your home is one of effective methods of preventing your children from developing an internet addiction and making them learn self-discipline. If you have to be away from home to work you can share your password to the

person to whom you entrust your house and children when you are not at home.

3. Allow some family time on daily basis

Cyber addiction has been one of the issues of modern life in which parents are too busy to spend enough quality time (talking, sharing, having fun together, etc.) with their family, and they fill the gap by seeking entertainment or enjoyment in cyberspace. It is crucial for parents to make spending quality time with their children as their daily agenda and have meaningful interactions with them such as asking about their day, having dinner together, or bantering with them.

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4. Avoid the habit of using the internet for fun

Nowadays the internet is capable of providing its users with an incredible variety of entertainment to choose from ranging from online videos to online games. This overflowing availability of amusement can divert children's attention away from fun face-to-face activities with their peers. Too much time online can create distance between a child and the other members of his family. Therefore, parents need to train them to limit the time spent using the internet or gadget at home.

5. Take your children out to where your family can enjoy the beauty of nature

Spending family time for a nature walk can be made a very positive regular activity. The more children are used to play and have fun times outdoor, the more they will feel that they need to get in touch with their physical environment more than they do with the internet. Parents are advised to encourage their children to have more interactions with others in a number of group activities such as extracurricular or recreational activities and so prevent them from preferring solitary activity of online gaming to socializing with their friends.

6. Ask your children to join a comprehensive soft-skill program

In some cases, parents with limited time and experience to teach their children life skills need professional help from the experts. Life skill training is one of effective methods of keeping the children away from gadgets. Investing in children's future by enrolling them for informal programs or courses such as soft-skill training, leadership program, and the like can be an invaluable choice.

7. Try a combination of hypnotherapy and spiritual EFT

Hypnotherapy and Spiritual EFT (S-EFT) are simple complementary therapies that can help you treat your children's addiction to online games. Hypnotherapy has been known as a powerful thought therapeutic intervention (Prasetya, 2017). EFT is a form of psychological acupuncture that uses light tapping with fingertips instead of inserting needles to stimulate traditional Chinese acupuncture points. The tapping on these designated points on the face and body is combined with verbalizing the identified problem (or target) followed by a general affirmation phrase. Combining these ingredients of the EFT technique balances the energy system and appears to relieve psychological stress and physiological pain. Restoring the balance of the energy system allows the body and mind to resume their natural healing abilities. EFT is safe, easy to apply, and is non-invasive (Church, 2013; and Church, 2017). Moreover, spiritual aspect of life is one of significant parts of Indonesian nati-

onal identity. A combination intervention of hypnotherapy and Spiritual EFT has been taught in the workshop when this material is being presented.

Conclusion

According to Caldwell & Cunningham (2010), educative actions that need to be taken to contain a widespread internet addiction are spreading clear and convincing information about the danger of addiction and organizing productive discussions on symptoms of addiction, simple evaluation of Internet (online gaming) addiction symptoms as well as reliable local and internet resources. However, the use of multiple psychotherapeutic strategies is considered more effective than one unique perspective (Dong and Potenza 2014; Orzack et al. 2006; Shek et al. 2009; Therien et al.2014).

Above all, parents play primary role in educating younger generation starting from their own children. They have great responsibility to nurture their young ones to be a well-balanced individual and in particular train them to use technology wisely.

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EFFECT OF ACCREDITATION ON OCCUPATIONAL HEALTH AND SAFETY BEHAVIOR AMONG WORKERS IN A PRIVATE HOSPITAL, SEMARANG, CENTRAL JAVA

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ABSTRACT

Background: Hospital is a health care industry with a variety of complex labor problems and various risks of occupational disease and accident. Accreditation is a way to protect patients, visitors, caregivers from accidents and occupational diseases. This study aimed to analyze the effect of accreditation on occupational health and safety behavior among workers in a private hospital, Semarang, Central Java.

Subjects and Method: This was a case study conducted at a private hospital, Semarang, Central Java. A total of 8 people were selected for this study as main informants and 3 people as triangulation informants (team leader of occupational health and safety, head of hospital accreditation, and the head of hospital facilities and infrastructure maintenance). The data were collected by in-depth interviews, direct observation, and document review. The data were analyzed using the stages of data reduction, data display, content analysis, and decision-making.

Results: After the accreditation, the hospital had only minimally implemented policies and regulations of occupational safety and health. Some of employees did not use personal protective equipment while working at a hazardous place. Some occupational safety and health facilities were poorly maintained. Equipment that requires large funds was gradually completed.

Conclusion: Occupational health and safety has not been well implemented after hospital accreditation. The hospital management has yet to apply reward and sanction related to occupational safety and health for employees.

Keywords: accreditation, hospital, occupational safety and health behavior

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EFFECT OF ALKALINE WATER AND NABEEZ WATER ON REHYDRATION IN HOT WORKING ROOM AMONG MACHINE OPERATORS

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ABSTRACT

Background: Staying hydrated at work can be difficult for many workers. Busy schedules make it easy to forget to drink as much water as workers should do. For some, the type of work or specialist work clothes makes it awkward to access water regularly. Alkaline water has a higher pH level than regular drinking water. Because of this, some advocates of alkaline water believe it can neutralize the acid in the body. Nabeez water was one of the drinks consumed by the Prophet. It is an alkalizing tonic, having the tendency to remove acidity from the stomach and digestive system and it also helps to remove other metabolic wastes from the body. This study aimed to analyze the effect of alkaline water and Nabeez water on rehydration in hot working room among machine operators.

Subjects and Method: This was a quasi-experimental study conducted in Jepara, Central Java. A total sample of 44 computer embroidery machine operators was selected for this study divided into 3 groups: alkaline water, Nabeez water, and control groups. Each group received 250 ml fluid every 30 minutes for 4 hours. The dependent variable was hydration status. The independent variable was type of hydration water. The hydration status was measured by urine specific gravity from urinometer. The data were analyzed using Kruskal Wallis test and Wilcoxon sign rank test.

Results: There were no significant differences in the average hydration status before intervention in all groups ($p = 0.568$). Average hydration status was higher in Nabeez group than alkaline group after the intervention ($p < 0.001$). The control group showed the lowest average hydration status among the three study groups after the intervention ($p < 0.001$).

Conclusion: Nabeez water is more effective in reducing dehydration status than alkaline water.

Keywords: alkaline water, Nabeez water, hydration, workers, hot working area

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ELDERLY SAFETY ALONG ALALAK RIVER BANK IN RESIDENTIAL AREA, BANJARMASIN, SOUTH KALIMANTAN

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ABSTRACT

Background: The level of dependency of the community who live along the bank of Alalak river in Banjarmasin is quite high. However, it is not complemented with the quality, safety, and comfort of the accessibility facilities in the area. The dwellers of residential areas along Alalak river bank vary from children, teenager, adult, to the elderly. The elderly have experienced biological, physiological, and psychological degradation. They have different needs from other age groups. This leads to some problems of safety and comfort. This study aimed to examine the safety of the elderly along Alalak River bank in residential area, Banjarmasin, South Kalimantan.

Subjects and Method: This was a cross-sectional study. A sample of 5 neighborhoods (RT 4, RT 5, RT 7, RT 10, and RT 14) of Alalak Utara Village was selected for this study. The dependent variable was safety. The independent variable was accessibility facilities. The data were collected by observation and in-depth interview. The data were analyzed descriptively.

Results: This study showed the facilities in the residential area along the bank of Alalak River had not met the safety requirement. Some elderly experienced accidents such as slipped and fall.

Conclusion: The facilities in the residential area along the bank of Alalak River have not met the safety requirement. Some elderly experience accidents such as slipped and fall.

Keywords: accessibility, elderly, residential area, riverbank, Alalak river

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ASSOCIATION BETWEEN SODIUM AND FAT CONSUMPTION WITH HYPERTENSION AT ARIFIN ACHMAD GENERAL HOSPITAL IN RIAU

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ABSTRACT

Background: Hypertension is a well-known risk factor for cardiovascular diseases (CVDs). Over the past century, salt has been the subject of intense scientific research related to blood pressure elevation and cardiovascular mortalities. Moderate reduction of dietary salt intake is generally an effective measure to reduce blood pressure. Earlier studies have demonstrated that higher intakes of cholesterol and saturated fat are associated with increased blood pressure. The purpose of this study was to determine the association between sodium and fat consumption with hypertension at Arifin Achmad General Hospital in Riau.

Subjects and Method: This was a case control study carried out at Arifin Achmad Public Hospital in Riau. A sample of 80 study subjects was selected for this study, consisting of 40 subjects with hypertension and 40 subjects without hypertension. The dependent variable was hypertension. The independent variables were sodium and fat intake. Food intake was measured by Food Frequency Questionary (FFQ). Odds ratio was used to measure association.

Results: Hypertension was associated with high sodium intake (OR = 2.81; 95% CI = 1.13 to 6.99; p= 0.025) and high fat intake (OR= 2.51; 95% CI= 1.19 to 6.19; p= 0.044).

Conclusion: Hypertension is associated with high sodium and fat intake.

Keywords: natrium, fat, hipertension

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BIOPSYCHOSOCIAL DETERMINANTS OF HYPERTENSION

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ABSTRACT

Background: Hypertension is one of the most common and dangerous non-communicable diseases in the world. Hypertension prevalence in Indonesia reached 34.1% and becomes the main trigger of premature death and disability. This study aimed to determine the biopsychosocial factors associated with hypertension.

Subjects and Method: This was a case control study conducted in Dr. Moewardi Hospital, Surakarta, from September to November 2018. A sample of 225 patients was selected by fixed disease sampling, consisting of 75 hypertension patients and 150 non-hypertension patients. The dependent variable was hypertension. The independent variables were anxiety, stress, sleep quality, body mass index (BMI), physical activity, vegetable and fruit consumption, coffee, and soft drink consumption. Blood pressure was measured by sphygmomanometer. BMI was measured by scale and microtoise. The other data were collected by questionnaire and analyzed by a multiple linear regression.

Results: Hypertension increased with anxiety (b= 0.26; 95% CI= 0.01 to 0.51; p= 0.043), stress (b= 0.29; 95% CI= 0.04 to 0.54; p= 0.025), poor quality of sleep (b= 0.46; 95% CI= 0.05 to 0.88; p=0.030), BMI (b= 0.68; 95% CI= 0.04 to 1.33; p= 0.039), coffee consumption (b= 1.31; 95% CI= 0.15 to 2.49; p= 0.028), and soft drink consumption (b= 0.38; 95% CI= 0.03 to 0.73; p= 0.034). Hypertension decreased with high physical activity (b= -0.04; 95% CI= -0.07 to -0.003; p= 0.032) and vegetable and fruit consumption (b=-1.14; 95% CI= -2.09 to -0.17; p= 0.021).

Conclusion: Hypertension increases with anxiety, stress, poor quality of sleep, BMI, coffee consumption, and soft drink consumption. Hypertension decreases with high physical activity and vegetable and fruit consumption.

Keywords: biopsychosocial, determinants, hypertension

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STROKE SEVERITY AND THE RISK OF DEPRESSION AMONG POST-STROKE PATIENTS: A META-ANALYSIS

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ABSTRACT

Background: Post-stroke depression (PSD) is a complication that occurs in up to 30% of the patients who have a stroke. Stroke patients with PSD suffer higher mortality rates and show a minor improvement in rehabilitation programs in comparison to non depressed stroke patients. This study aimed to examine the association between stroke severity and PSD.

Subjects and Method: A meta analysis study was conducted by searching published article from January 1, 2009 to September 30, 2018 in Pubmed, Science Direct, and Springer Link databases. The data were analyzed by RevMan 5 program.

Results: 2976 stroke patients from 9 studies were selected for this study. A meta-analysis showed that stroke severity level was risk factor for post-stroke depression (OR= 1.10; CI 95% 1.07 to 1.13; $p < 0.001$). Severe stroke increased the likelihood of post-stroke depression.

Conclusion: Stroke severity is a risk factor for post-stroke depression.

Keywords: post-stroke depression, stroke severity, meta-analysis

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THE EFFECTS OF SOCIAL ECONOMIC FACTORS ON DIARRHEA IN DEMAK, CENTRAL JAVA

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ABSTRACT

Background: Diarrhea is a public health problem with high mortality and morbidity. Diarrhea can be prevented by maintaining cleanliness and a healthy lifestyle. This study aimed to determine the effect of socioeconomic factor on the incidence of diarrhea.

Subjects and Method: A case control study was conducted in Demak, Central Java, from October to November 2018. A sample of 200 study subjects was selected by fixed disease sampling. The dependent variable was diarrhea. The independent variables were education, had washing using soap, family income, clean water availability, latrine availability, water waste management, and waste management. The data were collected by questionnaire and analyzed by a multiple logistic regression.

Results: Risk of diarrhea increased with poor clean water availability (OR= 4.06; 95% CI= 1.34 to 12.3; p= 0.013), poor latrine availability (OR= 6.33; 95% CI= 2.02 to 19.8; p= 0.002), poor water waste management (OR= 14.2; 95% CI= 4.77 to 42.7; p<0.001), poor waste management (OR= 3.74; 95% CI= 1.24 to 11.2; p= 0.019), and didn't wash hands using soap (OR= 3.39; 95% CI= 1.18 to 9.74; p= 0.023). Risk of diarrhea decreased with high family income (OR= 0.24; 95% CI= 0.08 to 0.69; p= 0.008) and high education (OR= 0.18; 95% CI= 0.06 to 0.56; p= 0.003).

Conclusion: Risk of diarrhea increases with poor clean water availability, poor latrine availability, poor water waste management, poor waste management, and didn't wash hands using soap. It decreases with high family income and high education.

Keywords: diarrhea, social economic factors, hand wash behavior

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INDIVIDUAL AND ENVIRONMENTAL FACTORS ASSOCIATED WITH PNEUMONIA IN CHILDREN UNDER FIVE IN MAGETAN, EAST JAVA, INDONESIA

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ABSTRACT

Background: Pneumonia represents an important threat to children's health in both developed and developing countries. Pneumonia is the leading killer of children under five worldwide. Pneumonia case in Magetan, East Java in 2017 was 1,833. This study aimed to examine the individual and environmental factors associated with pneumonia in children under five in Magetan, East Java.

Subjects and Method: A case control study was conducted in Magetan, East Java, from October to December 2018. A sample of 225 children under five was selected by fixed disease sampling. The dependent variable was pneumonia. The independent variables were nutritional status, vitamin A intake, maternal stress, maternal education, family income, smoking behaviour, cooking fuel, house physical environment, and the presence of infants in the kitchen. The data were collected by questionnaire and analyzed by a multiple logistic regression.

Results: Pneumonia in children under five increased with maternal stress ($b= 1.91$; 95% CI= 0.75 to 3.06; $p= 0.001$), parental smoking behavior ($b= 1.39$; 95% CI= 0.46 to 2.32; $p= 0.003$), and infant presence in the kitchen ($b= 1.37$; 95% CI= 0.38 to 2.35; $p= 0.007$), and smoke from cooking fuel ($b= 1.51$; 95% CI= 0.46 to 2.55; $p=0.005$). Pneumonia in children under five decreased with good nutritional status ($b= -1.74$; 95% CI= -2.70 to -0.78; $p<0.001$), vitamin A intake ($b= -1.14$; 95% CI= -2.04 to -0.24; $p= 0.013$), high maternal education ($b= -1.41$; 95% CI= -2.45 to -0.37; $p=0.008$), high family income ($b= -0.91$; 95% CI= -1.80 to -0.02; $p=0.045$), and good house physical environment ($b=-1.86$; 95% CI= -3.20 to -0.52; $p=0.007$).

Conclusion: Pneumonia in children under five increases with maternal stress, parental smoking behaviour, and infant presence in the kitchen, and smoke from cooking fuel. It decreases with good nutritional status, vitamin A intake, high maternal education, high family income, and good house physical environment.

Keywords: pneumonia, biopsychosocial, environmental, determinant, children under five

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PATH ANALYSIS ON THE DETERMINANTS OF HYPERTENSION IN WOMEN IN SRAGEN, CENTRAL JAVA

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ABSTRACT

Background: Hypertension is an important risk factor for cardiovascular disease in women but is often underestimated and undiagnosed. There is an ongoing misperception that women are at a lower risk of cardiovascular disease than men. The purpose of this study was to examine determinants of hypertension in women in Sragen, Central Java using path analysis model.

Subjects and Method: A case control study was carried out in Sragen, Central Java, from September 25 to November 25, 2018. A sample of 200 women was selected for this study by fixed disease sampling. The dependent variable was hypertension. The independent variables were age, BMI, history of hypertension, stress, smoking, physical activity, consumption, and cholesterol level. Data on blood pressure was measured by sphygmomanometer. The other data were collected by questionnaire. The data were analyzed by path analysis.

Results: The risk of hypertension in women was directly and positively affected by smoking ($b= 3.52$; 95% CI= 1.00 to 6.05; $p= 0.006$), age <20 or ≥ 35 years ($b=1.25$; 95% CI= 0.30 to 2.20; $p= 0.010$), high stress ($b= 1.79$; 95% CI= 0.63 to 2.96; $p= 0.003$), high salt consumption ($b= 2.49$; 95% CI= 0.25 to 4.73; $p= 0.029$), high cholesterol level ($b=1.78$; 95% CI= 0.68 to 2.89; $p=0.001$), history of hypertension ($b=1.41$; 95% CI=0.33 to 2.50; $p=0.010$), and BMI ≥ 25 ($b=1.14$; 95% CI= 0.17 to 2.11; $p= 0.020$). The risk of hypertension was directly and negatively affected by high physical activity ($b= -2.00$; 95% CI= -3.09 to - 0.92; $p<0.001$). It was indirectly affected by physical activity and stress.

Conclusion: The risk of hypertension in women is directly and positively affected by smoking, age, stress, salt consumption, high cholesterol level, history of hypertension, and BMI ≥ 25 . The risk of hypertension in women decreases with high physical activity. It is indirectly affected by physical activity and stress.

Keywords: hypertension, determinants, women, path analysis

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**FACTORS ASSOCIATED WITH CONTRACEPTIVE USE
AMONG MEN IN FAMILY PLANNING VILLAGE,
YOGYAKARTA, INDONESIA**

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ABSTRACT

Background: Engaging men in sexual and reproductive health, particularly family planning, can improve health outcomes for men, women, and children. However, the involvement of men in family planning in Indonesia remains low. The purpose of this study was to determine factors associated with contraceptive use among men in family planning village, Yogyakarta, Indonesia, using Theory of Planned Behavior.

Subjects and Method: A case control study was conducted in Yogyakarta, Indonesia. A sample of 200 men aged 15 to 49 years was selected by fixed disease sampling. The dependent variable was male surgical contraceptive method use. The independent variables were age, knowledge, education, intention, attitude, perceived behavior control, subjective norm, social culture, access to health service, service quality. The data were collected by questionnaire and analyzed by a multiple logistic regression.

Results: Male involvement in surgical contraceptive method was positively associated with age (b= 1.52; 95% CI= 0.49 to 2.55; p= 0.004), knowledge (b= 2.17; 95% CI= 0.98 to 3.36; p<0.001), education (b= 1.73; 95% CI= 0.45 to 3.02; p= 0.008), intention (b= 1.32; 95% CI= 0.26 to 2.38; p= 0.14), attitude (b= 1.86; 95% CI= 0.69 to 3.04; p= 0.002), subjective norm (b= 2.34; 95% CI= 1.25 to 3.42; p<0.001), perceived behavior control (b= 1.15; 95% CI= 0.01 to 2.29; p= 0.049), culture (b= 1.93; 95% CI= 0.69 to 3.18; p= 0.002), access of health service (b= 1.13; 95% CI= 0.02 to 2.24; p= 0.046), and quality of health service (b= 1.40; 95% CI= 0.33 to 2.48; p= 0.010).

Conclusion: Male involvement in surgical contraceptive method is positively associated with age, knowledge, education, intention, attitude, subjective norm, perceived behavior control, culture, access of health service, and quality of health service.

Keywords: male, surgical contraceptive method, Theory of Planned Behavior

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SURVIVAL ANALYSIS ON THE EFFECT OF NUTRITIONAL STATUS AMONG PEOPLE LIVING WITH HIV/AIDS IN JAYAPURA, PAPUA

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ABSTRACT

Background: Malnutrition is a common occurrence in HIV/AIDS cases and is a major cause of morbidity and mortality. Well-nourished patients are best able to withstand medical treatment, which is particularly important in HIV/AIDS. It has been suggested that weight loss reduces the ability of patients to be treated effectively with antiretroviral therapy. The purpose of this study was to examine the effect of nutritional status on survival among people living with HIV/AIDS in Jayapura, Papua.

Subjects and Method: A cohort retrospective study was carried out at VCT room Dok II General Hospital, Jayapura, Papua, from May to June 2018. A sample of 97 people living with HIV/AIDS (PLWH) with malaria co-infection recurrence and 86 PLWH was selected by fixed disease sampling. The dependent variable was time to death. The independent variable was nutritional status. Confounding factors included drug taking adherence, economics status, clean and healthy behaviour, use of bed nest, and residual spray. The data were obtained from medical record and questionnaire. The data were analyzed by Cox regression model.

Results: Risk of death in PLWH with malaria co-infection decreased with good nutritional status (HR= 0.25; 95% CI= 0.54 to 0.12; p<0.001) after adjusting for the effect of adherence to ARV (HR= 0.63; 95% CI= 0.93 to 0.43; p= 0.018).

Conclusion: Risk of death in PLWH with malaria co-infection decreases with good nutritional status after adjusting for the effect of adherence to ARV.

Keywords: survival, co-infection, nutritional status, HIV/AIDS, people living with HIV/AIDS

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THE EFFECT OF SOCIAL AND ENVIRONMENTAL FACTORS ON THE OCCURRENCE OF HEMORRHAGIC DENGUE FEVER IN GROBOGAN, CENTRAL JAVA

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ABSTRACT

Background: Dengue haemorrhagic fever (DHF) is a growing and enigmatic public health problem worldwide particularly in South-East Asia countries. The potential severity of the dengue problem is underlined by the fact that there is not yet any comprehensive understanding of why dengue viruses produce a disease with fatal outcome. This study aimed to examine the effect of social and environmental factors on the occurrence of DHF in Grobogan, Central Java.

Subjects and Method: A case control study was carried out in Grobogan, Central Java, from November to December 2018. A sample of 200 study subjects was selected for this study by fixed disease sampling, consisting of 50 study subjects with DHF and 150 without DHF. The dependent variable was DHF. The independent variables were water shelter, ponds, farm land, house density, hanging clothes, mosquito larvae, education, employment, and mosquito nest eradication program. Data on DHF status were obtained from medical record. The other data were collected by questionnaire and analyzed by a multiple logistic regression.

Results: Water shelter (b=2.92; 95% CI= 1.24 to 4.64; p= 0.001), hanging clothes (b= 1.72; 95% CI= 0.26 to 3.17; p=0.020), house density (b=3.39; 95% CI= 1.80 to 4.98; p<0.001), farm land (b= 2.12; 95% CI= 0.68 to 3.55; p=0.004), mosquito larvae (b= 2.26; 95% CI= 0.76 to 3.76; p=0.003), and pond (b=1.70; 95% CI= 0.20 to 3.21; p=0.026) increased the risk of DHF. High education (b=-3.06; 95% CI= -4.82 to -1.31; p=0.001), employed (b=-3.45; 95% CI= -5.21 to -1.69; p<0.001), and mosquito nest eradication program (b= -2.74; 95% CI= -4.34 to -1.14; p=0.001) decreased the risk of DHF.

Conclusion: Water shelter, hanging clothes, house density, farm land, mosquito larvae, and pond increase the risk of DHF. High education, employed, and mosquito nest eradication program decrease the risk of DHF.

Keywords: dengue hemorrhagic fever, social factors, environmental factors, mosquito nest eradication program

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MULTILEVEL ANALYSIS ON THE CONTEXTUAL EFFECT OF ELDERLY HEALTH POST ON THE INCIDENT OF DEPRESSION AMONG THE ELDERLY

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ABSTRACT

Background: Positive social interactions, such as social support, contribute to the improvement of a person's psychological and physical well-being. Social relationships reduce stress and depression, which can enhance physical health. This study aimed to examine the contextual effect of the elderly health post ("posyandu lansia") on the incident of depression among the elderly.

Subjects and Method: A cross sectional study was conducted in Gunung Kidul, Yogyakarta, from October to December 2018. A sample of 200 elderly from 25 elderly health posts was selected by simple random sampling. The dependent variable was depression. The independent variables of level 1 were income, family type, history of chronic disease, family function, social interaction, social support, and loneliness. The level 2 variable was the elderly health post. Data on depression was measured by Geriatric Depression Scale 15 (GDS-15). The other data were collected by questionnaire and analyzed by a multilevel linear regression.

Results: The risk of depression among elderly increased with social isolation ($b = 0.52$; 95% CI= 0.01 to 0.49; $p = 0.050$) and loneliness ($b = 0.30$; 95% CI= 0.11 to 0.49; $p = 0.002$). It decreased with high income ($b = -0.53$; 95% CI= -1.03 to -0.03; $p = 0.038$), family type ($b = -0.48$; 95% CI= -0.95 to -0.02; $p = 0.039$), no history of chronic disease ($b = 0.49$; 95% CI= 0.03 to 0.95; $p = 0.036$), family function ($b = -0.29$; 95% CI= -0.48 to -0.10; $p = 0.002$), high social interaction ($b = -0.10$; 95% CI= 0.19 to 0.01; $p = 0.016$), and strong social support ($b = -0.07$; 95% CI= 0.11 to 0.03; $p < 0.001$). The elderly health post had negligible contextual effect on depression among elderly (ICC= 6.78%).

Conclusion: The risk of depression among elderly increases with social isolation and loneliness. It decreases with high income, family type, no history of chronic disease, family function, high social interaction, and strong social support. The elderly health post has negligible contextual effect on depression among elderly.

Keywords: depression, family function, social interaction, loneliness, the elderly health post

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MULTIPLE LOGISTIC REGRESSION ON FACTORS AFFECTING LOW BACK PAIN AMONG OUTPATIENTS IN THE PHYSICAL REHABILITATION POLYCLINIC

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ABSTRACT

Background: Low back pain (LBP) is one of top ten disorders in the world. However, the prevalence remains unclear due to the first attack happening in adult age. Some biological factors increase the risk of LBP while education level, occupation and knowledge about LBP have not been investigated yet. This study aimed to analyze factors affecting LBP such as age, sex, education level, occupation, and knowledge about LBP.

Subjects and Method: This was a case-control study conducted in Physical Rehabilitation Polyclinic, Dr. Moewardi Hospital, Surakarta, Central Java, from October to November 2018. A sample of 150 outpatients was selected fixed exposure sampling. The dependent variable was LBP. The independent variables were age, sex, education, occupation, and knowledge about LBP. Data on LBP were obtained from medical record. The other data were collected by questionnaire. The data were analyzed by a multiple logistic regression.

Results: Female (OR= 1.11; 95% CI= 1.08 to 8.62; p= 0.036), severe occupation (OR= 1.83; 95% CI= 2.29 to 16.96; p<0.001), and older age (OR= 2.59; 95% CI= 4.70 to 37.37; p<0.001) increased the risk of LBP. Higher education (OR= -2.04; 95% CI= 0.05 to 0.40; p= 0.009) and higher knowledge of LBP (OR= -1.30; 95% CI= 0.10 to 0.72; p= 0.009) reduced the risk of LBP.

Conclusion: Female, severe occupation, and older age increase the risk of LBP. Higher education and higher knowledge reduce the risk of LBP.

Keywords: Low back pain, age, occupation, gender

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PATH ANALYSIS ON THE DETERMINANTS OF CERVICAL CANCER IN SURAKARTA, CENTRAL JAVA

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ABSTRACT

Background: Cervical cancer is the fourth most common cancer in women worldwide. It is disproportionately affects women in low-resource countries lacking a public health infrastructure to support cancer screening. Cervical cancer prevalence in Indonesia in 2013 was 0.8%. The purpose of this study was to examine determinants of cervical cancer in Surakarta, Central Java, using path analysis model.

Subjects and Method: A case control study was conducted at Dr. Moewardi Hospital, from October to December 2018. A sample of 200 patients was selected by fixed disease sampling, consisting of 100 cervical cancer patients and 100 non cervical cancer patients. The dependent variable was cervical cancer. The independent variables were obesity, oral contraceptive use, smoke exposure, parity, age at first sexual intercourse, and family history. The data were obtained from medical record. The data were analyzed path analysis.

Results: The risk of cervical cancer was directly increased by smoke exposure ($b=2.33$; 95% CI= 1.18 to 3.49; $p<0.001$), parity ($b=1.79$; 95% CI= 0.70 to 2.89; $p=0.001$), obesity ($b=1.96$; 95% CI= 0.82 to 3.12; $p=0.001$), and family history ($b=1.89$; 95% CI= 0.66 to 3.11; $p=0.003$). The risk of cervical cancer was directly decreased by delayed menarche ($b=-2.01$; 95% CI = -3.17 to -0.85; $p=0.001$), delayed age at first intercourse ($b=-1.14$; 95% CI= -2.15 to -0.12; $p=0.028$), oral contraceptive use ($b=0.51$; 95% CI= 0.27 to 0.75; $p<0.001$). It was indirectly affected by education.

Conclusion: The risk of cervical cancer is directly increased by smoke exposure, parity, obesity, and family history. The risk of cervical cancer is directly decreased by delayed menarche, delayed age at first intercourse, oral contraceptive use. It is indirectly affected by education.

Keywords: cervical cancer, determinants, path analysis

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RISK FACTORS OF TYPE 2 DIABETES MELLITUS AMONG ELDERLY AT MUHAMMADIYAH GENERAL HOSPITAL, NORTH SUMATERA

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ABSTRACT

Background: Non-communicable diseases occur mostly in the elderly. The degenerative process reduces the body's resistance so it is susceptible to infectious diseases. Diabetes mellitus (DM) is characterized by chronic hyperglycemia and impaired carbohydrates, lipids, and proteins metabolism caused by complete or partial insufficiency of insulin secretion and/or insulin action. Type 2 DM is the most common cases of DM. This study aimed to examine the risk factors of type 2 DM among elderly at Muhammadiyah General Hospital, North Sumatera.

Subjects and Method: This was a case control study carried out at Muhammadiyah Hospital, North Sumatera, in 2018. A total of 148 elderly patients was selected for this study, consisting of 74 patients with type 2 DM and 74 patients without type 2 DM. The dependent variable was the incidence of type 2 DM. The independent variables were family DM history, smoking habit, physical activity, carbohydrate diet, fiber diet, body mass index (BMI), abdominal circumference, and hypertension. The data were collected by questionnaire and analyzed using multivariate analysis.

Results: The risk of type 2 DM increased with family history of DM (OR= 4.44; 95% CI= 1.92 to 10.27), lack of physical activity (OR= 2.31; 95% CI= 1.01 to 5.32), smoking habit (OR= 3.92; 95% CI= 1.70 to 9.04), abdominal circumference ≥ 102 cm for men or 88 cm for women (OR= 2.73; 95% CI= 1.20 to 6.19), and lack of fiber intake (OR= 4.77; 95% CI= 2.10 to 10.83). The association between type 2 DM and BMI, blood pressure, and carbohydrate, was not statistically significant

Conclusion: The risk of type 2 DM increased with family history of DM, lack of physical activity, smoking habit, abdominal circumference ≥ 102 cm for men or 88 cm for women, and lack of fiber intake.

Keywords: diabetes melitus, risk factors, elderly

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FACTORS ASSOCIATED WITH THE RISK OF ACUTE RESPIRATORY TRACT INFECTION AMONG CHILDREN UNDER FIVE IN ABDYA DISTRICT, ACEH

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ABSTRACT

Background: Acute Respiratory Infection (ARI) is ranked in the 10 the highest disease incidence in Alue River, Jeumpa District, South-West Aceh. In 2015 there was 80 new cases (40.0%). In 2016, the number of new cases increased to 138 cases (87.1%). This study aimed to determine the factors associated with the risk of acute respiratory tract infection among children under five in Abdya District, Aceh.

Subjects and Method: This was a case control study carried out in Abdya district, Aceh. A total of 138 children under five was selected for this study using purposive sampling technique, consisting 2 groups: case and control groups. The dependent variable was ARI. The independent variables were low birth weight (LBW), nutritional status, exclusive breastfeeding, immunization status, ventilation, floor type, and smoke exposure. The data on ARI, LBW, and immunization status were collected from medical record. The other data were collected by questionnaire. The data were analyzed using logistic regression.

Results: Incidence of ARI increased with LBW (OR= 13.43; $p \leq 0.001$), low nutritional status (OR= 12.25; $p \leq 0.001$), non-exclusive breastfeeding (OR= 7.31; $p \leq 0.001$), no immunization (OR= 9.09; $p \leq 0.001$), absence of ventilation (OR= 5.88; $p \leq 0.001$), bad floor type (OR=16.38; $p \leq 0.001$), and frequent smoke exposure (OR= 23.26; $p \leq 0.001$).

Conclusion: Incidence of ARI increases with LBW, low nutritional status, non-exclusive breastfeeding, no immunization, absence of ventilation, bad floor type, and frequent smoke exposure.

Keywords: acute respiratory tract infection, low birth weight, exclusive breastfeeding, nutritional status, immunization, ventilation, floor type, smoke

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DETERMINANTS OF HYPERTENSION AMONG THE CIVIL SERVANTS IN CENTRAL SULAWESI

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ABSTRACT

Background: High blood pressure is a global public health problem. It is one of the major causes of premature death worldwide, killing nearly 8 million people every year, and the problem is growing. Studies into the prevalence and the determinants of hypertension among the civil servants in Indonesia are lacking. This study aimed to determine factors associated with the risk of hypertension among civil servants in Central Sulawesi.

Subjects and Method: This was a cross sectional study conducted at non-communicable disease integrated health posts in Central Sulawesi. A sample of 481 civil servants participated in this study during hypertension screening at non-communicable disease integrated health posts. The dependent variable was hypertension. The independent variables were age, sex, vegetable and fruit intake, smoking, physical activity, general obesity, central obesity, and hypercholesterolemia. The data on hypertension were collected from the surveillance offline data. The other data were collected by questionnaire. The data were analyzed by univariate, bivariate and multivariate analysis.

Results: The prevalence of hypertension was 30.60%. A total of 63.60% civil servants were ≥ 45 years old, 55.51% were female, 55.30% were lack of physical activity, 54.50% were lack of vegetable and fruit intake, 20.40% were smokers, 47.20% had general obesity, 73.20% had central obesity, and 56.10% were hypercholesterolemia. The risk of hypertension increased with older age (OR= 3.00; 95% CI= 2.01 to 4.49; $p \leq 0.001$), general obesity (OR= 2.57; 95% CI= 1.72 to 3.84; $p \leq 0.001$), central obesity (OR= 2.68; 95% CI= 1.61 to 4.45; $p \leq 0.001$), hypercholesterolemia (OR= 1.93; 95% CI= 1.30 to 2.85; $p = 0.001$), but decreased with female (OR= 0.49; 95% CI= 0.34 to 0.74; $p = 0.001$).

Conclusion: The risk of hypertension among the civil servants increases with older age, general obesity, central obesity, hypercholesterolemia, but decreases with female.

Keywords: hypertension, civil servants, integrated health post, non-communicable disease

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THE EFFECTS OF TYPE OF CIGARETTE AND FREQUENCY OF SMOKING ON HEART DISEASE IN INDONESIA

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ABSTRACT

Background: Tobacco use is a serious public health problem in the South East Asia where use of both smoking and smokeless form of tobacco is widely prevalent. Tobacco use represents a serious challenge to ongoing efforts to prevent noncommunicable diseases in many countries. This study aimed to examine the effects of cigarette type and frequency of smoking on cardiovascular disease in Indonesia.

Subjects and Method: This was a cross-sectional study. A sample of 34,257 study subjects was selected for this study. The dependent variable was the incidence of heart disease. The independent variables were age, gender, smoking, type of cigarette, and number of cigarette per day. The data were obtained from Indonesian Family Life Survey 5 (IFLS 5) years 2014. The data were analyzed by a multiple logistic regression.

Results: The prevalence of smoker in Indonesia was 35%. The prevalence of heart disease was 1.6%. The risk of heart disease increased with aged ≥ 45 years (aOR= 1.32; 95% CI= 1.07 to 1.65; p= 0.011), male (aOR= 2.36; 95% CI= 1.69 to 8.61; p<0.001), and smoking (aOR= 1.77; 95% CI= 1.06 to 2.93; p= 0.028). Tobacco cigarette smokers (aOR= 4.01; 95% CI= 3.50 to 9.18; p<0.001) had higher risk of heart disease than filter cigarette smokers (aOR= 2.22; 95% CI= 1.15 to 4.27; p<0.017). Number of cigarette ≥ 20 per day (aOR= 3.85; 95% CI= 1.82 to 8.12; p<0.001) had higher risk of heart disease than <20 per day (aOR= 1.37; 95% CI= 1.13 to 4.95; p<0.022).

Conclusion: The risk of heart disease increases with aged ≥ 45 years, male, and smoking. Tobacco cigarette smokers have higher risk on heart disease than filter cigarette smokers. Number of cigarette ≥ 20 per day has higher risk on heart disease than <20 per day.

Keywords: heart disease, age, gender, smoking, type of cigarette

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PREVALENCE, AWARENESS, TREATMENT, AND CONTROL OF HYPERTENSION IN INDONESIAN YOUNG ADULTS

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ABSTRACT

Background: Hypertension is commonly found in young adults and causes many non-communicable diseases with high morbidity and mortality. Understanding the demographic factors inequalities associated with hypertension is essential for designing effective intervention strategies, especially for their productive years. The aim of the current study was to use sub-nationally representative survey data to examine prevalence, diagnosis, and management of hypertension in Indonesian young adults.

Subjects and Method: This was a cross-sectional study in 13 provinces in Indonesia. A sample of 13,954 study subjects aged 19-39 years was selected for this study. The dependent variable was hypertension. The independent variables were age, gender, and education. The data were collected from the 2014 Indonesian Family Life Survey (IFLS 5). The data were analyzed by a multiple logistic regression.

Results: Age-standardized prevalence of hypertension among the study participants was 30.82% (95% CI= 46.8 to 48.9), of which almost 75% were undiagnosed. Hypertension was significantly higher in women (52.4%) than men (47.6%) with $p < 0.001$. Over 78.5% of hypertension cases were uncontrolled. Gender, region of living, and education status had differential impact on the diagnosis of hypertension and in receiving treatment. Less than a third were aware of their hypertension and a quarter of those on medication had their blood pressure effectively controlled. Older people and those living in rural region were more vulnerable to have undiagnosed and untreated hypertension compared to younger, urban people.

Conclusion: Age-standardized prevalence of hypertension among the study participants was 30.82%, of which almost 75% were undiagnosed. Hypertension was significantly higher in women than men. Substantial effort should be given to improve awareness about the condition and making provision for early diagnosis and treatment.

Keywords: hypertension, risk factor, young adult, national health survey, Indonesia

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THE ASSOCIATION BETWEEN CARBOHYDRATE INTAKE, FRUIT AND VEGETABLE CONSUMPTION, AND OBESITY AMONG ADULT IN INDONESIA

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ABSTRACT

Background: The prevalence of obesity has increased rapidly worldwide and the importance of considering the role of diet in the prevention and treatment of obesity is widely acknowledged. Carbohydrates are among the macronutrients that provide energy and can thus contribute to excess energy intake and subsequent weight gain. The purpose of this study was to examine the association between carbohydrate intake, fruit and vegetable consumption, and obesity among adult in Indonesia.

Subjects and Method: This was a cross-sectional study in 13 provinces in Indonesia. A sample of 20,575 study subjects was selected for this study. The dependent variable was obesity. The independent variables were carbohydrate intake and fruit and vegetable consumption. The data were obtained from Indonesia Family Life Survey 5 (IFLS 5). The data were analyzed by a multiple logistic regression.

Results: Obesity prevalence in Indonesia was 54.7%. As many as 46.1% of the study subjects was male and 53.9% was female. As many as 20% male and 34.7% female were overweight/ obese. High carbohydrate intake increased the risk of overweight/obesity (aOR=1.24; 95% CI= 1.17 to 1.31). High fruit and vegetable consumption decreased the risk of overweight/obesity (aOR=0.86; 95% CI=0.767 to 0.97).

Conclusion: The risk of overweight/obesity increases with high carbohydrate intake and decreases with fruit and vegetable consumption.

Keywords: overweight, obesity, prevalence, carbohydrate intake, vegetable consumption

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THE EFFECT OF SANITATION ON HISTORY OF MORBIDITY DISEASE AMONG CHILDREN IN INDONESIA

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ABSTRACT

Background: Water and sanitation is one of the primary drivers of public health. Sanitation aims to prevent contamination of the environment by excreta and, therefore, to prevent transmission of pathogens that originate in feces of an infected person. This study aimed to examine the effect of sanitation on history of morbidity disease among children in Indonesia.

Subjects and Method: This was a cross-sectional study in 13 provinces in Indonesia. A sample of 15,733 children was selected for this study. The dependent variable was child morbidity. The independent variables were house ownership, latrine availability, waste management, garbage management, boiled drink water, and history of disease. The data were obtained from Indonesia Family Life Survey 5 (IFLS 5) years 2014. The data were analyzed by a multiple logistic regression.

Results: As many as 51.4% of sample was male children and 48.6% was female children. As many as 31.6% of male children and 32.2% of female children were unhealthy. Child morbidity increased with history of disease in the last month (aOR=1.94; 95% CI=1.75 to 2.15), but decreased with drinking boiled water (aOR=0.81; 95% CI=0.71 to 0.93).

Conclusion: Child morbidity increases with history of disease in the last month, but decreases with drinking boiled water.

Keywords: child morbidity, hygiene, sanitation, history of disease

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**THE ASSOCIATION BETWEEN AGE, BODY MASS INDEX,
HORMONAL CONTRACEPTIVE, AND NON COMMUNICABLE
DISEASE: A STUDY USING THE INDONESIAN
FAMILY LIVE SURVEY-5**

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ABSTRACT

Background: Non-communicable diseases (NCDs) are the main sources of disease burden. Obesity is a challenging epidemic and increased body mass index (BMI) influences on almost all body systems leading to development of non-communicable diseases. The purpose of this study was to examine the association between age, body mass index, hormonal contraceptive, and NCD.

Subjects and Method: This was a cross sectional study carried out in 13 provinces in Indonesia. A sample of 10,233 women of reproductive age was selected for this study. The dependent variable was non-communicable disease (NCD) for hypertension and cholesterol. The independent variables were hormonal contraceptive, overweight, and age. The data were obtained from Indonesian Family Live Survey 5 (IFLS). The data were analyzed by a multiple logistic regression.

Results: Hormonal contraceptive users were 79.2%. Prevalence of hypertension and cholesterol was 13.6%. The risk of NCD increased with overweight (aOR= 1.90; 95% CI= 1.67 to 2.16; p<0.001) and age (aOR= 1.08; 95% CI= 1.07 to 1.09; p<0.001). Hormonal contraceptive was positively associated with NCD but it was statistically non-significant (aOR= 1.09; 95% CI= 0.93 to 1.29; p= 0.285).

Conclusion: The risk of NCD increases with overweight and age. Hormonal contraceptive is positively associated with NCD but it is statistically non-significant.

Keywords: hormonal contraception, non-communicable disease, hypertension, cholesterol, age

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FACTORS ASSOCIATED WITH PREVENTIVE HEALTH BEHAVIOR FOR DENGUE HEMORRHAGIC AMONG HOUSEHOLD HEAD IN PATI, CENTRAL JAVA

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ABSTRACT

Background: WHO recommends the best way to prevent dengue hemorrhagic fever (DHF) is to provide knowledge about DHF, healthy behavior, and DHF preventive behavior. However, the efforts to prevent DHF in the community is still low. This study aimed to determine factors associated with preventive health behavior for dengue hemorrhagic among household head in Pati, Central Java

Subjects and Method: This was a case-control study conducted in Pati, Central Java, in November 2018. A sample of 225 household heads was selected by simple random sampling. The dependent variable was DHF preventive behavior. The independent variables were education, access to information, knowledge, attitude, self-efficacy, community health behavior, social capital, and villages. Data on DHF status was measured by medical record. The other data were collected by questionnaire. The data were analyzed by a multiple logistic regression.

Results: DHF prevention behavior increased with high education (OR= 2.43; 95% CI= 1.16 to 5.08; p= 0.018), good knowledge (OR= 2.18; 95% CI= 1.06 to 4.51; p= 0.035), self-efficacy (OR= 2.25; 95% CI= 1.09 to 4.66; p= 0.029), good access to information (OR= 5.40; 95% CI= 2.52 to 11.55; p<0.001), positive attitude (OR= 3.36; 95% CI= 1.59 to 7.07; p= 0.001), healthy behavior among community (OR= 2,11; 95% CI= 1.02 to 4.40; p= 0.045), strong social capital (OR= 2.79; 95% CI= 1.35 to 5.78; p= 0.006).

Conclusion: DHF prevention behavior increases with high education, good knowledge, self-efficacy, good access to information, positive attitude, healthy behavior among community, strong social capital.

Keywords: DHF prevention behavior, knowledge, social capital

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ACHIEVEMENT OF MALARIA CONTROL PROGRAM IN WEST PAPUA 2012-2016

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ABSTRACT

Background: Malaria occurs mostly in poor, tropical, and subtropical areas of the world. In 2016, malaria endemicity in West Papua Province was still high. Annual Parasite Incidence (API) reached to 49.43. Of the 13 districts/cities, there was no single district/city with malaria free status because of local (indigenous) malaria transmission. This becomes a considerable work for West Papua province to reduce cases of local malaria transmission. This study aimed to describe achievement of malaria control program in West Papua 2012-2016.

Subjects and Method: A cross-sectional study was conducted in West Papua. Malaria indicators of interest included: (1) Annual Parasite Incidence (API); (2) Slide Positive Rate (SPR); (3) Distribution of insecticide-treated net (ITN). The data were obtained from the Electronic Malaria Surveillance Information System (E-SISMAL) report of Malaria Sub-Directorate, Ministry of Health, Indonesia. The data were analyzed descriptively.

Results: Malaria cases decreased from 4548.9 cases in 2012 to 568.85 cases in 2016. API in West Papua declined from 52.27 per 1000 population in 2012 to 18.23 per 1000 population in 2016. SPR declined from 34.0% in 2012 to 16.5% in 2016. Cumulative distribution of ITN increased from 2012 as many as 60,000 to 524,363 bed nets in 2016. The contribution of cadres and community health center increased.

Conclusion: Slide Positive Rate of malaria declines in West Papua. Distribution of insecticide-treated net increases. Contribution of cadres and community health center increases.

Keywords: malaria, West Papua, annual parasite incidence

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A SYSTEMATIC REVIEW ON TRAVEL MEDICINE PRACTICE TO CONTROL TRANSMISSION OF COMMUNICABLE DISEASES

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ABSTRACT

Background: The number of international travelers is estimated at 900 million per year and is projected to reach 1.6 billion per year in 2020. Travel medicine is devoted to the health of travelers who visit foreign countries. It is an interdisciplinary specialty concerned not only with prevention of communicable diseases during travel but also with the personal safety of travelers and the avoidance of environmental risks. This study aimed to review systematically the travel medicine practice to control transmission of communicable diseases.

Subjects and Method: A systematic review was conducted by collecting several studies that examined travel medicine practice related to the spread of communicable disease. A total of 11 articles was selected for this study. The data were analyzed using narrative synthesis and a review of travel medicine practice.

Results: Travel medicine practice was related to effective anticipation of communicable diseases including pre-travel health advice service, guideline, vaccination, and post-trip care. These practices could not be underestimated because virus and disease could easily spread when the tourists were not fit and exhausted during the trip. It was necessary for tourists to anticipate the spread of disease by knowing certain disease in the country and to have them vaccinated before traveling.

Conclusion: Travel medicine practice has a significant impact on disease transmission anticipation among travellers/ tourists.

Keywords: travel medicine practice , communicable disease spread, tourists

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OPTIMIZATION OF SURVEILLANCE AND LABORATORY TECHNICIANS IN DIPHTHERIA OUTBREAK CONTROL IN BANDA ACEH, ACEH

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ABSTRACT

Background: Diphtheria is a widespread severe infectious disease that has the potential for epidemics. It was one of the leading causes of childhood death in the pre-vaccine era. Surveillance data can be used to monitor levels of coverage (target >90%) and disease as a measure of the impact of control programmes. Recent epidemics have highlighted the need for adequate surveillance and epidemic preparedness. This study aimed to examine the optimization of surveillance and laboratory technicians in diphtheria outbreak control in Banda Aceh, Aceh.

Subjects and Method: A qualitative study was carried out at 5 community health centers in Banda Aceh, Aceh. The theme of this study was the optimization of surveillance and laboratory technician in diphtheria outbreak control in Banda Aceh, Aceh. The data were collected by in-depth interview. The data obtained were then verified at the city health office in Banda Aceh.

Results: There was a lack of surveillance and laboratory personnel in Banda Aceh. Each community health center had only 1 surveillance person. No community health center had trained laboratory staff to collect diphtheria specimen. Banda Aceh city health office had only 1 trained laboratory technician. The lack of personnel hampered diphtheria control management.

Conclusion: There is a lack of surveillance and laboratory personnel in Banda Aceh. The lack of personnel hampers diphtheria control management.

Keywords: surveillance, laboratory, outbreak, diphtheria

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EFFECT OF AGGRESSIVE BEHAVIOR OF THE SCHIZOPRENIC PATIENTS ON THE LEVEL OF STRESS OF MENTAL HEALTH NURSES AT SOUTH EAST SULAWESI MENTAL HOSPITAL

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ABSTRACT

Background: The dispute of job stress among nurses is one of the core concerns in the field of psychiatric nursing. It was found that stress brought harmful impacts on both nurses' health and their ability to cope with job demands. The study aimed to examine the effects of aggressive behavior of the schizophrenic patients on the level of stress of mental health nurses at South East Sulawesi mental hospital.

Subjects and Method: This was a cross sectional study conducted at governmental psychiatric hospital South East Sulawesi Province. A total sample of 62 psychiatric nurses was selected for this study by simple random sampling. The dependent variable was level of stress. The independent variable was aggressive behavior of the schizophrenic patients. The data were collected by questionnaire. Strength of correlation was measured by Spearman correlation coefficient.

Results: Level of stress of mental health nurses was correlated with aggressive behavior of the schizophrenic patients ($r=0.19$; $p= 0.010$).

Conclusion: Level of stress of mental health nurses is correlated with aggressive behavior of the schizophrenic patients.

Keywords: aggressive behavior, schizophrenic patients, level of stress

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MICROBIAL CONCENTRATION OF AMBIENT AIR IN POLY-CLINIC ROOM AT COMMUNITY HEALTH CENTER, KENDARI, SOUTH EAST SULAWESI

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ABSTRACT

Background: The risk of nosocomial infection is increasing due to the increasing number of patients with immune depression. Good ventilation is one of the methods used to reduce the ambient air levels of the causative agents. This study tested the microbiological air quality at different areas of the Poasia community health center, Kendari, South East Sulawesi to ascertain the levels of airborne bacteria in the ambient air.

Subjects and Method: A cross sectional study was carried out at Poasia community health center, Kendari, South East Sulawesi. Seven rooms of the community health center were selected for this study including waiting room, laboratory, dental clinic, delivery room, general poly, treatment room, and kitchen. The dependent variable was existence the bacteria. The assessment was carried out by exposing petri dishes containing the appropriate culture media for about 30 min at a convenient place in each of the seven study sites. Thereafter, the plates were covered and immediately transferred to the laboratory for incubation at 37°C, for 24–48 h. The numbers of bacteria in the cultures were determined at the end of the incubation period

Results: Bacteria were detectable in the ambient air of all study sites. On Monday the highest level of microbia 74% was in the waiting room, and the lowest level 17% in the laboratory. On Tuesday the highest level was in the laboratory, and the lowest level 22% in the dental clinic. On Wednesday the highest level was 160% in laboratory, and the lowest level 19% in the maternity room. On Thursday the highest level was 110% in the laboratory, the lowest level was 19% in the maternity room. On Friday the highest level was 100% in the laboratory, and the lowest level was 25% in general poly, dental poly-clinic, and treatment room. On Saturday the highest level was 120% in the laboratory, the lowest level was 13% at the dentist clinic.

Conclusion: The indoor air of Poasia community health center were in the below of the range according to Decree of the Minister of Health of Indonesia No. 1204/MENKES/ SK/ X/ 2004. However airborne bacteria in the ambient air often associated with clinical manifestations like allergy, rhinitis, asthma and conjunctivitis. Thus, attention must be given to control those environmental factors which favor the growth and multiplication of microbes in indoor environment to safeguard the health of users and workers.

Keywords: microbia concentration, air borne, ambient air.

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THE RELATIONSHIP BETWEEN COMMUNITY HEALTH BEHAVIOR AND AEDES AEGEPTY LARVA FREE INDEX IN ABELI, KENDARI, SOUTH EAST SULAWESI

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ABSTRACT

Background: Dengue fever, also known as breakbone fever, is a mosquito-borne infection that can lead to a severe flu-like illness. It is caused by four different viruses and spread by Aedes mosquitoes. There are currently no vaccines. The best method of prevention is to avoid mosquito bites. Treatment is possible if diagnosis occurs before the patient develops dengue shock syndrome (DSS) or dengue haemorrhagic fever (DHF). The purpose of this study was to analyze the relationship between community health behavior and aedes aegypti larva free index in Abeli, Kendari, South East Sulawesi.

Subject and Method: This was a cross sectional study conducted at Abeli Community health center, Kendari, South East Sulawesi. A total sample of 248 household heads was selected for this study by simple random sampling. Household heads were selected from Abeli and Tondonggeu village, for each village was selected 124 household heads. The dependent variable was aedes aegypti larva free index. The independent variables were knowledge, attitude, and practice. The data were collected by questionnaire and observation sheet. The data were analyzed by chi square.

Result: In Abeli village, the associations between knowledge (OR= 1.98; CI 95%= 0.91 to 4.35; p= 0.120), as well as attitude (OR= 0.99; 95% CI= 0.39 to 2.48; p= 0.999) with aedes aegypti larva free index were statistically not significant. The association between practice and aegypti larva free index (OR=2.55; 95%CI= 1.23 to 5.30; p= 0.018) was statistically significant. In Tondonggeu village, knowledge (OR= 4.67; 95% CI= 2.15 to 10.14; p<0.001), attitude (OR= 2.43; 95% CI= 0.99 to 5.93; p= 0.04), and practice (OR= 5.49; 95% CI= 2.48 to 12.18; p<0.001) were associated with with aedes aegypti larva free index, and they were all statistically significant.

Conclusion: Community health behavior is consistently associated with aedes aegypti larva free index. Community health knowledge and attitude are inconsistently associated with aedes aegypti larva free index.

Keywords: knowledge, attitude, action, aedes aegypti larva free index.

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INTEGRATED WASTE MANAGEMENT IN KENDARI CITY, SOUTH EAST SULAWESI

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ABSTRACT

Background: The population growth brings about the increasing amount of the waste which becomes a problem faced by the government. Some factors influencing the quality of the service such as, lack of policies/strategies and financial support, low involvement of private sectors, inefficiency, and low community awareness led to the low level of service of municipal waste management. The problem occurred in all steps of solid waste management (storage, collection, transferring, transporting, and treatment) with the tendency to rise at the end point, landfill. This study aimed to investigate the integrated waste management in Kendari, South East Sulawesi.

Subjects and Method: A qualitative study was conducted in Kendari, South East Sulawesi. A sample of several informants was selected for this study. The data were collected by in-depth interview, direct observation, and document review. Checklist sheets were used to assist direct observation. The data were described using descriptive method.

Results: The waste collection system included two components, namely generation and transportation. Imbalance between the portion of generation of solid waste and management capacity indicated improvident management. Lack of payment methods for alternative waste management, low human resources, insufficient funding sources and low public awareness, were identified as factors that influenced the inefficiency of waste management.

Conclusion: Inadequate waste management led to inefficient solid waste management in Kendari. Imbalance between the portion of generation of solid waste and management capacity indicated improvident management. Implementation of integrated solid waste management in Kendari is urgently needed.

Keywords: alternative payment methods, low human resources, insufficient funding sources, low public awareness, integrated waste management.

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ASSIGNMENT OF VILLAGE SURVEILLANCE OFFICER FOR THE DEVELOPMENT OF DENGUE HEMORRHAGIC FEVER SURVEILLANCE IN KENDARI, SOUTH EAST SULAWESI

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ABSTRACT

Background: Dengue hemorrhagic fever (DHF) is a major public health problem in Indonesia. Strong surveillance system is critical to monitor DHF incidence and its risk factors over time. Timely information provided by the surveillance can be used for the decision makers to take necessary action to control and prevent the disease problem. This study aimed to determine the effectiveness of village surveillance officer for the development of DHF surveillance in Kendari, South East Sulawesi.

Subjects and Method: This was a quasi experiment study, using before and after intervention. The study was carried out in 6 villages with village surveillance officers and 2 villages with no village surveillance officers as controls. There were 3 village officers surveillance who served at RT, RW, and villages level. This study began with the recruitment of village surveillance officers followed by training. A total sample of 520 household heads was selected for this study by cluster sampling. There were 65 household heads for each village. The dependent variable was village surveillance officer assignment. The independent variables were community behavior, environmental sanitation, larva free numbers and reporting systems from the community. The data were collected by questionnaire and observation sheet. Data were analyzed by Wilcoxon signed rank test and path analysis.

Results: The existence of village surveillance officer was associated with improved community behavior, better environmental sanitation, and increased larva free index. There was difference in the performance of village surveillance officer at each level of work. Village surveillance officer effectively encouraged community participation. Village surveillance officer is effective in implementing DHF control and prevention, including early detection, recording, reporting, and rapid response of cases.

Conclusions: The existence of village surveillance officer is associated with improved community behavior, better environmental sanitation, and increased larva free index.

Keywords: village surveillance officer, community behavior, environmental sanitation, larva free index, dengue hemorrhagic fever.

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FAMILY APPROACH HEALTHY INDONESIA PROGRAM TO IMPROVE ADHERENCE TO ANTI-TUBERCULOSIS TREATMENT IN NORTH KONAWE, SOUTH EAST SULAWESI

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ABSTRACT

Background: Tuberculosis (TB) is a communicable disease that remains a major public health issue worldwide. Tuberculosis epidemics have become a primary public health concern for the last few decades. Treatment adherence is essential for TB completion and cure. In Konawe District, South East Sulawesi, TB treatment coverage has not reached the targeted level of 100%. Some patients did not adhere to treatment or even did not complete it. This study aimed to determine the effect of family approach healthy Indonesia program (PIS-PK) on the adherence to anti-tuberculosis treatment.

Subjects and Method: This was a cohort study conducted at North Konawe District, South East Sulawesi. A sample of 154 TB patients was selected for this study by cluster sampling. The dependent variable was adherence to anti-tuberculosis treatment. The independent variable was family approach healthy Indonesia program (PIS-PK). The data was collected by questionnaire and checklist. The data were analyzed by McNemar chi square test.

Results: Number (percent) of TB patients who adhere to anti-tuberculosis treatment increased from 55 patients (35.7%) before implementation to 99 patients (62.3 %) after implementation of PIS-PK, and it was statistically significant ($p < 0.001$).

Conclusion: The family approach healthy Indonesia program (PIS-PK) can improve adherence to anti-tuberculosis treatment

Keywords: PIS-PK, adherence to anti-tuberculosis

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EFFECT OF FRESH WATER SHELL (*BATISSA VIOLACEA CELEBENSIS*) ON IRON LEVEL IN THE GROUND WATER, KENDARI, SOUTH EAST SULAWESI

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ABSTRACT

Background: Iron in rural ground water supplies is a common problem: its concentration level ranges from 0 to 50 mg/L, while WHO recommended level is <0.3 mg/L. The iron occurs naturally in the aquifer but levels in groundwater can be increased by dissolution of ferrous borehole and handpump components. Iron-bearing groundwater is often noticeably orange in colour, causing discoloration of laundry, and has an unpleasant taste, which is apparent in drinking and food preparation. There are only a few studies of fresh water shell (*batissa violacea celebensis*) as an alternative to reduce the iron content in groundwater has not been done much. This study aimed to test the effectiveness of fresh water shell (*batissa violacea celebensis*) in decreasing iron level in the ground water.

Subjects and Method: This was a quasi-experiment study before and after with no control design conducted at Wowawanggu village, Wua-wua sub-district, Kendari, South Sulawesi. A total sample of 3 boreholes was selected for this study by purposive sampling. The dependent variable was iron level in the ground water. The independent variable was fresh water shell (*batissa violacea celebensis*). Differences in mean between groups were tested by One Way ANOVA and post hoc test.

Result: Differences in mean between groups were statistically significant with iron level in the ground water in the fresh water shell (*batissa violacea celebensis*) groups lower than the negative control group.

Conclusion: Fresh water shell (*batissa violacea celebensis*) is effective to decrease iron level in the ground water.

Keywords: iron level, ground water, fresh water shell, *batissa violacea celebensis*

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EMISSION OF TONASA CEMENT FACTORY IN ASSOCIATION WITH SURROUNDING SOCIETY'S LUNG CAPACITY

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ABSTRACT

Background: Cement is one of the most important building materials in the world. Exposure to cement dust has been demonstrated to have adverse effects on human health. Several cross-sectional studies have reported reduction in lung function in workers exposed to high concentrations of cement plant dust. This study aimed to examine the effect of emission Tonasa cement factory on lung capacity of people living in the area around the cement industry.

Subjects and Method: This was a cross sectional study conducted at South Konawe, Kendari, South East Sulawesi. A total sample of 241 respondents in four different locations was selected for this study. The locations were based on wind directions and within 3 kms from the cement industry. The dependent variable was lung capacity. The independent variable was outdoor ambient air. The data of the emission dispersion from the cement factory stack was collected by AERMOD. The instrument to measure lung capacity was spirometry analyzer. The data were analyzed by Chi Square.

Results: The distribution of the emission could reach 1.5-3 kms with the concentration of CO = 20,000 $\mu\text{g}/\text{m}^3$, NO₂ = 100 $\mu\text{g}/\text{m}^3$, SO₂ = 40 $\mu\text{g}/\text{m}^3$, TSP = 210 $\mu\text{g}/\text{m}^3$. The condition of society lung capacity (FEV₁ and FVC) had a relationship with the ambient air quality ($p < 0.001$).

Conclusion: The condition of society lung capacity is significantly associated with high cement dust exposure. Preventive measures are needed to reduce the dust exposure.

Keywords: AERMOD, stack emission, area of exposure, lung capacity

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THE ASSOCIATION BETWEEN KNOWLEDGE, DRUG SUPERVISOR, AND ADHERENCE TO LUNG TUBERCULOSIS TREATMENT IN LATAMBAGA, SOUTH EAST SULAWESI

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ABSTRACT

Background: Tuberculosis (TB) is a major contributor to the global burden of disease and has received considerable attention in recent years. Poor adherence to treatment is common despite various interventions aimed at improving treatment completion. Lack of a comprehensive and holistic understanding of barriers to and facilitators of, treatment adherence is currently a major obstacle to finding effective solutions. This study aimed to determine the associations between knowledge, drug supervisor, and adherence to lung tuberculosis treatment in Latambaga, South East Sulawesi

Subjects and Method: This was a cross sectional study conducted at Latambaga community health center, South East Sulawesi. A total sample of 34 patients was selected for this study by saturation sampling. The dependent variable was the adherence to lung tuberculosis treatment. The independent variables were knowledge and drug supervisor. The data was collected by questionnaire and analyzed by chi square with OR as a measure of association.

Results: Good knowledge (OR= 9.60; 95% CI= 1.83 to 50.28; p= 0.008) and active drug supervisor (OR= 31.67; 95% CI= 4.52 to 221.70; p<0.001) were positively associated with the adherence to lung tuberculosis treatment.

Conclusion: Good knowledge and active drug supervisor are positively associated with the adherence to lung tuberculosis treatment

Keywords: knowledge, drug supervisor, the adherence to treatment, lung tuberculosis

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EFFECT OF DUST AND FUME EXPOSURE ON LUNG FUNCTION AMONG FOOD PROCESSING WORKERS IN SEMARANG, CENTRAL JAVA

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ABSTRACT

Background: Workers in many industrial areas are exposed to various inhalable agents including dust, gases, fumes, and organic solvents. These agents may cause several respiratory diseases. This study aimed to examine the effect of dust and fume exposure on lung function among food processing workers in Semarang, Central Java.

Subjects and Method: This was a cross sectional study conducted at a food processing factory in Semarang, Central Java. A total of 264 workers was selected for this study. The dependent variable was lung function. The independent variables were dust and fume exposure. Data on dust and fume exposures were obtained through interview using structured questionnaire and observation. Lung function was measured by spirometer. The data were analyzed by Chi-square.

Results: A total of 12.9% workers exposed to dust and 9.8% exposed to fume. 22.3% workers had lung function disorder. Most lung disorders were mild restriction. Dust and fume exposures were positively associated with lung function disorder, and they were statistically significant.

Conclusion: Dust and fume exposures are positively associated with lung function disorder.

Keywords: dust, fume, exposure, lung function, worker

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SOCIAL DETERMINANTS OF CHRONIC ENERGY DEFICIENCY IN PREGNANT WOMEN IN CENTRAL LAMPUNG: A QUALITATIVE STUDY

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ABSTRACT

Background: Women in the reproductive age are most vulnerable to malnutrition. Chronic Energy Deficiency (CED) refers to an intake of energy less than the requirement, for a period of several months or years. CED during pregnancy will cause problems, both in the mother and fetus. This study aimed to examine social determinants of chronic energy deficiency in pregnant women in Central Lampung.

Subjects and Method: This study was an explorative qualitative with phenomenology approach, conducted in Gunung Sugih community health center, Central Lampung. A total of 20 pregnant women aged 18-35 years old with mid-upper arm circumference (MUAC) ≤ 23.5 cm were selected for this study. The dependent variable was CED. The independent variable were social determinants. The data were collected by questionnaire, in-depth interview, and focus group discussion (FGD). Data triangulation was carried out to nutrition program holder and midwives. The data were analyzed descriptively.

Results: There were 10 themes about social, economic, and cultural determinants of CED: 1) knowledge about CED, 2) healthy dietary pattern and nutrition intake, 3) dietary pattern of family contributed to nutrition status, 4) relationship between anemia and CED, 5) dietetic pattern believed and practiced by pregnant women, 6) increased maternal body weight in pregnancy, 7) occupation correlate of CED, 8) proportion of household income to fulfill availability of food in family, 9) health effects of CED, and 10) access to health information.

Conclusion: There are 10 themes about social, economic, and cultural determinants of CED among pregnant women.

Keywords: chronic energy deficiency, pregnant women, social determinant

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POLICY ANALYSIS OF OCCUPATIONAL HEALTH IMPLEMENTATION AT R. SYAMSUDIN, SH. HOSPITAL, SUKABUMI, WEST JAVA

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ABSTRACT

Backgrounds: The Occupational Health and Safety Act aims to ensure healthy and safe working conditions of workers. Although some organisations have worked hard to safeguard their employees' health and protect them from work-related hazards, their programmes have not been guided by any specific policy or workplace health promotion framework. The purpose of this study was to use the theoretical framework of Van Meter and Van Horn including policy standards and objectives, resources, implementing agency characteristics, communication between organizations, implementing dispositions and support of socio-economic and political environments as a framework to examine policy analysis of occupational health implementation at R. Syamsudin, SH. hospital, Sukabumi, West Java.

Subjects and Method: This was a qualitative study conducted at R. Syamsudin, SH. hospital in Sukabumi, West Java. A sample of 17 health workers was selected for this study. The dependent variable was the implementation of occupational health. The independent variables were policy standards and objectives, resources, implementing agency characteristics, communication between organizations, implementing dispositions and support of socio-economic and political environments. The data were collected by depth-interview, observation and document review.

Results: The implementation of occupational health policy in R. Syamsudin, SH hospital was found not optimally implemented.

Conclusion: The implementation of occupational health policy in RSUD R. Syamsudin, SH. Sukabumi city is not optimally implemented. Theoretical framework of Van Meter and Van Horn can be used to analysis the implementation of occupational health.

Keywords: occupational health, policy implementation, van meter, van horn

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THE ASSOCIATION BETWEEN ANXIETY, PHYSICAL EXERCISE, DIETARY PATTERN, AND PHYSICAL FITNESS AMONG MALE ADOLESCENTS: A PATH ANALYSIS STUDY

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ABSTRACT

Background: Obesity in adolescence is crucial as it represents an important stage in human life. The International Obesity Task Force report showed that a total of 155 million children and adolescents are overweight and around 30–45 million are classified as obese. Dietary habits are greatly associated with lifestyle. This study aimed to examine the association between anxiety, physical exercise, dietary pattern, and physical fitness among male adolescents.

Subjects and Method: This was a cross-sectional study conducted in three senior high schools, Gondokusuman, Yogyakarta. A sample of 225 male students aged 15 – 18 years was selected by fixed exposure sampling. The dependent variable was physical fitness. The independent variables were body mass index (BMI), anxiety, physical exercise, and dietary pattern. Data on sleep quality were measured by Pittsburgh Sleep Quality Index (PSQI) questionnaire. Anxiety was measured by Hamilton Anxiety Rating Scale. Dietary pattern were measured by Frequency Food Questionnaire (FFQ). Physical fitness measured by Cooper run test 12 minutes. The data were analyzed by path analysis run on Stata 13.

Results: Physical fitness was directly increased by good dietary pattern ($b= 2.09$; 95% CI= 0.51 to 3.68; $p= 0.009$) but decreased by BMI ($b= -3.53$; 95% CI= -4.49 to -2.58; $p<0.001$). Physical fitness was indirectly affected by physical activity, quality of sleep, and anxiety.

Conclusion: Physical fitness is directly increased by good dietary pattern but decreased by BMI. Physical fitness is indirectly affected by physical activity, quality of sleep, and anxiety among adolescents.

Keywords: physical fitness, physical exercise, anxiety, dietary pattern, male adolescents

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RISK FACTORS OF TYPE II DIABETES MELLITUS AMONG WOMEN OF REPRODUCTIVE AGE IN SURAKARTA, CENTRAL JAVA

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ABSTRACT

Background: Type 2 diabetes mellitus (DM) and its complications constitute a major worldwide public health problem. It results from a complex inheritance-environment interaction along with other risk factors such as obesity and sedentary lifestyle. The purpose of this study was to determine the risk factors of type II DM among women of reproductive age in Surakarta, Central Java.

Subject and Method: A case control study was carried out at Purwosari community health center. A sample of 150 women of reproductive age was selected by proportionate stratified random sampling. The dependent variable was type 2 DM. The independent variables were dietary pattern, body mass index (BMI), physical activity, and family history of DM. Data on type II DM were obtained from the medical record. The other data were collected by questionnaire and analyzed by a multiple logistic regression.

Results: The risk of type 2 DM increased with low physical activity (OR= 3.27; 95% CI= 1.53 to 6.97; p= 0.002), family history of DM (OR= 3.12; 95% CI= 1.43 to 6.84; p= 0.004), poor dietary pattern (OR= 2.65; 95% CI= 1.20 to 5.83; p= 0.016), and high BMI (OR= 2.60; 95% CI= 1.27 to 5.30; p= 0.008).

Conclusion: The risk of type 2 DM increases with low physical activity, family history of DM, poor dietary pattern, and high BMI.

Keywords: type 2 DM, BMI, dietary pattern, physical activity

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THE ASSOCIATIONS BETWEEN EMPLOYMENT, SMOKING, PHYSICAL ACTIVITY, FAST FOOD CONSUMPTION, AND HYPERTENSION IN INDONESIA

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ABSTRACT

Background: Physical activity and healthy eating have long been promoted as key strategies in preventing hypertension. Fast food contains high sodium content, which increases the risk of high blood pressure. The purpose of this study was to estimate the associations between employment, smoking, physical activity, fast food consumption, and hypertension.

Subjects and Method: This was a cross-sectional study in 13 Provinces in Indonesia. A sample of 4,204 hypertension patients was selected for this study. The dependent variable was hypertension. The independent variables were employment, smoking, physical activity, and fast food consumption. The data were obtained from Indonesia Family Life Survey 5 (IFLS-5). The data were analyzed by a multiple logistic regression.

Results: The prevalence of hypertension was 12.3%. Percent case of hypertension among male and female were 35.8% and 64.2%, respectively. The risk of hypertension increased with being employed (OR= 0.64; 95% CI= 0.55 to 0.74; $p < 0.001$), smoking behavior (OR= 1.04; 95% CI= 0.78 to 1.38; $p = 0.817$), and low physical activity (OR= 1.14; 95% CI= 0.99 to 1.32; $p = 0.075$). It was decreased by low fast food consumption (OR= 0.84; 95% CI= 0.77 to 0.91; $p < 0.001$).

Conclusion: The risk of hypertension increases with employment, smoking behavior, and low physical activity. It decreases with low fast food consumption.

Keywords: hypertension, smoking, employment, fast food consumption.

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MULTILEVEL ANALYSIS: DETERMINANTS OF DENGUE HEMORRHAGIC FEVER IN BANTUL, YOGYAKARTA

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ABSTRACT

Background: Dengue is an important mosquito-borne disease in the world in terms of morbidity, mortality and economic costs. The factors responsible for dengue hemorrhagic fever (DHF) incidence are complex, including socio-demographic and environmental factors. However, studies into the contextual effect of village on DFH are scarce. This study aimed to examine the determinants of dengue hemorrhagic fever in Bantul, Yogyakarta, using multilevel analysis.

Subjects and Method: A case control study was carried out at 25 villages in Bantul, Yogyakarta, Indonesia. A sample of 250 study subjects was selected by fixed disease sampling. The dependent variable was DHF. The independent variables were Maya index (MI), density figure (DF), dwelling density, knowledge, mosquito nests eradication, use of mosquito repellent, and village. The data were collected by questionnaire and analyzed by a multiple logistic regression.

Results: High MI ($b= 1.62$; 95% CI= 0.87 to 2.37; $p<0.001$), high DF ($b= 1.39$; 95% CI= 0.65 to 2.13; $p<0.001$), dense dwelling ($b= 0.64$; 95% CI= -0.94 to 1.37; $p= 0.087$), poor knowledge ($b= 1.08$; 95% CI= 0.34 to 1.81; $p= 0.004$), poor mosquito nest eradication ($b= 1.13$; 95% CI= 0.38 to 1.87; $p= 0.003$), did not use mosquito repellent ($b= 1.19$; 95% CI= 0.37 to 1.86; $p= 0.003$) increased the risk of DHF. Village had contextual effect on the incidence of DHF with ICC= 17.34%.

Conclusion: High MI, high DF, dense dwelling, poor knowledge, poor mosquito nest eradication, did not use mosquito repellent increases the risk of DHF. Village has contextual effect on the incidence of DHF.

Keywords: dengue hemorrhagic fever, Maya index, density figure, mosquito nest eradication, village

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THE ASSOCIATIONS BETWEEN SMOKING, DIETARY PATTERN, WALKING BEHAVIOR, AND TUBERCULOSIS

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ABSTRACT

Background: Tuberculosis (TB) is a chronic infectious disease which is still a global health problem. Cigarette smoking is a major risk factor for acute respiratory tract infections, with both active and passive smoke exposure increasing the risk of TB infection. The purpose of this study was to examine the associations between smoking, dietary pattern, walking behavior, and the risk of tuberculosis.

Subjects and Method: This was a cross sectional study. A sample of 31,879 was selected for this study. The dependent variable was tuberculosis. The independent variables were dietary pattern, walking behavior, and smoking. The data were obtained from Indonesia Family Life Survey (IFLS) year 2014. The data were analyzed by a multiple logistic regression.

Results: The number of TB patients was 316 cases. Proportion of TB cases among male and female were 55.7% and 44.3%, respectively. The risk of TB decreased with absence of smoking (aOR= 0.86; 95% CI= 0.67 to 1.09; p= 0.211), good dietary pattern (aOR= 0.92; 95% CI= 0.71 to 1.19; p= 0.532), and walking behavior (aOR= 0.64; 95% CI= 0.48 to 0.86; p= 0.003).

Conclusion: The risk of TB decreases with good dietary pattern, absence of smoking, and walking behavior.

Keywords: tuberculosis, dietary pattern, walking behavior, smoking

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THE IMPACT OF FAMILY AND PEER SUPPORTS IN REDUCING DEPRESSION AMONG OSTEOARTHRITIS PATIENTS

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ABSTRACT

Background: Previous studies found that anxiety or depression were highly prevalent among osteoarthritis (OA) patients. This study aimed to examine the impact of family and peer support in reducing depression among OA patients.

Subjects and Method: A case-control study was conducted at Dr. Moewardi Hospital and Dr. Soeharso Orthopedic Hospital, Surakarta, Central Java, from January to February 2018. A sample of 200 OA patients was selected by simple random sampling. The dependent variables were depression. The independent variables were pain level, functional disability, family support, and peer support. Data on depression were measured by Beck's Depression Inventory (BDI). Functional disability data were measured by The Western Ontario and McMaster University Arthritis Index (WOMAC). The other variables were collected by questionnaire. The data were analyzed by path analysis, run on Stata 13.

Results: Family support ($b = -0.75$; 95% CI = -1.39 to -0.11; $p = 0.022$) and peer support ($b = -1.25$; 95% CI = -1.90 to -0.59; $p < 0.001$) reduced depression in OA patients. Pain level was indirectly and positively associated with depression ($b = 1.54$; 95% CI = 0.88 to 2.20; $p < 0.001$) through functional disability.

Conclusion: Family support and peer support reduce depression in OA patients.

Keywords: depression, family support, peer support, osteoarthritis

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FACTORS ASSOCIATED WITH DEPRESSION AMONG THE ELDERLY IN TAIWAN

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ABSTRACT

Background: Depression in later life, traditionally defined as age older than 65, is associated with disability, increased mortality, and poorer outcomes from physical illness. This study aimed to analyze factors associated with depression among the elderly in Taiwan.

Subjects and Method: This was a cross sectional study conducted in Taiwan from 2016 to 2017. A sample of several elderly was selected for this study. The dependent variable was depression. The independent variables were marital status, employment status, health status, bodily pain, sleep quality, physical function, and family support. The data of depression were measured by Center for Epidemiologic Studies Depression Scale (CES-D) and analyzed by a multiple logistic regression.

Results: Marital status, employment status, health status, bodily pain, sleep quality, physical function, and family support, were associated with depression.

Conclusion: Depression is associated with biopsychosocial factors. A comprehensive prevention and treatment intervention for geriatric depression need to account for such factors.

Keywords: depression, elderly, Taiwan

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FAMILY RESILIENCE AFTER EARTHQUAKE: A SYSTEMATIC REVIEW

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ABSTRACT

Background: Natural disasters are manifesting more often in the last 100 years. Human activities are also contributing and triggering this rapidness. A natural disaster can cause loss of life or damage property, and typically leaves some economic damage in its wake, the severity of which depends on the affected population's resilience, or ability to recover and also on the infrastructure available. Resilience has been shown to contribute to disaster victims' recovery and positively related to people's mental health. This study aimed to systematically review factors affecting the family resilience after earthquake.

Subjects and Method: A systematic review was carried out with quantitative method according to the PRISMA model. The dependent variable was family resilience. The independent variables were conflict, communication, family support, and improvement in resilience programs. From 829 articles, 11 articles that obligated with the inclusion and exclusion criteria was selected for this study. The articles were collected by searching 5 databases including Proquest, MEDLINE, CINAHL, Science Direct, and Springer Link.

Results: Family resilience was affected by conflict (18.1%), communication (9%), family support (54.5%), and improvement in resilience programs (27.2%). Although some studies had revealed that disasters do not always have the same characteristics in different regions.

Conclusion: Family resilience is affected by conflict, communication, family support, and improvement in resilience programs. Family resilience helps prepare disaster and minimize its impact.

Keywords: family resilience, disaster

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PSYCHOLOGICAL AND SOCIAL DETERMINANTS OF QUALITY OF LIFE AMONG THE ELDERLY WITH DIABETES MELLITUS

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ABSTRACT

Background: Diabetes Mellitus (DM) is a non infectious disease with an increasing incidence in Indonesia. Financial, social and psychological handicaps are integral to all chronic diseases, but diabetes differs in two important respects. Firstly, although it affects virtually every aspect of everyday life to a greater or lesser degree, the patient is encouraged to lead a “normal life” without any of the concessions usually made to a person with chronic illness. Secondly, although the treatment is demanding and often complex, the patient is expected to bear much of the responsibility for making decisions which may effect his health, both in the short and long term. This study aimed to investigate the psychological and social determinants of quality of life among the elderly with diabetes mellitus.

Subjects and Method: A cross sectional study was conducted in the area of the practice of Interprofessional Education (IPE) Faculty of Medicine, Universitas Diponegoro, Rowosari Health Center, Semarang, Central Java. A sample of 67 diabetic patients was selected for this study at random. The independent variables included the social determinants, which consisted of sex, education level, economic status, and health insurance status; the family function; and the family resources. The family function was measured by family APGAR. The family resources were measured by family SCREEM. The dependent variable was quality of life consisting of cognitive function, depression, and functional ability. These various aspects of quality of life were measured by Mini Mental Examination Scale, Geriatric Depression Scale, Barthel Index, and Short Form-36. The data were analyzed using chi-square with prevalence ratio (PR) as the measure of association.

Results: Family function (PR= 5.15; 95% CI= 1.67 to 15.6; p= 0.003), absence of depression (PR= 5.31; 95% CI= 1.81 to 15.56; p= 0.002), cognitive function (PR= 15.33; 95% CI= 3.19 to 73.62; p≤ 0.010), functional ability (PR= 7.33; 95% CI= 1.96 to 28.27; p= 0.002), were positively associated with quality of life. The associations between sex (PR= 0.84; 95% CI= 0.311 to 2.26; p= 0.729), education level (PR= 4.11; 95% CI= 0.93 to 18.22; p= 0.050), economic status (PR= 1.88; 95% CI= 0.65 to 5.39; p= 0.239), health insurance status (PR= 1.25; 95% CI= 0.35 to 4.46; p= 0.731), and family resources (PR= 2.00; 95% CI= 0.73 to 5.47; p= 0.175), and quality of life were statistically non-significant.

Conclusion: Family function, absence of depression, cognitive function, functional ability are associated with quality of life in the elderly with diabetes mellitus.

Keywords: elderly, diabetes mellitus, quality of life, determinant

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FACTORS ASSOCIATED WITH OPEN DEFECATION IN FLOOD-PRONE AREAS IN INDONESIA

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ABSTRACT

Background: Open defecation (OD) is the human practice of defecating outside (in the open environment) rather than into a toilet. This practice is still happening in some countries, especially in low- and middle-income countries (LMIC). Natural disaster can happened to worsen the OD practice. There is still no study that eligible to the association of natural disaster and OD practice. This study aimed to determine the factors associated with open defecation in flood-prone areas in Indonesia.

Subjects and Methods: This was an observational study. The data were obtained from Basic Health Research (Riskesdas) and National Socio-Economic Survey (Susenas), in 2013. OD practice and socio-demographic characteristics of the households were obtained from Riskesdas in 2013. Flood experience of the households was obtained from Susenas in 2013. The data were analyzed by multivariate logistic regression and odds ratio (OR) as the measure of association.

Results: Out of 835,256 people, 18.93% reported defecation in an open environment. The OD prevalence was higher in the rural areas (28.61%) than in the urban areas (7.48%). People lived in flood-prone area was more likely to practice OD (OR= 1.85; 95% CI= 1.81 to 1.89; p< 0.001) than those who lived in non-flood-prone area. Access to drinking water, sanitation facility, and household socioeconomic status were also found to be significantly associated with OD practice.

Conclusion: Open defecation (OD) practice in the rural area is higher than in the urban area. People lived in flood-prone area is more likely to practice OD. Access to drinking water, sanitation facility, and household socioeconomic status are associated with OD practice.

Keywords: open defecation, flood-prone area, rural, urban, Indonesia

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FACTORS ASSOCIATED WITH THE RISK OF DIARRHEA IN CHILDREN UNDER FIVE IN BANDUNG, WEST JAVA

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ABSTRACT

Background: Diarrhea cases account for 1 in 9 child deaths worldwide, making it the second leading cause of death among children under five. About 88% of diarrhea-associated deaths are attributable to unsafe water, inadequate sanitation, and insufficient hygiene. This study aimed to determine the factors associated with the risk of diarrhea in children under five in Bandung, West Java.

Subjects and Method: This was a case-control study conducted in Bandung, West Java. A total of 244 children under five was selected for this study. The dependent variable was diarrhea. The independent variables were household clean water facility, latrine, lavatory, piped sewer system, and waste management. The data were collected by questionnaire and analyzed using odds ratio as a measure of association.

Results: Of 244 households, 75.8% had clean water facility, 45.9% had household lavatory, 41.0% had piped sewer system, and 32.4% had household waste management. Household lavatory (OR = 4.59; 95% CI 2.68 to 7.89; $p < 0.001$), piped sewer system (OR = 2.13; 95% CI 1.27 to 3.58; $p = 0.006$), and household waste management (OR = 0.35; 95% CI 0.20 to 0.62) were associated with diarrhea case.

Conclusion: Household latrine, piped sewer system, and household waste management are associated with the risk of diarrhea among children under five.

Keywords: basic sanitation facility, household, diarrhea, children under five

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ASSOCIATION BETWEEN SOCIAL DETERMINANTS, FAMILY FUNCTION, DEPRESSION, AND MARRIAGE SATISFACTION AMONG PEOPLE WITH HIV/AIDS

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ABSTRACT

Background: Acquired immunodeficiency syndrome (AIDS) is a chronic, potentially life-threatening condition caused by the human immunodeficiency virus (HIV). HIV/AIDS can cause physical, social, and emotional problems to patients and their partners. This can affect marital satisfaction. This study aimed to investigate the association between social determinants, family function, depression, and marriage satisfaction among people with HIV/AIDS.

Subjects and Method: This was cross sectional study conducted at Dr. Kariadi General Hospital, Semarang, Central Java. A total of 52 people living with HIV/AIDS (PLWHA) along with their partners was selected for this study. PLWHA were 18 to 60 years of age who underwent outpatient care at the Tropical Infection Polyclinic at Dr. Kariadi General Hospital. The dependent variable was marriage satisfaction. The independent variables were age, gender, marriage duration, education level, family function, and depression. HIV/AIDS data were obtained from medical record. Family functions were measured by Family Apgar Questionnaire (FAQ). Depression was measured by Beck Depression Inventory (BDI) instrument. Marriage satisfaction was measured by ENRICH Marital Satisfaction Scale (EMS). The other data were collected by questionnaire. The data were analyzed by chi-square.

Results: Gender (PR= 11.25; 95% CI= 2.22 to 57.02; p=0.001) and frequency of sexual activity (PR=4.71; 95% CI= 1.14 to 19.48; p=0.025) were associated with marriage satisfaction of PLWHA. The associations between age, education level, economic status, marriage duration, duration of knowing the partner has HIV/AIDS, family function depression status, and marriage satisfaction were not statistically significant.

Conclusion: Gender and frequency of sexual activity are associated with marriage satisfaction of people living with HIV/AIDS.

Keywords: social determinant, family function, depression status, marriage satisfaction, people living with HIV/AIDS

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I AM SICK: AM I (OLDER PEOPLE) STILL ABLE TO ENGAGE IN AN ACTIVITY AND FEELING HAPPY?

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ABSTRACT

Background: Aging presents a number of challenges for the maintenance of good health in older adults. The elderly face many challenges in later life, but they do not have to enter old age without dignity. This study aimed to understand what things can be done by elderly people who are physically sick and how those activities can make the elderly happy.

Subjects and Method: This was a qualitative study conducted in the former Surakarta residency, Central Java. The theme of this study was “do older people still be able to engage in an activity and feel happy?” A total of 6 elderly aged >60 years and suffering with chronic disease was selected for this study using purposive sampling. The data were collected by in-depth interview. The data were analyzed using the NVivo 12 QSR program.

Results: Elderly with chronic disease was still able to be active in worship, socializing with the surrounding environment, working, doing the daily chores, and doing elderly gymnastics. The benefits of staying active included the ability to feel happy, be motivated to get reward, exchange idea, share experience, help others, be calm, and maintain health.

Conclusion: The elderly with chronic disease can feel happy by actively doing various physical and social activities.

Keywords: happiness, elderly, chronic disease

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A SYSTEMATIC REVIEW ON THE DETERMINANTS OF THE QUALITY OF LIFE AMONG THE ELDERLY WITH DEPRESSION

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ABSTRACT

Background: Worldwide, the number of people aged 65 or older is projected to grow from an estimated 524 million in 2010 to nearly 1.5 billion in 2050, with most of the increase in developing countries. Most of the elderly faced medical and psychosocial problems that will affect their quality of life. This study aimed to review systematically on the determinants of the quality of life among the elderly with depression.

Subjects and Method: A systematic review was conducted by searching journal articles published in January 2015 to December 2018. A total of 25 eligible studies were extracted from 993 articles. The articles were obtained from 5 databases: EBSCO, Proquest, Science Direct, Willey Library Online, Scopus, and Gray literature in Indonesia.

Results: The determinants of the quality of life among the elderly people with depression included traumatic experience, life change, religious belief, satisfaction with life, history of chronic disease, and self-care inability. Elderly with depression who lived with family at home had a better quality of life than those who lived in the nursing home.

Conclusion: Traumatic experience, life change, religious belief, satisfaction with life, history of chronic disease, and self-care inability are associated with the quality of life among elderly with depression.

Keywords: elderly, depression, quality of life

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THE EFFECT OF CELERY JUICE ON BLOOD PRESSURE AMONG HYPERTENSIVE PATIENTS IN BAKALAN VILLAGE, KALINYAMATAN, JEPARA, CENTRAL JAVA

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ABSTRACT

Background: High blood pressure (BP) is a global public health problem. According to WHO, it is one of the major causes of premature death worldwide, killing nearly 8 million people every year, and the problem is growing. Over 1 billion people are living with high blood pressure. A recent study found that taking celery seed extract improved BP levels in patients who had mild to moderate elevations. Celery contains a phytochemical called phthalides. As an extract, it's called NBP, and it relaxes the tissues of the artery walls to increase blood flow and reduce blood pressure. This study aimed to examine the effect of celery juice on blood pressure among hypertensive patients.

Subjects and Method: This was a quasi experiment conducted in Bakalan Village, Kalinyamatan, Jepara, Central Java, from March to April in 2016. A sample of 24 patients with systolic hypertension was selected for this study by simple random sampling. The dependent variable was blood pressure. The independent variable was celery juice administration. Data on blood pressure were measured by sphygmomanometer. Difference in means of blood pressure before and after celery juice administration was tested by t-test.

Results: Mean systolic blood pressure was lower after than before celery juice administration, and it was statistically significant. Likewise, mean diastolic blood pressure was lower after than before celery juice administration, and it was statistically significant.

Conclusion: Celery juice administration can reduce blood systolic and diastolic blood pressure in patients with systolic hypertension.

Keywords: celery juice, blood pressure, hypertensive patients

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FACTORS ASSOCIATED WITH OSTEOPOROSIS

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ABSTRACT

Background: Osteoporosis is the most common and serious age-related skeletal disorder. Osteoporosis is influenced by genetic, behavior, and environmental factors. The purpose of this study was to examine factors associated with osteoporosis, using National Health and Nutrition Examination Survey (NHANES) data.

Subjects and Method: This was a cross sectional study. A sample of 4,424 was selected for this study. The dependent variable was osteoporosis. The independent variables were age, gender, parathyroid hormone level, calcium level, BMI, alcohol consumption, and smoking. The data were obtained from NHANES 2013-2014. The data were analyzed by path analysis.

Results: The risk of osteoporosis directly increased with older age ($b= 0.77$; 95% CI= 0.62 to 0.92; $p<0.001$), BMI ($b= 0.84$; 95% CI= 0.43 to 1.24; $p<0.001$), high parathyroid hormone level ($b= 0.16$; 95% CI= -0.01 to 0.33; $p= 0.055$), and low calcium ($b= 0.99$; 95% CI= 0.35 to 1.66; $p= 0.002$). The risk of osteoporosis directly decreased with male ($b= -1.51$; 95% CI= -1.67 to -1.36; $p<0.001$) and alcohol consumption ($b= -0.31$; 95% CI= -0.47 to -0.16; $p<0.001$). It was indirectly affected by parathyroid hormone level and smoking.

Conclusion: The risk of osteoporosis directly increases with older age, BMI, high parathyroid hormone level, and low calcium, but decreases with male and alcohol consumption. It is indirectly affected by parathyroid hormone level and smoking.

Keywords: osteoporosis, risk factor, NHANES 2013-2014

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