

OT6-04
Using Social Marketing Principals to Increase Fruit and Vegetable Consumption in A Multiethnic Population

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Poor nutrition is a leading cause of preventable morbidity and mortality in the US. Mass media campaigns have tremendous promise for reaching large segments of the population to influence nutrition. However, there is still insufficient evidence in the literature to recommend mass marketing campaigns for nutrition. The majority of Hawaii's multiethnic community is comprised of five major ethnic groups: Native Hawaiians, Caucasians, Japanese, Chinese and Filipino. To be effective, social marketing approaches need to be culturally relevant to these and other ethnic groups. This study describes a social marketing campaign designed to increase fruit and vegetable consumption in adults ages 35-55 living in Hawaii. Based on the Theory of Reasoned Action, the campaign used a marketing mix of television, radio, web, newspaper column, supermarket advertising and events and earned media to influence the target population. Random digit dial telephone surveys of 900 adults before and after the campaign were used to measure effectiveness. Results showed a significant ($p < .05$) increase in fruit consumption (0.15 servings per day), but no change in vegetable consumption. Implications of social marketing include the timing and placement of messages and the need for repeated messaging to influence nutrition.

OT6-05
Sea Fish Consuming, Degree Oh Mercury in Hair, and Fisherman Healthy at Surabaya Kenjeran Beach
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The condition of Surabaya Kenjeran Beach effected by Hg pollution, had observed by previous researcher, they suggested that water, sediment, and fishes from Kenjeran Beach were already dirtied by Hg at dangerous level. Fisherman communities is one of the group which have a risk getting effect of methyl Hg, because they usually eat fish from sea that dirtied by Hg. This research took place at Kenjeran district, Bulak sub district, Surabaya. The number of samples for group who affected by Hg are 70 person and controlled group are 45 person. Respondent's hair (research subject) was taken and then observed by Atomic Absorption Spectrophotometer (AAS) No Flame. As result, at the fisherman group who consumed sea fish at average 99.11 g/day, they have degree of Hg in their hair is 256.086 ppb. There are no data of consume sea fish at that time for the controlled group, average degree

of Hg in their hair is 0.511 ppb. Healthy disorder sigh (subjective symptoms) which is suspicious as a result of Hg poisoning at this research are kidney, lever disorder, headache, painful, tremor, bleeding gums, and visual disorder. Conclusion is, statistically there is significantly relations between consumed sea fish and degree of Hg in hair, and average degree of Hg in the effected group's hair is higher than the controlled group, but it's not over limit value that recommended by National Research Council (NRC) is 12 ppm, also there is significantly relations between degree of Hg in hair and healthy disorder sigh (subjective symptoms).

Oral Track 7- Nutrition and Food Safety
OT7-01
Antioxidant Supplementation Reduces Sick Building Syndrome Frequencies in Employees in Jakarta, Indonesia (A Community Trial)

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Environmental pollution has become a serious problem in many big cities. Indoor air pollutants are produced by ambient pollutants, cigarette smoke, use of printers, photocopy machines, production machines, and employees. Air pollution and cigarette smoke generates health damaging free radicals and have a negative impact on human health. Nutritional antioxidants have can neutralize free radicals and therefore have the potential to ameliorate the negative effects of pollution on health. This study investigates the effects of intervention with supplement containing antioxidants on the frequency of Sick Building Syndrome (SBS) in employees in Jakarta, Indonesia. The supplement used consisted of vitamins A, D, E, C, B6, B12, folate, selenium, zinc, iron and copper. The research was conducted in 350 employees (30-50 years) in 18 different companies in Jakarta. Eleven companies were picked randomly whose employees were given the supplement to be consumed daily for 3 months. Meanwhile, employees from 7 other companies not consuming the supplement served as the control group. The results showed that 50% of employees experienced SBS but major differences were seen between the supplement and the control groups. The antioxidant supplement was proven to significantly reduce the frequencies: 49% less headache, 45% less watery eyes, 52% less nasal congestion, 27% less respiratory infection and 41% less fatigue. Overall, the results showed that those employees who consumed the supplement experienced 65% less SBS frequencies. In conclusion, 3 month supplementation containing antioxidants resulted in a significant reduction of sick building syndrome frequencies in employees working at high buildings in Jakarta.

OT7-02

The Association between Micronutrient Deficiencies and Body Adiposity: An Underlying Risk Factor for Increasing Obesity in Countries Passing through the Nutrition Transition?

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Background: Countries passing through the nutrition and epidemiological transition undergo rapid dietary and lifestyle changes that produce a 'double burden' of malnutrition and obesity, and related chronic diseases. The deficiency of some micronutrients may be an underlying factor associated with increased body fat deposition that contributes to the increased prevalence of obesity in these countries. The aim of this review is to investigate the association between micronutrient deficiencies, body adiposity, fat deposition and obesity.

Method: This review focuses on the current understanding of the association between micronutrient deficiencies and its relationship with fat deposition and obesity amongst overweight and obese individuals. Insight into the direction of causality will be provided by examining the physiological mechanisms that may underlie this association.

Result: Deficiencies of some micronutrients may be associated with increased fat deposition in the body, which may in turn, be a determinant for obesity. Overweight and obese individuals have lower blood concentrations of vitamins and minerals compared to non-overweight and non-obese individuals. It remains unclear, whether this association represents a causal relationship and, if so, the direction of causality. Childhood nutritional stunting resulting from micronutrient deficiencies is positively associated with increased adult adiposity, a risk factor for obesity. Concentrations of different micronutrients have also been found to be correlated with serum leptin concentration which is associated with differences in body adiposity. These associations suggest that micronutrient deficiencies may be important in determining body adiposity and so be a causal factor underlying the increasing prevalence of obesity in transition countries.

OT7-03

A Modified Mini Nutritional Assessment without BMI Predicts Nutritional Status of Community-Living Elderly in Taiwan

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Background: Malnutrition is common in older adults and nutritional monitoring is important for detecting emerging malnutrition.

Objective: The study determined whether modified MNA (Mini Nutritional Assessment) versions could

maintain the predictive ability of the tool in older Taiwanese.

Methods: The study purposely sampled 301 (138 male and 163 female) ≥ 65 -year-old community-free living outpatients who participated in free annual health examination at an area hospital in central Taiwan. A structured questionnaire elicited personal data, lifestyle information and answers to the MNA. Laboratory results from health checkup provided needed biochemical data. Each subject's nutritional status was assessed with the original, MNA-T1 (adopted population-specific cut-points), and MNA-T2 (further eliminated the BMI item and redistributed its score to MAC and CC items). **Results:** The three versions identified the same 0.7% elderly malnourished and 16.6, 12.0 and 10% at risk of malnutrition according to the original, MNA-T1 and MNA-T2, respectively. Friedman Test and post hoc analysis indicated that the pattern predicted with the original MNA was different from that predicted with the two modified versions whereas the patterns predicted with the two modified versions were not different from each other.

Conclusion: Adoption of population-specific anthropometric cut-points improves the predictive ability of the MNA in Taiwanese elderly, and the improvement is maintained in a version without BMI (but with adjusted MAC and CC scores). MNA without BMI has greater applicability and can save time for the professional healthcare workers in monitoring nutritional risk of elderly patients.

OT7-04

Iron Deficiency Anemia in Early Infants in An Okinawan Village

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Objective: Infancy is a vulnerable age group for iron deficiency anemia (IDA) throughout the world. It is suspected that main risk factors of early infant for IDA are preterm and low birth weight. In order to confirm this we investigated the results of infant screening test for anemia in an Okinawan village.

Subjects and Method: The subjects were 414 infants aged 4-5 months who received anemia screening test when they had regular municipal health check at in 2006-2007. The regular health check has been provided at community health and welfare center by the municipal governments. Capillary blood hemoglobin concentration was determined by the Cyanmethohemoglobin method. Hb concentration of less than 10.5g/dl was arbitrary defined as anemia in the study. Multivariate logistic regression analysis was carried out as dependent variable of Anemia and the independent variables were gestational age, birth weight, birth order, feeding methods (breast/partially breast/formula-fed).

Results and Discussion: The prevalence of anemia in early infant was 5.8%. Results of multivariate logistic regression analysis showed that the anemia was associated with gestational age.

OT7-05

Attitudes of Hong Kong Population to the Public Health Threat of Melamine-Contaminated Milk
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In September 2008, the discovery of Melamine-contaminated milk produced in China introduced a new food safety risk to Hong Kong's population. The health scare challenged food safety regulations while also revealing how its general public responded to a new population health scare. This study explored the knowledge, perceptions and responses of the population of Hong Kong towards the melamine contamination in milk and dairy foods, including their attitudes towards the government's response. An anonymous population-based cross-sectional telephone survey using a structured questionnaire was carried over a two-week period in October 2008. Assessments of awareness and knowledge, perceived harm, risk and safety of milk products, behaviour change and attitude to government were made by Hong Kong's adult population. Hong Kong adults perceived the melamine scare as a transient and child-related food safety issue and few adults reported changing their milk consumption permanently. Most people approved of the government's response and saw government health bodies as reliable sources of information.

OT7-06

Do Physical Activity and Food Consumption Patterns Associate with the Body Fat among Adolescents in Sri Lanka?

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Purpose: Adolescence is a vulnerable period, to the effects of the nutrition transition evident in urban areas. We compared the mean body fat of adolescents in the district of Colombo, Sri Lanka with their physical activity and food consumption patterns.
Methods: A cross-sectional study was conducted among 418 adolescents aged 11-18 years (39.9% girls) selected using a systematic sampling technique on 12 schools located in the urban sector of Colombo. Body fat percentage was assessed by the modified Siri equation using triceps, biceps, sub-scapular and supra-iliac skinfold thicknesses; overweight by the WHO definition for adolescents using body mass index; physical activity level using the International Physical Activity

Questionnaire; and food consumption patterns using a validated 27-item food frequency questionnaire.
Results: The prevalence of overweight was 11.4% among adolescent girls and 14.5% among boys. Mean body fat percentage differed significantly between underweight (mean=13.9; standard deviation=4.6), normal (19.9; 5.8) and overweight (27.1; 4.3) adolescent groups ($p<0.01$). Furthermore, it differed significantly between girls (24.1; 4.6) and boys (16.3; 5.7) ($p<0.01$). Adolescents with an insufficient level of physical activity had a higher fat percentage (20.9; 6.4) compared to those with sufficient activity level (17.9; 6.5) ($p<0.01$). In contrast, only consumption of pulses ≥ 4 times a week was associated with significantly lower body fat (17.1; 6.4) than those who consumed less (19.6; 6.6) ($p<0.05$). Fast foods did not show significant differences.
Conclusions: Insufficient physical activity seems to play a critical role in higher body fat compared to unhealthy food consumption among adolescents in urban areas in Sri Lanka.

Oral Track 8- Substance Use

OT8-01

Prevalence of Addictive Substances (Except Tobacco and Alcohol) among Teenage School Children in the District of Colombo, Sri Lanka

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Introduction: A comprehensive survey on use of cannabis and other addictive substances has not been done in Sri Lanka. There is a paucity of data on prevalence and associated determinants of addictive substance use among the school-going population
Methods: Study included 6000 (response rate 89.2%) students from 202 schools, selected using probability-proportionate-to-size model. Drug usage patterns and psychosocial determinants of drug use were investigated using a pretested structured questionnaire
Results and analysis: Life-time use of at least one substance was seen in 27.9% (N=5353). This was significantly higher among males (37.4%, $p<0.001$). Chewing betel with tobacco was the most prevalent behavior (males-37%, females-17.2%). Lifetime use of Babul (a cocktail of tobacco, areca-nut and cannabis) was 17.1% among males. Use of cannabis(11%), heroin(1.6%) and cocaine(2.1%) was observed among males. Age of first using cannabis was <15 years in 64% of users. Logistic regression analysis showed that males who smoked and consumed alcohol were more