

Poster Exhibition

1. Behavior and Public Health for Obesity

PE 01-01 1. Behavior and Public Health for Obesity

Relationship Between Pre-Pregnancy Body Mass Index And Antenatal Depression in Mongolian Women: A National Study

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Background: Depression and obesity are common medical problems and both have been associated with adverse pregnancy outcomes. The study aimed to determine the relationship between pre-pregnancy body mass index (BMI) and antenatal depression.

Methods: Population-based cross-sectional study involved 6-40 weeks 1482 participants from 80 clusters were randomly selected according to the Mongolian regions of Western (Khovd, Govi-Altai, Zavkhan), Khangai (Uvurkhangai, Arkhangai, Bayankhongor), Central (Tuv, Dundgovi, Umnugovi) and Eastern (Dornod, Khentii) in 12 soums of 11 provinces, 4 districts of Ulaanbaatar from February 21 to April 08, 2022. 79 questionnaires with 4 groups, physical measurements were performed. Depression was assessed by the Edinburgh Perinatal/Postnatal Depression Scale (EPDS) with 10 questions, and the result was considered antenatal depression if the total score was higher than 13. BMI classified as normal

(18.5-24.9 kg/m²), overweight (25-29.9 kg/m²) and obese (≥30 kg/m²). Statistical analysis was done by SPSS 21. The study of ethics was approved at a meeting of the Ethics Committee of the Mongolian National University of Medical Sciences (№ 2022/3-02)

Results: The average age of participants was 30.11±5.88 (18-46 years). The mean pre-pregnancy BMI was 23.9±4.3 kg/m²; more than a third (34.4%) were overweight or obese. First trimester, second trimester, and third trimester were respectively 6.7% (n=100), 60.3% (n=893) and 33.0% (n=489). The prevalence of prenatal depression was 15.9% (n=235). Pre-pregnancy BMI was not significantly related to antenatal depression (p=0.305).

Conclusion: Pre-pregnancy BMI was not significantly associated with antenatal depression in our study.

PE 01-02 1. Behavior and Public Health for Obesity

Influencing factors of the combined rate of chronic diseases and obesity

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Background: Obesity is a disease with a high risk of causing various chronic diseases rather than the problem of obesity itself, and it is a disease that requires various healthy beviors in the prevention and management of obesity. This study aims to compare the characteristics of 'people with hypertension and diabetes at the same time as obesity' with the characteristics of 'obese people without chronic diseases' and 'people with only chronic diseases' in terms of demographic and sociological characteristics, health behaviors and health status.

Methods: A total of 5,826 people were adults aged 19 and older. This study is a secondary data study and a cross-sectional survey study that analyzed the data from the 7th Korean National Health and Nutrition Examination Survey in 2020. Hypertension and diabetes were examined for chronic diseases, and subjects were divided into a total of 6 groups (no chronic disease and obesity, only obesity, only one chronic disease, one chronic disease with obesity, two chronic diseases without obesity, two chronic diseases with obesity) and demographic and sociological characteristics, health behaviors, and health status were compared. The analysis used descriptive statistics and χ² analysis to identify differences in characteristics among groups.

Results: Women, the higher the level of education and income, married people, and professional administrators and office workers showed higher the proportion of 'no chronic disease and obesity'. Also, single-person households, as age increased, the proportion of 'two chronic diseases with obesity' increased. In terms of health behavior and health status, those who did not walk regularly, ate breakfast 5 to 7 times a week, slept less than 6 hours, did not engage in aerobic physical activity, had poor subjective health levels, and had activity limitations showed higher the proportion of 'two chronic diseases with obesity' than other groups.

Meanwhile, the proportion of 'no chronic disease and obesity' was high in those who did not smoke, were not high-risky alcohol drinkers, slept 7 to 8 hours, and responded that their subjective health level was good.

Conclusion: From a health equity perspective, the combined rate of chronic diseases and obesity increased when people had low income and low education. In addition, it was confirmed that 'healthy lifestyle habits that do not smoke and drink high-risk alcohol' are more important for 'people with both obesity and chronic diseases'.

PE 01-03 1. Behavior and Public Health for Obesity

Effectiveness of an Occupational Therapist-Led Lifestyle Modification Program for Obesity Management in Putrajaya, Malaysia

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Background: Obesity remains a major health concern among the Malaysian population, with Putrajaya reporting the highest prevalence. Contributing factors include sedentary lifestyles, demanding work schedules, and widespread availability of fast-food options, leading to unhealthy dietary habits. This study aims to evaluate the effectiveness of a lifestyle modification program, implemented by occupational therapists, in reducing obesity rates in Putrajaya.

Methods: This single-arm study involved 45 obese individuals from the Putrajaya community, participating in a six-month program designed by an occupational therapist. The intervention focused on behavioral modification, engagement in meaningful routines, and modification of daily activities. Participants were prescribed personalized activities addressing physical, cognitive, and social aspects to promote sustainable lifestyle changes. Key components included leisure activities participation, physical activities regimens, and strategies for incorporating healthy habits into daily life.

Results: Statistical analysis revealed a significant reduction in body weight

and HbA1c levels among participants, alongside improved occupational performance. The findings indicate a substantial enhancement in health-related quality of life, highlighting the program's efficacy in fostering well-being among the obese population in Putrajaya.

Table 1: Summary of Findings from the Lifestyle Modification Program

Measure	Baseline (Mean ± SD)	Post-Intervention (Mean ± SD)	Percent Change	p-value
Body Weight (kg)	95.2 ± 15.3	85.6 ± 14.1	-10.1%	< 0.001
HbA1c (%)	8.5 ± 1.2	6.9 ± 1.0	-18.8%	< 0.001
Occupational Performance	62.5 ± 8.7	78.4 ± 9.3	+25.4%	< 0.001
Health-Related QoL	65.3 ± 7.5	82.7 ± 6.8	+26.6%	< 0.001

Conclusion: The occupational therapist-led lifestyle modification program demonstrates significant potential in addressing obesity in Putrajaya. By integrating behavioral changes and personalized activity routines, the program not only aids in weight reduction but also improves overall quality of life. These results underscore the importance of multidisciplinary approaches in managing obesity and offer a promising framework for public health interventions in Malaysia.

PE 01-04 1. Behavior and Public Health for Obesity

Evaluating Consumer Noticeability of Calorie Labels and KAP Towards Menu Calorie Labels at Selected Fast-Food Restaurants

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Background: Malaysia aims to introduce menu calorie labelling in foodservice outlets by 2025 to address the issue of obesity. Clear calorie information on restaurant menus empowers consumers to make informed choices, a crucial step in a country with high obesity rates and frequent eating out. This study was conducted to assess consumers' noticeability and level of knowledge, attitudes, and practices regarding menu calorie labelling in selected fast-food restaurants.

Methods: This cross-sectional study recruited participants through convenience sampling in four purposely selected fast-food restaurants. Online questionnaires were used to collect data on sociodemographic factors, knowledge (K) of calorie requirements, attitudes (A), practices (P) and noticeability towards menu calorie labelling. Statistical analysis was performed using IBM SPSS Statistics 26 with a significance level set at $p < 0.05$.

Results: A total of 1324 consumers participated in the study. Approximately two-thirds of the participants noticed the presence of calorie labelling on the menu. While more than half of the participants demonstrated a high level of knowledge on calorie requirements, 95.3% expressed positive attitudes towards menu calorie labelling. However, 3 out of 5 consumers scored poorly in practising menu calorie labelling. Age, gender, education level, noticeability, knowledge, and attitudes were significantly associated with consumers' practices of menu calorie labelling.

Conclusion: The results show that while consumers notice menu calorie labels and possess good knowledge and positive attitudes towards them, their practices remain poor. Urgent action is needed to address this concerning issue, which is crucial in combating the obesity epidemic. Implementing comprehensive interventions, such as nutritional education programs and policy measures, is vital to promote healthier eating habits and reduce the burden of obesity in our society.

PE 01-05 1. Behavior and Public Health for Obesity

Influencing factors of the Obesity compared urban and rural

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Background: Obesity is on the rise worldwide and is a major health risk factor for modern humans. Due to differences in economic activities between rural and urban areas and the average age of population group members, factors related to obesity in urban and rural and fishing areas are expected to differ. This study aims to compared of factors influencing obesity compared urban and rural.

Methods: Secondary data was analyzed using the 2022 9th National Health and Nutrition Examination National Cross-sectional Survey. The subjects were 19 years of age or older (n=6,146). The effects of urban and rural sociodemographic characteristics, sleep time, subjective health, and stress on obesity were confirmed.

Results: In the case of men, obesity was 7.6 times higher in urban areas and 4.6 times higher in rural areas than for women. In addition, obesity in rural areas was found to be influenced by education and occupation, and in urban areas, marriage and stress.

Conclusion: Obesity is caused by a combination of various causes, such as sleep time, stress, age, and education level. Through this study, factors related to obesity in urban and rural areas were identified. Intervention strategies that take into account different approaches and priorities are needed by identifying the socioeconomic factors of the growing obesity population in urban and rural areas.

Keywords: obesity, urban, rural, sleep time, stress

PE 01-06 1. Behavior and Public Health for Obesity

Evaluating the WeCare Program: A Study on the Acceptability, Appropriateness, and Feasibility for Obesity Prevention Among Older People in Malaysia

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Background: The WeCare Program is an occupation-based activities aimed at preventing obesity by enhancing meaningful activity among older people in Malaysia. This program addresses sedentary lifestyles in the elderly, which adversely impacts health and contributes to obesity, by offering a structured, culturally relevant intervention to improve well-being and quality of life. Customized for Malaysia's unique cultural context, WeCare effectively engages the country's aging population in obesity prevention. The study's objective was to evaluate the acceptability, appropriateness, and feasibility of the WeCare Program, focusing on its implementation by OTs for older people to prevent obesity.

Methods: Conducted across six districts of Kelantan, 30 older people from six locations participated in a six-week intervention led by trained OTs. Evaluation tools included the Acceptability of Intervention Measure (AIM), Intervention Appropriateness Measure (IAM), and Feasibility of Intervention Measure (FIM).

Results: The study revealed high levels of acceptability, appropriateness, and feasibility for the WeCare Program among OTs and participants, indicating its effectiveness and suitability in obesity prevention.

Table 4: The results of the evaluation of WeCare Program

EVALUATION MEASURE	QUESTION	M	SD	M	SD	95% CI
ACCEPTABILITY	Q1	4.93	0.25	4.94	0.22	[4.86:5.03]
	Q2	4.93	0.25			
	Q3	4.97	0.18			
	Q4	4.93	0.25			
APPROPRIATENESS	Q5	4.97	0.18	4.85	0.20	[4.87:5.03]
	Q6	4.97	0.18			
	Q7	4.93	0.25			
	Q8	4.93	0.25			
FEASIBILITY	Q9	4.90	0.31	4.88	0.33	[4.75:4.99]
	Q10	4.87	0.35			
	Q11	4.87	0.35			
	Q12	4.87	0.35			

Conclusion: These findings have significant implications for OTs, providing a framework for engaging the elderly in meaningful activities to prevent obesity. This study is significant for the elderly community in Malaysia, offering culturally appropriate health interventions aimed at obesity prevention. At the policy level, it underscores the potential of occupation-based programs in elder care, advocating for further investment and support. For the elderly, WeCare offers a valuable opportunity for enhanced health and quality of life in Malaysia.

PE 01-07 1. Behavior and Public Health for Obesity

Factors affecting Wearable Device Adherence among Middle to Older adults: Qualitative study

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Background: As one of the rapid aging countries, South Korea is challenged to find ways to reduce medical and care costs in future. Mobile healthcare industry has recently garnered attention, particularly the use of wearable devices. Since wearable devices allow users to monitor their health status in real-time, collect data, and analyze it to manage their health, these devices are recognized as effective tools for managing health.

In practice, continuous use of wearable devices is crucial for them to be effective in elderly health management. However, research on the factors that enable people to continue using wearable devices is limited. This study aims to identify the factors that enable middle to older adults to continuously use wearable devices by investigating the factors influencing sustained usage through in-depth interviews.

Methods: Qualitative data from five participants: (Mean age: 55(8.05)) were collected through in-depth interview and pre-surveys to explore topics and insights of adherence use of wearable device. Through

synthesizing findings from interview and pre-surveys, insights and concerning issues were summarized into three dimensions: attitudes toward the use of wearable device, digital literacy, and Self-efficacy.

Results: Results reveal that all participants reported perceived usefulness, perceived ease of use, and perceived self-efficacy for digital device have a significant impact on attitudes toward the use of wearable device at the initial stage of activity. However, research has found that their willingness to continuously use wearable devices decreases once they become accustomed to tracking their activities using wearable devices, specifically when they could predict the number of calories burned and the number of steps walked compared to the distance walked.

Conclusion: This study concludes that social and psychological factors that can encourage users to continue wearing the devices should be more considered in future device development for middle to older aged population.

PE 01-08 1. Behavior and Public Health for Obesity

Body weight status of university students and its association with their dietary preferences: A comparative study between university residents and non-residents group

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Background: Obesity is a risk factor that affects the body health and growth. Understanding and promoting healthier dietary habits and active lifestyle are essential strategies for maintaining health weight among university students. The aim of this study is to examine the association between body weight status with dietary preferences among university students in Selangor and to compare the dietary preferences between university residents and non-residents.

Methods: In this cross-sectional study, 280 participants between the ages of 18 and 29 were recruited. Sociodemographic characteristics, dietary preferences and anthropometric measurements were self-reported by the participants.

Results: One-third (30.3%) of the university students were overweight or obese. It reported that 41.4% of the participants would eat a variety of foods for a balanced diet. Nearly 70.0% of university students did not consume vegetables in their daily meals, where a significantly higher percentage among university residents (74.3%) $p=0.05$. Only a small group (10.4%) of university students eat fruits daily. A total of 78.2%

university students consume fried food at least three times per week, with a significantly higher percentage among university residents (80.5%) compared to non-university residents (75.8%), $p=0.046$. The percentage of university students consuming instant food at least three times per week is about 55.3%, which is significantly higher among university residents (61.4%), $p=0.015$. Majority of the students (58.9%) eat more when feeling stressed and it is higher among university residents (65.5%), $p=0.017$. Most of the students (68.9%) will look for food that can be quickly consumed regardless of its nutrition value during examination weeks, especially among university residents (78.4%), $p=0.001$.

Conclusion: In conclusion, most of the unhealthy dietary preferences were significantly higher among the university-residents compared to non-university residents. Future study should incorporate the social and physical environmental factors in understanding the dietary practices among the Malaysian university students.

Keywords: body weight, dietary preferences, university residents, university students

PE 01-09 1. Behavior and Public Health for Obesity

Association between Intake of Functional Beverages and Obesity among Adults: A Scoping Review

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Background: Obesity remains the primary health concern globally, particularly among adults. Functional beverages, known for their health benefits could play a significant role in addressing obesity. These beverages contain ingredients that promote metabolism, reduce appetite, or enhance fat burning, making them a potential tool in weight management. This review aims to identify the association between the intake of functional beverages and obesity among adults and to analyze the existing knowledge gaps.

Methods: A systematic search was conducted in PubMed, Scopus and Google Scholar databases. This review followed Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for scoping reviews (PRISMA-ScR) guidelines. Selected studies were from randomized controlled clinical trials, cross-sectional and cohort studies.

Results: After a thorough search of 1,327 papers based on the article title, abstract, and full text, 10 papers (3 tea, 4 coffee, 3 SSBs) were found

eligible for inclusion. Most studies (70 %) highlighted the association between caffeinated beverages and reduction of obesity (0.48 - 2.1 kg/m²), where intake of functional beverages have an impact in reducing weight and waist circumference in adults, thus decreasing occurring of obesity. The high antioxidant content in green tea and coffee such as hydroxycinnamic acid (caffeic and ferulic acids) and catechin could increase lipid oxidation resulted in weight reduction short term. However, contradictory results when the functional beverages were added with sugar (SSBs), the rate of obesity would increase due to the disruption in phospholipid metabolism.

Conclusion: Consuming functional beverages, especially caffeinated beverages lower the obesity prevalence among adults. More research is required in the future, especially for other functional beverages that are not caffeinated. Overall, the data contribute to the significance of functional beverages on weight changes aiding in future creation of innovative functional beverages to tackle obesity.

PE 01-10 1. Behavior and Public Health for Obesity

Fast Food and Sweetened Beverages Consumption and Its Association with Body Weight Status among University Students

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Background: Over the past decades, the consumption of fast foods and sweetened beverages has increased globally and became favored by people of various age groups. The objective of this study was to assess the fast food and sweetened beverages consumptions and its association with body weight status of university students.

Methods: A cross-sectional study was conducted among 220 university students aged 18 to 30 years old in Shah Alam, Malaysia. Participants self-reported their body weight, height, sociodemographic information, and dietary habits. Body mass index was calculated and used to classify the body weight status.

Results: One-third (32.7%) of university students were overweight and obese and 19.1% were underweight. A total of 10.5% and 35.0% of university students consumed fast food regularly (4-7 days/week) and sweet beverage regularly, respectively. Chi-square test showed that fast food consumption was positively associated with sweetened beverages consumption ($\chi^2=16.175$, $p=0.003$). Most university students (72.8%) consumed sweetened beverages in addition to regular meals, and it was significantly associated with their sweetened beverage consumption

frequency, $p<0.001$. More than half (69%) of university students consumed sweetened beverages as snacks throughout the day, and it was found to be positively associated with the consumption frequency, $p=0.032$. A significantly higher proportion of overweight and obese university students believed in a connection between fast food and sweetened beverages consumption with their body weight ($p<0.001$). However, frequent fast food consumption frequency was found to be lower among this group of overweight and obese university students ($p=0.020$).

Conclusion: In conclusion, one-third of university students consumed sweetened beverages and only a small group consumed fast food regularly. Fast food consumption frequency was inversely associated with body weight status. Further study should consider other dietary habits and lifestyle behavior to examine the factors related to body weight status among Malaysian university students.

Keywords: Body Weight Status, Fast Food, Obesity, Sweetened Beverages, University Students

PE 01-11 1. Behavior and Public Health for Obesity

The association between perceived stress and obesity among young adults: mediating effect of health status

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Background: The prevalence of obesity among young adults is increasing globally. Obesity in young adults has a negative impact on health in old age, regardless of obesity status in old age, so it is important to manage obesity from young adulthood. Health-related factors such as sleep, depression, stress, and subjective health perception have a particular influence on obesity in young adults. Stress is closely related to obesity because it can lead to inappropriate eating habits. Mental health conditions, including stress, are known to have a major impact on the ability to self-assess one's health status. This affects individuals' health-related behavior, and the risk of obesity is likely to increase for individuals who are unable to accurately determine their health status. Health conditions, particularly psychological ones, are interrelated, and it is therefore crucial that they be considered comprehensively. However, existing research on this is insufficient. Therefore, the present study aims to analyze the impact of stress on obesity and the mediating effect of subjective health perception among health conditions that have recently attracted attention as a risk factor for obesity in young adults in Korea.

Methods: Data were obtained from the 8th Korea National Health and Nutrition Examination Survey (2019–2021). The study participants were 3,053 individuals aged 19–34 years. This study used "HE_BMI" calculated from weight and height as the dependent variable. The level of perceived

stress was used as the main independent variable, and the subjective health perception variable was used as a mediating variable.

To analyze effect of health status on the association between stress and obesity, mediating effect analysis was used.

Results: For both men and women, higher perceived stress levels were associated with worse subjective health perception ($\beta = 0.257$, $p < 0.001$; and $\beta = 0.380$, $p < 0.001$, respectively), and "bad" subjective health perception was more likely than "good" subjective health perception to be associated with obesity ($\beta = 0.319$, $p < 0.001$; and $\beta = 0.377$, $p < 0.001$, respectively). The more stress that men and women felt, the more likely they were to suffer from obesity ($\beta = 0.136$, $p < 0.05$; and $\beta = 0.195$, $p < 0.001$, respectively). In addition, analysis of the mediating effect of subjective health perception on the effect of stress on obesity revealed that for men, stress affected obesity through subjective health perception, while for women, stress had a direct effect on obesity as well as an indirect effect through subjective health perception.

Conclusion: To effectively prevent and manage obesity in young adults, health conditions such as stress and subjective health should be considered in tandem, and more systematic strategies that differ according to gender are required.

PE 01-12 1. Behavior and Public Health for Obesity

Regulating Exposure to Bright Light during Nighttime & Day hours can lead to Improved Cardiovascular and Metabolic Health through Enhanced Vision

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Background: Over the past ten years, there has been a growing focus on the impact of circadian rhythms on metabolic disorders and Cardiac-Metabolic health management. Yet, the relationship between alterations in sleep patterns and metabolic syndrome among older individuals is still not fully understood.

Methods: In this study, 120 elderly individuals aged 18–60 years were included: Morningness(MC) (55n) Intermediate(IC) (50n) & Eveningness chronotype(EC) (15n) with T2DM. Sleep patterns (bedtime, duration, wake-up time, and exposure to bright light) were examined through 48 hours ABPM, Actigraphy by Actiwatch and interviews. Statistical analysis involved one-tailed t-tests for data comparison and Pearson coefficient for correlation calculations.

Results: Systolic/Diastolic readings of ABPM show significant change between MC and IC (0.005) but not between EC & IC (0.007). And for reliability of sleep by actigraphy shows MC (6:15 + 1:35) & EC (8:18 + 1:23) take complete sleep but IC total sleep hours (5:10 + 1:05) are very less. Disruption of Rev Erb (0.003) & Ror α (0.001) gene expression is also a risk factor for Cardio metabolic Diseases in T2DM Patients. Additionally, individuals of Young Age with Type 2 Diabetes Showed a significantly higher prevalence of exposure to light during night-time hours.

Conclusion: Delayed bedtime, consistent sleep duration, and exposure to light at night have been found to be linked to higher body mass and Cardio-metabolic health issues in the elderly, indicating a potential influence on metabolic disorders.

PE 01-13 1. Behavior and Public Health for Obesity

Association between FTO Gene Polymorphism, Nutritious Food Price Index (NPI) And Abdominal Obesity among adults in Klang Valley

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Background: Abdominal obesity (AO) is a major public health issue in Malaysia, however, the plausible association of genetic and nutritious diet affordability with AO in the local population remains understudied. This study aimed to examine the associations between AO, Nutritious Food Price Index (NPI), and FTO gene polymorphisms among adults in Klang Valley.

Methods: A cross-sectional study was conducted involving 238 individuals aged 18 years and above recruited by convenience sampling method. Waist circumference (WC) was measured and information on dietary intake, socioeconomic characteristics, and 18 FTO single nucleotide polymorphisms (SNPs) was analyzed. SPSS® 27 statistical software was used to analyze the relationships between these variables.

Results: The results showed that AO prevalence was 54.2% and there is a significant association between WC and age ($H=20.412, p<0.001$), gender

($U=-6.64, p<0.001$), occupational status ($U=-2.01, p=0.045$), ethnicity ($H=17.40, p<0.001$), marital status ($U=-4.66, p<0.001$) and monthly household income ($H=6.72, p=0.035$) except for academic qualifications. The NPI, a measure of diet affordability and food security, was found to be significantly associated with age ($H=17.598, p<0.001$), gender ($U=-2.188, p=0.029$), ethnicity ($H=11.267, p=0.004$), marital status ($U=-3.373, p=0.001$), and monthly household income ($H=8.309, p=0.016$), but not with occupational status and academic qualification. In the multivariate analyses, FTO variant rs9936385 remained significantly associated with AO without any adjustment (crude- $\beta=0.93, 95\%CI=0.10, 4.89$) as well as after adjusted for ethnicity and monthly household income (adjusted- $\beta=0.95, 95\%CI=0.08, 5.01$).

Conclusion: This study provides novel insights into the genetic and dietary determinants of AO among adults in Klang Valley, Malaysia. The findings suggest a need for targeted and culturally appropriate AO prevention programs, especially among high-risk population subgroups.

PE 01-14 1. Behavior and Public Health for Obesity

Association between Perceived Body Weight and Food Choice Motives among Adults in Selangor, Malaysia: Comparison between Pandemic and Endemic Phase of COVID-19

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Background: The emergence of COVID-19 has abruptly altered food purchasing behaviour, dietary habits, and food choice motives (FCM). Therefore, this study was conducted to investigate the association between perceived body weight and food choice motives among adults in Selangor, comparison between pandemic and endemic phase of COVID-19.

Methods: This cross-sectional study was carried out in Selangor, Malaysia among 318 adults aged 18 to 55 years old. Data was collected using a combination of a single question for perceived body weight and a 38-item Food Choice Questionnaire for determining FCM for both phases of COVID-19. Body weight and height during pandemic was self-reported and current measurements (ie. endemic phase) were measured by the researcher.

Results: The trend of obesity was increasing from pandemic (41.2%) to endemic (50.5%) phase. Nearly half of the respondents misperceived their body weight for both pandemic (47.8%) and endemic (46.9%) phases. There was a significant difference in the proportion of perceived body weight between the pandemic and endemic phases ($\chi^2=164.71, p<0.001$). The mean of all FCM during endemic were significantly higher compared to pandemic except for mood. Mood, religion and price were the most prominent motives underlying the selection of foods during pandemic while religion, price and convenience were the top three FCM during the endemic phase. However, perceived body weight was not significantly associated with FCM for both pandemic and endemic phases.

Conclusion: The findings from this study will add to the knowledge of Malaysian food choice motives and perception of body weight, especially during pandemic and endemic phases of COVID-19 in Malaysia.

PE 01-15 1. Behavior and Public Health for Obesity

Dietary Intake and Wellbeing Associated with Malnutrition among Adolescents Aged 13 to 18 Years Old Living in Orphanages in Kuala Lumpur, Malaysia

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Background: An adequate amount of nutrients is important for children for their growth and development. Children with malnutrition have a higher risk of increasing illness or infection and delay in recovery. Thus, this cross-sectional study aims to determine the association between dietary intake and wellbeing with malnutrition among children living in orphanages in Kuala Lumpur.

Methods: A total number of 257 respondents from 5 orphanage centers were randomly selected in this study. The collected participants data include height and weight to determine body mass index (BMI), dietary intake assessment (FFQ), and well-being assessment using Orphans and Vulnerable Children Wellbeing Tool.

Results: A total of 49% male and 51% female adolescence participated in this study with mean age of 15.3±1.7 years. Most of the respondents were Chinese (37%), followed by Indian (36%) and Malay (27%). About 54% of the orphans had normal BMI, while another 28%, 14% and 4% were

underweight, overweight and obese, respectively. Half of the respondents (50.2%) had lower wellbeing status while average energy intake was 2819±1350kcal and 2479±1136 for male and female respondents, respectively. Significant associations were determined between malnutrition status with dietary intake ($X^2 = 28.15, p < 0.05$) and wellbeing ($X^2 = 16.96, p < 0.05$).

Conclusion: Although more than half of the respondents in this study had normal BMI, the prevalences of under and overnutrition should be of concern also. The energy intake of the respondents exceeded the recommended nutrient intake, which could lead to an increase in body weight over time. Nutrition knowledge, healthy meal planning, and food preparation should be introduced to the orphans and caregivers at the orphanage centers to improve quality of life of this group of vulnerable children/adolescents.

Keywords: Dietary intake, wellbeing, malnutrition, quality of life, orphans

PE 01-16 1. Behavior and Public Health for Obesity

Best Nudge to Influence People's Behaviour for Better Off: Choices Architecture on Obesity Prevention

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Background: Indonesia is facing a significant increase in the Triple Burden of Nutrition (TBM): stunting, obesity, and non-communicable diseases. Stunting children reached 30.8%, obesity in children and adolescents is 21.8% with the coincidence of NCD's reaching 69.9%. Prevention strategies are the cheapest in terms of national health burden by changing people's behavior. Nudge theory is the formulation of an architecture of "gently encouraging" choices to change the decision making of certain target groups through psychology and micro/macro policies.

Methods: This study uses longitudinal dataset from the Indonesia Family Life Survey (IFLS), Worldbank and UNDP open data, and digital data. We aim to analyze and evaluate the extent to which Indonesian architectural policies and programs from National Action Plan for Food and Nutrition (RAN-PG) 2020-2024 have been effective or ineffective in persuading changes in people's behavior to reduce the obesity prevalence.

Results: RAN-PG consists of 4 strategies: (1) healthy and affordable food: home-cooking real food and halal certification for all restaurant & streetfood; (2) nutrition services: 1000 days of life services, women empowerment, and village monthly services; (3) access: transportation,

pedestrians, parks, public sports equipment, and (4) strengthening institutions central to village policies. Using a robust random effect, the obesity prevalence was 26.6% among men and 44.4% among women in 2018. As of March 2024, the obesity rates for both men and women decreased to 6.53% and 16.58% respectively. The data shows that strategies 1 and 2 are the biggest accessories in reducing obesity rates. Almost all Indonesian households cook food at home (91.5%). All food businesses are required to register for free halal certification, it encourages healthy and safe raw ingredients. The 1000 days of life program is available in all villages in Indonesia through Community Health Centers and Posyandu for routine health checks, distribution of supplements and vitamins for pregnant women, and various empowerment activities. However, access is still very poor so Indonesia is in first place as the country with the least movement (3,513 steps/day).

Conclusion: Various programs have been effective in reducing obesity rates among the Indonesian population. However, Indonesia has still not succeeded in providing the best nudge for active community behavior with overlapping regulations that cause polarization in society.

Keywords: Obesity, Nudge theory, Behavioral economics, Preventive

PE 01-17 1. Behavior and Public Health for Obesity

Barriers Towards Fruits and Vegetables Consumption among Working Adults Population in Kuala Lumpur and Selangor, Malaysia

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Background: Fruits and vegetables have high content of dietary fiber, vitamins and minerals and adequate intake have long since been associated with decrease risks of chronic diseases. Despite its' health benefits, the recent National Health and Morbidity Survey 2023 reported that 95% of Malaysian did not consume 5 servings of fruits and vegetables daily. Thus, this cross-sectional study aims to identify the association between sociodemographic characteristics and the barriers towards fruit and vegetable consumption among working adults in Kuala Lumpur and Selangor, Malaysia.

Methods: Working adults, aged 18 - 60 years old (N= 242) were recruited using purposive sampling technique. Respondents completed either an online or a physical self-administered questionnaire on their socioeconomic and demographic characteristics and barriers towards fruit and vegetables consumption.

Results: More than half of the respondents in study were female (51.7%), not married (50.5%), had bachelor's degree qualification (48.3%) and household income below USD1100 (67.8%). The highest barrier reported

was preference towards fruit and vegetables (75.2%), followed by quality (74.4%) and availability of variety of fruit and vegetables (71.5%). Education was significantly associated with availability of variety of fruit and vegetables ($\chi^2 = 13.590, p < 0.05$), quality ($\chi^2 = 14.626, p < 0.05$) and knowledge ($\chi^2 = 12.355, p < 0.05$). Income was significantly associated with most barriers except availability of fruit and vegetable varieties, quality, and preference ($p > 0.05$).

Conclusion: Working adults in this study reported low intake of fruit and vegetables then the recommended amount. than the suggested daily intake of the Malaysian Dietary Guidelines. Education and income were among the sociodemographic factors associated with the barriers towards fruit and vegetables consumption. Public health initiatives to improve fruits and vegetables intake should be customized according to sociodemographic characteristics to increase percentage of people adopting a healthier eating habit.

Keywords: Barrier, fruits, vegetables, sociodemographic, working adults

PE 01-18 1. Behavior and Public Health for Obesity

Unhealthy Lifestyle Behaviors and Poorer Sleep Quality Are Associated with Social Jetlag in Malaysian Adults

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Background: Social jetlag (SJL) is a term used to describe misalignment between biological and social time. Measured as the difference in sleep midpoints between work and free days, social jetlag has been associated with unhealthy lifestyle behaviours and adverse health outcomes. This study aimed to identify the prevalence of social jetlag and its association with lifestyle factors and demographic characteristics among adults in Malaysia.

Methods: This is a cross-sectional study of adults aged 18 to 59 years and with Internet access. Self-declared data on age, gender, and lifestyle behaviour were collected online from June 2023 to February 2024. Questionnaires used: Locally validated Pittsburgh Sleep Quality Index, Epworth Sleepiness Scale, Modified Munich Chronotype Questionnaire (M-MCTQ), Berlin questionnaire, Insomnia Severity Index and General Health Questionnaire (GHQ). Social jetlag was defined as a discrepancy of ≥ 1 h between bedtime and wake-up time on weekdays compared to weekends. Eating jet lag was calculated in hours as follows: Eating midpoint on weekends minus eating midpoint on weekdays.

Results: The sample consisted of 2072 participants (63% response rate), among whom 72.9% were females. Ages varied between 18 and 59 years (mean 32.7; standard deviation (SD), 8.7). The prevalence of SJL was 48.7.8%, with no significant difference between men and women ($p = .891$). Adults with SJL were more likely to be among the younger age group ($p = 0.02$), single ($p = 0.03$), employed ($p = 0.012$), smokers ($p = 0.018$), sleep deprived ($p < 0.001$), poorer sleep quality ($p = 0.03$), sleep back of free days ($p = 0.001$), presence of insomnia ($p = 0.03$), high risk for sleep apnea ($p = 0.018$) and lower mental well-being ($p = 0.03$). In addition, adults with SJL were more likely to have eating jetlag ($p = 0.06$). In this study, the prevalence of eating jetlag is 54.3%.

Conclusion: In conclusion, social jetlag and eating jetlag are prevalent among Malaysian adults. Our survey provides evidence of unhealthy lifestyles and health risks among adults with SJL, characterised by higher smoking habits, poorer sleep quality, shorter sleep, a high risk for sleep apnea, the presence of insomnia and lower mental well-being with potential long-term negative health outcomes.

PE 01-19 1. Behavior and Public Health for Obesity

Process Evaluation of a Peer-Led Digital Health Lifestyle Intervention (MYCardio-PEER) for Cardiovascular Disease Prevention in a Low-Income Community

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Background: Cardiovascular diseases (CVD) significantly impact low-income communities with limited access to preventative care. While peer-based interventions have shown promise in managing chronic diseases, their effectiveness in CVD prevention with digital health is underexplored. We aimed to develop and conduct process evaluation on MYCardio-PEER, an 8-week peer-led digital health intervention among at-risk low-income individuals, living in a low-and-middle-income country (LMIC).

Methods: MYCardio-PEER was developed based on the Integrated Theory of Behaviour Change. There were five steps involved in the development process: (i) review of evidence, (ii) development of behavior change matrix, (iii) creation of digital content and peer-led activities (iv) content validation, (v) feasibility and process evaluation.

Results: The 8-week MYCardio-PEER program consisted of bite-sized educational videos, infographics, and interactive activities targeting knowledge, nutrition, and lifestyle behaviors related to CVD. A total of 32 participants (59.4% male, with a mean age of 58.2±6.7 years) participated in the program. Program adherence was high with 82.4% of participants completing all the peer-led activities. Participants' satisfaction with the program was also high, with content satisfaction scoring 90.2%.

Conclusion: The high adherence rate and strong satisfaction levels observed in the MYCardio-PEER program demonstrate its considerable potential for CVD prevention in underserved populations in LMICs. These positive outcomes highlight the effectiveness of peer-led digital health interventions in improving health behaviors and preventing chronic diseases in resource-limited settings.

PE 01-20 1. Behavior and Public Health for Obesity

Associations between personal health behaviors and body weight status among university students

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Background: University life marks a crucial transition from adolescence to adulthood, shaping life-long dietary and lifestyle habits. However, poor habits developed during this period can persist into adulthood, leading to various nutritional consequences such as overweight and obesity. This study aims to investigate personal health behaviours and their impact on body weight status among university students.

Methods: This cross-sectional study involved 180 university students from private universities. Personal health behaviors included dietary habits, dietary quality, physical activity, physical fitness, and sleep habits. Body weight status was determined using body mass index (BMI), waist circumference, and body fat measurements. A cluster analysis was conducted using the K-means method to identify and group participants based on their patterns or profiles. ANOVA with post-hoc analysis was performed to determine the association between personal health behaviors and body weight status.

Results: The cluster analysis identified three distinct profiles of health behaviors among the participants. Cluster 1 (47.1%), labeled "Minimal

Health Behavior Engagement," consisted of individuals with generally lower-than-average scores across most health behavior variables, except for a slightly higher fast-food consumption. Cluster 2 (26.7%), named "High-Risk Health Behaviors," included individuals with higher-than-average scores for most health behavior variables, indicating poor sleep quality and potential behavioral addiction symptoms. Cluster 3 (11.4%), characterized as "Physically Active Health Enthusiasts," exhibited very high levels of physical activity and muscle strength, with mixed scores on other health behavior variables. The differences in waist circumference ($F=5.02$, $p=0.01$), BMI ($F=6.54$, $p=0.01$), and body fat percentages ($F=4.19$, $p=0.02$) among these clusters were statistically significant, with Cluster 3 exhibiting notably lower values than cluster 1 and 2.

Conclusion: This study provides valuable insights into the diverse health behavior profiles among university students and emphasizes the need for tailored interventions. These findings have implications for future research and public health initiatives, highlighting the importance of understanding and addressing health behavior profiles to promote healthier lifestyles among young adults.

PE 01-21 1. Behavior and Public Health for Obesity

BEHIND THE DESK: SOCIODEMOGRAPHIC AND LIFESTYLE DRIVERS OF OBESITY AMONG KUALA LUMPUR'S WORKFORCES

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Background: The spiraling rise of obesity prevalence is alarming nationwide. Overweight/obesity will have a greater chance of getting NCDs including hypertension, diabetes mellitus, and heart attack as well as cancer. This study aims to determine whether there is any association between sociodemographic characteristics, lifestyle factors, and work environment, with overweight/obesity among Malaysian working adults in Kuala Lumpur.

Methods: A cross-sectional study design is carried out among Malaysian workers aged 18 to 64 years. The data were obtained through online administered questionnaires. In this study, 290 respondents were involved using convenient sampling. Multiple logistic regression analysis was used to determine the association and odds ratio of overweight/obesity among working adults for each study factor, with a $p < 0.05$ significance value.

Results: The prevalence of overweight/obese workers in this study was 24.8%. This study found that work-related factors such as working hours, work status, work shift, type of occupation, and type of work had no association with overweight/obesity among working adults, but certain sociodemographic characteristics and lifestyle factors were associated with overweight/obesity. It was reported that male workers (aOR: 3.465, 95% CI: 1.723, 6.968) who are married (aOR: 4.392, 95% CI: 1.853, 10.410) with sleep less than 7 hours (aOR: 2.752, 95% CI: 1.350, 5.611), and those who did not have breakfast every day (aOR: 2.46, 95% CI: 1.113, 5.437) were reported to be associated with increased odds of overweight/obesity among workers.

Conclusion: Further research should be undertaken on other work condition factors like work stress, lifestyle factors such as diet quality, and specific job categories that contribute to an increase in BMI, especially among working adults in our country.

PE 01-22 1. Behavior and Public Health for Obesity

Study of results Obesity and a health risk behavior

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Background: In recent years, the use of e-cigarettes has increased in Mongolia, which can be seen by the fact that someone around us is using them. All tobacco products are addictive and involve risky behaviors. Risky behaviors are behaviors that pose a risk of harming one's own or others health, causing morbidity or mortality. Therefore, there is no study on the level of smoking dependence and risky behavior among students, which is the basis of our study. The study is aimed to evaluate the risky behavior and cigarette smoking among students who are studying the school of university.

Methods: The study was conducted by using a cross sectional design and a quantitative research method. 368 students who have been examined at University questionnaire. Statistical processing was carried out using SPSS-25, and multi-linear regression analysis was performed to analyze the relationship between the dependent and independent variables, and the relationship was considered significant at the $p < .000$, $p < .01$, and $p < .05$ levels.

Results: In the study, 87.8% of participants were female and 12.2% were male student. Furthermore, 50.2% of respondents are smokers. When the physical nicotine dependence test was taken from smoking students, moderate to high levels of dependence were identified, indicating there is behavioral risk. Examining consumption by type of tobacco, 36.4% use cigarettes and 56.4% use e-cigarettes, which is higher than other types of tobacco use. In terms of gender, it is found that men and women use it without any difference. It can be seen that 43.6% of the respondents smoke, which is close to the total number of smokers, indicating that there is a certain level of family behavior influence. Risk behavior include insecurity, violence, bullying, sadness, drug use, alcohol use, sexual orientation change, and body weight (obesity).

Conclusion: There is no science-based information on the understanding of smoking, the dependence of smoking students has been determined at a certain level, and the use of tobacco ($r=0.30$), alcohol ($r=0.39$), and TV ($r=0.38$) was moderately related to health risk factors. Age is factor influencing risk behavior. ($p < .001$)

PE 01-23 1. Behavior and Public Health for Obesity

Obesity and diabetes trend in Young Korean Adults using Korea National Health and Nutrition Examination Survey (2007-2021)

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Background: Globally, obesity has been increasing annually and leads to various complications including type 2 diabetes (T2D). In South Korea, the prevalence of both obesity and diabetes is increasing, particularly among young adults. The study aimed to investigate the relationship between obesity and T2D in young adults (aged 20-39) using the Korea National Health and Nutrition Examination Survey (KNHANES). Specifically, the study examined the trend of obesity and Type 2 diabetes (T2D) prevalence over 20 years by gender in young adults to determine whether gender-specific and age-specific obesity and diabetes prevention strategies are necessary.

Methods: Data from the 4rd (2007) to the 8th (2021) cycles of the Korea National Health and Nutrition Examination Survey (KNHANES) were used for this research. Since KNHANES utilizes a complex sampling design, weighted means and prevalence rates were calculated to ensure accurate estimates. Statistical analysis was performed using SAS (version 9.4; SAS Institute, Cary, NC, USA).

Results: The analysis of KNHANES data from 2007 to 2021 highlights a notable trend in the prevalence of obesity and T2D among young adults aged 20-39 in South Korea. In 2007, the prevalence of obesity was 25.59%, while T2D was 2.53%. Obesity showed a steady increase, with upticks around 2016 and peaking in 2020 at 37.30%, followed by a decrease to 33.72% in 2021. T2D showed fluctuations, peaking at 2.80% in 2020 and decreasing to 2.21% in 2021.

Conclusion: With the growing prevalence of obesity, early-onset T2D is becoming increasingly common among young adults. Gender-specific obesity prevention and age-specific diabetes management programs targeting adults with early-onset T2D are urgently needed. Further study is warranted to determine which strategies are effective in reducing the prevalence of obesity and early-onset T2D among the younger Korean population.

PE 01-24 1. Behavior and Public Health for Obesity

The Mediating Role of Sedentary Behaviour Between Depression and Obesity: A Population-Based Study from Rural India.

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Background: Depression and obesity are reported to be associated with one another through complex pathophysiological pathways. Depression can lead to a high sedentary lifestyle which can further exacerbate the physical health condition leading to obesity. The present study aimed to understand the association between depression and obesity through sedentary behavior as the mediating factor in a rural population from North India.

Methods: The data for the present study was derived from an ongoing research project funded by the government of India. At baseline, 2367 participants (females 55.5%) aged 30 to 75 years were recruited from 2022 to 2024. Of the total of 2367 participants, 969 individuals' data were available for depression. Depression was assessed through BDI II and Sedentary Behavior was recorded and categorized using a GPAQ questionnaire. Data analysis was performed using IBM's SPSS v22 and Jamovi software.

Results: 24.3% of depressed participants were found to be obese as compared to non-depressed individuals. No association was observed between depression and obesity in regression analysis. In mediation analysis, it revealed that there was no significant direct association of

depression with obesity ($\beta = -0.019$; $p = 0.285$), but a significant positive association was observed between depression and obesity through sedentary behavior ($\beta = 0.0087$; $p = 0.006$).

Conclusion: Depression may lead to behavioral changes like low motivation levels, and increased sedentary time, which can predispose individuals to obesity. This underscores the importance of addressing sedentary behavior and promoting regular physical exercise in preventing and management of obesity among individuals with depression.

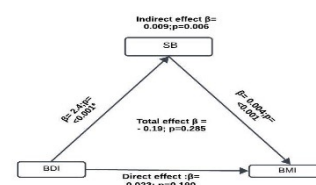


Figure: Mediation effect of depression on obesity through sedentary behavior.

SB-Sedentary behavior; BDI-Beck's Depression; Inventory; BMI -body mass index; Indirect effect= BDI \Rightarrow Sedentary behavior \rightarrow BMI; Total effect=BDI \Rightarrow BMI through SB; Direct effect= BDI \Rightarrow BMI

PE 01-25 1. Behavior and Public Health for Obesity

Association of Food Insecurity and Growth Status with Behavior of Orang Asli Primary School Children in Negeri Sembilan, Malaysia

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Background: Food insecurity and poor growth status is highly prevalent among Orang Asli (indigenous) community which may contribute to behavioural problem among primary school children. Thus, this study aimed to determine food insecurity and growth status influences towards behavioural aspects of primary school children.

Methods: This cross-sectional study was conducted among 196 primary school children from four Orang Asli (OA) primary schools in Negeri Sembilan, Malaysia. A structured questionnaire consisted of socio-demographic, Radimer/Cornell Food Insecurity questionnaire and Strength and Difficulty Child Behaviour questionnaire were used to obtain respondents' characteristics. Height and weight of the children were measured using SECA Stadiometer and TANITA digital weighing scale, to the nearest 0.1cm and 0.1kg, respectively. Height-for-age (HAZ) and body mass index-for-age (BAZ) z-scores of the children were calculated using WHO AnthroPlus software as indicators of the children's growth status.

Results: Majority of the OA children were male (55.1%) with mean age

of 9.4 ± 1.6 years old and mean household income of $USD200 \pm 90$. Most (93.8%) of the OA children came from food insecure households, with highest prevalence (41.8%) from individual food insecurity category. Most children had normal HAZ (80.6%) and BAZ (73.5%), while 11.7% and 11.2% were overweight and obese, respectively. Approximately, 61.7% of the children had normal behaviour with mean score of 11.92 ± 6.84 . Chi-square test showed that food insecurity ($\chi^2 = 5.17, p > 0.05$) and growth status of children ($\chi^2 = 16.58, p > 0.05$) were not associated with behaviour. Significant association was only observed between household income and food insecurity status ($\chi^2 = 20.57, p < 0.05$).

Conclusion: Majority of the OA children in this study were from low-income households experiencing food insecurity. Both food insecurity and growth status were not associated with behaviour of OA children. Further studies should be done to confirm this association.

Keywords: Orang Asli, food insecurity, growth status, behaviour

PE 01-26 1. Behavior and Public Health for Obesity

Sleep Habits and Sociodemographic Factors in Relation to Overweight and Obesity among Malaysian Preschoolers

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Background: The rising prevalence of childhood obesity is a growing concern worldwide. Understanding the influence of sociodemographic factors and sleep habits on overweight/obesity, especially among young children is important for developing effective prevention strategies. This study explores the associations of sociodemographic determinants and sleep habits with overweight/obesity among preschoolers aged 3-6 years in Peninsular Malaysia.

Methods: This cross-sectional study was part of South East Asian Nutrition Surveys (SEANUTS II). A total of 812 preschoolers (5.1 ± 1.0 years old, 50.6% boys) from urban and rural areas in four regions of Peninsular Malaysia were included in this analysis. Information on demography, socioeconomic status, and child sleep habits (bedtime, nap, and sleep duration) were obtained using parent-reported questionnaire. Anthropometric measurements including body weight and height, and BMI-for-age z-scores as defined by WHO growth standards and growth reference were used to classify body weight status of preschoolers, i.e. overweight/obese and normal weight.

Results: Prevalence of overweight/obesity among Malaysian preschoolers was 15.4%. There were significant associations between child age, sex, and ethnicity with overweight/obesity, with higher proportions of older preschoolers (aged 5-6 years, 65.6%), boys (60.8%) and ethnic Indians (18.4%) classified as overweight/obese. Binary logistic regression found that older preschoolers and boys were 1.6 times more likely to be overweight/obese than younger preschoolers and girls, while ethnic Indians were 3.4 times more likely to be overweight/obese compared to ethnic Malays. Preschoolers had an average of 10.0 hours of sleep, including 1.5 hours of naptime per day. Slightly less than half (49.3%) of preschoolers met the sleep guidelines. No significant association was found between sleep habits and overweight/obesity among preschoolers.

Conclusion: Although no association was found between sleep habits and overweight/obesity, boys, older children, and those of Indian ethnicity had higher likelihood of being overweight/obese. Thus, prevention strategies should consider these demographic factors among young Malaysian children.

PE 01-27 1. Behavior and Public Health for Obesity

Obesity upsurge during the COVID-19 pandemic seems to be related with the dietary pattern difference in Korea

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Background: During the COVID-19 pandemic, upsurge in obesity prevalence was noted especially among male adults and children in Korea. Since KNHANES revealed a continuous decrease in food/energy intake along with a small decrease in physical activity, we attempted to look for a feasible explanation by analyzing dietary pattern in terms of food intake at prepared dish level (FIAPD) by individuals' weight status and/or pandemic.

Methods: Intake data from the Nutrition Survey segment of KNHANES was used for a total of 6,162 participants aged 6 ~ 49 years from KNHANES 2018-2019 for before pandemic and 4,735 participants from KNHANES 2020-2021 for during pandemic. Difference in dietary pattern was analyzed across sex, age groups (children, adolescents, young adults and mid-adults), and weight status. Dietary pattern was compared by FIAPD in 29 dish groups by summing up intake of consumed dishes within each group.

Results: While cooked rice group showed the highest FIAPD and followed by beverages, noodles & dumplings, soups, and alcoholic drinks in males, FIAPD of first 2 groups were comparable in females followed by noodles & dumplings, fruits, and soups. Obese males showed higher FIAPD for beverages and alcoholic drinks than non-obese males whereas obese females consumed more noodles & dumplings and less fruits than non-obese females. Such pattern of more noodles & dumplings and less fruits in obese population was evident in children also. Overall FIAPD decreased during pandemic yet that of stir-fried dish group in males and salad group in females increased compared to before pandemic.

Conclusion: Difference in dietary pattern was observed between males & females, obese and non-obese groups, and age groups. FIAPD from noodles & dumplings, beverages, alcoholic drinks, and fruits appeared to be related most to obesity that future research delving deeper into dietary pattern analysis at dish level is warranted.

PE 01-28 1. Behavior and Public Health for Obesity

Effect of Mental health on Obesity

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Background: Obesity is one of the major causes of chronic diseases known worldwide and is known to affect mental health such as stress. This study aims to examine the effects of factors influencing obesity: stress, suicide thinking.

Methods: Secondary data were analyzed using a nationwide cross-sectional survey of the 9th Korean National Health and Nutrition Examination Survey 2022. Subjects were over aged 19 years (n=6,146). The influences of socio-demographic characteristics, sleep time, and subjective health, stress, suicide thinking on obesity were identified.

Results: In the case of men, the probability of being overweight was 4.8 times and obese was about 9.5 times higher than that of women, and it increased with age and with the perceived good subjective health status

and low educational level. Additionally, in the case of obese people, stress and suicidal thoughts were higher than in non-obese people, and sleep time were found to be related to obesity. In the obese group with higher stress, suicide thinking was higher than in normal people, and in the case of men compared with women, suicide thinking were higher in the overweight group (about 8.6 times) than in the obese group (about 5.8 times).

Conclusion: This study confirms the negative effect of obesity on health once again, and sleep time, suicide thinking and stress is confirmed that it is a variable that affects obesity. It was also found that maintaining mental health is a factor in preventing obesity.

Keywords: obesity, stress, suicide thinking, sleep, mental health

PE 01-29 1. Behavior and Public Health for Obesity

The Effect of Health Provider's Feedback on Physical Activity Surveillance Using Wearable Device-Smartphone Application in the elderly with Metabolic Syndrome; a 12-Week Randomized Control Study

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Introduction: Mobile health technology using apps and wearable devices is becoming increasingly popular as it allows patients to monitor their health status. Research on whether wearable devices interventions can effectively prevent metabolic syndrome in the elderly is still insufficient. The purpose of this study is to evaluate the effect of feedback on clinical indicators in the elderly with metabolic syndrome on activities measured using wearable device-smartphone apps.

Methods: Patients (> 65y) diagnosed with metabolic syndrome were recruited and prescribed to live for 12 weeks using a wrist-wearable device (B.BAND, B Life Inc, Korea). The block randomization method was used to distribute the participants between an intervention group (n=19) and control group (n=20). In the intervention group, an experienced study coordinator provided feedback on physical activity to individuals through telephone counseling every other week.

Results: The mean number of steps in the control group was 9092.86

(4473.53) steps, and the mean number of steps in the intervention group was 9,829.31(4224.11) steps. After 12 weeks, metabolic syndrome was resolved in participants. In particular, there were statistically significant differences in metabolic composition among participants who completed the intervention. The mean number of metabolic disorders components per person decreased from 3.3 to 2.9 in the control group and from 3.5 to 3.1 in the intervention group. In addition, in the intervention group, waist circumference, systolic and diastolic blood pressure, and triglyceride levels were significantly reduced, and HDL cholesterol levels were significantly increased.

Conclusion: In conclusion, we found that 12 weeks of telephone counseling intervention using wearable device-based physical activity confirmation improved the damaged metabolic components of metabolic syndrome patients. Telephone intervention can help increase physical activity and reduce waist circumference, a typical clinical indicator of metabolic syndrome.

PE 01-30 1. Behavior and Public Health for Obesity

Mental health and well-being in adolescents with obesity

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Background: Overweight and obesity has been extensively associated with mental illness and well-being. Adolescence has been known to have relatively high mental stress from appearance compared to other age groups, and is large enough to seriously affect daily life. This study examined the association of obesity on mental health and health-related quality of life in adolescence.

Methods: Data were obtained from the Korea Youth Risk Behavior Web-based Survey (2021–2022). The study participants were 101,127 students of middle and high schools. This study used "BMI" calculated from weight and height as the dependent variable. The experience of depression symptoms, subjective stress level, sleep status, and quality of life were used as the main independent variable. Complex sample logistic analysis was performed to identify the association of obesity on mental health and quality of life.

Results: Among all adolescents, the proportion of obesity was 16.9%, and boys, seniors, residents of small cities, and students with economically poor and low academic levels were more likely to be obese. Obese adolescents had a high risk of depression (OR=1.85, 95% CI=1.67-2.05) and subjective stress (OR=1.60, 95% CI=1.42-1.79). Sleep in terms of health-related quality of life did not show a statistically significant effect, but had a significant effect on quality of life (OR=1.73, 95% CI=1.60-1.83).

Conclusion: Obesity in adolescence has a clear correlation with mental health and health-related quality of life. In the future, it is necessary to consider follow-up studies considering the mutual causality between obesity and mental health through time series data.

PE 01-31 1. Behavior and Public Health for Obesity

Household Food Security and Dietary Intake of Yulo Farmers Amid Farm Commercialization in Sitio Buntog, Philippines

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Background: Hacienda Yulo is a 7,100-hectare private lot in Laguna, Philippines spanning the cities of Calamba, Cabuyao, and Sta. Rosa. Farmers who struggle with farm commercialization are usually affected by food insecurity and experience harassment related to access to healthcare systems and food security. The farmers' primary sources of food and income were being fenced off and controlled by private securities and landowners. Thus, the farming industry to produce and sell goods for families in nearby small communities has been greatly affected by the present farm commercialization in the area. As part of its background and with food insecurity among farmers, the Philippine Statistics Authority released in June 2020 the preliminary estimates of the 2018 poverty incidence among 10a of the 14 basic sectors identified in the Republic Act 8425 or the Social Reform and Poverty Alleviation Act as well as individuals residing in rural areas, in which Filipino farmers have the highest poverty incidence among the basic sectors at 31.6%. This sector also registered the highest poverty incidence in 2015, along with the fisherfolks, individuals residing in rural areas, and children who belong to families with income below the official poverty thresholds. In terms of poverty, food insecurity, and malnutrition, the Integrated Food Security Phase Classification also indicates that the most chronic food-insecure people tend to be the landless poor households, Indigenous people, and populations engaged in unsustainable livelihood strategies such as farmers, unskilled laborers, forestry workers, fishermen, and the like, that provide inadequate and often unpredictable income. Moreover, in 2021, the poverty rate in the Philippines reached 18.1 percent, with around 19.99 million Filipinos living below the poverty threshold of about 12,030 pesos per month for a family of five. This indicates that in a family of five, each member only has 80.2 pesos a day for basic daily necessities such as food and water, including their non-food needs such as housing, transportation, clothing, and school supplies.

Methods: This study is a cross-sectional descriptive survey among the Yulo farmers in Sitio Buntog- Hacienda Yulo in Canlubang, Calamba, Laguna, Philippines. The research design used a socioeconomic and demographic survey questionnaire, followed by an actual

house-to-house interview regarding their health status, farm commercialization status, and dietary data. Inclusion criteria for the respondents are farmers in Hacienda Yulo and currently residing or staying in Sitio Buntog Hacienda Yulo for a minimum of 5 years. The variables are measured using dietary assessment and demographic and socioeconomic questionnaires. A total of 53 farming households completed the survey. Results showed that the farmers are nutritionally at risk of nutrient inadequacy with a prevalence of 7-15% and macronutrient inadequacy with a prevalence of 90.3%.

Results: Based on the data collected, the farmers in Sitio Buntog inside the Hacienda in 2022 are nutritionally at risk due to the prevalence of nutrient inadequacy of households, food insecurity, and belonging to lower-income households, wherein the farmers and residents also experience water and health crises that may also be acquainted with malnutrition and low levels of their nutrient intakes, and chronic diseases in their clinical assessment in their later lives. The data also shows that an average family in Sitio Buntog only spends 41.37 pesos a day to survive and meet their daily food requirements, including personal care.

Conclusion: In conclusion, the farmers are food insecure and belong to lower-income households, and when it comes to their dietary intake, nutrient deficiencies can result in osteoporosis in adults, anemia, impaired work performance, cognitive functions, and impaired immunity, which could be acquired by the farmer of Sitio Buntog if proper intake is not observed. It is highly recommended that further research be conducted to determine new interventions that may help the farmers in the Philippines, especially in Hacienda Yulo. These further studies will also help to determine and give comparisons to the status of agriculture and food security in the Philippines.

Keywords: Farm Commercialization, Filipino farmers, food security, Hacienda Yulo, nutritional status

PE 01-32 1. Behavior and Public Health for Obesity

Utilizing Occupational Therapy Approaches to Manage Obesity: An Examination Through a Clinical Case Study

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Background: Obesity has reached epidemic proportions in Malaysia due to sedentary lifestyles and poor dietary habits, leading to significant health issues. Occupational therapy (OT) has emerged as a crucial intervention, empowering individuals to make positive lifestyle changes and engage in meaningful activities to combat obesity. Objective: This study evaluates the effectiveness of OT strategies in enhancing health outcomes by analysing the pre-and post-intervention measures of haemoglobin A1c (HbA1c) levels, body mass index (BMI), functional performance (Canadian Occupational Performance Measure), and occupational balance (Occupational Balance Questionnaire) in an obese adult.

Methods: A 35-year-old sedentary obese male engaged in bi-weekly OT sessions over a year. This single case study aimed to personalise the treatment, thoroughly examine OT interventions' effects and demonstrate their practical application in clinical settings. OT interventions included

prescribing activities integrating physical activities, behaviour modification techniques, occupational performance coaching, coping mechanisms, psychological support, and leisure and social participation.

Results: After a year, BMI decreased from 41.0 to 23.7kg/m², with HbA1c reducing from 6.5 to 4.24. He exhibited an active lifestyle with enhanced occupational performance exceeding 75.0%. Adherence to prescribed activities resulted in meeting recommended physical activity levels. An increase in Occupational Balance score by 117.4% was shown.

Conclusion: OT plays a significant role in managing obesity. Individuals may improve health outcomes, functional performance, and occupational balance through personalised interventions. The findings underscore the effectiveness of OT strategies in promoting positive lifestyle changes and facilitating sustained health improvements, emphasising the importance of addressing obesity through comprehensive, holistic approaches.

PE 01-33 1. Behavior and Public Health for Obesity

Validation of a Questionnaire Assessing Changes in Dietary Behaviors Among School Children Amid COVID-19 Pandemic in Jordan

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Objective: This study aimed to develop and validate a questionnaire to assess changes in dietary behaviours among school children in Jordan during the COVID-19 pandemic.

Methods: A cross-sectional study used a convenience sample of 253 school-aged children from public schools across Jordan. The "Dietary and Lifestyle Behavior Inventory" (DLBI) was developed, incorporating cultural and regional dietary preferences. The questionnaire's validity and reliability were assessed using the Content Validity Index (CVI) and Cronbach's Alpha for internal consistency. Exploratory factor analysis (EFA) was conducted to evaluate the underlying factor structure.

Results: The DLBI demonstrated excellent content validity with a Scale Content Validity Index (S-CVI) of 0.997 and a high level of agreement among expert reviewers (total agreement = 116). Reliability analysis showed high internal consistency for dietary behaviour scales, with Cronbach's Alpha values exceeding 0.9 for fruit (0.869) and vegetable (0.916) consumption

scales. Factor analysis revealed strong associations between dietary behaviour variables, with factor loadings ranging from 0.688 to 0.889. The study identified significant reductions in physical activity levels among children, with an average Cronbach's Alpha of 0.835 for physical activity-related items. The average time to complete the questionnaire was 15 minutes (SD = 5 minutes), with a completion rate of 45.6%.

Conclusion: The validated DLBI is a robust tool for assessing changes in dietary behaviours among school-aged children in Jordan during the COVID-19 pandemic. The findings highlight significant dietary patterns and physical activity shifts, emphasising the need for targeted nutritional interventions. This research fills a critical gap in the literature and provides a valuable resource for policymakers and health professionals to mitigate the impact of the pandemic on child nutrition and wellbeing.

Keywords: Dietary behaviours, school children, COVID-19 pandemic, Jordan, questionnaire validation, nutritional epidemiology, physical activity.

PE 01-34 1. Behavior and Public Health for Obesity

Obesity and Its Associated Factors among Fishermen in Pahang, Malaysia

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Background: Over the past decades, Malaysia has experiencing an increasing prevalence of overweight and obesity that jeopardizing the health of Malaysian. Poor dietary intake is one of the major contributors to the development of obesity. However, there is a limited study regarding obesity among fishermen despite the importance of this population to many countries. This study examined the prevalence of overweight and obesity and its association with dietary and socioeconomic status among fishermen in Pahang, Malaysia.

Methods: In this cross sectional study, 130 local fishermen who met the eligibility criteria were recruited using universal sampling. The height and weight were measured using standard procedures. The questionnaire used was 24 hour diet recall and Diet Diversity Score (DDS) and their dietary intakes were evaluated in detail. The dietary intake, socioeconomic and demographic factors were used to determine the associations with the obesity.

Results: Among the participants, 30.8% (n=40) were overweight and 19.2% (n=25) were obese. Findings revealed a significant association between obesity and DDS (p=0.019), education level (p=0.006) with higher proportion of overweight and obesity among low education level. Meanwhile other factors such as age, income, household size, and monthly expenses showed no significant. The outcome from the multinomial regression showed that, being high food diversity is a protective factor for both overweight and obesity after control for education level (p<0.05).

Conclusion: The alarming trend of overweight and obesity among fishermen warrant the need for further investigations by highlighting the importance of promoting health awareness to prevent any adverse implications towards public health.

PE 01-35 1. Behavior and Public Health for Obesity

Behavioural Correlates of Obesity in Northeast India Indigenous Population

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Background: According WHO (2024), 43% adults (>18 of age) are overweight and 16% live with obesity. India reported a prevalence of 28.6% overweight and 12.8% obese (WOF, 2024). Evidence-based obesity treatment underscores the importance of behavioural interventions. This study aims to determine the behavioural risk factors of obesity according to sex and rural-urban differences in indigenous population of Northeast India.

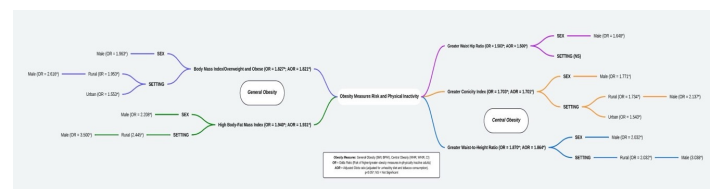
Methods (Figure 1): A cross-sectional sample was collected on 1207 (Rural = 615 and Urban = 592) Hmar population of Northeast India. Data on place of residence, sex, unhealthy diets, tobacco and alcohol consumption was collected. Data on physical activity were collected following a recalled method of 1 week according to the GPAQ, developed by the WHO (WHO 2005). Weight, height, waist circumference, and hip circumference were collected to assess obesity. BMI categories were classified according to WHO Asia-Pacific classification (WHO 2000), body fat mass index (BFMI) following a polynomial regression, WHR, WHtR and Conicity Index according to percentiles.

Results: Physical inactivity significantly increases the risk of overweight and/or obesity, greater BFMI, WHR, WHtR, and CI but the risk is different across sexes and place of residence. Significantly higher risk of obesity (BMI, BFMI, WHtR and CI) was observed in rural setting whereas in urban areas it

shows significant association only with BMI and CI. Physically inactive men show approximate 2 times higher risk of obesity compared to physically active men even after controlling for confounders like unhealthy diet and tobacco consumption. Tobacco consumption and junk food were also significantly associated with BFMI but confounded by physical activity.

Conclusion: The study of obesity should be situated within the broader contexts of community, region, and gender, as these factors significantly influence individual behaviours related to physical activity. Addressing both independent and confounding lifestyle behaviours may constitute an effective approach to enhancing prevention efforts and intervention programs.

Figure 1: Impact of Physical Inactivity on Obesity Measures Across Sexes and Residences



PE 01-36 1. Behavior and Public Health for Obesity

The Relationship Between Fast Food Consumption and The Incidence of Obesity in Children and Adolescents: A Literature Review

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Background: The Indonesian Pediatrician Association (IDAI) states that in 2023, diabetes cases in children will increase 70-fold since 2010, even the Head of the IDAI Endocrinology Coordination Work Unit, Muhammad Faizi, said that diabetes cases in children could even be higher than currently recorded. This incident cannot be separated from an uncontrolled lifestyle and children's diet that is not paid enough attention. This research aims to determine the effect of fast food consumption on the incidence of obesity in children and adolescents.

Methods: This literature review research uses a systematic review approach. Research data sources using secondary data include scientific journals that meet the inclusion and exclusion criteria. The data used is between 2019 and 2024 with the keywords, fast food, obesity, adolescent, which is research conducted in Indonesia.

Results: Based on the results of the analysis of the 11 articles used, all research results stated that there was a relationship between fast food eating habits and obesity and nutritional status in children and adolescents in Indonesia with a p value <0.05.

Conclusion: Changes in lifestyle and eating patterns in Indonesia must be the concern of all parties, one of which is education about healthy lifestyles that children must live by. Not only that, strict regulations are needed regarding the production and marketing of healthy food circulating in society.

Keyword: Fast Food, Children

PE 01-37 1. Behavior and Public Health for Obesity

Impact of Adult ADHD on Obesity: a study among young adults in Delhi NCR, India

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Background: Obesity has turned into a major public health burden worldwide, extending its effects among young adults. In recent times, the prevalence of obesity has seen a steady surge in the young adult population. In India, 40.3% adults are overweight or obese, meanwhile among young adults of Delhi NCR, India, 48.2% were either overweight or obese. Obesity being a multifactorial disease has several physical, psychological, and lifestyle risk factors contributing to its aggravation. Of which, ADHD has been identified as one of the risk factors, which has not been much explored among the Indian adult population. The prevalence of ADHD has also been reported to be rising among today's youth which consequently causes behavioural inhibitions, leading to reduced quality of life. Given the scenario, the present study aims to determine the association of ADHD with obesity among young adults in Delhi NCR, India.

Methods : The study is a cross-sectional study conducted among 1665 participants aged 18-25 years, wherein the participants are recruited via convenience sampling. Sociodemographic data was collected using

pretested and modified interview schedule. ADHD was screened using the standardized tool, ASRS v1.1. Obesity was assessed in terms general and central obesity, using standard procedures via anthropometric measurements (height, weight, waist circumference, hip circumference). The statistical data analysis was performed using SPSS software version 22.

Results: The study outcome indicate that combined-type ADHD was associated with higher risk of obesity in adults, wherein combined type ADHD posed nearly 2 folds increased odds of both general and central obesity among young adults.

Conclusion: The study outcome underscores the need for considering management of ADHD symptoms in tailoring obesity management programs, further suggesting early implementation of interventions to mitigate any future risk of obesity associated comorbidities like CVDs.

Keywords: Obesity, Adult ADHD, India

PE 01-39 1. Behavior and Public Health for Obesity

Gender Differences in the Impact of Adverse Childhood Experiences on Obesity Among Young Adults in Delhi-NCR, India

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Background: Previous research has suggested a relationship between Adverse Childhood Experiences (ACE) and obesity. However, the influence of gender on this relationship remains underexplored. This study aims to investigate gender differences in the association between ACE and obesity among young adults in Delhi-NCR, India.

Methods : This cross-sectional study enrolled 1,702 young adults aged 18-25 years of both genders (68.1% females), from two universities in Delhi-NCR, India. ACEs were evaluated using the ACE-International Questionnaire, and anthropometric measurements (weight, height, waist circumference, and hip circumference) were conducted following standardized protocols.

Results: The prevalence of overweight/obesity among females increased from 34.2% in the no ACE category to nearly 50% in the 3 and higher categories ($p = 0.001$), whereas no such trend was observed among males. Linear regression analysis revealed a significant positive association between ACE and BMI in females ($\beta = 0.177$, $p = 0.019$), but not in males. Adjusted odds ratio analysis did not indicate the risk of general or central

obesity parameters in either gender. Regarding specific ACE domains, while household mental illness [OR (95%CI) = 1.7 (1.1-2.6), $p = 0.01$] and bullying [OR (95%CI) = 3.3 (1.6-6.6), $p = 0.001$] were significantly associated to increased risk of obesity among females, incarceration of a household member [OR (95%CI) = 2.96 (1.0-9.0), $p = 0.057$] and household member treated violently [OR (95%CI) = 1.7 (1.0-2.7), $p = 0.036$] were associated with obesity among males.

Conclusion: This study revealed significant gender differences in the impact of ACE on obesity, with females showing a higher risk of obesity due to cumulative ACE exposure. Specific ACE domains also exhibited gender-specific associations. These findings underscore the importance of considering gender-specific pathways in the relationship between ACEs and obesity. Tailored interventions addressing unique gender needs are necessary to mitigate the impact of ACEs on obesity.

Keywords: ACEs; Obesity; Body Mass Index; Bullying