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**ABSTRACTS  
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EUROPEAN LIFESTYLE  
MEDICINE CONGRESS

05-07 November 2021



# Abstracts in the Form of Oral Presentations



## OP01

### “The Wellbeing Score®: Your Digital Healthy Habits Passport”

**Dr. Beatriz Crespo-Ruiz<sup>1</sup>**, Mrs Carmen Crespo-Ruiz<sup>2</sup>, Mrs Cristina Fernández-Vega<sup>2</sup>, Mrs Cristina Serra-Martinez<sup>3</sup>, Dra Ruth Boente-Varela<sup>3</sup>

<sup>1</sup>Castilla la Mancha University, Faculty of Sport Science, Spain, <sup>2</sup>Freedom & Flow, , Spain, <sup>3</sup>Ribera Salud Group, Hospital Povisa, Spain

Noncommunicable diseases (NCDs) are collectively responsible for almost 70% of all deaths worldwide (WHO,2021). They tend to be long-lasting and result from a combination of genetic, physiological, environmental, and behavioral factors.

The main objective of the study was the development of preventive medicine digital solution that use science and the basis of artificial intelligence in order to identify the risks associated to lifestyles, and to create automatic follow-up plans to improve and promote health. A total of 30 people completed the whole programme: 21 Hospital patients, 4 patients that joined after the recommendation of their doctor and 5 healthy citizens (83% women;17% men; 48 ± 8,78 years; 1,54 ± 0,39 m; 78,22 ±19,79 Kg).

The Wellbeing Score (WBS®) is a data science based web-app that sends the patient a smart survey focused on finding out about their physical state, emotions, physical environment and social environment, in order to assess a person´s general wellbeing in these four dimensions, and give it a value between 0 to 100 points. Based on this initial assessment, health professionals establish a bespoke follow-up plan with recommendations, goals and actions, covered in their own Digital healthy habits passport®.

The participants' perception of their general wellbeing increased significantly, from a score of 53 (moderate risk to health) to 63 points (minor risk to health) ( $p < 0,05$ ). In particular, the following three dimensions improved significantly: physical wellbeing (from 47 to 54 points), wellbeing related to the environment (from 62 to 69 points) and social wellbeing (from 63 to 73 points) ( $p < 0,05$ ). The emotional wellbeing has improved (from 47 to 54 points), but not significantly ( $p > 0,05$ ). The magnitude of the effect of the lifestyle improvement programme was 0,98 (great effect)( $p < 0,05$ ). Upon completion of the programme, the expected direct and indirect costs associated to a non-healthy lifestyle decreases by 20%.



## OP02

### Lifestyle During the Pandemic: A Cross-Sectional Survey in Subcontinent

**Dr Rabbanie Tariq**

*<sup>1</sup>Government Medical College, Srinagar, Srinagar, India*

**Introduction:** During the Covid19 pandemic, lockdowns were imposed and people were urged to stay indoors. This sudden change in mobility may have caused changes in lifestyle, an important factor in the onset and course of diseases. The aim of this study is to determine life-style related changes during the pandemic.

**Methods:** Life-style related changes were studied using an online survey conducted from 22 to 27 June 2020. Differences in COVID-19-related lifestyle changes between were determined as per categories using a modified version of the I-CAM-Q and 26 questions on lifestyle related measures, anxiety, and need for support to maintain lifestyle changes.

**Results:** 501 respondents were included in the study, aged between 18 and 56 years. Changes to a healthier lifestyle were observed in 20.7% of the population, mainly due to a change in diet habits, physical activity and relaxation, of whom 38.2% reported to be motivated to maintain this behavior change in a post- COVID-19 era. Fewer respondents (12.3%) changed into an unhealthier lifestyle. Multivariable logistic regression analyses revealed that changing into a healthier lifestyle was positively associated with the variables 'Worried/Anxious during COVID-19' (OR: 1.43, 95% C.I. 1.15–1.65), 'stress in relation to economic instability' (OR: 1.23, 95% C.I. 1.01–1.89), 'Age' (OR 18–25: 1.00, OR 25–40: 0.34, 95% C.I. 0.21–0.56, OR 40–55: 0.20 95% C.I. 0.18–0.43 OR 55+: 0.02, 95% C.I. 0.01–0.45), 'Stress regarding Health Status' (OR: 1.21, 95% C.I. 1.15– 2.10) and 'Stress in relation to the balance work and home' (OR: 0.53, 95% C.I. 0.20–1.23) were found predicting the change into an unhealthier direction.

**Conclusion:** These findings suggest that the pandemic resulted in a mixed response with regard to Lifestyle. Further studies are need to be conducted to see whether this behavioral change is maintained over time, and how lifestyle is related to the course of COVID19.



OP03

## Mapping the Medical Educational Curriculum: Need for More Lifestyle Medicine (LM) Teaching

**Dr Jumanah Essa-Hadad**<sup>1</sup>, Prof. Mary Rudolf<sup>1</sup>, Dr. Lilach Malatsky<sup>1,2,3</sup>

<sup>1</sup>Bar Ilan University Azrieli Faculty Of Medicine, Population Health, Israel, <sup>2</sup>Israeli Society of Lifestyle Medicine, , Israel, <sup>3</sup>Israel Association of Family Physicians , , Israel

**INTRODUCTION:** The American College of Lifestyle Medicine emphasizes the need to include lifestyle medicine teaching in undergraduate medical education. Since its inception in 2011, the BIU medical school has prioritized and developed a required LM curriculum. We conducted a mapping exercise to assess components taught, and measure the impact on students' attitudes and confidence towards LM.

**METHODS:** Structured analysis of all course syllabi was conducted to determine the extent nine LM components were included in the courses. A pre-clinical student and two clinical students then observed and recorded LM content, degree of coverage, and time allocated to topics in all teaching sessions. Interviews were conducted with course coordinators. An online questionnaire was administered at end of 2nd and 4th years to assess students' attitudes and confidence in providing LM guidance (scale 1-4).

**RESULTS:** Students received 55 academic hours of LM teaching across the four-year curriculum, 47 hours in pre-clinical and 8 in clinical years. Nutrition was taught most (17.6 hours); with alcohol (1 hour), sleep (2 hours), smoking (2 hours), and sexuality (2.5 hours) taught least. Most students believed it was part of the physician's role to provide LM guidance and that patients expected their physicians to be role models for healthy lifestyle ( $x=3.4, SD 0.7$ ). Greatest confidence was reported for providing general LM advice ( $x=3.3, SD=1.1$ ); low levels were reported for providing advice on stress ( $x=2.5, SD=1.0$ ), sleep ( $x=2.2, SD=1.2$ ), and sexuality ( $x=2.1, SD=1.2$ ). Despite nutrition being taught most extensively, confidence in providing nutrition counselling was low ( $x=2.7, SD=1.1$ ).

**CONCLUSION:** Despite significant investment in teaching LM in our institution, there is a gap in students' confidence and ability to apply LM. Substantial efforts are required to extend teaching, particularly in the clinical years, develop ways of assessment, and develop recommendations for strengthening LM teaching to prepare students for their work as future physicians.



OP04

## The Effects of the Covid-19 Pandemic on Medical Students' Mental Health and Learning Abilities: A Cross-Sectional Study

Matan Peer<sup>1</sup>, Prof. Mary Rudolf<sup>1</sup>, **Dr Jumanah Essa-Hadad<sup>1</sup>**, Dr. Lilach Malatskey<sup>1,2,3</sup>

<sup>1</sup>Bar Ilan University Azrieli Faculty Of Medicine, Population Health, Israel, <sup>2</sup>Israeli Society of Lifestyle Medicine, , Israel, <sup>3</sup>Israel Association of Family Physicians , , Israel

Oral Presentations II, November 6, 2021, 9:00 AM - 10:30 AM

**INTRODUCTION:** Medical students suffer from high levels of psychological distress. Prior to the COVID-19 pandemic, a meta-analysis found global rates of 28% for depression and 34% for anxiety. The pandemic has impacted medical students; 70% of Australian medical students reported a decline in well-being, 75% of American medical students reported significant disruption in their education. This research examined how the COVID-19 pandemic affected the mental health and learning abilities of Israeli medical students and reports the key coping strategies they employed.

**METHODS:** An anonymous online survey was distributed to medical students from Bar-Ilan University, Israel, one year into the pandemic. The survey included: sociodemographic, health, lifestyle, learning abilities, coping strategies, and validated questionnaires on well-being, depression, anxiety, stress, and resilience.

**RESULTS:** 236 of 450 eligible students (52.4%) responded to the survey; 197 (43.8%) responded fully. 76 (38.6%) reported deterioration in mental health, 79 (40.0%) met the criteria for depression disorder, 54 (27.4%) for stress disorder, and 50 (25.4%) for anxiety disorder. 31 students (15.7%) met the criteria for at least one severe disorder. Only 69 (35.0%) had adequate resilience. A well-being score <35.5 was associated with higher rates of depression, anxiety, stress, and low resilience. 41 (20.8%) sought psychological/psychiatric therapy. 83 students were studying less efficiently (42.1%), 70 students (35.6%) were moderately/severely concerned they would fail academically, and 49 (24.9%) reported lower academic achievement. The most common coping strategies included movies/TV shows (61.9%), physical activity (59.9%), and closeness to family (58.4%).

**CONCLUSIONS:** The COVID-19 pandemic has had an alarming impact on Israeli medical students' mental health and learning abilities. Urgent action is needed in terms of identifying, preventing, and treating students experiencing distress.



OP05

## A New Stress Management Tool: Emotional Literacy

**Dr Erna Wenus<sup>1</sup>**

<sup>1</sup>Private Practice, , United States

**TITLE:** A New Stress Managing Tool: Emotional Literacy

**INTRODUCTION:** Negative Emotions like Fear, Anger, Sadness and Pain are massive stress factors. But they could be used as an orientation of what is wrong.

**METHODS:** Through my observations in my work as an acupuncturist I developed a matrix that describes emotions as a gauge indicating the status of our interactions with others — when these interactions are running smoothly, we may feel “in the green range” of a certain aspect of managing life, and feel satisfaction, confidence, or joy. When the needle is “in the red range” on the gauge, we know something bad is about to happen or happening. I describe these ‘negative’ emotions as Alarm Emotions, which issue a warning to prod us to avoid or control damage.

Knowing what emotions are read on what gauge makes it clear how they are intertwined and what their function is. Changes to be made are then easily recognized and monitored.

I have developed this matrix with hundreds of patients and established its use as a first line of inquiry to determine major stressors and trauma responses in their lives and helped them to adapt their lifestyle.

**RESULTS:** Patients who use this approach routinely see dramatic improvements in sleep, reductions in anxiety, and the restoration of harmony in their familial relationships.

**CONCLUSION:** Using Emotional Literacy to understand and interpret emotions, positive ones as well as negative ones, and how the brain processes them, is a useful tool to manage stress.



## OP06

'Prime Time of Life', A 12-Week Home-Based Online Multimodal Exercise Training and Health Education Programme for Middle-Aged and Older Adults.

**Dr Diane Cooper**<sup>1</sup>, Ms Ruth Kavanagh<sup>1</sup>, Mr John Bolton<sup>1</sup>, Dr Siobhan O'Connor<sup>2</sup>, Ms Caroline Myers<sup>3</sup>

<sup>1</sup>True Fitness, Co Laois, Ireland, <sup>2</sup>Dublin City University, , Ireland, <sup>3</sup>Laois Sports Partnership, , Ireland

**INTRODUCTION:** Multimodal exercise training can ameliorate the physiological decline associated with ageing. This study aimed to investigate whether 12 weeks of a home-based online multimodal training and health education intervention could improve functional ability and perceptions of physical and mental health in middle-aged and older adults.

**METHODS:** Sixty-one male (N = 18, 59.1 ± 7.0 years) and female (N = 43, 60.9 ± 6.8 years) participants with various clinical conditions completed two 60-minute training sessions per week for 12 weeks delivered online via Zoom. All sessions included aerobic, resistance, balance, and flexibility exercises. One weekly session incorporated 15 minutes of health and fitness education. The pre/post testing sessions were conducted in a local community centre in line with COVID-19 public health guidelines. Paired samples t-tests and the Wilcoxon signed rank tests were utilised to compare scores pre and post intervention.

**RESULTS:** There were significant improvements in participants 6-minute walk ( $p < 0.0001$ ), sit-to-stand ( $p < 0.0001$ ), timed-up-and-go ( $p < 0.0001$ ), sit-and-reach ( $p < 0.0001$ ), squat jump ( $p < 0.0001$ ), core endurance ( $p < 0.0001$ ), grip strength (right hand  $p = 0.03$ , left hand  $p = 0.04$ ) and balance (right leg  $p < 0.0001$ , left leg  $p = 0.004$ ) tests post intervention. Perceptions of physical ( $p < 0.0001$ ) and mental ( $p < 0.0001$ ) health also improved significantly.

**CONCLUSION:** Twelve weeks of online multimodal training and health education can significantly improve cardiovascular fitness, strength, power, balance, flexibility, and perceptions of physical health, mental health, and quality of life in middle-aged and older adults. While there are some limitations to online interventions, the benefits are numerous and equal to those reported for onsite interventions and should be considered for wider roll out in this population.



## OP08

Medical Licensing Examinations in both Sweden and the US Favor Pharmacology over Lifestyle.

**Prof., Dr. Benno Krachler<sup>1</sup>**, Mr Lars Jerdén, Mrs Hanne Tønnesen, Mrs Christina Lindén

<sup>1</sup>Umeå University, Umeå, Sweden

**INTRODUCTION:** Low priority of disease prevention and health promotion in medical education may contribute to lack of lifestyle-counseling in clinical practice. Pharmacology-related knowledge is valued 5 times higher compared to lifestyle-related knowledge in examinations on noncommunicable diseases (NCDs) in undergraduate medical education in Sweden. This study aims to establish (i) whether medical licensing examinations are biased to favor pharmacology-over lifestyle-related knowledge and (ii) whether such a bias is present in both Sweden and the US.

**METHODS:** We identified 204 NCD-related questions from previous Swedish licensing examinations, and 77 cases from a U.S. question bank commonly used to prepare for the United States Medical Licensing Examination® (USMLE®) Step 3. With the help of expected correct answers, we determined distribution of points attainable for knowledge in the respective category (lifestyle / pharmacology / other) for 5 major NCDs: coronary heart disease (CHD), chronic obstructive pulmonary disease (COPD), diabetes, hypertension, and stroke.

**RESULTS:** The percentage of points attainable for lifestyle-related knowledge was 6.7 (95% CI 4.1-9.3) in Sweden and 4.6 (95%CI 0.0-9.1) in the U.S. The respective percentages for pharmacology-related knowledge were 32.6 (95% CI 26.3-38.8) and 44.5 (95% CI 33.2-55.8) percent. The pharmacology vs. lifestyle-quotas were 4.9 in Sweden and 9.8 in the U.S. Likelihoods of equal emphasis on lifestyle and pharmacology in NCDs was < 0.001 in both countries.

**CONCLUSION:** There is a marked preference for pharmacology over lifestyle in medical licensing examinations in both Sweden and the U.S. Newly qualified doctors may be inadequately prepared to address preventable causes of NCDs.



OP09

## Life Writing Contribution to the Health of Indigenous Groups

**MS, MA Tagrid Morad<sup>1</sup>**

<sup>1</sup>Masaryk University, Department of English and American Studies, Czech Republic

**INTRODUCTION:** Indigenous and ethnic groups suffer from health inequalities, and in studying these disparities, the broader context and the subject's knowledge of needs, resources and strengths are not considered. Minorities in rural and remote areas differ significantly in lifestyle. While the inclusion of any ethnic group in interventional research was and is almost impossible, literature and specifically life writing genres could assist in understanding the link between culture, lifestyle, and disease, to tailor medical interventions to promote the health of these communities. Lifestyle, a constant concept in ethnography and literature, plays a critical role in causing and preventing chronic diseases in modern societies. Thus, life writing genres are of paramount importance as a source of information on lifestyle.

**METHODS:** Margaret Mead dedicated most of her research to native groups and could offer relevant insights into lifestyle and health. I will try to actualize her contribution to studying lifestyle in communities under transition, like people in desert areas of the Middle East.

Considering lifestyle, a generic ethnographic concept, I aim to list lifestyles in Mead's autobiography, explore Mead's interpretations of health and lifestyle, and extract positive cultural beliefs that can improve health.

**RESULTS:** Mead uses her bricolage and thick description to offer a detailed, holistic approach to the culture and its impact on lifestyle and health. She provides plenty of facts on the lifestyle of natives detailing positive cultural beliefs relevant to lifestyle understanding and change in native cultures. Mead had suggestions on how to intervene in transforming lifestyle to improve the health of natives.

**CONCLUSION:** Literature helps understand the lifestyle of ethnic groups and is a significant source of information for health professionals to tailor culturally sensitive lifestyle interventions.

The health system has a greater chance of improving health by lifestyle changes embedded in the native culture.



## OP10

### Health Promotion Intervention to Improve Lifestyle Behaviors Profile among Office-Based Workers: A Pilot Study

**Ms Dalal Alharbi<sup>1</sup>**, Dr. Abdullah Alghannam<sup>1</sup>, Dr. Alaa Almasud<sup>1</sup>, Dr. Shaima Alothman<sup>1</sup>

<sup>1</sup>Princess Nourah Bint Abdulrahman University, Lifestyle And Health Research Center, Health Sciences Research Center, Saudi Arabia

**INTRODUCTION:** Unhealthy lifestyle behaviors include physical inactivity, sedentary behavior, insufficient sleep, and poor diet are well-known risk factors of morbidity and mortality associated with non-communicable diseases. These behaviors have been recently increasing noticeably in the working population due to technology development, work tasks, workload. Health promotion programs are one promising avenue to enhance behavior change and reduce the burden of negative lifestyle behaviors. The aim of the current study is to evaluate the effect of health promotion intervention on lifestyle behaviors among office workers.

**METHOD:** Quasi-experimental study conducted on healthy office workers adults aged 18 years and older. They underwent 8 weeks intervention based on social learning (cognitive theory) and nudge theory. From which four interventions focused on physical activity, two focused on nutrition and two are focused on psychological aspect. Anthropometrics, vital signs and Health-Promoting Lifestyle Profile II (HPLP-II) to assess lifestyle behavior (health responsibility, physical activity, nutrition, spiritual growth, interpersonal relationships, and stress management) and four questions added to assess sedentary behavior and sleep collected at baseline visit (pre-test) and within a week after the ending of the health promotion intervention (post-test). Data were analyzed using Wilcoxon signed-rank test.

**RESULT:** 21 participants (age=  $31 \pm 5.4$  years; sex= 17 females /3 males; BMI=  $29.3 \pm 6$ ) were included in final analysis. HPLP-II decreased (post-test median=138; IQR=20.5) compared to the baseline (median=153.5; IQR=25.63;  $p=0.012$ ). Physical activity (pre-test: median=17; IQR=5.5, post-test: median=18.5; IQR=4.5) and nutrition (pre-test: median=20.7; IQR=5.5, post-test: median=22.5; IQR=5.5) improved but did not reach statistical significance.

**CONCLUSION:** Contrary to our hypothesis, HPLP-II total scores were worst post-intervention that might be due specific intervention component based on cognitive theory versus nudge theory. For example, physical activity and nutrition improved using cognitive theory, whereas, sleep, spiritual growth, interpersonal relationships, and stress management did not improve using nudge theory.



## OP12

Global Health Universities Should Preferably Be Created. Legal Constitution – for Transforming Global Health-Care resp. Health-Status/Health-Constitution Together.

**Mr Yannick Pots<sup>1</sup>**, Dr Christel Fontaine

<sup>1</sup>Global Health Association, Research, Belgium

**Background.** Since 1945(in BEL/EU), during 35(25-59)years-period 'working'-generation is decreasing, i.e. – based on OECD Statistical Data – about 64,8%(in 2020) resp. 58.8% (i.e. minus 6%-point)(in 2050) of the total population, contributing for 'not-working'-generation, which is increasing, i.e. about 35.2%(in 2020) resp. 41.2%(in 2050), i.e. in discordance with Pareto Principle, 80/20-rule. Globally, financing material health-care-related quantity-of-costs/expenditures(QoC/E) value added(VA), is becoming unsustainable & untenable.

**Aim.** Accepting this Legal Constitution in order to preferably create Global Health Universities(GHUs) for optimizing & decreasing material health-care-related(HCR) quantity-of-costs/expenditures(QoC/E) value added(VA) (i.e. as material HCR-in-comes) i.o. to realize a sustainable and tenable immaterial health-status-related quality-of-life(QoL), intrinsic-capacity(IC), functional-ability(FA) resp. life-years-gained(LYG) VA (i.e. as immaterial (Health-status-related) HSR-out-comes). By doing so we can improve health constitution (as basic principle(s), as fundamental right(s), as strategy), and promote, protect & prevent health-care & health-status, and achieve longevity & sustainable happiness (as key-mission-statement).

**Method.** Based on integration of both Eastern/Indian traditional and Western modern/conventional medicine systems resp. health mind-sets, we can develop Legal Constitution of GHUs for transforming global health-care resp. health-status/health-constitution worldwide.

**Results.** Legal Constitution of GHUs is fundamental to transform and optimize health-care&-status worldwide, i.o. to obtain fair & sustainable health-care for all peoples. We determined that GHUs should preferably be state-of-the-art,&also should be evidence-, transcontinental-,&transdisciplinary-based (i.e. theory- resp. application-) (leadership & sustainability), at different faculties and through different scientific disciplines by integrating the Eastern Ayurveda medicine system with the Western counterpart.

**Conclusions & Significance.** Global health-care/status for all peoples can only be obtained by developing a scientific chair for Lifestyle Medicine at Universities worldwide. We will finetune evidence-based guidelines for an lifestyle medicine, for an integrative oncology management, nutrition prescriptions, gut and microbiome health, integrative medicine, for pain management and mental health & stress management, i.o. to create an individual/personal/private resp. universal/collective/public global health-care & health-status/health-constitution, i.e. state of

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complete physical, mental, and also emotional and spiritual, and social well-being of/for humans, animals, plants, and the environment (all pollutants awareness).



## OP13

### Intermittent Fasting: Not Just Another Diet; Benefits of Intermittent Fasting on Various Diseases as Well as Longevity.

**Dr. Marianthi Manolopoulou**, Dr Josephine Yannacopoulou

*<sup>1</sup>Independent Researchers , Greece*

**Authors:** Dr Marianna Manolopoulou and Dr Josephine Yannacopoulou

Since the 1960s, several studies have been conducted on Intermittent Fasting regimen and have proven the impact on various diseases from all different systems of our body. This paper focuses on the positive effects of Intermittent Fasting on specific pathologies such as: obesity, diabetes mellitus, cardiovascular diseases, neurodegenerative diseases and cancer as well as the positive effect on longevity.

Our research has been concentrated on the mechanism of Intermittent Fasting and how it works on the aforementioned diseases. The conclusions presented in this paper are based on a review of selected bibliography on the subject as well as our own clinical cases.

At the end the practical issues of applying an Intermittent Fasting Regimen in the contemporary and consumption-based way of life are also examined and discussed.



## OP15

### Application, Effects and Well-Being Assessment from the Cardiofood Lifestyle Program: A Latin American Experience

**Ms Yael Hasbani**<sup>1, 5, 6, a,b,c,d</sup>, Gabriel Hernan Lapman<sup>2,3,4,5, e, f, g, h</sup>

<sup>1</sup>Universidad Nacional del Litoral, Santa Fe, Argentina, <sup>2</sup>Universidad Ricardo Palma, Palma, Peru, <sup>3</sup>Universidad Abierta Interamericana, Buenos Aires, Argentina, <sup>4</sup>CETEC S.R.L, Buenos Aires, Argentina, <sup>5</sup>Cardiofood Lifestyle Medicine, Buenos Aires, Argentina, <sup>6</sup>Harvard Medical School, Massachusetts, United States, <sup>7</sup>Licenciada en inglés, <sup>8</sup>Health Coach, <sup>9</sup>Profesora de Cocina Natural, <sup>10</sup>CHEF Coaching Program, <sup>11</sup>Médico, <sup>12</sup>Cardiólogo, <sup>13</sup>Nefrólogo, <sup>14</sup>Especialista en Hipertensión Arterial

**Introduction:** Changes in daily routines as a result of the mitigating measures implemented in the face of the COVID 19 pandemic (confinement, social distance, quarantines in phases, hygienic measures) represent a challenge for people to preserve their general well-being.

**Objectives:** To evaluate the application, effects and assessment of well-being from Cardiofood Lifestyle medicine program in virtual modality for a Latin American population sample during the COVID 19 pandemic in 2020. Methods: Analytical, retrospective and descriptive study, with quantitative focus; developed in virtual mode between May and December 2020. The population sample was 51 participants. A subjective assessment questionnaire and a self-authored well-being score were applied, validated by a hypothesis test. The P value equal to zero is calculated. Results: 68.62% of the sample (35) felt more energetic; 90% (46) expressed feeling much more secure in choosing healthy foods; 70.58% (36) felt much more lucid and 80.40% (41) reported feeling much healthier compared to the beginning. The population mean of well-being is higher than 3, and therefore, they show an improvement in their well-being after participating in the program.

**Conclusions:** There is a relationship between the implementation of virtual modality group lifestyle medicine programs for a Latin American population sample and the subjective assessment of well-being represented by better food choices, greater energy and lucidity.



## OP17

### Doctors Stress, Working Lifestyles and Factors in the Medical Workplace Environment – a Scoping Review

**MD Andrée Rochfort**

**Introduction:** The literature on work-related psychosocial stress in the medical profession focuses predominantly on sources of stress, rather than on targeted solutions.

Unhealthy working lifestyles and poor psychosocial health in physicians has been shown to impact on quality of patient care and on safety for both patients and for physicians. Psychosocial stress is also a barrier to achieving readiness for the behaviour changes that are required for preventing and treating chronic disease. Chronic unmanaged stress can lead to burnout.

**Methods:** An online survey of family physicians in Europe was conducted during the COVID-19 pandemic in 2021. Respondents indicated the main sources of their stress at work, the factors which currently give them support and suggestions for other beneficial interventions.

**Results:** Results from 34 countries indicate the main factors that cause stress in family doctors across different health systems. The main sources of support utilised by doctors for managing work stress have a high level of correlation. This scoping review also highlights respondents' suggestions for additional solutions for managing work stress that could be helpful. Solutions proposed by doctors prioritise organisational and administrative aspects of work, with less emphasis on exercise, nutrition, sleep and other aspects of self-care that can promote resilience, these proposed solutions will be presented.

**Conclusion:** Healthy doctors with healthy working lifestyles are needed for safe patient care that is of a high quality. An evidence-based solution-focussed approach to healthy lifestyle behaviours in doctors, including factors in the work environment, is required for improving doctors' lifestyles. Doctors with competencies for managing their own stress will be more effective in assessing and achieving improvements in their patients' stressful lifestyles.



## Abstracts in the Form of e-Poster Presentations



PP01

## Determination of Total Phenolic Components and Antioxidant Activity of Different Greek Plant Varieties From the Holy Mount

Prof Efthymios Poulios<sup>1</sup>, **Ms. Maria Mantzorou<sup>1</sup>**, Zacharoula Kokonozi<sup>1</sup>, Evmorfia Psara<sup>1</sup>, Prof Georgios K Vasios<sup>1</sup>, Prof Constantinos Giaginis<sup>1</sup>

<sup>1</sup>University Of The Aegean, Food Science and Nutrition, Greece

**Introduction:** Various studies have identified bioactive components (phenolic acids, flavonoids, terpenoids) of different plants used in nutrition, which have been found to exert beneficial effects for human health, such as anti-inflammatory, anticancer and antioxidant activities. However, there are no specific substantial studies investigating plants (herbs and spices) from the geographic region of the Holy Mount. Notably, oregano (genus *Origanum vulgare*), sage (genus *Salvia* spp.) and thyme (most common genus *Thymus vulgaris*), are widely used in human's nutrition due to their beneficial biological activities. In this aspect, the present study determined the total phenolic content, and the antioxidant activity of different oregano, sage and thyme varieties, from different regions of the Holy Mount, provided from different monasteries.

**Methods:** Phenolic components were extracted using aqueous methanol or aqueous acetone (50:50 v/v) after ultrasound sonication. Retrieved extracts were then filtrated, and the total phenolic content was determined by the Folin-Ciocalteu assay, whereas their antioxidant activity was measured by the DPPH (2,2-diphenyl-1-picrylhydrazyl) assay.

**Results:** Higher concentrations of phenolic components were determined in extracts from oregano samples. Extractions with acetone by ultrasound sonication were found more effective, than the extractions with methanol, using the same method. All samples have exerted high antioxidant activity, as measured by the reduction of the free radical DPPH.

**Conclusion:** In view of the above, oregano, sage and thyme varieties from different regions of the Holy Mount, contained high concentrations of total phenolic components, and showed significant antioxidant activity. However, more studies of the anti-inflammatory, anticancer and antioxidant activities of the bioactive components of different plants from the undiscovered and biodiverse regions of the Holy Mount are strongly recommended, for more precise conclusions to be drawn concerning their potential effective role in human health promotion.



PP02

## Diet Quality Impacts Mental Health Aspects of University Students

**Ms. Maria Mantzorou**<sup>1</sup>, Prof Aspasia Serdari<sup>2</sup>, Prof Michail Kostopoulos<sup>2</sup>, Prof Constantinos Giaginis<sup>1</sup>

<sup>1</sup>University Of The Aegean, Food Science and Nutrition, School of Environment, Greece, <sup>2</sup>University of Thrace, University Hospital of Alexandroupolis, Psychiatry and Child Psychiatry, Democritus , Greece

**Introduction:** Mental health problems, especially depression and anxiety, among university students are widespread, and begin pre-matriculation. Diet is among the factors contributing to mental health in all age groups. The present review aims to critically summarise the observational studies and clinical trials that have investigated the association between mental health and diet quality in university student populations.

**Methods:** PubMed was comprehensively searched to identify studies that explore the role of aspects of diet quality on quality of life, depression, and anxiety in university students.

**Results:** Healthy dietary patterns, such as the Mediterranean and the DASH diet, diets with high intakes of antioxidants and antioxidant vitamins, folate, tryptophan, carotenoids, Zinc and Calcium are associated with less depressive and/or anxiety symptoms. Higher alcohol and salt intake have also been associated with depression. Additionally, supplementation with probiotics has positively impacts anxiety scores within a month. Increased diet quality has been associated with better mental health scores, even in healthy populations.

**Conclusions:** Healthy dietary patterns, with adequate micronutrient and antioxidant intakes are associated with better mental health status. However, further randomised controlled clinical studies are needed in order to clarify the cause and the effect of the observed associations.

### Acknowledgements

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PP03

## Morbid Obese Population and their Voice Feature Characteristics

**Ms Amina Al Houssari**<sup>1</sup>

<sup>1</sup>*Lebanese International University, Beirut, Lebanon*

**Introduction:** Morbid obese is highly prevalent in the Western World. An individual is considered morbidly obese if the person is 100 pounds over his ideal weight and has a BMI of 40 or more. Morbid obesity consequences present a real public health challenge. Voice alterations is one of its consequences.

**Objective:** The features and characteristics of an individual's voice were the aim of the this study (for morbid obese cases).

**Study Design:** Case control study.

**Patients and Method:** A group of 45 adult volunteers of both sexes with a BMI greater than 35 Kg/m<sup>2</sup>) was selected among patients of the Obesity Ambulatory of the Digestive Surgery Division. The control group consisted of volunteers matched by sex, age ( $\pm 1$  year), and smoking habits, but with a BMI below 30 Kg/m<sup>2</sup>). All subjects were submitted to laryngoscope examination, audio perceptive analysis, and voice acoustics determination. Examinations were always performed by the same doctor, and diagnoses were provided by two different physician specialists in laryngology and voice.

**Results:** Morbidly obese individuals show the following changes in voice feature: hoarseness, murmuring, vocal instability, altered jitter and shimmer, and reduced maximum phonation times as well the presence of voice strangulation at the end of emission.

**Conclusion:** The voices of individuals with morbid obesity are different of the voice of not obese people and demonstrate significant changes in vocal characteristics. Improve health problems related to overweight and obesity, such as high blood pressure and high cholesterol levels, follow well planned diet and consider adding physical activity after reaching a minimum of 10 percent weight-loss goal to improve the health of the reduced pharyngeal lumen that affects the voice features.



## PP04

Lifestyle Medicine Multimodal Interventions Acceptance, a One Year of Pilot Program in a Health Resort Medicine Center in Spain.

**Dr Yohana Isabel De Gracia Hils<sup>1</sup>**, DR. JOSE ANTONIO DE GRACIA HILS, DR. & MA ABEL CARPINTERO CATERIANO, MD & PH.D FRANCISCO DE PAULA MARAVER EYZAGUIRRE

<sup>1</sup>Balneario De Ariño, Ariño, Teruel, Spain

**Introduction:** Spain has many centers of Health Resort Medicine and 235.000 patients use it every year. Some of this centers are co-financed with funds of IMSERSO which is a part of the national health system and is intended for patients in the retired population.

We designed a pilot program (which is currently non funded) to implement multimodal lifestyle interventions in a Health Medicine Resort and to measure the acceptance of educational program on Lifestyle medicine (LM).

**Methods:** As the mortality rate of NCD's are higher causes of mortality world wide and emotional health care is cause of many related problems we focused on 3 subjects, Physical emotional and social health care.

We had 1787 patients in one year, We share educacional lifestyle interventions to 1700 patients in this Health resort medicine center and measure the acceptance and willingness to participate on future programs.

The average stay of the patients are 10 or 12 days, most of the times twice a year.

### **Physical intervention:**

- ✓ Medical consultation, begin and end of stay
- ✓ Thermal treatment
- ✓ Coaching on Lifestyle medicine
- ✓ Coaching on sleep and Ergonomic Health
- ✓ Medical and Nutritional advice to go and home work challenges

### **Emotional Intervention**

- ✓ Coaching on emotional health
- ✓ Social Intervention
- ✓ Group of games
- ✓ Laugh therapy
- ✓ Dance night
- ✓ Field trips



**Results:** Of the 1787 patients, 1700 accepted to participate in interventions and answer a survey.

99% evaluated positively the interventions and recommended to friend or family.

95% said they feel motivated. 97% said this was the first time LM multimodal approach.

**Conclusion:** A Health Resort medicine center can provide a science based educational intervention. The high level of acceptance of these interventions opens the way to promote more LM programs, thus our next step should be to measure impact of these interventions in Quality of Life (SF-36).



PP05

## Medicinal Plants Consumption Against Urinary Tract Infections: A Narrative Review of the Current Evidence

Mr Efthymios Poullos<sup>1</sup>, Mr Georgios K. Vasios<sup>1</sup>, **Mrs Evmorfia Psara<sup>1</sup>**, Mr Constantinos Giaginis<sup>1</sup>

<sup>1</sup>University Of The Aegean, Food Science And Nutrition, Greece

**INTRODUCTION:** Urinary tract infections (UTIs) are usual diseases caused by different strains of microorganisms. Many antibiotics have been applied for the treatment of these infections. However, the development of multidrug-resistant strains is a major problem in these treatments. As alternative complementary agents, several edible medicinal plants are often used, as sustainable raw materials to prevent and/or treat these diseases. Medicinal plants are usually originated from nature, and they don't need to be systematically grown in greenhouses. As a result, they are recognized as health provider factors from many civilizations such as Greek, Chinese, Romans, Egyptians, Old Slavs and Indians, since ancient years.

**METHODS:** Applied summarization of current evidence about the efficacy of medicinal plants' consumption to prevent and/or co-treat UTIs. The most precise scientific databases, e.g. Medline, Scopus, and Web of Science were comprehensively searched, using relative keywords to identify the relative in vivo and ex vivo animal and human studies.

**RESULTS:** Current studies supported evidence for potential benefit overall concerning medicinal plants' consumption against UTIs by preventing bacterial adherence and inhibiting inflammation cascades through responding immunologically to bacteria invasion. However, most of the current evidence have been focused on in vivo and ex vivo animal studies, while human studies are currently limited and did not focus on a specific medicinal plant.

**CONCLUSION:** In the context of a sustainable diet, medicinal plants' consumption might be beneficial against UTIs. Thus, well-designed clinical trials for long study periods focused on individual medicinal plants are intensely recommended to delineate their effectiveness on the prevention and/or co-treatment of UTIs.

Poullos E, Vasios GK, Psara E, Giaginis C. Medicinal plants consumption against urinary tract infections: a narrative review of the current evidence. Expert Rev Anti Infect Ther. 2021 ;19(4):519-528. doi: 10.1080/14787210.2021.1828061.



PP06

## The Beneficial Effects of Medicinal-Aromatic Plants and Herbs Against Obesity

**Mrs Koukounari Stergia**<sup>1</sup>, Dr Georgios K. Vasios<sup>1</sup>, Dr Constantinos Giaginis<sup>1</sup>, Dr Efthymios Poullos<sup>1</sup>

<sup>1</sup>University of the Aegean, Department of Food Science and Nutrition, School of the Environment, Greece

**INTRODUCTION:** Obesity is a complex and chronic disease that affects more than one-third of the world's population, leading to a higher incidence of type II diabetes, dyslipidemia, metabolic syndrome, cardiovascular diseases, and some forms of cancer. Medicinal plants, aromatic plants and herbs are sources of flavouring, aromatic compounds and medicines. The aim of this study is to review the beneficial effects of medicinal-aromatic plants and herbs against obesity.

**METHODS:** A systematic research of the current international literature was carried out by the use of a set of critical and representative keywords, such as: medicinal plants, aromatic plants, herbs, metabolism, metabolic syndrome, obesity, etc. The most accurate scientific databases, e.g. Pubmed and Scopus were accessed, and yielded relevant studies, which were critically analyzed in depth.

**RESULTS:** Chinese herbs have potential activities in the treatment of metabolic syndrome. Ginseng extracts made from root, rootlet, berry and leaf of *Panax quinquefolium* (American ginseng) and *Panax ginseng* (Asian ginseng), represent anti-hyperglycemic, insulin sensitization, anti-obesity, and anti-oxidant activity. Energy expenditure is enhanced by ginseng through thermogenesis. Ginseng-specific saponins (ginsenosides) are considered to be the major bioactive compounds responsible for these effects. Additionally, berberine from *Rhizoma Coptidis* is an oral hypoglycemic agent, with anti-obesity and anti-dyslipidemia activities. Finally, carvacrol, a monoterpene phenol produced by an abundant number of aromatic plants, including thyme and oregano, possess a variety of biological and pharmacological properties including antioxidant, antibacterial, anti-inflammatory and anti-obesity.

**CONCLUSION:** Bioactive components of herbs and aromatic plants are considered to have many beneficial effects against obesity. Future studies must be obtained in order to unravel mechanism and anti-obesity activities of these components.



PP07

Lifestyle, Reward, Human Rights

**Dr. Dora Dragoni Divrak<sup>1</sup>**

<sup>1</sup>author in scientific journals, and keynote speaker at medical events , , Italy

**INTRODUCTION:** It is nowadays fortunately more and more recognised that lifestyle is the main basis for our health, being this officially considered a human right since 1948. Health for WHO is not only the absence of disease, but it must be living a full life rich in psychological, physical, social wellbeing.

**METHODS:** Lifestyle interventions are the main and greatest way that we have in order to guarantee health and wellness.

What I want to focus on is that wellbeing is regulated by reward system, spreading from brain to all human body-mind unity, this is science already.

**RESULTS:** Some studies are evidentiating that such neural pathways are the physical place where we can localize human rights: if health is a human right, and they regulate health, we should tutelate them as much as we can (if not, a damage risks to take place).

**CONCLUSION:** In practice we talk about:

- ✓ The right of a good quantity + quality diet, 2000kcal/day rich in 5 colors vegg + fruit
- ✓ The right of having energy for 10.000 footsteps or 30 minutes fitness/day, despite work
- ✓ The right of mindfulness training
- ✓ The right of a satisfying affective life, of being really fertile, of spending happy time with family and friends every day
- ✓ The right of awakening after a restoring night, after a good sleep
- ✓ The right of recurring to lifestyle and alternative medicines, that must be considered not as placebo but as official real interventions able to make everyone aware of their needs giving the perspective of a life rich in wellness and full of success



PP08

## Small Research on General Medicine Patients' Knowledge about Vitamins

**Dr Tatjana Zdravkovic**<sup>1</sup>, prim. dr Tatjana Egic<sup>1</sup>, dr Tatjana Pokusevski<sup>1</sup>

<sup>1</sup>Health Center "Novi Sad", , Serbia

**INTRODUCTION:** Diet and nutrition are important factors in promoting and maintaining a healthy life.

**AIM:** To determine how much knowledge patients of the General Medicine Service of the Health Center "Novi Sad" have about vitamins and whether there are statistically significant differences in relation to gender.

**METHODOLOGY:** The study is a survey with a questionnaire. The research was conducted within 5 days in the doctor's office. The consent of the Ethics Commission of DZ "Novi Sad" was obtained.

**RESULTS AND DISCUSSION:** 221 (72.46%) female respondents and 84 (27.54%) male respondents participated in research. The minimum age was 20, the maximum was 83, and the average was 51.89 (15,187 SD) years. Over 90% of the correct answers were to the questions whether vitamins and minerals are safe to consume, whether green vegetables are rich in vitamin K, and whether the use of supplements can replace proper nutrition. 80-90% of the correct answers were to the questions which vitamins are soluble in fat and which in water, whether vitamin C can protect us from COVID, and whether vitamin K affects coagulation. Between 70-80% of the correct answers were to questions about the function of vitamin A, the sources of Beta carotene, which vitamin is created in the skin under the influence of the sun, and whether vitamin E is an antioxidant. When asked which vitamins and minerals are necessary for bone health, 34% of respondents answered correctly. 14% of the correct answers were to the questions about the sources of vitamins E and B12. In relation to gender, the difference in answers is not statistically significant.

**CONCLUSION:** The range from 14.10% to 94.75% of the correct answers indicates the existence of significant gaps in the respondents' knowledge. Over 90% of respondents believe that supplements cannot replace a proper diet.



PP09

## Research on the Use of Vitamin and/or Mineral Supplements Before and During the Covid-19 Pandemic

**Dr Tatjana Zdravkovic**<sup>1</sup>, prim. dr Tatjana Egic<sup>1</sup>, dr Tatjana Pokusevski<sup>1</sup>

<sup>1</sup>Health Center "Novi Sad", , Serbia

**INTRODUCTION:** Although there are currently no recommendations in the guidelines and official documents related to nutrition and COVID-19 for the use of dietary supplements in disease prevention, in most countries the sale of dietary supplements has increased dynamically since the start of the pandemic.

**AIM OF RESEARCH:** to determine how many patients of the General Medicine Service of the Health Center "Novi Sad" used vitamin and / or mineral supplements / hereinafter supplements / before and during the COVID-19 pandemic and whether there are statistically significant differences in relation to gender.

**METHODOLOGY:** The cross-sectional study is planned as a survey with a specially designed questionnaire, of closed type. The research was conducted within 5 working days in the office of the doctor chosen. The consent of the Ethics Commission of DZ "Novi Sad" was obtained for conducting research.

**RESULTS AND DISCUSSION:** 305 completed questionnaires were analyzed, 221 (72.46%) questionnaires were filled out by females and 84 (27.54%) by males. The minimum age of the respondents was 20, the maximum was 83, and the average was 51.89 (15,187 SD) years. Before the pandemic, 103 subjects used supplements, of which 25 were male and 78 were female. There is no statistically significant difference in relation to gender. During the pandemic, all 305 subjects used supplements. The most used supplements before the pandemic were Magnesium, vitamin C and vitamin D, and during the pandemic Vitamin C, Zinc and Vitamin D.

**CONCLUSION:** The SARS-CoV-2 virus pandemic that has started in March 2020 has resulted in a significant increase in the use of vitamin and / or mineral supplements, as well as a change in the type of supplements used.



## PP10

### Medical Student Intervention Promoting Mental and Physical Well-Being Through Education, Vulnerability, and Authenticity

**Ms Alexis Smith<sup>1</sup>**, Dr Beth Frates

<sup>1</sup>Harvard Medical School, Medical Student, United States

**INTRODUCTION:** Medical students experience high levels of stress and a disproportionate level of mental health burden. When the COVID-19 pandemic exacerbated this, it was clear that an intervention was necessary. At the time, there was no demonstration of a similar well-being initiative at Harvard Medical School.

**METHODS:** Two student leaders and one faculty member created a 12-week program that addressed the 6 pillars of lifestyle medicine as well as positive psychology. The program was offered and within 12 hours the roster was full with 15 students. The program was held weekly by Zoom for 1 or 2 hours.

**RESULTS:** Attendance was high each week with full participation from everyone present. In the post program evaluation form, conducted one year after the completion of the program, 100% of respondents reported that they would recommend this group to another medical student. 71% reported that they used tools they learned from the group at least weekly. Participants noted that growth mindset, gratitude, mindfulness, priorities, and relationship building were the most used wellbeing strategies learned in the program. One student reported that this intervention offered them "a community of people who are willing to talk honestly about what motivates us in medical school, what our values and boundaries are, and how to think about our lives in medicine as more than just moving from one achievement/milestone to the next."

**CONCLUSION:** A lifestyle medicine type of intervention that is presented via Zoom and focuses on the 6 pillars plus positive psychology is feasible in medical school and well accepted by the student participants. Overall, this intervention had a positive impact on participants and next steps would be to measure long-term impacts on mental health



PP11

## Sustainable Diets, a Systematic Review of the Past 25 years

**Mrs Maria Gialeli<sup>1</sup>**, Argyri Manoli<sup>1</sup>, Dr Constantinos Giaginis<sup>1</sup>, Prof Andreas Y Troumbis<sup>2</sup>, Dr Georgios K Vasios<sup>1</sup>

<sup>1</sup>University of the Aegean, Department of Food Science and Nutrition, School of the Environment, Greece, <sup>2</sup>University of the Aegean, Department of Environment, School of the Environment, Greece

**Introduction:** After 25 years of the first introduction of the term 'sustainable diets' (SDs) in the scientific literature (1986), FAO defined it in detail at the Declaration of the World Summit (2010). With rising of awareness on the inequality between world hunger and obesity, international organizations have adopted new measures. In addition, based on a scientific 'conversation' regarding the use of indicators for sustainable diets, Mediterranean Diet (MD) was used as an example. In the present study we describe the ongoing 'dialogue' concerning SDs, throughout a methodical review and assessment of the literature. Our goal is to detect temporal trends and turning points of the term 'Sustainable Diets', to detect the collaboration among the countries, and identify the role of international organizations and treaties to the production of scientific literature.

**Methods:** Given the continuous increase of studies related to SDs a bibliometric analysis was conducted using a modified version of PRISMA2020 Statement protocol. In total, 539 scientific documents published the period 1995-2021 were extracted by the bibliographic database SCOPUS after a designed keyword strategy. The data were screened and the duplicates were removed. A bibliometric analysis was conducted using the Bibliometrix package in R and the VOSviewer software and various bibliographic maps were created.

**Results:** The results obtained confirmed the exponential growth of scientific interest in the subject area. The turning points in the evolution of the publications follow the international timeline of events. Furthermore, European Mediterranean countries are among those with the major scientific production introducing MD as a significant sustainable diet.

**Conclusion:** Taking under consideration the key components of SDs, the greatest emphasis of the scientific community was given to nutrition, health and sustainability. Food and meat consumption, food security, food systems are some of the themes that rise the interest of scientists.



PP12

## Mindful Eating and Mediterranean Diet Adherence are Associated with Psychological Resilience and Maintaining a Healthy Weight

**Mr Efstratios T. Christodoulou**<sup>1</sup>, Mrs Eirini Deligiannidou<sup>2</sup>, Mr Christos Kontogiorgis<sup>2</sup>, Mr Konstantinos Giaginis<sup>1</sup>, Mr Antonios E. Koutelidakis<sup>1</sup>

<sup>1</sup>University Of The Aegean, Laboratory of Nutrition and Public Health, Unit of Human Nutrition Department of Food Science and Nutrition,, Greece, <sup>2</sup>Democritus University of Thrace, Laboratory of Hygiene and Environmental Protection, School of Medicine,, Greece

**INTRODUCTION:** Growing evidence suggest that Mindful Eating (ME), adherence to the Mediterranean diet (MD) and psychological resilience (PR) can promote health and well-being. This study aims to explore the relationship between ME and MD with PR. At the same time to study the effect of ME and the MD on eating behaviour and healthy weight maintenance.

**METHODS:** In a cross-sectional study, 288 employed and unemployed people, aged 26-65, participated voluntarily in an online research survey. This research survey was based on the Greek validated scales of Mindful Eating (M.E.S), 14-item Mediterranean Diet Adherence Screener (14-MEDAS) and the 10-item Connor-Davidson Resilience Scale (CD-RISC-10). The statistical analysis was performed using SPSS v26 and R-statistics.

**RESULTS:** There was a statistically significant correlation between ME ( $p < 0.0001$ ) and MD ( $p = 0.001$ ) with PR. Following the application of multiple regression models, the M.E.S and 14-MEDAS score were predictive factors of PR ( $p < 0.0001$ ). People with normal weight had higher M.E.S and 14-MEDAS score than overweight and obese. There was a statistically significant difference ( $p < 0.0001$ ) between the means of the M.E.S score on different weight loss diet outcomes. Multinomial regression analysis identified ME as a prognostic factor in maintaining weight loss after diet (OR: 1.142, 95% CI: 1.084, 1.204,  $p < 0.0001$ , compared with weight gain).

**CONCLUSIONS:** ME can be a predictor of the outcome of a weight loss diet and combined with MD seems to have a positive effect on PR and maintaining a healthy weight. Clinical studies should be performed to confirm the results of this cross sectional study.



PP13

## Lifestyles in Peruvian Women with Obesity

**Dr. Anny Fabiola Chiroque Juárez<sup>1</sup>**, Mag. Ruben Espinoza<sup>1</sup>, Dr. Alfonso Gutierrez-Aguado<sup>1</sup>, Prof Jhony A. De La Cruz-Vargas<sup>1</sup>

<sup>1</sup>Universidad Ricardo Palma., Instituto de Investigaciones en Ciencias Biomedicas., Perú

**Objective:** To determine the association of lifestyle with overweight and obesity in Peruvian women aged 18 to 49 in Peru and to estimate the economic cost of the diagnosis.

**Methodology:** Cross-sectional, analytical study, using data from the National Survey of Education and Health (ENDES 2018). For the statistical analysis, the chi-square test and the crude and adjusted prevalence ratio (PR) with a 95% confidence interval were used by means of Poisson regression with robust variance. To obtain the costs, the perspective of the financier (Ministry of Health) was used, direct costs (excluding time and transportation costs) adjusted to the year 2018 were included.

**Results:** The prevalence of overweight and obesity was 41.4% and 22.7% respectively. In the multivariate analysis, the sociodemographic factors that showed a significant association with obesity were: residence in urban areas (PRa: 2.24, 95% CI: 1.591 to 3.173; p: 0.001) and higher wealth index (Q2: PRa: 1.65, 95% CI: 1.143- 2.400, p: 0.008; Q3: PRa: 1.58, 95% CI: 1.073-2.33, p: 0.002; Q4: PRa: 1.48, 95% CI: 1.000-2.217, p: 0.05; Q5: PRa: 2.08 , 95% CI: 1.396-3.113, p: 0.001). The significantly associated lifestyle factors were: alcohol consumption (PRa: 1.18, 95% CI: 1.049-1.336, p: 0.006); frequency of watching television (at least once a week PRa: 2.69; 95% CI: 1.256-5.765, p: 0.011 and almost every day PRa: 2.64, 95% CI: 1.297-5.391, p: 0.007), and consumption of fruits (PRa = 0.77; 95% CI: 0.662-0.897, p: 0.001). The estimated annual cost for the diagnosis and initial care in obesity in Peru was around 1.19 million dollars. Conclusions: The factors significantly associated with obesity in Peruvian women were the high wealth index, greater frequency of watching television, residence in an urban area, and alcohol consumption. Fruit consumption was a protective factor. The cost of the initial diagnosis and care of obesity is considerable.



PP14

## Correlation Between Stress and Lifestyle in Teachers at Some Schools in Lima, Peru During Telework in 2020

**Dr. Dante Manuel Quiñones Laveriano**<sup>1</sup>, MD Lucia Porro-Diaz<sup>1</sup>, MD Karla Reinel<sup>1</sup>, MD Martha Servera-Ocaña<sup>1</sup>, Prof Jhony A. De La Cruz-Vargas<sup>1</sup>

<sup>1</sup>Universidad Ricardo Palma., Instituto de Investigaciones en Ciencias Biomedicas., Peru

**Background:** stress and unhealthy lifestyle are serious problems in public health and education, particularly due to their significant relevance in the context of the COVID-19 pandemic.

**Objective:** To determine the correlation between stress and lifestyle in teachers at some schools in Lima, Peru, during telework in 2020.

**Methodology:** Observational, quantitative, analytical, cross-sectional study in 217 schoolteachers from Lima. Lifestyle was measured using the FANTASTIC questionnaire; stress was measured using the Teaching Stress Scale (ED-6), comprised of the anxiety, depression, maladaptive beliefs, work pressure, and poor coping dimensions. The Spearman correlation between numerical variables, and the difference of the FANTASTIC score according to the categorical variables, were analyzed with the Mann–Whitney U test or Kruskal–Wallis test, as necessary. Multivariable analysis was done with a multiple linear regression model to find raw and adjusted  $\beta$  ( $\beta_a$ ).

**Results:** The median of the ED-6 scale was 81 (RI: 64-105). 64% of the teachers had a good-excellent lifestyle, 27.2% regular and 8.49%, bad-dangerous. The FANTASTIC score had an inverse correlation with ED-6 ( $\beta_a$ : -0.16 95% CI: -0.20 to -0.12) adjusted for age and cohabitation with children. Likewise, teachers between 40 and 49 years old ( $\beta_a$ : 2.89 95% CI: 0.17 to 5.62) had a better lifestyle; and teachers who lived with children ( $\beta_a$ : -5.48 95% CI: -7.89 to -3.06), a worse lifestyle.

**Conclusions:** as stress increased, the lifestyle quality worsened in teachers at some schools in Lima, Peru, during telework in 2020.

**Keywords:** Occupational Stress, Quality of Life, Tele-education, COVID-19



PP15

## Diagnostic Performance of Lipid Accumulation Indices and Triglyceride and Glucose Index for Metabolic Syndrome in a Sample of Peruvian Adult Population

Mr. Jesús Enrique Talavera Ramírez<sup>1</sup>, MS Leyla Rodas-Alvarado<sup>1</sup>, Mag. Jenny Torres-Malca, **Prof. Víctor Juan Vera Ponce<sup>1</sup>**, Prof Jhony A. De La Cruz-Vargas<sup>1</sup>

<sup>1</sup>Universidad Ricardo Palma., Instituto de Investigaciones en Ciencias Biomedicas., Peru

**Objectives:** To determine the diagnostic performance of the lipid accumulation product (LAP), visceral adiposity index (VAI), triglyceride and glucose index (TyG), and body mass index (BMI) for metabolic syndrome (MetS) in a sample of Peruvian adults.

**Methods:** Study of diagnostic tests of the "Encuesta Nacional de Indicadores Nutricionales, Bioquímicos, Socioeconómicos y Culturales relacionados con las Enfermedades Crónicas-Degenerativas".

An analysis of ROC curves (Receptor Operation) was made, and their respective area under the curve (AUC) obtaining the different parameters such as sensitivity (Sens) and specificity (Esp). It was stratified according to sex and age. To choose the cut-off point, the Youden index was used. Results: The LAP had the highest AUC in both men (AUC = 0.929; cut-off value = 59.85; Sens = 91.6 and Esp = 84.5) and for women (AUC = 0.950; cut-off value = 53, 06; Sens = 92.4 and Esp = 86.4). The second place, in the case of men, was occupied by the VAI (AUC = 0.905; cut-off value = 2.36; Sens = 91.6 and Esp = 79.7), while in the case of women it was was the TyG (AUC = 0.914; cut-off value = 8.70; Sens = 87.4 and Esp = 87.3). The LAP index showed significant differences with VAI to predict MetS ( $p < 0.05$ ), while no differences were shown with TyG.

**Conclusion:** The LAP index had the best diagnostic performance for MetS, both for men and women, regardless of age.



PP16

## Metabolic Syndrome Associated with Benign Prostatic Enlargement, in a Peruvian Population, Cases Controls Study

MD Valeria Ugarte-Carbajal<sup>1</sup>, **Mr. José Manuel Vela Ruiz**, Mag. Lucy Correa-Lopez<sup>1</sup>, Prof Jhony A. De La Cruz-Vargas<sup>1</sup>

<sup>1</sup>Universidad Ricardo Palma., Instituto de Investigaciones en Ciencias Biomedicas., Perú

**Background:** Benign prostatic enlargement (BPE) is a common process that includes metabolic alterations, where metabolic syndrome (MetS) could be an important risk factor.

**Objective:** To determine how metabolic syndrome is a risk factor for BPC in male patients under 60 years of age.

**Methods:** Analytical, retrospective, quantitative, and cases and controls study. Simple random sampling: 87 cases with BPE and 174 controls, with a statistical power of 80%. BPE was evaluated using a clinical picture and ultrasound and MetS according to ATP III criteria. The statistical analysis was carried out in the STATAv14 program, the Chi-square statistical test and the Odds Ratio were used, at a significance level of 5%.

**Results:** The median age was 53 +/- 4 years. In the multivariate analysis, risk factors for BPE were: MetS OR 3.79 (95% CI 2.07 - 6.95, p <0.001), increased abdominal circumference OR 1.15 (95% CI 1.07-1.23) p <0.001, elevated fasting glucose OR 1.15 (95% CI 1.10-1.20) p <0.001., triglycerides elevated OR 1.01 (95% CI 1-1.02), elevated systolic blood pressure OR 1.06 (95% CI 1.02-1.12) p <0.001. and high HDL cholesterol was a protective factor OR 0.82 (95% CI 0.74-0.91); p <0.001.

**Conclusions:** The present study showed metabolic syndrome as a risk factor for BPE in male patients under 60 years of age.



PP17

## Association Between Fibrinogen and Metabolically Obese Lean Subjects in a Sample of Peruvians

Prof. Víctor Juan Vera Ponce, **Mr. Jesús Enrique Talavera Ramírez<sup>1</sup>**, Mag. Jenny Torres-Malca<sup>1</sup>, Dr. Mario Valladares-Garrido<sup>1</sup>, Dra. Rosa Garcia-Lara<sup>1</sup>, Prof Jhony A. De La Cruz-Vargas<sup>1</sup>

<sup>1</sup>Universidad Ricardo Palma., Instituto de Investigaciones en Ciencias Biomedicas., Peru

**Introduction:** The metabolically obese lean (MOL) subject has the same risk of complications as the classic obese. Therefore, it is important to study other tests for diagnosis.

**Objective:** To determine the association between fibrinogen and the metabolically obese lean (MOL) subject in a sample of Peruvian inhabitants. Material and methods: Analytical cross-sectional study using secondary databases from the PERU MIGRANT study. The diagnosis of BMD was made through two or more of the following criteria: increased abdominal circumference, hypertriglyceridemia, impaired fasting glucose, elevated arterial hypertension; Low HDL, insulin resistance, or elevated C-reactive protein. Fibrinogen was considered elevated with levels above 450 mg/dl.

**Results:** Of the 393 participants selected for this research, only 13.49% had elevated fibrinogen levels. In the simple regression analysis, it was found that people with high fibrinogen levels had a 121% higher frequency of being BMD, compared to those who did not have high fibrinogen levels (PR = 2.21, 95% CI: 1.64 - 2.99). Then, in the multiple regression, it was observed that patients with high fibrinogen had an 83% higher frequency of being BMD, compared to those who did not have high fibrinogen, confounding covariates were adjusted: sex, age, group, smoking status, alcohol drinker and physical activity (PR = 1.83, 95% CI: 1.32 - 2.56).

**Conclusion:** In the present study, it was found that high fibrinogen is associated with being BMD. If the results of this study are confirmed in future research, this factor may eventually be added within the criteria for the diagnosis of BMD, thereby implementing two important inflammatory markers.



PP18

## Dietary Interventions on Gut Microbiota in Relation to Obesity: Review

**Dr. Andriana Gkitsa<sup>1</sup>**

<sup>1</sup>Hellenic Medical Association For Obesity, Athens, Greece

**Introduction:** Obesity is recognized as a major epidemic health problem of the 21st century with continuous increasing prevalence and with multi-causal etiology requiring a holistic and complex treatment. The human microbiota plays a key role in driving metabolic activities in particular in the breakdown of complex dietary compounds essential to health. Evidence indicates that disturbances in human microbiota composition may lead to susceptibility to chronic diseases such as obesity. Interventional dietary strategies on microbiome must be taken account to design an effective plan of prevention or therapy of obesity.

**Objectives:** The aim of this review is to summarize the newest available data regarding the influence of different dietary interventions on gut microbiota in relation to obesity in humans.

**Methods:** Seven randomized clinical trials, conducted on humans between 2015 and 2019 have been retried. The patients were randomly selected to participate in the studies. The study population included 568 persons, men and women, with a varying weight status: normal weight, overweight or obese. The age of participants had a range between 18 years old and 70 years old. The duration of the studies was between four weeks and six months. The dietary interventions include a Gastrointestinal Microbiome Modulator (GIMM) containing inulin,  $\beta$ -glucan, blueberry anthocyanins and blueberry polyphenols(1), Low or High Dairy intake(2), Phenol-Enriched Olive Oils(3), Whole grain-rich diet (4), Varying Macronutrient intake(5), Akkermansia muciniphila supplement(6) respectively High Quality Extra Virgin Olive Oil(7).

**Results:** The results of this review show that different dietary interventions induce changing in microbiota composition which is accompanied by different degrees of weight loss.



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## Massage Therapy in Joint Pain from Avicenna's Viewpoint

**Dr Parva Namiranian<sup>1</sup>**

*<sup>1</sup>Tehran university of Medical sciences, Department of Traditional Medicine, School of Persian Medicine, Iran*

**Introduction:** Complementary and integrative medicine plays an important role in pain management. Many people prefer to use non-pharmacological methods for their joint pain. Massage is one of these methods which has some evidence to be effective on joint pain. Avicenna, a Persian scholar (980-1037 AD) who is one of the founders of Persian Medicine (PM), has mentioned some notes about using massage therapy in joint pain in his great book Canon of Medicine. PM is an ancient holistic school of medicine with especial parts of health maintenance, disease prevention, treatment and rehabilitation.

**Methods:** Avicenna's Canon of Medicine was searched for indications and effects of massage therapy on joint pain. Dalk and Ghamz, which are the words used by PM scholars for massage, were searched. Vaja'-al-Mafsal and Oja'-al-Mafasil, which are the terms used for pain in the **joints** were added to search items.

**Results:** According to Avicenna, there are different types of massage based on the intensity of the pressure used, the duration of massage, the goal of using massage, and the utilities used in treatment. In case of joint pain, there are different treatment modalities and steps according to the underlying reason which has caused the pain. In one case, Avicenna recommends applying mild massage as an analgesic to decrease joint pain. In another part of his Canon of Medicine, he considers using massage on the painful joint with utilization of salt powdered in (olive) oil.

**Conclusion:** Massage as a useful method of therapy is recommended by Avicenna in some conditions of joint pain. Studying these treatments with the use of today's knowledge while keeping a holistic viewpoint, may lead to effective integrative medicine methods for the large group of people suffering from arthralgia.

**Keywords:** Iranian Traditional Medicine, Arthralgia, Musculoskeletal Diseases, Musculoskeletal Manipulations, Rehabilitation.