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Supplement

Nutri Virtual Symposium 2020
Nutrition Battling on Pandemic COVID-19: How to Survive

This supplement is a selection of paper presented at the Nutri Virtual Symposium 2020 on 5,12,19 and 26 September 2020.

Supplementary Paper:

Speaker presentation :

- Ethics and nutrition safety in patient care during COVID-19 pandemic
- How to beat COVID-19: Know your enemy well
- Optimizing nutrition throughout the COVID-19 trajectory: From admission, to ICU, to discharge
- COVID-19 treatment during and after recovery: What to expect
- The benefit of the vitamin D intake in terms of sarcopenia of senior citizens in Japan during the COVID-19 pandemic
- Water types and their functional role: Perception, myth and fact
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Oral presentation :

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- Association of short stature with cognitive assessment in primary school children in Kampung Melayu, Jakarta, Indonesia
- The association of breastfeeding duration and language development survey score in children

Many more

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Aim and Scope

World Nutrition Journal (abbreviated: W Nutr J) is an international, English language, peer-reviewed, and open access journal upholding recent evidence related to nutrition sciences. The journal accepts manuscripts in terms of original paper, case report, editorial, and letter to editor.

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Supplementary Paper : Oral presentation

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Ethics and nutrition safety in patient care during COVID-19 pandemic

Nutri Virtual Symposium 2020
Nutrition Battling on Pandemic COVID-19: How to Survive

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The coronavirus disease 2019 (COVID-19) pandemic has impacted all aspects of our population. Ethical dilemmas related to the care of patients in the COVID-19 pandemic need to be rapidly addressed by multidisciplinary bioethics committees, with the development of policies and procedures to assist providers in making difficult allocation decisions. Recent ethical considerations regarding allocation of scarce resources, such as mechanical ventilators, have been proposed. These can apply to other disciplines such as nutrition support, although decisions regarding nutrition support have a diminished potential for devastating outcomes. The nutrition support professionals are pivotal in assessing the patient's overall condition and need for, if any, nutrition interventions. Given the dangers to the healthcare worker through contact with patients infected with COVID-19, nutrition practitioners should be concerned about nutrition support prescriptions that require repeated contact with the patient. Increasing the frequency of visits is likely to increase the risk to workers via repeated exposures to infected patients and increased consumption of personal protective equipment. This could potentially lead to the loss of a scarce resource, specifically the healthcare worker who could become ill or quarantined from exposure, to say nothing of the human cost if the healthcare worker succumbs to COVID-19. Nutrition support professionals should also be involved in the process of scarce nutrition support resource allocation. Nutrition support professionals should be represented in bioethics committees when nutrition issues arise. Recommendations by the nutrition support professionals or a nutrition support team should be guided by the benefit-vs-risk/burden evaluation. Nutrition support clinicians should make appropriate recommendations regarding nutrition interventions, based on anticipated benefit, availability of products, cost, and risk to providers. The nutrition support professionals should communicate with peers in other institutions in their communities to reach consensus on protocols, thus adding to strength and uniformity of such approaches.

Keywords: COVID-19, nutrition support, ethical

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ABSTRACT

Age factor and COVID-19 potential ethical and unethical issues

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In December 2019, a cluster of pneumonia cases emerged in Wuhan City, Hubei Province, China, with common exposure to a wholesale seafood, fish, and live animal market. The World Health Organization (WHO) became aware of the outbreak on January 4, 2020 in which China had reported 44 cases of unknown pneumonia. On January 7, 2020, the Chinese authorities identified as a causative agent of the outbreak a new virus of the *Coronaviridae* family, which was later named SARS-CoV-21. The genetic sequence was shared by Chinese authorities on January 12.

On January 31, the WHO raised the status of Public Health Emergency Alert of International Concern (PHEIC) urging all nations to establish alarm and control measures, suggesting plans to make decisions for an international coordinated response requiring immediate action. The Chinese-born epidemic spread across borders, practically impacting worldwide until the WHO finally decided to declare the pandemic state on March 11, 2020.

Up today, July 23, 2020, about 15.1 million people have been infected with the coronavirus SARS-CoV-19 and with an overall mortality of 620,257 cases.

The world's elderly population is projected to exceed the 1 billion mark by 2020. At that time, more than 700 million older people will live in developing countries. Spain has taken the second position of the countries with the most aged population (82.9) in 2018 after Japan (83.7).

Problems have been reported in Spain during the COVID-19 pandemic at the time of admission to the ICU for older patients. The mortality rate is clearly higher than that of other age groups, but the small proportion of admissions for elderly patients in the ICU in Spain is surprisingly low.

The presentation of ethical guidelines by various scientific societies during the scenario of the COVID-19 pandemic in Spain is surprising when evidencing proposals for treatment and support due to "age ranges" that could be ethically unfair or at least not clearly understandable for the older group, unlike other guides such as the American and European Society for Critical Care and Intensive Medicine. Terms such as distributive justice, prioritization without paternalistic interference, introduction of strategies that maximize survival to hospital discharge, and the number of years of life saved are discussed during the presentation.

ABSTRACT

The aim of this presentation is to clarify different ethical aspects about the elderly patients in the time of being admitted in the ICU during COVID-19 scenario.

Keywords: COVID-19, novel coronavirus, ethics, elderly

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ABSTRACT

Early nutrition approach in critically ill COVID-19 patients

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Nutrition therapy is an integral part of disease management including in critical care setting. Early enteral nutrition has widely been accepted as an intervention which associated with better outcomes for critically ill patients. Some complications may occur during the administration of early enteral nutrition. When enteral nutrition failed to provide sufficient nutrient intake, parenteral nutrition is another choice to consider. Although there are few controversies, early parenteral nutrition is found to be beneficial for certain patients in the Intensive Care Unit (ICU). Energy and protein deficit during ICU stay were reported to have negative impact on length of stay and survival of the patients. Any measure to achieve energy and protein target is encouraged to improve patient outcomes.

During this pandemic, many COVID-19 patients were referred to the ICU due to severe Acute Respiratory Distress Syndrome (ARDS). These patients may also suffer circulatory shock and need an immediate resuscitation. Early enteral nutrition (EEN) in COVID-19 critically ill patient is recommended by several guidelines. Administration of small volume of enteral nutrition in the first few days of ICU admission and gradually increased to achieve target is likely to be beneficial. Supplemental Parenteral Nutrition (SPN) is also recommended when EEN is inadequate or poorly tolerated. Some patients presented with comorbidities such as type 2 diabetes mellitus, hypertension, obesity and chronic kidney disease. Adjustment for energy and protein intake must be made for these patients and also those with fluctuating hemodynamic states. This presentation is aimed to describe several guidelines available indicating nutritional therapy in critically ill COVID-19 patients. Data from our ICU in dr. Kariadi General Hospital will be presented.

Keywords: Enteral nutrition, parenteral nutrition, critical ill, COVID-19 patients

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ABSTRACT

How to beat COVID-19: Know your enemy well

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Two days before the New Year 2020 a type of "pneumonia of unknown cause" appeared in Wuhan, capital of Hubei Province (China) a city it has an estimated population of 11 million inhabitants. Until then had not been determined the cause. The so-called unexplained pneumonia cases refer to 4 cases of pneumonia that cannot be diagnosed at the same time, but shared some clinical signs as fever (greater than or equal to 38^0C), cough, myalgia, fatigue and to a lesser extent sputum production, headache and diarrhea; imaging characteristics of pneumonia or acute respiratory distress syndrome; reduced or normal white blood cells in the early stages of onset, being the number of lymphocytes reduced as well. The clinical presentations resembling a viral pneumonia. Three days later, a total of 44 case-patients were reported to World Health Organization (WHO) not being identified the causal agent during this period. The National Health Commission of China identified a new type of coronavirus (2019-nCoV), which was isolated on 7th January 2020. WHO received further details on 11-12th Jan 2020 from that the outbreak come from exposures in one seafood market in Wuhan, named Huanan Seafood Wholesale Market in which wild animals (bats, snakes, pangolin, etc.) were being sold for human consumption. On the next day, China shared the genetic sequence of the novel coronavirus for countries for the developing specific diagnostic kits and the market was closed and disinfected. The mechanism of transmission among humans was demonstrated when the disease was found in patients who had not traveled or been at the source of the focus. The primary mode of infection in humans is human-to-human transmission, which generally occurs via respiratory droplets from infected individuals which they sneeze, cough or exhale.

The diagnosis till the current moment has been come through the clinical symptoms previously described joined to the test with real time reverse-transcription–polymerase chain-reaction (RT-PCR) for 2019 novel coronavirus 2019-nCoV, currently named officially "COVID-19" by the WHO last February 11, 2020.

Since the outbreak appeared, many new articles are describing the radiological findings about the COVID-19 obviously coming from the main Hospitals in Wuhan. The CT imaging features presented had bilateral involvement (98%). The typical findings were bilateral multiple lobular and subsegmental areas of consolidation in the ICU patients while in non-ICU patients showed bilateral ground-glass opacity (GGO) and other subsegmental areas of consolidation. The abnormalities involved both lungs in the 86% of the patients (in turn involving 4 to 5 lobes). The distributed lesions appeared in the lower lobes (90%), posterior part (89%) and periphery lung (91%). The main findings (pure GGO, GGO with reticular and/or interlobar septal thickening and GGO with consolidation were the 87%. Bronchograms in the 80% patients. Common images founded may overlap with other viral infections, such

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H7N9, H1N1, SARS-CoV, MERS-CoV and even the avian influenza (H5N1) but the authors reported that predominant distribution in posterior and peripheral parts of the lungs were uncommon in other virus pneumonia.
The main feature of this disease is the intense inflammatory response involved in those patients suffering from the infection. Virtually any organ can be involved in inflammation, although we know that some organs and system are more represented in the disease, as the lungs, circulation, kidneys, and coagulation.

Anyone is at risk of contracting COVID-19 if exposed to the virus. Some people are more likely to become seriously ill than others, which means they may need hospitalization, intensive care, or respiratory support (respirator mask, high flow oxygen therapy, ventilators, etc.), and some may even die, mainly by severe respiratory failure. Those patients with asthma (moderate to severe), cardiovascular disease, cystic fibrosis, hypertension, immunosuppression, liver disease, pregnancy, smoker, thalassemia and diabetes (especially type 1) have a higher risk of getting sick and suffering the disease with more virulence and potential mortality. The older people are in risk because the chronical diseases and comorbidities are associate with the aging.

This presentation aims to explain the mechanisms of infection and inflammation by the coronavirus in order to act primarily on them. If you know your enemy well, you can treat it from an etiopathogenic perspective.

Keywords: COVID-19, novel coronavirus, pathogenesis, symptoms, management

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ABSTRACT

Nutrition management for children with diarrhea

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Diarrhea is the second leading cause of death in children in the world. In Indonesia, the prevalence of diarrhea in children under five in 2018 is still high, namely 12.3%. The highest prevalence is in under two years of age (20%). Diarrhea is a multifactorial disease associated with socio-demographic, environmental and behavioral child care and feeding practices. The most common cause of diarrhea is infection, most of which are viral infections (60–70%). Diarrhea in children, especially if it recurs or persistent, can have an impact on the nutritional status of the child and lead to stunting. Apart from that, diarrhea also has an impact on children's cognitive in the future, regardless of their nutritional status.

According to WHO, the management of diarrhea aims to prevent dehydration by increasing fluid intake in the form of oral rehydration solutions; zinc supplementation, continuing breastfeeding or feeding, and immediately referred to a health facility if there is blood in the stool or if there are signs of dehydration to receive rehydration with intravenous fluids. The objectives of nutrition management are to minimize the adverse effects on nutritional status and to promote intestinal mucosal epithelium regeneration for normal absorptive and digestive functions. The benefits of nutrition management in children with diarrhea were varied with the nutritional quality of the foods, which can be increased by temporary fortification.

It is necessary to maintain fluid balance, as proper rehydration is the main goal in diarrhea therapy. It is recommended to give oral rehydration solutions with low osmolarity which has been shown to help reduced the duration of diarrhea. If the child is severely dehydrated or the child shows lactose intolerance, or if the diarrhea gets worse when given milk, lactose-free milk can be given for up to one week. Lactose intolerance usually improves after the intestinal mucosal epithelium has regenerated. Nucleotides are proven to help accelerate the regeneration process of the intestinal mucosal epithelium. The addition of probiotic, i.e. *L.reuteri DSM 17938* has also been shown to effectively reduce the duration of diarrhea.

Keywords: diarrhea, children, nutrition, rehydration, lactose intolerance

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ABSTRACT

Nutrition support in critically ill COVID-19 patients

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With the unprecedented pandemic of coronavirus disease (COVID-19) in early 2020, rapid changes in healthcare practices occurred, requiring an increased demand for nutrition support. Acute respiratory complications that require intensive care unit (ICU) management are a major cause of morbidity and mortality in COVID-19 patients. ICU stay, polymorbidity and older age are all commonly associated with high risk for malnutrition, representing a relevant risk factor for higher morbidity and mortality in chronic and acute disease. Also importantly, prolonged ICU stays are reported to be required for COVID-19 patients stabilization, and longer ICU stay may per se directly worsen or cause malnutrition, with severe loss of skeletal muscle mass and function which may lead to disability, poor quality of life and additional morbidity. Prevention, diagnosis and treatment of malnutrition should therefore be routinely included in the management of COVID-19 patients. Diagnosis and treatment of malnutrition should be considered in the management of COVID-19 patients to improve both short- and long-term prognosis. Patients at risk for poor outcomes and higher mortality following infection with COVID-19, namely older adults and polymorbid individuals, should be checked for malnutrition through screening and assessment. Subjects with malnutrition should try to optimize their nutritional status, ideally by diet counseling. Oral nutritional supplements (ONS) should be used whenever possible to meet patient's needs, when dietary counseling and food fortification are not sufficient to increase dietary intake and reach nutritional goals. Subjects with malnutrition should ensure sufficient supplementation with vitamins and minerals. In polymorbid medical inpatients and in older persons with reasonable prognosis, whose nutritional requirements cannot be met orally, enteral nutrition (EN) should be administered. Parenteral nutrition (PN) should be considered when EN is not indicated or unable to reach targets. In conclusion, nutrition intervention and therapy needs to be considered as an integral part of the approach to patients with COVID-19 infection in the ICU setting and general medical ward setting.

Keywords: COVID-19, malnutrition, ICU, enteral nutrition, parenteral nutrition

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ABSTRACT

SDGS in children during the COVID-19 pandemic in Indonesia

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In 2015, all member states of the United Nations adopted The 2030 Agenda for Sustainable Development, a long-term plan for peace and prosperity. At the core of the Agenda are the 17 Sustainable Development Goals (SDGs), which are targets to inspire action by all countries to work together to improve health, education, reduce inequality, while tackling climate change and preserving our natural environment. Goals 2 (Zero Hunger), 3 (Good Health and Well-Being), 5 (Gender Equality), and 6 (Clean Water and Sanitation), are the four goals closely related to children and adolescents' health. Indonesia was just beginning to commence its journey to achieve the SDGs, then the pandemic hit and all progress came to a stop.

Malnutrition is a prevalent challenge in Indonesian children. In goal 2 of the SDGs, countries aim to end all forms of malnutrition by 2030, including achieving targets on stunting and wasting in children under 5 years of age by 2025, and address the nutritional needs of adolescent girls, pregnant, and lactating women. Even before the pandemic, managing malnutrition in the country has been an uphill battle. Usage of *Kartu Ibu dan Anak* (KIA/the mother-children handbook) aims to help mothers and healthcare service providers monitor children's growth and development, but only around 50-60% of children aged 0-59 months old use the book. Although the community seem to be largely aware of the importance of exclusive breastfeeding, the National Health Survey showed only 37.3% of infants under 6 months old are exclusively breastfed. After the pandemic hit, programs that contribute to malnutrition management such as growth monitoring in *Posyandu*, using KIA, have been paused. Healthcare services providers like *Posyandu* and *Puskesmas* also serve as information hubs to counsel mothers and families on healthy feeding practices including breastfeeding, and hindered access to these services may lead to disrupted breastfeeding practices. The pandemic also poses as an additional barrier to access healthcare services, including specialistic care for children with non-communicable diseases, such as type 1 diabetes, who are at higher risk for COVID-19 morbidity. These children need monthly pediatrician visits, but the pandemic leads to inaccessible routine care, especially in rural areas.

In 2018, 5.3 million under-five children died. The average death rate in low income countries is 68 deaths per 1000 live births, which is 14 times the average rate in high-income countries. In Indonesia, there are many obstacles that line the way to reducing children's mortality rate. Pneumonia and diarrhea are two of the top five highest causes of children mortality in Indonesia, and newborn screening coverage is still scarce. The Indonesian Pediatric Society data on COVID-19 deaths in Indonesian children shows the largest number of deaths due to COVID-19 are observed in under-five children. Basic immunization coverage in Indonesia is less than 60%, and made worse by the pandemic. If falling rates of immunization

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coverage cause outbreaks of vaccine-preventable diseases, mortality reduction will be even harder to achieve.

The infectious nature of the pandemic forced us to practice distancing and to implement public health measures to contain the virus, which include school closures. Distance learning had to be implemented, but rural areas and disadvantaged families are having trouble keeping their children in school due to lack of cellular coverage and monetary means to provide internet connection for their children. This can lead to increasing school drop-out rates, which has been a point of concern even before the pandemic. In 2017, 39.213 students in Indonesia dropped out of elementary school, with a total school drop-out rate of 1.68%. With the pandemic hitting the society's economy, drop-out rates can increase and lead to worsening literacy and quality of Indonesian human capital. Without school keeping them busy, the adolescent population is at higher risk of risky behaviors. Smoking, alcohol consumption, and substance abuse in adolescents are prevalent in Indonesia; 28-29% of junior high and high school students are smokers and the mean age of first substance abuse is 15 years old. Number of teenage marriages can also increase. Around 1 in 4 girls in Indonesia are married before 18, which lead to GDP loss and lower education attainment.

In conclusion, this global pandemic negatively affects many aspects of children and adolescent health in Indonesia, including our journey in achieving SDGs. Even before the pandemic, our country is not yet on the right track in our SDGs journey with no national comprehensive programs. If we do not urgently address the problems in our nation's health system, the COVID-19 pandemic can be detrimental to our SDGs progress.

Keywords: sustainable development goals, Indonesian children, COVID-19 in Indonesia

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ABSTRACT

Optimizing nutrition throughout the COVID-19 trajectory: From admission, to ICU, to discharge

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The nutritional consequences of COVID-19 infection must be recognized by health care professionals (HCPs) who are frontliners in the fight against COVID-19. At the time of admission, patients are likely to be suffering from some degree of malnutrition, and early nutritional assessment and care planning should be integrated into the overall therapeutic strategy, along with control of the viral infection, from supportive measures for mild to moderate illness, to the full range of respiratory, hemodynamic, and relevant organ support in critical illness in ICU. There are guidelines (international and local) on nutrition in Covid-19 patients and these should be adapted for various local settings. An algorithmic approach will be presented to cover key issues for optimizing the nutrition management of COVID-19 patients from admission, to the ward, or to ICU, and thence on to discharge.

Some specific issues about the nutrition of the COVID-19 patients from admission to ward to ICU should be emphasized. Nutrition therapy should be initiated early, within 48 hours of admission, with a high index of suspicion for the risk of refeeding syndrome. Enteral nutrition is preferred over parenteral nutrition. Gastric feeding is usually possible, even in the prone position, and should be delivered preferably by pump-regulated infusion. There are a myriad of considerations for preventing viral spread, and HCPs should be mindful of the need for extreme caution in the handling of aerosol-generating procedures, which include obtaining EN feeding tube access. PN is indicated if EN is impossible, contraindicated, or insufficient. However, a number of experts describe a lower threshold for shifting from EN to PN, mainly related to convenience in administration with considerably less risk for viral exposure to HCPs. Use of EN enriched with omega-3 fatty acids is recommended in case of ARDS, while fish oil-enriched IV lipid emulsions should be prescribed if PN is required. Protein-calorie deficits must be avoided, with an emphasis on protein to help preserve muscle mass, in view of the risk for ICU-acquired weakness (ICUAW). The need for micronutrients is often overlooked, but provision of vitamins, minerals, and trace elements are important for mitochondrial function, and several other metabolic processes. After the acute phase, nutritional support is crucial to promote recovery and rehabilitation and should be continued until the patient resumes sufficient oral intake. In this setting, clinicians should be mindful of the potential dysphagia resulting from prolonged extubation, as well as from ICUAW. At this point, most patients will be anxious to have all tubes removed, including feeding tubes, and maintenance nutrition with peripheral PN could be offered. At discharge, patients should receive detailed instructions on how to maintain nutrition intake to promote recovery, often requiring oral nutritional supplements to augment oral intake.

ABSTRACT

Keywords: clinical nutrition, nutrition therapy, COVID-19 infections

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ABSTRACT

How to maintain home nutrition therapy after recovery from COVID-19

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Going back home as a COVID-19 survivor is a grateful and delightful time. But, process of recovering to the normal condition is also very important. Survivor patients must receive good nutrition, quality sleep, and not less important is physical activity.

Survivor patients need enough calories and protein to replace their body weight and protein lost during hospitalized. Especially for COVID-19 patients who were admitted to the ICU often longer than ordinary pneumonia cases, up to 2-3 weeks, followed by severe weight lost. Some nutrition problem that could be found i.e. poor appetite, fatigue, or feeling full quickly. By eating small frequent meals, 4-6 times/day or every couple of hours, it is possible to increase nutrition intake. Oral Nutritional Supplements (ONS) 2-3 times a day has beneficial for individuals who are unable to reach their nutritional needs with oral diet alone. Multivitamin supplements may be considered if calorie intake is less than 50%. Drinking 8-10 glasses of liquid per day, includes water, milk, juice, and ONS, will prevent dehydration and maintain a good metabolism. It is recommended to speak to a clinical nutrition advisor/dietitian and a physiotherapist in the first week after discharge from hospital.

Keywords: COVID-19, recovery, home nutrition therapy

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ABSTRACT

COVID-US: a simplified cardiopulmonary ultrasound approach to use in suspected and confirmed COVID-19

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SARS-CoV-2, a novel coronavirus, is spreading around the world, causing unprecedented morbidity and excess mortality. The characteristic feature of the COVID-19 disease is hypoxemic respiratory failure caused by viral pneumonitis, frequently accompanied by thrombosis in the pulmonary vasculature. Cardiac complications are also common and contribute to hemodynamic instability, organ failure and mortality. Using ultrasonography to help diagnose, risk stratify and treat patients suffering from COVID-19 disease is therefore intuitive and imperative.

Lung ultrasound is more sensitive than chest radiography in detecting viral pneumonitis and may be used instead of computed tomography, because it is portable, easily repeatable and does not expose patients to radiation. Indeed, studies have documented the utility of diagnosing lung consolidation, interstitial syndrome, pneumonitis, pleural effusions or pneumothorax in COVID-19 patients. Lung ultrasound findings of dorsal basal consolidation may help select patients that are likely to benefit from ventilation in prone position.
Ultrasound can also guide procedures form pleural drainage of effusions to vascular access placement.

Similarly, echocardiography is useful for cardiac conditions associated with COVID-19. Myocardial infarction, viral myocarditis, right ventricular failure, pulmonary embolism or underlying valvular or hypertensive heart disease can all be evaluated and monitored during the course of illness and allow for timely treatment.

An important aspect in the care of COVID-19 patients is to ensure that staff and other patients are protected from viral spread. Using a portable ultrasound machine avoids patient transport for CT scans thus minimising infection risks associated with transporting SARS-Cov2 positive patients. Staff performing ultrasound must wear adequate personal protective equipment including impermeable gown, hat, gloves, goggles and FFP2/FFP3 mask. The ultrasound machine used needs to be thoroughly decontaminated with alcohol-based solution and detergent wipes for the probes. A machine dedicated solely for COVID-19 patients is desirable.

Keywords: lung ultrasound, echocardiography, COVID-19, viral pneumonitis

ABSTRACT

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ABSTRACT

COVID-19 treatment during and after recovery: What to expect

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COVID-19 was declared a Public Health Emergency of International Concern by the World Health Organization (WHO) on January 30th and declared a pandemic on March 11th, 2020. There are more than 200 countries or territories have confirmed cases, and over 23 million individuals have been infected, leading to more than 802,323 deaths as of August 22nd, 2020. In Indonesia, the overall number of cases totalled almost 150,000 while deaths reached 6,500 and more than 102,000 recoveries recorded thus far.

Currently, there are no clinically specific drug for COVID-19, neither novel treatments nor vaccines. Hospitals and researchers over the world are testing many different therapies on coronavirus-positive patients in an effort to find a potential COVID-19 treatment, a few medications that have been making a buzz in the science community such as remdesivir, hydroxychloroquine and chloroquine, favipiravir, oseltamifir, lopinavir/ritonavir, azithromycin, plasma convalescent, dexamethasone and stem cell.

Multiple studies have found that chloroquine, a malarial drug, has anti SARS-CoV-2 activity: it can inhibit viral replication by reducing the terminal glycosylation of ACE2 receptor and interfering with the binding of SARS-CoV-2 to ACE2 receptor, combination of remdesivir and chloroquine can effectively inhibit SARS-CoV-2 infection. Early results from large study showed that hospitalized patients who got remdesivir recovered faster than placebo. While these early findings support the uses of remdesivir alone for hospitalized patients with COVID-19 is likely not enough. In China, we know that the Chinese have decreased the current epidemic situation by using the recommended drugs such as lopinavir/ritonavir, chloroquine phosphate and other drugs. The relief of the epidemic in most provinces of China has at least confirmed the effectiveness of the treatment to a certain extent. Cao et al from China observed no benefit with lopinovir/ritonovir treatment in severe COVID-19 patients. In another study from China used of chloroquine to treat patients with COVID-19 infection showed an improvement in more throat-swab nucleic-acid results than the use of lopinovir/ritonavir. We need still strong evidence to prove this recommendation.

On August 19th, 2020, FDA has issued to provide recommendations to health care providers on the administration of investigational convalescent plasma from individuals who have recovered from COVID-19. Plasma is the liquid part of blood that carries blood cells. In China, 10 adults with severe COVID-19 symptoms were given convalescent plasma, all the patients had greatly improved within 3 days. The patients who receive this treatment must meet the criteria: laboratory confirmed COVID-19, severe or immediately life-threatening COVID-19, for example severe disease is defined as one or more of the following: shortness of breath (dyspnea), respiratory rate ≥ 30/min, blood oxygen saturation ≤93%, partial pressure of arterial

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oxygen to fraction of inspired oxygen ratio <300, lung infiltrates >50% within 24 to 48 hours and also patient with life-threatening disease is defined as one or more of the following: respiratory failure, septic shock, multiple organ dysfunction or failure. In Indonesia based on clinicaltrials.gov, there are 2 studies of using plasma convalescent, but the results of these studies have not been reported yet.
Further clinical trial remain urgently needed to treat the COVID-19 and bring the SARS-CoV-2 under control.

Keywords: remdesivir, choloroquin, plasma convalescent, COVID-19, SARS-Cov2

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ABSTRACT

What shall we do to boost the immune system of people diagnosed as asymptomatic COVID-19?

Nutri Virtual Symposium 2020
Nutrition Battling on Pandemic COVID-19: How to Survive

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The Coronavirus Disease 2019 (COVID-19) is currently spreading rapidly around the world. In Indonesia, the number of new daily cases has remarkably increased noted since the midst of August with more than 3000 new confirmed cases each day. Clinical presentation of COVID-19 has wide spectrum started from fever, ageusia and anosmia, gastrointestinal and respiratory symptoms, to respiratory distress syndrome. However, individuals with COVID-19 could also be asymptomatic confirmed by positive result for SARS-COV2 using real time PCR assay.

The asymptomatic cases not only bring concerns about transmission control via person-to-person but also the clinical support for those as nearly half of them developed symptoms later and probably happened during their self-isolation. Even without clinical features, some asymptomatic patients do have abnormal CT features indicating pulmonary involvement. An individual immune system may be one of the possible reason for variable symptoms of COVID-19.

Nutrition invariably influence the immune system competence and determine the severity of infection. The macro-, micronutrients, and phytonutrients in diet, mainly the fruits and colorful vegetables, generally promote healthy immune response. Thus the adequation of macro- and micronutrient status is an important measure for COVID-19 management to prevent further deterioration. Numerous micronutrients are essential for immunocompetence, particularly vitamin A, C, D, E, B, iron, selenium, and zinc. Among those micronutrients, vitamin D, C, selenium, and zinc have a promising role in managing the asymptomatic case of COVID-19.

Keywords: COVID-19, asymptomatic, nutrients

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ABSTRACT

The role of vitamin D during the COVID-19 pandemic in Malaysia

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The latest national and global health crisis is the ongoing outbreak of the infectious respiratory disease that was named as Coronavirus disease (COVID-19) in December 2019. The COVID-19 outbreak has affected almost all-important sectors such as health, travel, education and economy not only in the developing countries but also in the developed countries. Although in Malaysia the COVID-19 incidence is showing reducing trend but the incidence is dramatically increasing day by day some other countries. On top of muscular and skeletal health, vitamin D is reported to help in boosting the immune system via several mechanisms. With regards to viral infection such as COVID-19, vitamin D enhances cellular immunity by reducing the cytokine storm by reducing the expression of pro-inflammatory cytokines and increasing the expression of anti-inflammatory cytokines. Unfortunately, vitamin D or the sunshine vitamin is surprisingly lacking in majority Malaysian across all age groups. This is mainly due to limited intake of vitamin D rich food source in this region and due to sun ray avoidance behavior. Obesity further exacerbates deficiency as the fat-soluble vitamin D is sequestered and stored in adipose tissue instead of blood circulation. Hence, this presentation will discuss important points related to vitamin D during the COVID-19 pandemic in Malaysia.

Keywords: COVID-19, novel coronavirus, vitamin D, Malaysian

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ABSTRACT

The benefit of the vitamin D intake in terms of sarcopenia of senior citizens in Japan during the COVID-19 pandemic

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As Japan has been facing serious aged society ahead of the world, much interest has been focused on interventions for treating frailty and sarcopenia to extend healthy life expectancy in recent years. The COVID-19 pandemic has led to a crisis of the health care systems all over the world and has been having huge impact on not only global public health but the economy. In this situation, elderly people are vulnerable to the infection and the secondary effects of this social change caused by the COVID-19 pandemic. In general, human's immunity is supported by the nutritional status. It is known that immune strength of the malnourished individuals against bacterial and viral infection is lower. So, the elderly who are malnourished and have multi-comorbidity are the group of high-risk for infection and its deterioration. Due to the lack of effective vaccination and pharmacological intervention, pandemic control is dependent on public health measures, mainly restrictions of public gatherings and compulsory stay-at home policies. These condition has accelerated frailty and sarcopenia of the elderly people. In this lecture, I would like to talk about the strategy to combat with malnutrition, frailty and sarcopenia to overcome this serious crisis of public health from the perspective of nutrition and daily life ingenuity. I would like to be focused on not only protein and vitamin D intake but several nutrients which is considered to be important for health of the elderly in this difficult social condition.

Keywords: COVID-19, frailty, sarcopenia, vitamin D intake

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ABSTRACT

Vitamin C and viral infection

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Physiology of immune response. An infection is the invasion of an organism's body tissues by disease-causing agents, their multiplication, and the reaction of host tissues to the infectious agents and the toxins produced. Hosts recognize the invading pathogens by their immune system, so without an optimal immune status, the host will not be able to eliminate the invading pathogens. The immune reaction of the host against pathogen invasion starting with innate response, the first and critical line of defense against infectious agents and often involving inflammation, then followed by adaptive response. The current medical science focused on various anti pathogens such as anti-virus, anti-bacterial and anti-fungal as disease-causing agent and pay a little attention to immune status, either innate or adaptive, whereas immune status plays a crucial role in eliminating the invading pathogens. It must be remembered that an infection is not a pathogen load only, but also the optimal responses between cellular immunity, both innate and adaptive, and humoral are essential. Innate cellular immunity is implemented by macrophage, neutrophil, natural killer cells (NK), and natural killer like T cells (NKT), whereas adaptive immunity is carried out by T and B lymphocytes. As humoral immunity, B lymphocyte produce antibodies that will collaborate with T lymphocyte, especially T cytotoxicity (Tc).

Vitamin C and Viral Infection. Micronutrients such as vitamins, minerals and trace elements influence various metabolic processes that are directly associated with immune functions, especially vitamin C and D. The adequacy of vitamin C in leukocytes plays a major role in the success of immune response, both innate and adaptive. The highest vitamin C concentrations were found in lymphocytes, monocytes, platelets and neutrophils respectively. The role of macrophage and NK cells as an innate cellular immune absolutely requires Interferon (IFN) α and β. IFN α is known to have several important roles such as: activates macrophages and NK, inhibits viral replication, and improves cellular defense against viral invasion. Several studies revealed a positive correlation between reduced IFN and higher mortality. Other study showed that vitamin C is essential in the production of IFN α and β. It can be concluded that vitamin C has very important immunomodulatory properties such as: improving chemotaxis, enhancing neutrophil phagocytosis activity, accelerating lymphocyte proliferation, and T-cell function, thereby increasing infection resistance. Theoretically, vitamin C is very useful in overcoming the infection, however numerous studies showed inconsistent results. In general, studies looked at the final results and the dose of vitamin C supplementation only, regardless of the presence of vitamin C in the circulation (desirable concentration 50 -70 μmol/L) as a reflection of tissue

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vitamin C levels. One study revealed that all critically ill patients in the ICU were found hypovitaminosis (<23 μmol/L) and vitamin C deficiency (<11 μmol/L). Patients with septic shock had significantly lower vitamin C and higher CRP compared with non-septic critically ill patients. Vitamin C concentration depends on several factors such as: intake, metabolic demand and GSTT1 gene, as well as a very important and most often overlooked is the mechanism of absorption and distribution. Thus, ideally, vitamin C supplementation is highly dependent on the initial concentration in the cells, and not on the administration dose.

Unique dual capacity of vitamin C. Vitamin C in physiologic concentration (0.2 – 2.0 mg/dL) as a very potent antioxidant, on the other hand, high concentration (>400 mg/dL) in a certain condition it becomes a pro-oxidant.

Vitamin C as antioxidant. Under physiological condition, more than 99% of vitamin C or L-ascorbic acid (AA) is in the anion form (ascorbate anion). AA is an antioxidant by donating one electron, but at the same time AA itself will be oxidized and automatically converted into ascorbate radical, but relatively unreactive compare to other free radicals, with half-life 10^{-3} seconds to several minutes. Ascorbate radical can be reduced back to ascorbate anion or become dehydro-ascorbate (DHA) by losing the second electron alternately. Hereafter DHA will be converted into oxalic acid that excreted in urine or returned as ascorbate radical.
Multiple studies alongside recent pandemic situation had provided a very valuable lesson, in particular, cytokine storm that occur as host over responses. Cytokine storm as the main cause of death can be interpreted as excessive oxidative stress. This be reflected by CRP levels, the higher CRP, the greater the oxidative stress. Increased CRP levels indicates hypo or even vitamin C deficiency. Several studies showed a significant mortality reduction in critically ill patients, those receiving vitamin C supplementation.

Vitamin C as pro-oxidant. Genuinely, vitamin C is not a pro-oxidant, but at high concentration and in the presence of oxygen and Fe^{3+}, will produce pro-oxidant by triggering peroxides (H_2O_2) formation. In the blood circulation, H_2O_2 will immediately broken down by catalase into H_2O and O_2, but in the extra cellular fluid, H_2O_2 will not change due to the absent of catalase. Researchers assumed vitamin C anti-virus properties based on the statement above.

Vitamin C absorption and distribution. Vitamin C absorption is an active transport that requires specific transporters. In the form of AA, vitamin C requires Sodium Vitamin C Transporters (SVCT1 and 2) and in the form of DHA, it requires Glucose Transporters (GLUTs). Considering that DHA transport requires GLUTs, it is important to consider the adequacy of intracellular vitamin C concentrations in those with insulin resistance, DM, hyperglycemia and insulin deficiency.

Keywords: Vitamin C, viral infection, immune system

ABSTRACT

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ABSTRACT

The importance of iron intake for children's growth and development

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Indonesian basic health research or *Riset kesehatan dasar* (Riskesdas) 2013 showed that anemia prevalence among school-aged children (5-14 years old) is 26.4%. The prevalence increased from data recorded in Riskesdas 2007, which was 9.4%. Meanwhile the prevalence of iron deficiency among school-aged children was reported 47.2%.

Iron deficiency occurs when iron intake does not meet the requirement. This could be due to suboptimum iron intake or absorption, parasitic worm or chronic bleeding due to menstruation in girls. There are three phases of iron sufficiency, which are iron depletion, non-anemic iron deficiency, and iron-deficiency anemia.

The impact of iron deficiency to children's growth and development already starts since non-anemic iron deficiency phase. Impact of iron deficiency to school-aged children including decreased cognitive function, behavior problems, increased risk of infections, and stunting. Meanwhile, impact of iron deficiency to adolescents are decreased cognitive function, decreased working ability, decreased sport ability, while especially in girls, increased risk of preterm birth and low birth weight infants, also slow down growth rate.

Keywords: anemia, iron-deficiency anemia, iron, growth and development, school-aged children, adolescent.

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ABSTRACT

Optimizing iron absorption to achieve iron adequacy for children's growth and development

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Iron nutrition plays important roles in human health. In many developing countries, iron deficiency, caused by many factors, prevails. One well-documented clinical form of iron deficiency is iron-deficiency anemia (IDA). Nevertheless, the health impacts of iron deficiency is beyond anemia, given the available evidence that iron homeostasis is affected by immunological, infectious, clinical and nutritional factors.

Dietary iron is basically classified as heme and non-heme iron, and in the gastrointestinal tract, they are absorbed in quite distinct manner. Heme iron, derived from hemoproteins, hemoglobin and myoglobin, is abundant in animal food source. Heme iron is the most easily absorbable form (15–35%) and contributes around 10% or more of our total absorbed iron. Non-heme iron is mostly derived from plants and iron-fortified foods and is not absorbed as good as heme-iron.

Iron absorption mainly occurs in duodenum and proximal jejunum, and it is influenced by at least the following factors: clinical conditions of duodenal mucosa, pharmacotherapy, infections, inflammation, inhibitors, competitors and enhancers of dietary compounds. Any of these has its own potential contribution to a point where iron requirement fails to be fulfilled, leading to iron deficiency. In children, iron deficiency, often combined with other nutritional deficiencies, unfavorably affect growth and development. Most functional deficits related to iron deficiency occur with the development of anemia, these include cognitive development, immunocompetence, and productivity.

Optimizing iron absorption is a good strategic entry point to overcome health problems related to iron deficiency, especially in at-risk children.

Keywords:
Heme iron, non-heme iron, absorption, inhibitor, enhancer, children, growth and development, cognitive development

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ABSTRACT

Water types and their functional role: Perception, myth and fact

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Water is a transparent, odorless, tasteless liquid, a compound of hydrogen and oxygen, H_2O, freezing at 32^0F or 0^0C and boiling at 212^0F or 100^0C, that in a more or less in impure state constitutes rain, oceans, lakes, rivers, etc. It contains 11.188 percent hydrogen and 88.812 percent oxygen, by weight. Bottled water has been around for centuries, the last 100 years or so saw the creation of what we see today as a vital source of healthy, convenient hydration. **Types of water** that we might familiar with are **Spring Water,** is water derived from an underground formation from which water flows naturally to the surface of the earth, **Purified Water,** is water that has been produced by distillation, deionization, reverse osmosis, or other suitable processes, and of course **Mineral Water,** is natural water containing not less than 250 parts per million total dissolved solids. Mineral water is distinguished from other types of bottled water by its constant level and relative proportions of mineral and trace elements at the point of emergence from the source. No minerals can be added to this product. But then we were introduced by the term of "functional water", we usually used the term functional food. Functional foods are foods that have a potentially positive effect on health beyond basic nutrition, promoting optimal health and help reduce the risk of disease. Functional water is "enhanced" drinking water aspiring to improve health. Some are chemically altered (i.e. by adding increased oxygen or hydrogen); some are simply infused with oils, extract, or flavors. In Indonesia, according to the National Agency of Drug and Food Control (BPOM), bottled water is processed water, without other foodstuffs, and food additives, packaged, and safe to drink. We have four types of bottled water that commonly found the market, they are Mineral water, Oxygenated water, Demineralized water and Alkaline water. Our survey in 2017 shows that, there are many perceptions in public about the functional role in health for some type of water. Such as, demineralized water is good for your health because it is free from mineral, oxygenated water can enhance physical performance, and alkaline water can neutralize the pH level of our body. The big questions were whether there is "real functional water" and whether those functional claims or perceptions are just myths or facts. According to WHO, it is not recommended to drink or use demineralized water in cooking daily meal. Demineralized water is usually artificially-produced, such as through distillation and reverse osmosis. Drinking demineralized water or water that contains little essential minerals has been associated with various health risks. And these recommendations were also supported by studies such as Gupta et al in 2015, found that drinking demineralized water vitamin B12 deficiency and Muhsin in 2019, found that drinking reverse osmosis water significantly related to lower bone density. Oxygenated water has always been claimed to increase physical performance, but studies like

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in 2007 by McNaughton et al and in 2019 by Fleming et al, did not find that oxygenated water can increased physical performance. Alkaline water company claimed the high pH water has health benefit, so far studies did not find that. Hansen et al in their study in 2018, found that a change in drinking water pH had no impact on the composition of the gut microbiota or glucose regulation in young male adults.

In conclusion, there are many overclaimed benefit of some water types in the market. There are many incorrect perceptions in public as well, and we have to educate people to be more aware about what they buy and drink for their daily fluid intake, also to believe information only from the trusted source. The results of those studies on demineralized, oxygenated and alkaline water are not surprising, since we all know that our body need minerals, take oxygen from our lung and homeostasis of pH in our body is tightly controlled. And with these finding, we can agree that drinking plain water (mineral water) is the best way to fulfill daily fluid intake.

Keywords: Water type, functional role, functional water

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ABSTRACT

Circular economy to respond environmental challenge: Package water business case

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Industrial revolution has changed how we make things and how we consume. Since machinery and technology help to produce things in mass scale and in affordable price, new products have been released to the market every day beyond what the consumers need. Resources are extracted heavily from the nature, huge amount of energy are used on the production process, only to come up with products that ends up in the final disposal site shortly after being used. Today, the world eventually realize that the ecosystem can no longer cope with such mainstream, linear economy model, where materials are only following the take-make-waste scheme. Our planet has been heavily burdened with our behaviors and circular economy comes as approachable solution. A circular economy model is based on the principles of designing out waste and pollution, keeping products and materials in use, and regenerating natural systems.[1] It grows the economy by bringing benefit to its people within the planet boundaries. In Indonesia, where around 6.8 million tons of plastic waste is generated per year and is growing by 5% annually; circular economy model has also been projected as one of the key solutions. Compared to linear model, circular economy scenario will avoid the disposal of 66 million tons of plastic into over-burdened landfill facilities from 2025-2040.[2]

Industrial sector plays a key role on this transformation to circular economy. With their design thinking, industry can change the end-of-life of their products with a restoration, shift towards the use of renewable resources, eliminate the use of unnecessary materials, build the share/reuse/remanufacture/recycle business model as well as cut out waste through better design and quality that allow products to be durable and long lasting. As in industry like food and beverage where packaging is critically needed to maintain the food safety, nutrition and quality of certain products, applying circular economy mindset since the business case development and material selection, will create a significant difference.

Reusable business model for 19-litres water jug is one best example on how circular economy implemented on the packaged water industry. By using type of material that can be reused and providing necessary mechanism for consumers to reuse/refill theirs, it already caters the purpose of keeping plastic material to stay in loop or within the production system. A pollution to the environment thus can be pushed down to almost zero. On the other hand, the use of virgin plastic as non-renewable resources will also be significantly reduced, having it replaced by the same material all over again.

Another effort to implement circular economy within the business is to reduce the newly created material by incorporating recycled content within the packaging. To offtake and use recycled content will eventually add value to the use of recyclable material at the first place. From now on, there is assurance given on its circularity once the used packaging goes for

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recycling. Plastic bottle made from 100% recycled plastic and 100% recyclable,[3] which is first produced in Indonesia on 2019, is the solid example of another circular product. Coming from used bottle that being processed and decontaminated, this recycled bottle can be immediately converted into another new recycled bottle by the time it reaches its end-of-life.

To be able to create circularity within the packaging, a thorough assessment on collection and recycling landscape is an important step while designing the product. In Indonesia, although the total recycling rate of plastic below 10%; PET bottle is still categorized as has a high recycling rate (above 50%).[4] And since not all plastic are the same, such reference is crucial to define what kind of plastic material can be chosen and what type of product that can use the post-recycling materials. This is where industry play a huge role on driving the change. Instead of considering only functionality, cost and expecting the products to be disposed right away so can be replaced by new one; the entire life cycle of its products needs to be studied comprehensively to define how we can keep the value of its material.

Keywords: Circular economy, circularity, recycled

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ABSTRACT

Food technology to process plant-based food (soy protein isolate formula)

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Commonly, soybean derived products, such as soy protein has received growing an attention due to its chemical composition, functional properties, and multiple applications in food industries. According to Codex Standard, soy protein products are classified based on their dry base protein contents, namely soy flour (40–50% of protein), soy protein concentrates (70 – <90% of protein), and soy protein isolate (≥90% of protein). Each type of soy protein has different application in products according to their functional properties. Soy protein has a good supply of essential amino acids compared with other plant proteins. Soy protein has high lysine, which is normally lacking in other cereal, but low in cysteine and methionine.

Soy protein isolate (SPI) is obtained by extracting the soluble protein and removing non-protein material such as fat and carbohydrates. Because of this process, it has a neutral flavor and cause less flatulence than soy flours. Furthermore, SPI has higher Protein Digestibility Corrected Amino Acid Score (PDCAAS) compared to soymilk, which is 100% and 92.6% respectively. It shows that PDCAAS of SPI is equivalent to animal proteins quality, suggested that SPI is essential as alternative protein source to support growth of infant.

Infant formula is designed to be a supplement to breast milk, and may be also used as a substitute if breastfeeding is not feasible. Infant formula is made by mixing proteins, fats, carbohydrates, minerals, vitamins, and other components. The mixture is then blended, pasteurized, homogenized, and condensed, then either spray-dried (powder-base) or sterilized (drink-base). Soy-protein based infant formulas in the United States are nearly 25% of the formula market, 13% in New Zealand, 7% in the United Kingdom, 5% in Italy, and 2% in France, which use SPI as their main ingredients.

The use of SPI can be beneficial for infant formula by resulting better appearance and flavor, lower phytate content, higher protein digestibility, and higher mineral absorption and availability due to protein isolation process, compared to soy-based infant formula using soymilk.

Keywords: soy protein isolate, infant formula, protein digestibility, soymilk

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ABSTRACT

Soy isolate protein formula: challenge and benefit to support child's growth and development

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The quality of protein and amino acids of soya is being used as soy protein-based formulas in infant feeding to provide nutrition for normal growth and development. There are few indications for their use in place of cow milk-based formula, although it has no advantage over cow milk protein based formula beyond those indications. Even, there is results from in vitro cross-reactivity that consideration should be appointed when CMA (cow's milk allergy) patients are treated with soy-derivatives, because CMA does not increase the risk of IgE-mediated sensitization to soy protein in children.

Since 1998 the Committee of Nutrition from American Academy of Pediatrics (AAP) recommended soy protein-based formulas for use in infant feeding, especially in infants with galactosemia and hereditary lactose deficiency, and also for parents who are seeking a vegetarian-based diet for their term infant. This recommendation is supported to the evidence that feeding soy formula to infants is shown to be efficacious for their normal growth and development. Soy milk and cow's milk provides similar amounts of protein, however there are several nutritional differences found between them, regarding of calories, fat, and cholesterol content which are less in the soymilk, while vitamin A, vitamin B12, folate, calcium and zinc content are in cow's milk. Beyond that, the fiber content in soymilk is beneficial as prebiotic dietary fiber, i.e. FOS, inulin and GOS, that support digestive health in many ways.

Still, there is debate about the safety issues of soy infant formula which ranging from sexual development disorder, hypothyroidism and low immune system regarding to the levels of aluminum, phytate and isoflavone. However, the US-FDA has approved that the formulas are safe to be given to infants.

Keywords: CMA, infant, prebiotic, soy protein

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ABSTRACT

Fact and myth of COVID-19 related to nutrition

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Lesson learned from the spread of dangerous lies about AIDS in 80s–2000s, then we could understand that any health crisis will spawn its own pandemic misinformation, i.e. myths. Now, it is the time that we are experiencing around the coronavirus pandemic in which there is a fresh flood of fake news coming from Facebook to WhatsApp that frequently shared misinformation, including about the cause of the outbreak to its prevention and/or treatment.

The importance to discuss about the myth around covid19 is because the ideas themselves are harmful. Naturally, the more often people see something in news feed, the more likely people are think that it's true. The, people might follow the false, for example was a claim that saying drinking industrial-strength alcohol could protect to get infected by covid19, but in fact people had died from drinking it. Thus, spreading inaccurate information about the risk of the outbreak and promoting unproven remedies seem may do more harm than good. There are eight ways to spot these misinformation, i.e. suspicion source such as from 'a doctor friend of a friend'; bad language such as poor spelling or grammar; emotional contagion that makes people angry or overjoyed; news gold or fool's gold that reported by only one source; oversharing by urges to share the sensational news; follow the money on who stands to gain people believing the extraordinary claims; and fact-check in websites if it has already been debunked.

Related to nutrition, there are some claims that some foods and drinks or herbs and spices could prevent or cure COVID-19, such as drinking lemon in warm water, eating lot of bananas or mango or even durian, and also onions, or eating curry or juice of bitter-gourd vegetable, or eating alkaline foods, keto diet, or drinking water every 15 minutes, or drinking a specific type of tea. But in fact there is no evidence proven. Therefore, a simple message for this is STOP sharing, because it is dangerous and wrong. There are no miracle foods or diets that can prevent or cure COVID-19. People are in an anxiety about COVID-19 that makes people more willing to try anything. In fact, to keep people healthy during the COVID-19 pandemic are eat a balanced and varied diet, establish a routine and practice mindful eating, keep hydrated, practice safe food hygiene, stay active at home, get enough quality sleep and last but not least get information from trustworthy source.

Keywords: COVID-19, novel coronavirus, nutrition myth, nutrition hoaxes

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ABSTRACT

Sport challenge activity in the midst of COVID-19 pandemic

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Indonesia nowadays is still in COVID-19 pandemic, at the time medicine or vaccine is still in ongoing research and the new case number is still high. Community are suggested to do strict health protocol to prevent the virus's spread, especially when the latest WHO release about airborne spreading. People are suggested to do healthy lifestyle to enhance the immune system.

Physical exercise (exercise) is known to show benefit on immune system. However in this pandemic situation, there should be some modification on how people doing exercise, to ensure that the person is safe from being infected by others or for asymptomatic patients to spread the virus.

Indonesia Sports Medicine Association had released exercise recommendation during pandemic and during new normal. It is recommend to do moderate intensity exercise (e.g brisk walking), with 30-60 minutes duration on most days of the week. The other additional exercise include simple resistance exercise, flexibility exercise, and "mind and body" or "relaxation" neuromotor exercise (e.g yoga for fitness). Those exercises, if possible to do, will add more benefit to physical and mental health during pandemic including improvement in cardiorespiratory fitness, muscle strength and endurance fitness, metabolic fitness, flexibility and neuromotor fitness. Additionally, they will increase immune function and mood, also reduce anxiety or depression.

The variation of exercise is important to avoid feeling bored and to keep the exercise motivation high. Although current condition is considered to be new normal with high number of new cases, it is recommend to exercise safely on location considered as low risk (e.g at home). One way of exercise that currently is becoming a trend is to join online fitness classes or by following the online exercise video. If the exercise is done outdoor or moderate risk location, people are recommend to perform health protocol and avoid visiting crowded places, parks or sports facilities. Other suggestion to increase immune system include good diet, enough rest or sleep, and good stress management. In the future, when the medicine or vaccine is available, these all healthy lifestyle should be continuously performed as recommended

Keywords: immune system, physical exercise, online exercise, variation of exercise, health protocol, pandemic

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ABSTRACT

Food and nutrition intake recommendation during COVID-19 pandemic in the Philippines

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Today, the world faces a major public health crisis due to the outbreak of coronavirus disease. In the Philippines, the disease has infected more than 200,000 individuals with 3,234 (28 August 2020) total mortality.

COVID 19 patients are suffering from diarrhea and fever. During this period there is loss of appetite, malabsorption of nutrients, poor supply of nutrients to maintain integrity of the cells, weight loss, worsened mucosal damage, and urinary nitrogen loss, all of which lead to further deterioration of the immune response. The fever which is common in COVID – 19 infected individuals increases both energy and micronutrient requirements. During this period there is a need to administer therapeutic diet to compensate the nutrient losses to prevent further deterioration of the immune system. Medical nutritionals/oral feeding shall be encouraged for early intestinal nutrition that can provide nutritional support, nourish the intestines, improve intestinal mucosal barrier and intestinal immunity, and maintain intestinal micro-ecology.

As there is no registered medicine or vaccine against COVID-19, our immune system is the best defense. The immune system supports our body's natural ability to defend against pathogens. Existing evidence highlights that a nutrient – dense diet along with regular physical activity and adequate sleep could boost the immune system. Poorly nourished individuals are at greater risk of acquiring bacterial, viral, and other infections. One way to eat healthy is to choose a wide variety of foods. Variety matters because no single food has all the nutrients to support body's normal functioning. A healthy meal plan for a Filipino adult is one that is composed of the following macronutrient distribution ranges: Protein 10-15%, Fat 15-30% and Carbohydrates 55-75% (PDRI, 2015). Inclusion of food items that are rich in vitamins and minerals such as Vitamins C, Vitamin A, β-carotene, Vitamin D, B-Vitamins, Folate, Zinc, bioflavonoids, probiotics, prebiotics and resveratrol in meal planning should be taken into consideration. Moreover, adding in the meal food items with known anti-inflammatory effects such as ginger, turmeric, garlic, bell peppers, and onions might also be beneficial (DOH Interim Guidelines, 2020). Researches on virgin coconut oil as adjunct supplement to COVID – 19 because of its anti-viral properties are also underway. The visual tool "*Pinggang Pinoy*" developed by the Department of Science and Technology – Food and Nutrition and Research Institute is a food plate model which conveys the right food groups and proportions on a per-meal basis to help Filipinos of different age groups adapt healthy eating habits at meal times.

In these unprecedented times, it is beneficial to consult a Registered Nutritionist-Dietitian (RND) who can assist in the development of an individualized, safe, and realistic eating plan and carry-out properly the dietary guidelines for COVID – 19.

ABSTRACT

In summary, the key to sustaining a good immune system is to consume nutrient-dense food at the right quantity to prevent nutritional deficiencies. Nourishing our body play a vital role to prevent, fight, and recover from infections.

Keywords: COVID-19, nutrient-dense foods, nutrient intake

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ABSTRACT

Electrolux refrigerator brand maintains freshness and antioxidant nutrient contents of selected vegetables and fruit better than other brands

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The aim of this study was to compare Electrolux refrigerator brand in maintaining freshness and antioxidant-nutrient contents of selected vegetables and fruit during the period of three weeks compare to other brands (B®, C® and D®). This study was randomized controlled trial, held in Jakarta in August–November 2019. We used celeries, mushrooms and strawberries as samples that were stored in the crisper of four different brands of refrigerators for three weeks. All refrigerators were set at 8^0C. Data collected were freshness, vitamin C, vitamin E, fiber contents and antioxidant property at day 0, 3, 6, 9, 12, 15, 18, and 21. Freshness assessed using visual analogue scale, vitamin C and E levels measured using colorimetric assay, antioxidant property and total dietary fiber measured using total antioxidant capacity and fiber content assay kit.

Repeated measurements using general-linear model was done to analyze the difference among four refrigerator brands. The result of this study showed Electrolux brand maintained overall freshness of celeries and strawberries for two weeks, and mushrooms for one week, while other three brands maintained shorter. These results were also seen for vitamin C, E and antioxidant properties. Conclusion: Electrolux refrigerator brand maintains freshness and antioxidant nutrient contents of selected vegetables and fruit better than other three brands.

Keywords: freshness, refrigeration, vitamin C, vitamin E, antioxidant, fiber

The study of this abstract was published in Journal of Food and Nutrition Research, 2020, Vol. 8, No. 6, 252-257, title "Effectivity of Various Refrigerator Brands in Maintaining Freshness and Antioxidant Nutrient Contents of Selected Vegetables and Fruit."
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ABSTRACT

Overweight and obesity in 16–18 years old teenagers in South Jakarta and the relationship with academic performance

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Objective: In different parts of the world, Indonesia included, overweight and obese people are seen to have worse performance compared to their healthy counterparts. Although there were research that had been done to observe the relationship between overweight, obesity, and academic performance, the results obtained were still divided into significantly and non-significantly related.

Methods: A cross-sectional study was done to 373 students from two different schools in South Jakarta on December 2017–January 2018. Data was obtained by measuring height and weight of the participant to get his/her nutritional status and the average of participant's odd semester Continual Assessment and Semestral Assessment of Academic Year 2017/2018 to see if the result was higher or equal to the passing grade.

Results: Data analysis with chi square test shows that there was no significant relationship between overweight, obesity, and academic performance ($p = 0.452$ for Indonesian Language and $p = 0.476$ for Mathematics) although overweight and obese students tend to have better performance in some exam.

Conclusion: The events that lead to overweight, obesity, and one's academic performance are all multifactorial that the relationship between the two is difficult to be determined.

Keywords: teenagers; academic performance; overweight and obese; South Jakarta

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ABSTRACT

The use of 25(OH)D saliva test as a substitute for 25(OH)D serum test in healthy people

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Background and Objectives: Examination of serum 25(OH)D levels of vitamin D in the body circulation illustrates the level of circulating vitamin D, while serum 1.25(OH)D is used to describe vitamin D activity. Several studies have shown that there is a non-invasive test that can be done to check vitamin D levels, namely through salivary levels. This study aims to determine the ratio between serum 25(OH)D and 1.25(OH)D serum levels and to compare the levels in saliva.

Methods: This study was a cross-sectional study that included 36 healthy people, male and female, aged 18-35 years old, living in Medan, North Sumatra. The tests performed were levels of 25(OH)D, 1.25(OH)D in serum and saliva.

Results: The mean serum 25 (OH) D level was 17.22±4.37 ng/mL and the 25(OH)D saliva level was 3.46 ng/mL for the minimum value and 51.0 ng/mL for the maximum value (median: 6.01 ng/mL). The results showed a relationship between 25(OH)D saliva and serum 25(OH)D levels (p=0.04). There was no relationship between the levels of 1.25(OH)D in saliva and serum 1.25(OH)D.

Conclusion: There was a relationship between 25(OH)D saliva and 25(OHD) serum levels in healthy people. Salivary 25(OH)D levels can be used as a non-invasive laboratory test compared to serum 25(OH)D levels.

Keywords: vitamin D, 25(OH)D, saliva test

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ABSTRACT

Association of short stature with cognitive assessment in primary school children in Kampung Melayu, Jakarta, Indonesia

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Background: In Indonesia, an estimated 23.6% of children aged 5-12 years old are short statured, therefore short stature is made one of the health priorities. Children with short stature are associated with low cognitive levels, so that it will have an impact on quality of life.

Methods: This research was conducted in a cross-sectional study at SDN 01 Kampung Melayu, Jakarta, Indonesia. Subjects are children with short stature aged 6-12 years old. Data was taken by measuring height according to age with the curve used by the Centers for Disease Control and Prevention - National Center for Health Statistics (CDC-NCHS) and total value from cognitive assessment using the Cognitive Test Battery for Individuals with and without Intellectual Disabilities (CIID) instrument. This research was conducted aiming to assess cognitive in primary school children with short stature.

Results: There were 64 children with short stature in SDN 01 Kampung Melayu with CIID test results for Total Score obtained in the range of 5-26, with mean and standard deviations 13.59 ± 4.54. Non Verbal Score was obtained in the range 7-39, with mean and standard deviations 21.94 ± 7.51. Hopkins Verbal Learning Test obtained range 6-31, with mean and standard deviations 19.36 ± 5.90. Verbal Fluency is obtained in the range of 5-26, with mean and standard deviations 13.59 ± 4.54. Compared with previous studies, subjects with short stature have values similar to those of children with normal stature. No significant difference was found between short stature children with underweight nutritional status and short stature children with normal nutritional status, with p=0.369.

Conclusion: There were 64 children with short stature and the total score ranging from 5-26, with mean and standard deviations 13.59 ± 4.54

Keywords: short stature, cognitive, primary school, Kampung Melayu

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ABSTRACT

The relationship between short stature and psychosocial problems in primary school-age children

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Background: Short stature is a growth problem that are commonly found in developing countries. In Indonesia, the prevalence of primary school-aged children with short stature reaches 23.6% in 2018. Short stature in children is associated with psychosocial problems that are thought to be related to abuse, stigmatization, and social isolation faced by children. However, previous studies discussing this topic had mixed results and the number of studies has not been adequate.

Objective: This study aimed to look for the relationship between short stature and psychosocial problems in primary school-aged children.

Methods: A cross-sectional study design was used in primary school-aged children at SDN 01 Kampung Melayu. The study was conducted by comparing groups of children's height and screening results for psychosocial problems using the PSC-17 questionnaire, which assesses three subscales of behavioral problems (internalizing, externalizing, and attention).

Results: The prevalence of short statured children in SDN 01 Kampung Melayu reached 15.28%. The prevalence of children with psychosocial problems is 18.12% and the prevalence of short statured children with psychosocial problems is 22.73%. Analysis of association between short stature and psychosocial problems showed no statistically significant relationship, for general psychosocial problems (p=0.268), internalization subscale (p=0.532), externalization (p=0.400), attention (p=0.414), and PSC-17 total score (p=0.614).

Conclusion: No significant relationship was found between short stature and psychosocial problems in primary school-aged children.

Keywords: primary school children, psychosocial problems, short stature

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ABSTRACT

Correlation of overweight nutritional status and sleep quality in 16–18 years old teenagers in South Jakarta

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Background and Objectives: Overweight nutritional status in adolescents becomes a health problem that continues to require attention. Not only because of its rapidly increasing prevalence, but also its various adverse effects on adolescent health, especially on the quality of sleep. Sleep quality decrease in adolescents can impact their daily performance, especially in learning. This study aimed to investigate the relationship of overweight nutritional status with sleep quality in adolescents aged 16–18 years old in South Jakarta.

Method: This cross-sectional design study was done in two public senior high schools in the South Jakarta. A total of 186 students from classes of 2015, 2016, and 2017 with age between 16-18 years old underwent weight and height measurements, determination of BMI and nutritional status using the CDC BMI-for-age chart, as well as filling the Cleveland Adolescent Sleepiness Questionnaire to assess the quality of sleep.

Results: The prevalence of overweight was found by 20.43% (14.52% categorized as overweight, 5.91% categorized as obese) with a median value of the questionnaire 40.00 (23.00 to 58.00). Mann-Whitney test found that the p value for the mean difference of the questionnaire's total score to excess weight is 0.783.

Conclusion: There was no correlation between the quality of sleep to excess weight in adolescents aged 16–18 years old in South Jakarta.

Keywords: overweight, sleep quality, Cleveland Adolescent Sleepiness Questionnaire, teenagers, South Jakarta.

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ABSTRACT

Fluid consumption, hydration status, and its associated factors: a cross sectional study among medical students in Palembang, Indonesia

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Background: Adequate fluid consumption and hydration status of students become a special concern because being dehydrated by just 1%-2% can impair cognitive performance. The objectives of this study were to assess the daily fluid consumption, and analyze the correlation of fluid consumption and other associated factors with hydration status of medical students in Universitas Sriwijaya.

Methods: A total of 93 medical students in Universitas Sriwijaya were recruited to complete a 7-day cross-sectional study. Subjects were asked to complete a self-administered 7-day-24-hours fluid record and provide first morning urine sample on the last day. Gender information was collected. Physical activity was evaluated by self-administered long version of IPAQ. Body mass index was calculated using body weight and body height measurement. Urine specific gravity was determined by urinometer. The 7-day-24-hours fluid record and 1-day-24-hours urine specific gravity were calculated and analyzed.

Results: Majority of the subjects were well hydrated, while 10.8% were slightly hydrated, 6.5% were moderately hydrated and 9.7% were severely dehydrated. The average of daily fluid consumption was 1789.28 (989.3-2930) mL. Coefficient correlation of fluid consumption from beverages with urine specific gravity was -0.651 (p=0.00) by Pearson correlation test. The hydration status showed no association with gender, physical activity and body mass index.

Conclusions: Most subjects in this study were well hydrated. A strong association was found between fluid consumption and hydration status. It was feasible to use daily fluid consumption from beverages to predict hydration status.

Keywords: fluid consumption, urine specific gravity, hydration status

Conflicts of Interest: No potential conflicts of interest to declare in relation to this publication.

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ABSTRACT

Correlation of neck, wrist, and calf circumference with body mass index in type 2 diabetes mellitus patients

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Background: Obesity is one of DM risk factors. Nutritional status can be measured by anthropometric measurements. One of them is body mass index (BMI). Other anthropometric measurements are neck, wrist and calf circumference. The purpose of this study was to determine the association of the neck, wrist and calf circumference with the body mass index of type 2 DM patients in *Puskesmas* (public health center) Sako Palembang.

Methods: In this cross-sectional study, the sample were male or female outpatients aged> 19 years old who had type 2 DM patients at Palembang Sako and/or members of *Program Pengelolaan Penyakit Kronis* (PROLANIS) affected by type 2 DM. Pregnant or breastfeeding women were excluded. Data were obtained through direct measurements, which were then analyzed using Pearson test and linear regression test.

Results: A total 44 patients with type 2 diabetes, consisting of 22 males and 22 females participated. There was significant correlation between male's ($p<0.001$, $r=0.865$) and female's neck circumference ($p<0.001$, $r=0.756$) with BMI. There was also significant correlation between male's ($p=0.002$, $r=0.696$) and female's wrist circumference ($p<0.001$, $r = 0.648$) with BMI. So was correlation between male's ($p<0.001$, $r=0.745$) and female calf circumference ($p=0.005$, $r=0.578$) with BMI.

Conclusion. There was significant association between neck, wrist and calf circumference with body mass index of type 2 DM patients.

Keywords: diabetes mellitus, body mass index (BMI), neck circumference, wrist circumference, calf circumference

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ABSTRACT

Excessive body weight and its relationship to body image in teenagers aged 16–18 years old in South Jakarta

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Objective. Overweight is one of the health problems that often occur in children and adolescents throughout the world, both in developed and developing countries. Study results in USA showed yearly increase of overweight prevalence in children aged 2–19 years old. In addition, based on the results by the National Health and Nutrition Examination Survey 2009–2010 in United States, the highest percentage of overweight and obesity by age group was found at 12–19 years old (33.6%). Basic Health Research/*Riskesdas's* data in 2013 showed the prevalence of overweight in adolescents aged 16–18 years old in Indonesia reached the highest value of 11.5%. Moreover, most teenagers see their body images as a match between self's and others' ideal perception. Teenagers with positive body image tend to be more confident and also easier to get along with other people, especially their peers. In this study, researcher aimed to investigate the relationship between teenagers who have excess body weight with body image, whether it had positive or negative impact.

Methods: This was a cross-sectional study. Data collection was done from December 2017 to January 2018. Data collected were anthropometric measurements (weight and height) and the King College London Body Image Questionnaire's filled by participants. From 400 subjects who filled the questionnaires, a total of 350 participants matched the inclusion criteria and were analyzed. Chi square test was done as data analysis.

Results: Chi-square analysis for excess body weight status in relation to body image scores showed no relationship (p=1,000).

Conclusions: There was no significant relationship between excessive body weight and body image.

Keywords: body image, overweight, obesity, teenagers aged 16-18 years old, South Jakarta

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ABSTRACT

The association of breastfeeding duration and language development survey score in children

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Background and objectives: Breastfeeding is an intimate moment between mother and children. Studies had shown the effectiveness of breastfeeding to stimulate cognitive function of children including their language development. We hypothesize the longer duration of breastfeeding the higher language ability of children. This study aimed to examine the association between breastfeeding duration and LDS score of children aged 18-35 months old. Our primary outcomes were LDS-vocabulary score and LDS-phrase score.

Methods: This cross sectional study was performed in 261 breastfeeding mothers with children aged 18-35 months old. A mother whose children diagnosed with delayed growth was excluded from the study. Data of breastfeeding duration (BF) and subjects' characteristics were obtained through a questionnaire. Body mass index (BMI) of mother and weight-per age of children were collected for nutritional status. We applied language development survey (LDS) checklist form to assess vocabulary and phrase ability of the children. Statistical modelling was calculated by multiple logistic regression.

Results: Prevalence of severe undernourished was highest in BF group 7-18 months vs 6 months vs >18 months old (13% vs 2% vs 4.6%, respectively). Neither LDS vocabulary nor LDS phase score have association with breastfeeding duration (p=0.973 and 0.937, respectively). Mother age, socioeconomic status, and siblingship might contribute to the association between BF duration and children language development (OR 0.63, 95% CI 0.25-1.61; OR 0.42, 95% CI 0.11-1.59, respectively).

Conclusion: Breastfeeding duration is not a risk factor for delayed of children language development. This observation merits further investigation to explain the relationship between duration of breastfeeding and children language development with prospective approach.

Keywords: breastfeeding, language development, children

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